A Forward From the Authors

Each and every plant has unique hazards. A simple refrigeration plant can release a toxic cloud of refrigerant into a building; a recovery boiler can cause serious burns; and a simple firetube boiler, no bigger than a Honda Civic, can completely obliterate a building. These are just a few of the hazards power engineers face on a daily basis.

We wrote this book for you, the first-year BCIT power engineer, to highlight some of the dangers that are ever-present in the power engineering industry. Through research, freedom of information requests and interviews with notable power engineers, we compiled a set of accident cases that impacted, or had the potential to impact, someone's life. Some of these accidents were caused by inexperienced operators while others through the failure of established systems meant to keep power engineers safe.

We filed freedom of information requests with the British Columbia Safety Authority and searched through tribunal and court databases.

Each case study presented in this book has a set of discussion questions. The answers to these questions are not within the case study but can be found in meaningful discussions with your peers and with other power engineers. They are written to get you thinking.

We hope that you find the information within these pages useful and we value feedback to help us improve the second edition.
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Equipment Failures
Ammonia Refrigerant Leak

This event took place on July 17, 2010 at Sunrise Poultry in Surrey, British Columbia. It is an example of how the failure of a simple pipe fitting could have affected the lives of two operating engineers if they didn’t evacuate as promptly as they did.

Ammonia is highly corrosive to the skin, eyes and lungs in both liquid and vapour states. Also, ammonia is flammable and has an affinity for water.

The following information is from a BCSA preliminary accident report (file number 4552474) obtained through the freedom of information act.

The Story

The release of ammonia took place in an ammonia evaporator chiller room, occupied by two operating engineers who were performing routine maintenance on the refrigeration system. As they were working, they heard a small pipe bushing (3/8” to 1/4”) “just let go” and the sound of ammonia rushing of the system. The bushing, made from forged steel, was located on a strainer drain valve and just split apart. They were not working on the fitting at the time.

Both operators were wearing, or had available, their full PPE and exited the building using two separate exits to avoid the ammonia refrigerant and were not exposed. They then informed the plant manager who then ordered a complete evacuation of the facility and called 9-11.

Firefighters and a hazardous material handling company both arrived on scene. Firefighters, dressed in full haz-mat gear, entered the chiller room and isolated the leak. Fans were later used to vent the building.

The bushing was repaired by a licensed contractor and the refrigeration plant was returned to service the following day. Due to the quick reactions of the two operators, there were no injuries and the only damage was the failed bushing and the loss of the ammonia refrigerant.
The Cause of the Accident

It was found that the bushing, which was part of an older refrigeration system in the building and was “thin walled” according to the accident report, failed due to external thread corrosion. Therefore, the bushing only had a small amount of material to resist the pressure of the system (less than 1/8 of an inch!).

It was also found that there were similar fittings, or other fittings that needed repair, throughout the refrigeration system. These were replaced at a cost between $10,000 to $12,000.

Recommendations were made to avoid the use of forged-steel fittings in areas susceptible to corrosion.

Notable Points from this Case

The operators in this case were able to escape without injury due to quick thinking and having good hearing. This situation may have turned out different if they didn’t hear the bushing fail.

There also appears to be no alarm system to indicate an ammonia leak (since the operators had to find the plant manager to initiate an evacuation of the building). If they couldn’t find the plant manager, how would they have been able to effectively evacuate the plant and prevent people from being exposed to the ammonia vapour?

- Discussion Questions -

1. What would you do during an ammonia leak?

2. What are some of the dangers with working with ammonia?
Mechanical Resonance Failure

Pipe fittings can fail for a number of reasons, including corrosion, metal stress and abrasion. However, a fitting can also fail due to vibration and, more specifically, vibration at a harmonic frequency created by a number of compounding factors. This event took place on August 02, 2010, at the South Surrey Indoor Pool.

The following information is from a BCSA preliminary accident report (file number 452222) obtained through the freedom of information act.

The Story

It was between 12 and one o’clock in the afternoon when the lifeguards at the Surrey Indoor Pool noticed a fog-like mist forming across the pool deck. The lifeguards, not knowing what was causing the fog, opened doors around the pool deck and building to help dissipate the fog. However, the conditions did not improve.

At 1:30 p.m., the lifeguards ordered an evacuation of the building and the fire department arrived soon after.

The mist was found to be the refrigerant R-410A, a colourless gas with a sweet odour. According to an MSDS sheet published by Honeywell, the gas displaces air and can cause asphyxiation in large concentrations. Low concentrations cause dizziness and poor coordination, which was the case with one lifeguard; the other lifeguards sought medical attention as a precaution.
There were no major injuries and the property damage was considered minor. However, is interesting is how the refrigerant was released and widespread through the facility.

**The Cause of the Accident**

The refrigerant was distributed throughout the building and pool area by the building ventilation system. The leak originated in an air-handling unit which contained a de-humidifier, an evaporator and two compressors. The discharge from both compressors were connected together in a tee fitting and the system carried 179 pounds of refrigerant.

The tee fitting, made of copper, was subjected to strong vibration from the compressors which were not adequately anchored in place. The length of pipe to the fitting also amplified the vibrations which resonated at the natural frequency of the fitting. This allowed a hairline crack to form in the fitting and a portion of the refrigerant leaked off into the air handling unit.

The refrigerant was then carried with the air stream to the pool area.

It was also found that the system encountered irregular load changes during the season which was also a contributing factor.

- **Discussion Questions** -

1. Where else in a steam plant would you encounter mechanical resonance?

2. Can a boiler flame cause an entire boiler to vibrate? (Think about flame turbulence and poor air-to-fuel ratios.)
The BCIT boiler explosion accident was one of the largest accidents in B.C. It also set new industry precedents and new safety directives.

The Story

On April 13, 2004, at about 1:50 pm, during the shutdown of a 150 psi, 2000 lb/h, Cleaver Brooks firetube steam boiler at the BCIT campus in Burnaby, an explosion occurred that destroyed the machinery room, in which the boiler was installed and damaged surrounding buildings. Luckily there were no significant injuries to staff or students. Seven minor injuries were reported.

The boiler was housed in a small (500 square-foot), single story building adjacent to the plumbing building N6. The boiler house was a concrete block building of slab on grade construction.

The roof was supported on steel beams. Two walls of the building (south and west) collapsed outwards and the roof was destroyed as a result of the explosion. Debris was scattered throughout the immediate vicinity of the boiler house. The safety valve was located a considerable distance from the site of the explosion, in an industrial area east of the campus.

The Cause of the Accident

The cause of the boiler failure was a 29-inch crack with a depth of 90% of the metal thickness developed in the toe of the longitudinal seam of the shell. The crack was resulted from “corrosion fatigue.”
The welded area of the shell is subjected to stress, and slight differences between the composition of the steel in the weld and that of the shell made this area susceptible to corrosion.

This boiler was used for industrial instrumentation training purposes, and the intermittent operating conditions resulted in frequent cycling from start-up to full operation and shutdown.

During shutdown air was drawn into the boiler introducing oxygen into the boiler steam space and water. The procedures to remove oxygen from the boiler water by chemical water treatment were limited.

A deaerator was not used to remove air from the feed water. Corrosion due to oxygen attack developed in the welded area and stress fluctuations from the cycling initiated a crack, which grew to a critical length at which point the shell ruptured.

As written in the official BCSA accident report:

“Inadequate records of inspection, limited access for visual inspection of all boiler components and minimal use of other non-destructive examination methods made a comprehensive condition assessment difficult. Visual examination is specified as the basic method for in-service inspection in the NBIC (National Board Inspection Code) guidelines.

However, for this boiler other methods of non-destructive examination were required for those components that could not be visually inspected in order to determine if there was any deterioration and thereby accurately identify the allowable conditions of service as well as determine if the boiler had sufficient service life to operate safely until the next inspection. An evaluation of the service life is required by the NBIC inspection guidelines.”
What changes did the accident bring to the industry?

BCIT boiler accident brought significant changes to the industry. Two safety orders were issued to prevent similar accidents:

Safety Order SO-B6 0406071 was issued on June 7, 2004. It required the inspection of all Cleaver Brooks boilers of the same design to ensure that no other similar boilers had significant defects. It was also forwarded to all other Canadian jurisdictions for their action.

Sixty-three boilers were inspected, and one boiler was found with corrosion on its longitudinal seam. That boiler was removed from service and repaired before being returned to operation.

Safety Order SO-B6 0505192 was issued. It required the inspection of all firetube steam boilers by non-destructive tests to identify defects.

In addition, a series of recommendations were made to improve boiler inspection and accident investigation.
Few More Theories on Why the Boiler Failed

Besides the oxygen corrosion that was mentioned in official report, writers suspect that chlorine in the water, the material of the weld and the heat treatment after the welding in the boiler shell may also have played a big role in the stress corrosion cracking which was probably the direct cause of the crack.

Stress corrosion cracking is a serious and complicated corrosion problem in industry. It is the failure of a material due to cracking produced by a combination of service conditions and the environment.

Certain steels are subjected to chloride stress corrosion cracking when they are exposed to high temperature and pressure.

Also, from the location of the cracking that occurred in the boiler, the residual thermal stress caused by the manufacturing process may have left the seam more susceptible to the stress corrosion cracking; moreover, the difference of the weld material and the base material could only accelerate the corrosion process.

- Discussion Questions -

1. What water treatment measure can be taken to reduce oxygen corrosion?
2. What examination can be used to detect cracking?
3. What is stress corrosion cracking?

Leaving Class Early

The injury and death toll from the BCIT boiler explosion would have been different if it were not for an instructor who dismissed their power engineering class 15 minutes earlier that day. The class was taking place in close proximity to the boiler which exploded.

If the class was not dismissed early, they would have been killed or severely injured from the blast.

Some instructors at BCIT, particularly in the BCIT steam plant, dismiss their students early on Fridays as homage to the day when BCIT boiler exploded.
Operator Error
Too often accidents occur due to the lack of proper training of operating staff. Some stories make instructors, and students, shake their heads in disbelief as lack of common sense is often to blame. This is one such case.

The following information is from a BCSA preliminary accident report (file number 453835) obtained through the freedom of information act.

The events in this case took place in November, 2010, in a boiler room at 545 Powell Street, Vancouver.

The Story

A high-pressure steam boiler was scheduled for routine service and inspection. To prepare for the inspection, the boiler had to be shut down and completely drained the day before. The task was given to an inexperienced service technician under the supervision of another contractor. Both belonged to the same company.

The configuration of the blow-off line did not allow for proper draining of the boiler; it was not located at the bottom of the boiler and there were no low-point drains to facilitate complete draining. It was discovered that three feet of water still remained in the boiler after using the blow-off line for draining.

To expedite the draining process, the service technician, who had less than six weeks of boiler experience, noticed an inspection hand-hole near the bottom of the boiler. Believing this would make the draining faster and easier, the technician decided to open the hand-hole. It was a decision they would later regret.

The technician squatted over the hand-hole and began loosening the securing bolt with a breaker-bar. He managed to open the hand-hole and was sprayed in the groin with hot water due to the remaining head pressure in the boiler.

After being burned, the technician immediately applied cold water to his groin and attended a walk-in clinic for treatment. They returned to work the next day.
The Cause of the Accident

Incorrect procedure followed by an inexperienced person with inadequate training/supervision, incorrect installation of equipment piping contributed to the accident.

When high pressure hot water is released to the atmosphere, part of it flashes into steam. And the latent heat of the steam can cause severe burns.

Possible Boiler Type

The preliminary accident report did not state the type or model of boiler the technician was working on. However, based on the description of events, the boiler may have been a vertical-standing unit with the burner either mounted on the top or on the bottom of the boiler casing (imagine the Cleaver Brooks boiler in the BCIT steam lab rotated ninety degrees). BCIT has a similar boiler on site.

The Foulton Boiler, located in the BCIT pipe fitting shop, is a vertical firetube boiler similar to the one pictured on the right. The burner, including the force-draft fan is located on the top of the boiler. Inspection openings for the fire-side and water-side are located at the bottom, and top, of the shell. The procedures for the BCIT Foulton Boiler state the use of the blow-off lines for draining.

In the case of the technician, the blow-off lines may have been improperly installed or may have been configured in a way where the head pressure in the boiler could not overcome the discharge head of the blow-off pipe.

- Discussion Questions -

1. What would you have done differently in this situation?
2. How would you prepare the BCIT VIEW boiler for inspection?
This event took place in October 2009 in the boiler room of a hospital. A furnace explosion caused about $100,000 worth of damage to a firetube boiler and seriously injured the operator. This is a case of operator error but not by the power engineer operating the boiler at the time. This case highlights how a minor oversight easily becomes a matter of life or death.

The following information, and photos, were obtained through an interview with Martin Vine, a third-class power engineer, who was seriously injured in this case. We have been requested to withhold the name of the hospital due to legal and privacy concerns.

The Story

The accident took place at around 1:00 in the morning when Martin, working alone on shift, set out to test fire the oil burner on one of the hospital’s small firetube boilers. Martin, a graduate of the BCIT Power and Process program and was working in the hospital steam plant for five years, made the first attempt to light the oil burner that night; nothing happened. Martin made a second attempt to light the burner (using the proper procedure) when the boiler’s furnace violently exploded.

“(It) was the loudest noise I ever heard,” he said as he recounts the accident. “If I was two feet to the right, I would have been dead.”

Martin was standing beside the boiler’s control panel, just left to the where the burner view port would be if it hadn’t been propelled through the air by the explosion, having landed an appreciable distance away after leaving a sizeable dent in a heavy duty ventilation duct. However, Martin didn’t have time to be thankful for not being potentially decapitated; Martin was doused in heavy diesel fuel and was on fire.

“(The) flames came up my back and the back of my head,” he said, while holding up what was left of his shirt from that night, a souvenir from that night. The shirt still had a faint scent of diesel, three years later.
“I had to worry about being on fire, never mind being knocked out.”

Martin began running for the showers, nearly 70 feet away (there was no local shower available), while trying to take his shirt off. His hands were badly blistered as a result. Martin managed to make it to the showers, still on fire.

After putting the fire out, Martin made his way to the hospital’s ER to get treated for burns. During this time, Martin was still the shift engineer of the hospital and responsible for the plant. Needless to say, he was able to get the chief engineer to attend to the scene and take over his shift while he received treatment.

Martin’s burns were so extensive that he received treatment at Vancouver General Hospital’s (VGH) burn ward. It was also discovered that he still had diesel fuel in his burns when the first set of medical dressings were removed.

He required a skin graft to his upper right arm (as can be seen in the photos on the right).

Such injuries could have been avoided if it wasn’t for a simple mistake made when the oiler burner was connected to the fuel-oil supply system.

(The story continues on the next page but take the time to read and discuss the questions below.)

- Discussion Questions -

1. Imagine that you saw Martin on fire. What would have been your first course of action?
The Aftermath:

The furnace explosion was calculated to have exerted 120 tons of destructive force in the furnace tube. Below are more photos from the accident scene.

The front of the boiler

The boiler’s combination gas and oil burner. Note the large opening where the view port was before it was sent flying.

The back end of the boiler. Notice how the furnace baffle has been completely destroyed by the furnace explosion

The front of the boiler. Again noticed the damage to the furnace baffle.
The boiler’s combination gas and oil burner view port. Notice how the metal sheered away at the front.

The dent left by the boiler viewport in the ventilation ducts.

The force of the furnace explosion moved pipe hangers, bending their supports.

The force of the explosion nearly detached the pressure gauge on the fuel-oil pump.
The Cause of the Accident

This enhanced photograph below shows the piping arrangement to the oil burner at the time of the accident.

The cause of this accident was a simple crossing of two hoses that were integral to this boiler’s fuel-oil system. The hose marked “supply” was connected to a pipe marked “return” and the hose marked “return” was connected to a pipe marked “supply”. Even though the hoses were clearly marked, someone still made the connections incorrectly. Note that this oil burner uses mechanical atomization of the fuel oil.

This error could have resulted in a far worse explosion and came close to claiming Martin Vine’s life.

There are two solenoid valves, one on the return line and one on the supply line. According to the burner operation manual, both solenoids open once the pilot flame is established. This method of operation leads to one possible theory of what let up to the furnace explosion.
Possible Theory of What Happened

The oil supply line and return line both lead to the oil gun tip. However, the supply line is intended to deliver the incoming oil to a swirl plate which is used to atomize the fuel oil as it enters the furnace. The return line is used to return excess oil back to the oil tank and also regulates the pressure at the oil burner tip (based on schematics of the fuel-oil system).

If the oil were to enter through the return line, it is possible that oil was not properly atomized and could have just left the oil gun as a stream of oil which could not have been ignited properly by the pilot flame. The oil could have just leaked out from the oil gun tip and pooled right below the burner.

This would have created the optimum conditions for a furnace explosion when Martin attempted to ignite the burner on the second attempt; the fumes from the pooling oil, along with an additional volume of oil from the second firing attempt, would have created an excess amount of fuel which the force-draft fan could not have pruged from the boiler.

- Discussion Questions -

1. What would you do after a furnace explosion happened at your workplace?
2. What could have made the burner oil connections “fool proof?”
3. Is there anything that Martin should have done differently? If so, what?
Bypassing a Lockout Procedure

Proper lockout procedures are put into place to protect the health and well-being of employees working on a potentially hazardous piece of equipment. Lockouts ensure pieces of equipment are de-energized and that all hazardous sources of energy are isolated or made safe. The down-side is the amount of time it takes to execute a lockout properly. It is sometimes common that “shortcuts” will be taken and that an alternative long-accepted-in-the-work-place method will be adopted instead.

The following is a case brought before the Ontario Labour Arbitrations Award board where two supervisors, with impeccable service records, wished to inspect a boiler’s burners and linkages by accessing the combustion chamber through the boiler’s air ducts.

(Case citation: Algoma Steel Inc. v. USWA, Local 2724., 2006 CanLII 53945 (ON LA), <http://canlii.ca/t/1s3wz> retrieved on 2012-05-03)

The Story

A boiler located at Algoma Steel in Ontario was taken offline and shutdown as part of an annual maintenance shutdown at the plant. Two operating engineers, both with supervisory roles at the plant decided to use the annual shutdown to inspect the six burners, the combustion chamber and the mechanical linkages.

The proper burner inspection procedure, the only procedure recognized by the company, required that the burners be removed from the boiler, requiring the construction of scaffolding inside the boiler’s furnace. The total time it would take to remove each burner through this procedure would have been 48 hours (eight hours per burner).

However, the burners were not scheduled to be removed during the annual shutdown. The two operating engineers would instead examine the burners by entering the boiler’s combustion chamber through the ducts (which may imply the force-draft air ducts though this is not explicitly stated in the tribunal judgement), a procedure not approved by the company but was a long-established practice within the utilities department that allowed the burners to be inspected in about 30 minutes.
The two engineers performed an unofficial lockout before entering; they placed their personal locks on a lockout board to confirm the boiler lockout was complete, they ensured a proper confined-space-entry permit was in place, they ensured duct and passage ways were gas tested, they brought a long a qualified spotter (hole watch), applied a “friction brake” to a part of the ducts louvre assembly, and put a local (at the site) controller in manual to ensure the louvres could not be operated remotely.

The two engineers then began crawling through the ducts to the boiler burners, which included crawling over the control louvres partially locked in the open position by the “friction brake”. It was after the burner inspection, as the two engineers were making their way out, that the accident happened.

The engineer who was leading the way out, applied his own weight upon the louvres, setting the louvres in motion and trapping himself in between them. He suffered injuries to his upper body and had to be hospitalized. He spent one month recovering.

The louvres were not locked out; neither was the pneumatic air which powered them.

Upon learning of the accident, management decided to severely reprimand both engineers and to set an example for the department. The company gave each of them 75 demerit points (where an accumulated total of 100 demerit points would warrant immediate dismissal from the company).

The two engineers filed grievances that the punishment they received was unjust and the case escalated to the point where it was brought to independent tribunal.
Further Findings and Judgement

The tribunal heard testimony from both the employers and the company regarding the practice of entering the boiler through the air ducts. The procedure had been accepted practice within the utilities department for at least 18 years.

Other employees of the department also testified that they used the same procedure to inspect the burners. A former supervisor at the company, retired but trained one of the operating engineers in the procedure, testified that the method was:

“... safe, that this method of inspection and maintenance saved the Employer hours of shutdown time, that its use was notorious throughout the Utilities Department, and that he, personally, had instructed *Name Removed* in the practice when he was the Utilities General Foreman, a supervisory position that no longer exists in the department.”

This highlights another detail in the case: the practice, though not official, was part of the workplace culture and the employer should have corrected it before an accident took place.

As written by the arbitrator overseeing the case:

“It tells me, given the notoriety of the entry, that there had been an institutional failure to address, contain, modify, prohibit and/or rationalize the practice; that shortcoming, of course, has been addressed in the wake of these events.

“But it also highlights the need for supervisors, like the Grievors (sic), to be particularly attuned and awake when performing tasks that have not received the attention and articulation of the Employer’s rationalizing scheme. They have a duty not only to be aware of which tasks those are and to conduct themselves accordingly, but to initiate improved methods. It is not enough to accept that improvements come in the wake of events like this when, as here, injuries or worse are a likelihood.”

After weighing both the employer’s testimony and that of the union representing the two operating engineers, both operating engineers were given 35 demerit points instead of the original 75.
Taking shortcuts

The choice to enter the boiler through the air ducts was made to save downtime of the boiler. Being able to get a job done fast is sometimes good enough temptation to throw caution to the wind and take shortcuts. As seen in this case, even employees with exemplary service may commit grave errors in judgement.

Part of the problem was that the practice of entering the boiler through the air ducts became institutionalized (meaning that it became part of day to day operations). This can also be seen with minor infractions such as not wearing the proper personal protective equipment because no one else is wearing it or by not wearing a long-sleeve shirt because the person “will be extra careful.”

If a procedure is inefficient in practice, the best option is to formulate a new procedure.

The entry through the air ducts to access boiler burners could have been made an official procedure if the proper precautions were taken and improvements made to the lockout system. If the louvres were properly locked out, this accident may not have happened.

Power engineers, in supervisory roles, should be proactive in finding new and safe ways to perform tasks in a power plant rather than becoming complacent with existing, and possibly unsafe, procedures.

- Discussion Questions -

1. How would you have made the air-duct entry procedure safer?

2. Do you agree with the arbitrator’s ruling on the demerit points? Why or why not?
Other Hazards in Steam Plants
The black-liquor recovery process is one of the most complex and dangerous plant processes requiring power engineers. It is also a very common process in British Columbia and power engineers may find themselves, at one point in their careers, working at a pulp and paper mill.

The most dangerous area on a recovery boiler is the smelt-spout deck, just above the green-liquor tank.

The Spout Person

The spout person is charged with keeping the spouts clean and clear. Sometimes the smelt cools in the spout and the flow becomes obstructed. The tools used to clear the spouts are heavy metal rods which the spout person uses to chip away at any build up. The spout person tends to the spouts usually every hour.

Heavy clogs may result in a “black-out” where a spout is completely plugged. This causes the flow of the smelt inside the recovery boiler to become unstable. It may take hours of constant chipping and prodding to clear a blacked-out spout (and will be a good upper-body workout as well).

The smelt flowing out of these spouts may be up 1600 degrees. During boiler upset conditions, the spout deck becomes extremely dangerous as smelt flows become turbulent and unpredictable. The spouts may “bark” and throw the smelt on to the spout deck and on anyone unlucky to be in the way.
Was it an Earthquake?

Heavy runs of smelt from a recovery boiler may cause violent reactions in the green-liquor tank at the bottom of the boiler. These reactions sound like thunder and will sometimes shake the spout deck or even the whole boiler house!

It is the duty of the boiler operator to monitor the boiler conditions and alert the spout person to get clear of the spout deck. It is therefore imperative to have good and clear communication between control room and field operators.

If you are caught on the spout deck during a heavy smelt run, remain calm and carefully make your way off the spout deck while staying as far back from the spouts as possible.

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**Salt cake and smelt formations**

Sometimes a piece of salt cake will fall into the spout. If the salt cake is moist, it will create a smelt-water reaction and throw smelt towards the spout deck. I personally experienced this; my coveralls looked like swiss cheese from multiple smelt droplets landing on me.

Another hazard is the formation of cold smelt in the dog house. Sometimes the size of a refrigerator, these formations drop into the green liquor tank and, due to a large mass of smelt instantly reacting with the green liquor, a shower of green liquor may come up through the dog house and on to the spout person. Usually a week green liquor wash, constantly running on the back wall of the dog house, will prevent these formations but the spout person may be trained in other methods (which have their own hazards) in cleaning these deposits.

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- Discussion Questions -

1. What makes smelt so violently reactive?

2. A spray of weak green liquor from the green liquor tank just got you. What do you do?
How to Find Information
This book was created through the use of freedom of information (FOI) requests, court database searches and through interviews with power engineers. This section will briefly cover submitting FOI requests and using online court databases.

**Submitting an FOI Request:**

The *Freedom of Information and Protection of Privacy Act* allows people to request documents and information that is of public interest. This includes unsealed court documents, financial documents of public institutions and even expense records of politicians. A lot of information can be accessed with FOI requests but the filer must be specific in what information they want. In most cases, a letter sent to a government department clearly stating “... under the Freedom of Information and Protection of Privacy Act, please provide documents pertaining to ...” is considered a formal FOI request. However, some government departments have application forms that must be filled out.

The British Columbia Safety Authority (BCSA) has an online PDF form that must be downloaded, filled out, and either faxed or mailed back to the BCSA. The request, under the *Act*, can take up to 30 days to process. There are monetary charges as well.

The cost for the research and assembly of the requested documents can be charged at $30 per hour (as stated on the BCSA FOI form). The first three hours of research are at no charge. It is therefore imperative that a request be specific in content to avoid being charged for useless information.

For example, submitting a request for “boiler accidents” can be interpreted as a request for every single boiler accident the BCSA has on file for the province which may cost thousands of dollars to the requester. For this book, we submitted the following request:

“Please provide copies (printed or digital files on CD) of all Incident Reports (Preliminary) specified as “Boiler and Pressure Vessels” (technology), dated between 2010/01/01 and 2011/09/23, for the cities of: Surrey, New Westminster, Vancouver, Langley, Abbotsford, The Corporation of Delta, Richmond, Burnaby and Victoria.”

This request resulted in 18 pressure-vessel related accidents at no cost to us and kept our research within a defined scope.
Another way of keeping FOI costs low is to submit a large request as multiple FOI requests. However, this may increase the processing time.

Processing time can vary. An FOI may be completed relatively quickly if the request is specific to one document or it could take months if there are administrative upsets. When filing an FOI, it is best to be specific and patient.

The BCSA FOI form can be obtained at:

http://safetyauthority.ca/contact/request-information

**Court and Tribunal Databases**

Plant accidents, where employees are either fired or punished by their employers, may end up in arbitration or brought before the courts. This book used one case found using the Canadian Legal Information Institute web site (CanLii.org). This online database allows users to search court decisions at no charge.

While some cases are heard in court, most are heard in front of arbitrators in labour tribunals. Each province has a different name for these tribunals. A tribunal may follow different procedures than courts (formal or informal) and the arbitrator is usually an expert in a specific industry or in labour relations law. Tribunals are used to alleviate court wait times and to render decisions in a swift amount of time.

It should be noted that tribunal cases and court cases can be appealed and that a researcher must exercise due diligence and ensure that the case they are researching, or about to report upon, was not appealed at a higher court (where an earlier decision may have been over turned).

It should be noted that cases can linger in the courts for years and that reports are not recorded in a legal database until a court reaches a final decision. An example of this is 2009 Ottawa boiler explosion where a power engineer did lose their life.