RESPONSE TO THE *RIO ORINOCO* INCIDENT: A SMALL-SCALE INCIDENT THAT LASTED A WHOLE YEAR

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ABSTRACT: *When the tanker* Rio Orinoco *ran aground on October 16, 1990, in the Gulf of St Lawrence near Anticosti Island, approximately 200 metric tons, or 200,000 liters, of fuel oil were spilled. Most of the pollution drifted onto the shores of Anticosti Island, which is considered a hunting and fishing paradise. The island is a controlled provincial reserve that is home to more than 100,000 deer and many species of sea birds. It provides ideal grazing for deer and feeding grounds for sea birds.*

Within hours of the grounding, the Canadian Coast Guard set its emergency system in motion and dispatched a team of experts to the site. Since Anticosti Island is located in the middle of the Gulf of St Lawrence, the only way to reach the area quickly was to charter a plane. The first to arrive established a command post in the municipal offices of the small community of Port Meunier. During the first few days, experts hired by the insurance company devised a salvage plan. Unfortunately, it could not be carried out owing to bad weather, and all five attempts made in the weeks that followed were also futile. All this time, cleanup operations on the shoreline continued, with about a hundred men deployed over more than 60 kilometers. Getting to the shore proved to be a challenge since roads are nonexistent on most of the island. The Canadian Coast Guard turned to an air cushion vehicle to solve a tricky problem in an isolated area.

Here in Canada, the elements are a constant challenge when trying to recover oil and clean up a shoreline. On December 21, 1990, Mother Nature got the upper hand, and there was no choice but to abandon, for the winter, the idea of removing the wreck of the Rio Orinoco. *All winter long, it continued to pose a serious pollution threat.*

In June 1991, restoration and cleanup work on the shoreline resumed and this was completed in late July. The wreck of the Rio Orinoco *was removed on August 6, 1991.*

On October 4, 1990, the *Rio Orinoco*, a tanker with a gross tonnage of 6,000 tons, left Amway Bay in Venezuela loaded with 9,000 metric tons of liquid asphalt destined for Montreal, Quebec.

On October 15, 1990, the *Rio Orinoco*, in transit through the Gulf of St Lawrence, began experiencing mechanical problems. In the hours that followed, the crew tried to make repairs, but without much success. The ship's captain, therefore, decided to leave the usual channels and head for an anchorage located near Port Meunier on Anticosti Island (Figure 1). During the night, a strong wind came up, and the ship began dragging its anchors. At 4:30 a.m. local time on October 16, 1990, the ship notified the Canadian Coast Guard radio station that it had run aground and that oil was leaking from the bottom of the ship.

Since the Coast Guard is responsible for protecting the environment, it ordered the shipowner and captain to take necessary corrective action. The Coast Guard then mobilized a team to establish a command post at the site. When the Coast Guard personnel arrived, they found a long slick of oil leaking near the rear of the ship on the starboard side, heading toward the shores of Anticosti Island. A survey revealed that some 30 kilometers of shoreline (Figure 2) had been polluted by oil leaking from the fuel tanks.

Mobilizing resources

During the day of October 16, 1990, the Coast Guard mobilized resources from the private sector and pollution countermeasure equipment to begin cleanup operations. Anticosti Island's remoteness and the isolation of the spill site made cleanup operations very difficult. The shoreline is virtually inaccessible by land; sea and air were the only possible options. Small, high-speed craft proved ineffective to deploy the teams of workers for long distances; too few people could be transported at any one time. In addition, because of shallow water near the shore, it was extremely difficult for these craft to approach the beaches. Helicopters were used for a while. However, it quickly became obvious that this transport of a hundred people in groups of four would be inefficient and too costly. The Coast Guard then turned to its air cushion vehicle. In less than an hour, taking 40 people each trip, it carried all the work teams to the site.

Cleanup operations on the shore continued until the morning of November 21, 1990, when it was clear that winter had returned. The Coast Guard, in conjunction with the insurers, the Department of the Environment, the municipality of Port Meunier, and the manager of the provincial reserve, decided to postpone cleanup operations until early the following summer.

In June 1991, inspection of the shores indicated that four to five weeks would be required to complete the cleanup work and dispose of oil-soaked debris.

The Quebec Department of Environment joined in the decision to burn the oil-soaked debris. Helped by insurers responsible for cleaning up the beaches, the Coast Guard used its mobile incinerator. Operating this equipment in controlled surroundings, greatly reduced the volume of debris that had to be disposed of. On average, 80 percent of the oil-polluted debris was eliminated (Figure 3). The Coast Guard feels that this method significantly reduced the costs associated with debris disposal. They are convinced that this method should be the solution of choice and that environmental experts should consider as an option.

Ship salvage

On October 17, 1990, the shipowner appointed salvors to remove the ship from its precarious position. The engine room and several tanks were holed and taking on water. While attempts were being made to refloat the ship, a storm swept through the Gulf of St Lawrence (Figure 4) on October 19 and 20, 1990. All personnel were evacuated, and the *Rio Orinoco* was dragged on the bottom a distance of some 200

Figure 1. Map showing location of Anticosti Island, where the *Rio Orinoco* was grounded

meters, wiping out all the progress that had been made. The ship's bottom sustained further damage, causing more oil—estimated at 100 tons, or 200,000 liters—to leak from it, polluting even more of the beach. Fortunately, the cargo holds loaded with asphalt remained intact, protected by the ship's double hull.

In the weeks that followed, five unsuccessful attempts were made to refloat the ship. On November 18, 1990, the insurers declared the ship a total loss and, on November 21, the *Rio Orinoco*'s owners abandoned it. At that point, the Canadian Coast Guard, as part of its mandate to protect the environment against pollution hazards, took over reflotation efforts where the shipowner had left off. The decision was based on a risk analysis that suggested that during the winter ice damage to the hull might cause a release of asphalt into the water. The International Oil Pollution Compensation Fund concurred in this decision. Unfortunately, Mother Nature won out once again. On December 21, 1990, all attempts to refloat the vessel were abandoned. To preserve what had been accomplished in the engine room—main holes sealed, boilers made operational again—officials decided to award a contract for monitoring the ship over the winter.

During the long winter season, Coast Guard management decided to issue a call for salvage proposals from contractors. A technical committee studied each proposal and accepted a submission that involved heating the cargo. Around mid June 1991, Groupe Desgagnés Inc. of Quebec City, a shipping company, arrived on the site and set about the delicate task. Heating units (Figure 5) were assembled on site and placed inside the tanker through openings made on the main deck. The re-liquefied asphalt was then pumped aboard an auxiliary vessel designed specifically for this purpose.

After enough asphalt had been unloaded, i.e., nearly 2,000 tons, and the ship had been emptied of its ballast, the *Rio Orinoco* was hauled by two tugboats, dislodging it and enabling it to float freely. The ship was towed to a safe port authorized by the Coast Guard.

Even though some people remained doubtful about the success of the operation, the Coast Guard is convinced that it made the right decisions and that, as a Government of Canada body, did its job to protect the environment.

Deploying resources in isolated areas

No one can predict where shipping accidents will happen. When they occur, one must adapt to local environmental conditions and be innovative. Conducting operations in isolated areas poses formidable challenges to any organization. It was no easy task for the small municipality of Port Meunier to receive a hundred pollution fighters. Within two days, the town's population almost doubled. The army could have been called to erect temporary camps, but the Coast Guard opted instead to work with local officials to solve the accommodation problems. This arrangement was most successful; the problems were solved and close ties with authorities on Anticosti Island were forged. They made the Coast Guard's work easier by providing space for a command post. The municipality was regularly kept informed of how operations were progressing.

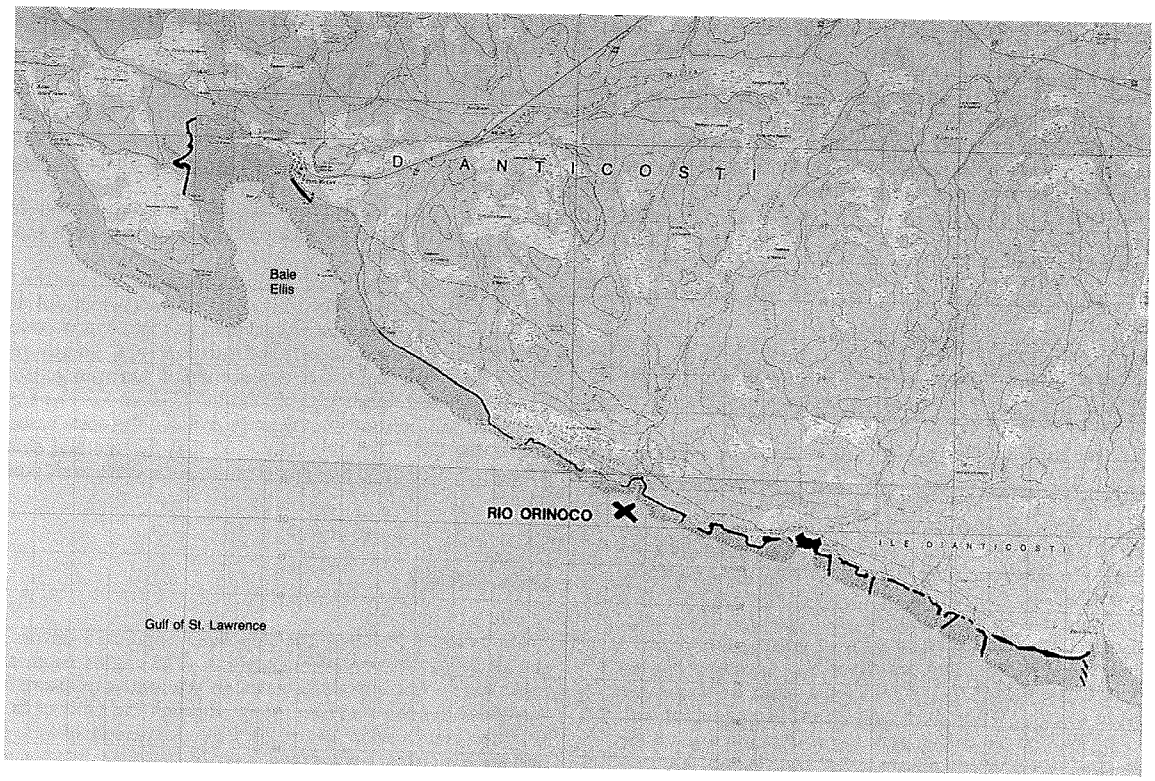

Figure 2. Map showing extent (some 30 km) of shoreline pollution (heavy lines) after *Rio Orinoco* grounding

Environnement Canada / Environment Canada
Conservation et Protection / Conservation and Protection
Région du Québec / Québec Region

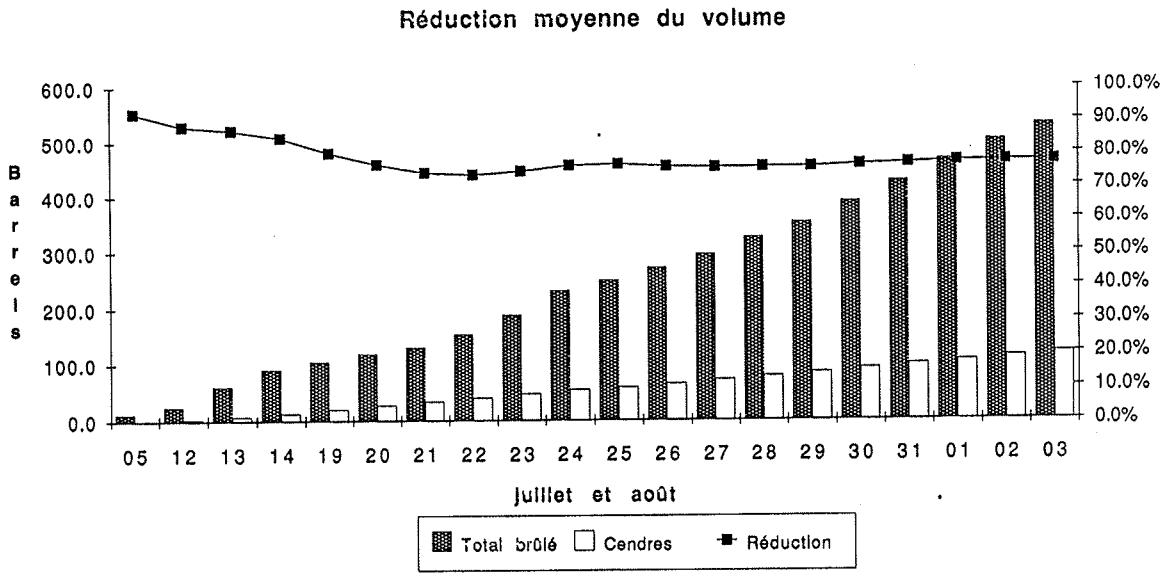

Figure 3. Effectiveness of mobile incinerator (during July and August) in reducing the volume of oil-soaked debris that had to be disposed of after the *Rio Orinoco* spill

Joining forces with officials representing local residents is very important; they know the area better than anyone else and can be of great help in solving problems. Working together was not only beneficial to the municipality of Port Meunier but also to all the other people comprising the command structure.

Cost recovery

Pollution-causing accidents give rise to differing degrees of expenditure. The Canadian Coast Guard spent nearly $12 million on the *Rio Orinoco* incident, a paltry sum compared to the costs incurred by the *Exxon Valdez* disaster or the incident involving the Italian vessel *Haven*. However, some 200 tons of fuel oil were spilled on the shores of Anticosti Island, and significant expenses were incurred to protect the environment. Almost all of this expenditure was recovered from the International Oil Pollution Compensation Fund and the ship's insurers. Cost recovery was made easier by thoroughly justifying all expenses incurred and by working with representatives of the International Fund and the P & I Club. The concerned parties were consulted before any major decision was made to undertake costly operations, such as refloating the wreck and monitoring the ship over the winter. The Coast Guard attributes the success of cost recovery to the positive attitude of all the parties involved in negotiations and their desire to reach an honourable agreement.

Conclusion

Even though the pollution caused by this incident was not major in terms of the amount of oil spilled, cleanup operations, and removing the wreck of the *Rio Orinoco* posed a formidable challenge. There was absolutely no possibility of leaving the wreck, which posed a potentially serious pollution risk, on the site. In the opinion of the Coast Guard, the owner and the insurers have the responsibility to take all necessary steps to rectify the situation, once an accident occurs.

In reviewing the incident, the Coast Guard made some observations that can help prevent similar occurrences or and make salvage and environmental cleanup more efficient.

Figure 4. Efforts to refloat the *Rio Orinoco*, October 1990

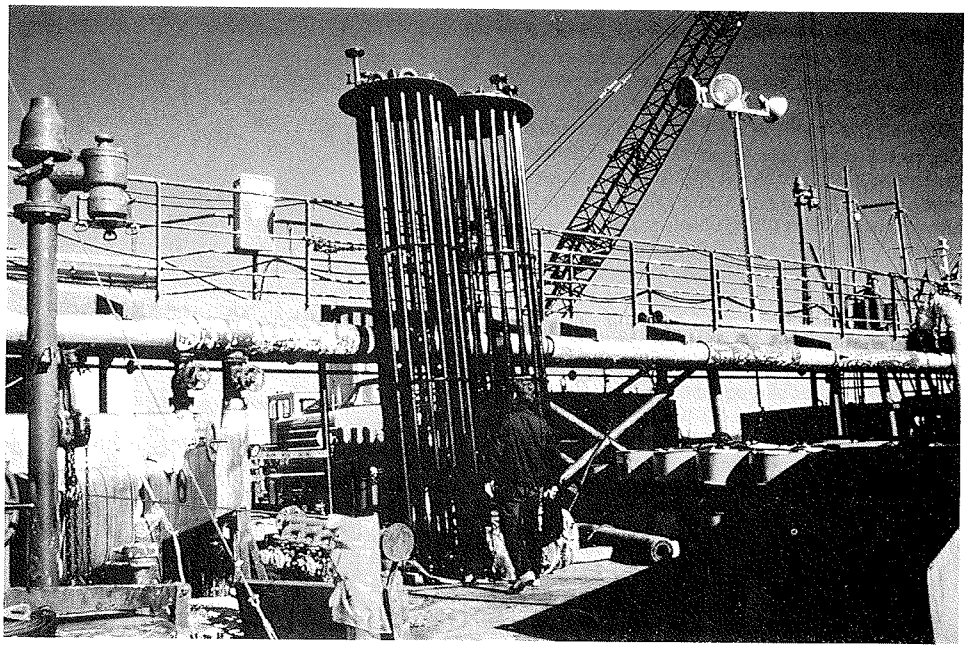

Figure 5. Heating units to re-liquify the asphalt cargo were placed inside the tanker through holes made in the main deck.

Prevention.

- Mandatory shipping lanes separating all commercial traffic passing though this part of the Gulf of St Lawrence should be established. Such a project has been in effect on a voluntary basis since July 1992. It is to be tested over a one-year period; after which mandatory requirements may be introduced.
- Directives enabling Coast Guard officials to force captains to have their vessels towed whenever their ships pose a serious environmental hazard should be developed.
- It should be mandatory for ships' captains to provide the Coast Guard with sufficient information about mechanical problems and how repairs are progressing.
- Anchorages should be reviewed and their use prohibited if they are unsatisfactory.

Operations.

- When establishing a command structure, it is imperative that from the start everyone involved is made aware of his roles and responsibilities.
- The salvor's right under a Lloyd's open form should be throughly explained to salvors to encourage them to take calculated risks. During the first few days after the *Rio Orinoco* accident, those in charge of salvage operations were reluctant to incur necessary expenses to refloat the ship. Here and in other parts of the world where weather can be a crucial factor in the success of salvage operations, salvage workers must be able to take risks without having to bear all the costs if their efforts fail.
- No effort can succeed without good communications at all levels.