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**Handling A Chemical Spill – A Practical Experience**

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**Abstract**

Flint Ink is the 2<sup>nd</sup> largest printing ink manufacturing company worldwide with locations in North America, Latin America, Europe and Asia. Due to the vastness of our marketplace all modes of transportation are utilized in the distribution of printing ink. In this case, a local delivery (Canada) was being made when the delivery van overturned. This paper focuses on the series of events that followed and identifies key focus areas that should be considered in an emergency plan.

**Introduction**

Flint Ink Corporation was founded in 1920 in Detroit, MI, by H. Howard Flint. The corporation is privately held, with sales of US \$ 1.4 billion.

Flint Ink is the largest American-owned manufacturer of printing inks, inkjet inks and toners for newspapers, directory, magazine, packaging, commercial and digital printing applications and the second largest ink producer in the world. The Corporation's CDR Pigments & Dispersions unit is a leading manufacturer of colorants.

Flint Ink Corporation provides products and services to customers on six continents through four regional ink operating groups: Flint Ink North America, Flint Ink Latin America, Flint Ink Europe and Flint Ink Asia/Pacific. In addition, Flint Ink operates a separate Digital Group that is dedicated to the research and development of new inkjet inks and electrophotographic toners, supplying products to both OEM's (original equipment manufactures) and end users.

Flint Ink operates more than 100 facilities in the United States, Canada, Mexico, Europe, South America, Africa and Asia/Pacific, and employs more than 3700 people. Nearly half of all employees are directly involved in the manufactures of ink in batches ranging from 2 kgs. to 27,000 kgs.

In shipping printing ink around the world, various mode of transportation are utilized. The chemical-ink spill that will be discussed on occurred on September 20, 2000 in Concord, Ontario, Canada. A Freightliner FL80 straight-sided 5000 tonne truck was loaded with 3,500 kgs. of printing ink to be delivered to a customer.

**Ministry of the Environment (MOE)**

Protection of the natural environment ranks among the most important issues confronting the modern world: for our industrial society, it ranks as a major challenge.

Early in July 1985, the Ontario Government addressed one aspect of this challenge when the Minister of the Environment, Jim Bradley, announced the proclamation of Part IX of the Environmental Protection Act that was known as the “Spills Bill”. He also announced the development of a provincial spills centre.

On November 29, 1985, Part IX came into force and on that same day the ministry’s Spills Action Centre (SAC) began phasing in operations.

Part IX of the Environmental Protection Act deals with spills of pollutants discharged:

- Into the natural environment
- From or out of a structure, vehicle or other container, and
- That are abnormal in quantity or quality in light of all the circumstances of the discharge.

Part IX does the following:

- Establishes prompt and broad notification requirements.
- Establishes a duty on the person having charge, management or control of the spilled pollutant, as well as on the owner, to clean up the spill.
- Provides for liability – for loss and damage as well as costs and expenses – of the owner and person in control of the spilled material.
- Maintains the duties and liabilities of persons who cause or are otherwise responsible for spills under the common law or other statutes.
- Provides for the right of municipalities to respond to spills and for their compensation for cost and expenses from the owner and the person having control of the pollutant.
- Under certain conditions, provides for the authority of the Minister of the Environment to direct his employees or agents to respond to spills.
- Provides for the authority of the minister to issue orders to those liable at law and others who may be able to assist.
- Establishes a right-of-entry for those with a duty, those under order or direction, and municipalities, for the purpose of carrying out their respective duty, order or role as applicable.
- Establishes the right to compensation and a compensation mechanism with respect to directions and orders.
- Provides for regulations such as Ont. Reg 618/85.

### **The chemical spill accident**

On Wednesday, September 20<sup>th</sup>, 2000 at approximately 2:00 p.m., a straight-sided 5000 tonne truck loaded with 3,478 kgs of printing ink, in a super-tote, left Flint Ink’s location for delivery.

The carrier was late in leaving the facility and subsequently was speeding. When approaching the ramp that leads from Highway 7 to Highway 400 South, he was traveling too fast and so could not safely execute the corner. The super tote shifted when the truck was going around the corner, and the truck overturned. The truck came to a stop resting on the driver’s side, perpendicular to the direction of travel.

A passerby called the accident in to the Ontario Provincial Police (OPP). The OPP and Fire truck arrived on the scene approximately 10-12 minutes later. The OPP Officer in charge, immediately dispatched a spill response team frequently used by OPP and a tow truck to the scene of the spill.

The Fire Chief called Flint Ink and informing us of the accident and also enquired as to the type of product was on the truck. In the capacity of H&S Manager, I a) dispatched Flint's environmental spill response team to the accident site with shovels, drums and absorbent; b) called the cartage company and informed them of the accident; c) obtained MSDS, and all other shipping documents for the product; and d) left for the scene of the accident along with the Shipping Supervisor and my Assistant.

When we arrived at the accident scene, we noticed a) that the truck was still in the original position after the accident, b) we were now dealing with a liquid hazardous industrial waste spill as a very viscous ink spill of approximately 10 ft. in diameter, and 6 inches thick had formed and was getting bigger c) there was a big gash in the roof of the truck from which the ink was slowly flowing onto the asphalt and was close to, but not on the soil d) the driver was taken to the hospital e) the super tote seal was broken, and approximately 4 drums of product had spilled from the tote into the back of the truck f) there was no apparent evidence that the tote was secured with any straps g) a 3 tonne walkie that is used to move the tote was still secured to the driver sidewall and appeared to be undamaged h) there was an extra set of unused straps connected to the sidewall of the truck.

I was then approached by the OPP Officer in charge of the accident investigation and the Fire Captain, to whom I gave the MSDS. I informed the Officer that Flint's spill response team was on route to the accident scene with the proper cleanup equipment and would be arriving in a matter of minutes. The OPP Officer subsequently told me that they already had a spill team on site who was capable of cleaning up the spill. As a result, I called off Flint's spill response team. The OPP Officer indicated that when an accident occurs, it is their responsibility to speedily bring things back to order, thus the use of their cleanup team. His mandate was to have the highway which was now closed off, reopened within an hour.

The Officer's argument was based on Part IX of the Environmental Protection Act, which states that the primary responsibility for the welfare and safety of residents rests with the municipality, which is encouraged to have or to prepare emergency plans to deal with threats to life, limb and property. Areas of the province which do not have a municipal organization rely on the Ministry of the Solicitor General, primarily the Ontario Provincial Police, (OPP) for a response to emergencies. In an emergency involving a spill or in an emergency where a major spill may occur, MOE resources and personnel are placed at the disposal of the agencies in charge at the scene.

The Fleet Manager of the cartage company arrived on the scene. He informed me that he had dispatched his company's environmental spill response team. I informed him of the OPP's instruction, but he was unable to contact his crew that was already dispatched.

In the mean time the tow truck righted the truck. By this time the viscous pool of ink had formed on the asphalt. Close to, but not endangering the soil.

The fact that we were now dealing with a hazardous liquid industrial waste, I enquired of the OPP Officer the manner in which the cleanup would be done and advised that we were very experienced with the product and the proper cleanup procedures. At this point, the Officer was not interested in taking any recommendations from either myself or at this time the spill response team that arrived on the scene.

The OPP's spill response team proceeded to dump a very fine and dusty dirt material onto the ink

spill. This caused an unsafe whiteout conditions on the highway for the traffic. The cleanup crew then proceeded to sweep up the viscose liquid with a street sweeper. In so doing the ink spill spread in all directions and now even into the soil. Seven hours later the ramp was subsequently reopened, but the ramp, the roadway (for about 50 yards) and the soil was now coloured bright blue from the spill and there were varying amounts of ink globs along the roadway. The street sweeper was now also severely covered with bright blue ink.

### **Reporting the Spill**

Part IX of the Environmental Protection Act states that spills must be reported immediately to the ministry and to the municipality by the person who had control of the material when it spilled or the person who caused the spill. Where the owner and the person in control of the spilled material are not already aware of the spill, the incident must be reported to them as well. Such spills are only reportable when they cause or are likely to cause any of the following adverse effects:

- Impairment to the quality of the natural environment – air, water or land – for any use that can be made of it;
- Injury or damage to property and animal life;
- Harm or material discomfort;
- Adverse health effects;
- Impairment to safety;
- Property, plant or animal life to become unfit for use;
- Loss of enjoyment or normal use of property, or
- Interference with the normal conduct of business.

In keeping with the Act, the spill was reported to the Min of the Environment (MOE).

### **How the legal issues were handled**

The ministry will give the discharger adequate opportunity to respond to and deal with the spill and will assist in making decisions regarding spill-related actions.

The ministry's primary role in spill incidents is that of a regulatory agency enforcing the duties and provisions imposed by the legislation. When notified of a spill, the ministry will assist in warning "downstream" users or potentially affected parties where applicable.

When the MOE's agent came to investigate spill, his role was:

- To determine the nature and extent of environmental damage caused by the spill;
- To evaluate the adequacy of the clean-up and restoration efforts and recommend appropriate procedures where applicable;
- To help enforce the legislated responsibilities imposed on the Flint and the cartage company;
- To recommend spill prevention measures, and
- To document all findings, actions and recommendations.

The MOE representative spoke with myself the following morning. I informed him that a complete report of the spill would be sent to his attention within the 30 day time period. He informed me that the clean-up was not done to the MOE's satisfaction. He was not satisfied with the manner in which the OPP Officer had implemented and dealt with the clean-up process. As the Act requires, the Officer should have dispatched the MOE's spill response team. The MOE's agent report would state that fact.

In an effort to comply with the MOE's request, contact was made with Flint's spill response company for ideas on cleaning the remainder of the spill. Further more it had rained causing some leaching into the soil.

### **Safety managers role**

Flint was the owner of the spill, but the cartage company was the one who caused the spill. As a result my responsibility as the Environmental Health & Safety Manager was to a) ensure spill is reported to the MOE; b) ensure that the ink spill would be properly cleaned up; c) ensure that waste ink would be disposed off according to the Hazardous Waste Industrial Regulations; d) to ensure that clean-up was satisfactory to the MOE; e) give advise where necessary; e) ensure that Flint is reimbursed for loss of product and damage to tote; f) ensure that Flint's management is informed of the spill and the outcome; g) liaison with the cartage company and their emergency response and the OPP's team to ensure that all legal obligations are met.

### **Consequences for those involved**

The consequences for the various parties involved in this spill are as followed:

Truck driver:

- a) suffered six broken ribs and is currently at home recovering. WSIB is currently working with his employer to bring him back to work in a modified capacity until he can return to full duties.
- b) He was not convicted by the officer in charge of the investigation. The officer felt he had suffered enough personal injury. In addition his accident had not resulted in any major disruption to the public.

Flint Ink:

- a) Loss of product;
- b) Damage to equipment;
- c) Bad publicity

Cartage Company:

- a) Exorbitant increase in insurance cost. Insurance covered the cost of repair to the truck, replacing the tote, the ink and the spill response clean-up and disposal cost.
- b) Time and effort in the rehiring and training of a new employee.

### **Lessons learned**

1. Eliminate the use of straight-sided trucks in the delivery of super-totes. Super-totes are only to be delivered in trailers. The totes must be placed directly in the center of the trailer and wedged in place with a "built-to-fit stopper.
2. Equip all vehicles with spill kits.
3. Take charge of spill clean-up. Find out who is the provincial officer in charge, what they know about the material spilled, and exactly how they intend to have the spill cleaned-up. Insist on having qualified spill response deal with clean-up. The OPP is not concerned about the financial outcome.
4. Parties involved such as the driver, the company etc., needs to be educated regarding weight restrictions and/or limits and weight distribution.
5. Spills affect the bottom line based on how it is handled it can be a large sum or small sum.

6. Never stop your emergency spill response team from going to the scene of the spill. It is much better to have their influence and expertise available.
7. If at all possible always send a company representative to the scene of the accident.

### **Recommendations**

As a result of the accidents, I would like to make the following recommendations:

1. Emergency Spill Response Team on company books - It is of utmost importance to engage the services of a fully trained emergency spill response company. In responding to a spill they: a) take charge at the spill site; b) they notify the appropriate authorities; c) obtain the proper generator number for waste disposal if warranted; d) they clean-up and dispose of the waste; e) they are prepared to go where ever the spill occurs whether near or far.
2. Spill contingency action plan – Develop a plan not just for in-house but to deal with emergencies on the road.
3. Ensure that the emergency spill response company is familiar with product line(s) that are being handled by the your company and that they are prepared to deal with the worst case scenario.
4. The municipality should develop a contingency spill response plan. This should include the OPP, Fire, and other agencies such as the MOE working together for the betterment of their customer (the general public)
5. The implementation of a proper infrastructure that allows for the OPP, Fire, MOE, etc, to work in unison. Autonomy is very costly to a company(s) that have ownership or caused the spill; if things are not done properly. There needs to be a better understanding and or training of the authorities as to when and how to mobilize the various supporting agencies.
6. Work closely with transport company in understanding the importance of having loads evenly distributed and properly secured on the trucks.
7. The Environmental Protection Act – Part 10; Section93(1) holds the owner of the spill responsible for cleanup. This therefore means that these parties should be given the opportunity to clean the spill. In the event that the owner of the spill does not have a spill responder, then the Municipality /OPP can take ownership to get the spill cleaned.
8. Companies to implement “Safe Drive Program” for employees frequently on the road.
9. Shipper be trained to double check trucker, trailers, etc. for proper loading before signing off on paper work.

### **Conclusions**

The Act states that the primary responsibility for dealing with a spill rests with the discharger or the person who caused the spill. The situation that was experienced by Flint does not ring true to the Act. The spill was dealt with by an OPP Officer who did not have the expertise to make the correct decisions, neither was he willing to take the advise of those whom were knowledgeable. As

a result, a spill that could have been cleaned up in 1 or 2 hours, with minimal cost, resulted in a 7 hour clean-up with an astronomical cost to the person who was responsible for the spill.

As a company that is environmental conscious, Flint and or the carrier did or tried to do what was expected by the Act, but was impeded from doing so. If the government insist on holding the discharger responsible for the spills – and they should - then an infrastructure must be put in place to ensure that companies are not impeded from carrying out their responsibilities.

With proper precautions, many spills can be prevented. But despite stringent policies and procedures, careful handling, and the best efforts of all involved, spills happen. Equipment failure, accidents on highways, human error, third-party involvement – any number of factors may combine to create a spill incident. Being prepared is the best defence, both on the side of the discharger and the authorities. Training is the key to making this happen.

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### **Biography**

Marketing Degree  
Diploma in Health & Safety  
Certificate course in Environmental Studies  
Certificate course in Transportation of Dangerous Good, IATA,  
Certificate course in Health & Safety  
Currently responsible for Health & Safety, Environmental, Human Resources, and Training for Flint Ink