

**RESPONSE TO THE ERIKA INCIDENT
AND RESULTING EVOLUTION OF
THE FRENCH OIL SPILL RESPONSE SCHEME**

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Abstract.

The 20 000 tonnes heavy fuel spill of the Erika, on 12th December 1999, generated the most dramatic black tide faced by France since the 223 000 tons crude oil spill of the Amoco Cadiz, 21 years before. Together with a short presentation of the French oil spill response organisation, this paper relates the key steps of the response to the spill and reviews the follow-up actions undertaken by the French authorities at national, European and International levels.

Similarities with the Nakhodka incident in Japan are indicated, to show the common interest of the two countries and of their oil companies for improved prevention and response against the pollution threat generated by passing tankers.

Introduction : another Nakhodka ?

When our duty engineer called, on 12th December morning, with the news that a tanker laden with some 30 000 tonnes of heavy fuel had broken in two some 80 miles off the southern coast of Brittany, I immediately remembered the striking scene of the bow of the Nakhodka being barged in Mikuni harbour, which I had the chance to see on 20th April 1997. Would the capsized bow of the Erika drift toward the French shore, we would be as unable to stop it as the Japanese had been.

Staff members of *Cedre* joined the office from all around town, starting to gather information

on the ship, its cargo and the circumstances of the incident, arranging with TotalFina the shipment to Brest of a sample of the fuel loaded aboard the ship. We were worried : the technical adviser of the French authorities in charge of response to accidental water pollution, we all knew how limited any national response means were in front of a heavy fuel spill, far offshore, in the cold waters, short days and stormy weather of mid-December.

In the early afternoon we had no doubt that there would be considerable trouble ahead. Storm would follow storm for days. The fuel was non dispersible, extremely viscous and only very lightly buoyant. The media and the public would candidly expect the response authorities to stop the drifting vessel parts and the oil slicks before they would reach the shoreline. The challenge was an impossible one. The professionalism and preparedness of the response authorities were to be criticised and investigated, in the same way as they had been in Japan.

Later in the afternoon, at the Polmar/Sea (marine pollution at sea) command centre of the maritime prefecture, a short resume of the Nakhodka incident strongly contributed to the decision of the maritime prefect of the Atlantic to immediately activate the Polmar/sea plan, a decision none of his predecessors had to make for nearly 20 years. Full-scale response to the Erika spill was underway, with the dramatic lessons of the Nakhodka in our minds. They would remain a permanent reference all along.

Summary of the incident

The 25 years old Maltese tanker Erika, en route from Dunkirk, France, to Livorno, Italy, with 31 000 tonnes of heavy fuel for power plant use (viscosity at 10°C : 20 000 centistokes) is faced with internal leaks in a storm, in the afternoon of 11th December 1999. The Master sends an alert message, which he rapidly cancels, announcing that situation is under control and that he is changing route to Donges, France, as a port of refuge.

Busy with the rescue of an impaired vessel the French authorities have no reason to go looking for a tanker under control in international waters.

At 6.05 AM, on 12th December, the Master calls for urgent rescue. The ship breaks at 8.15 AM, 80 miles off the Penmarch point, while the captain and crew (26 men) are all helicoptered. The bow sinks during the night, at a depth of some 120 m. The stern is taken in tow at 12.15 AM by the high seas tug Abeille Flandres, to prevent it from drifting toward the coasts of Belle Ile. It sinks the following afternoon, little before 2.50 PM.

The spill is first estimated at 3000 tonnes at least. Slick drift previsions are undertaken by Météo France, from Navy and Customs aerial surveys exploited by *Cedre*. Initial previsions foresee the first landings on the island of Yeu by 23rd-24th December. In spite of daily revisions, previsions fail to announce the first actual landings, on 23rd December, in south Finistère. But the main landings take place where and when announced, around the river Loire estuary, between 25th and 30th December. Some 400 km of coastline are affected.

Wrecks exploration by remotely operated vehicle increase the spill estimate to 7 000-12 000 tonnes in January-February. Small seeps from the wreck are spotted and sealed. Further exploration in March-May increase the estimate to 12 000-20 000 tonnes and lead to further sealing of remaining seeps.

After a comparative study of all possible options to neutralise the pollution threat, it is agreed between the French Government and TotalFina that the company will finance and implement under control of the minister of Transport and maritime prefect a pumping operation of the trapped oil. An international tender is prepared, issued and awarded. Operations at sea start on 5th June. They are successfully completed on 6th September, with the recovery of 11 240 tonnes of fuel.

The French oil spill response organisation

The French oil spill response organisation activated through the Polmar plan is governed by a the Prime minister instruction last revised in December 1997. The instruction rules that response at sea is under the responsibility of the maritime prefect concerned, in this situation the maritime prefect of the Atlantic (i.e. the admiral of the Navy responsible for military and civil action for the whole Atlantic coastline). The maritime prefect has access for that task to all suitable means of the public services concerned, along procedures set by a Polmar/Sea (= marine pollution at sea) plan, periodically updated by his services. The task includes not only response in high seas and feasible from the sea in front of the coastline, but also information of the land authorities, media and public.

In a spill of exceptional importance, like the Erika spill, response on the coastline and all related operations until economic activities and environment are fully restored, is implemented under the authority of the prefects of the affected "departments" (= counties). In the same way as the maritime prefect, the department prefects are each responsible of response on land, with access to all suitable means of the public services concerned. It includes in particular the Polmar stockpiles, managed by a specialised service of the ministry of Equipment. Each prefect supervises the periodical update of a Polmar/Land (marine pollution on coast) plan setting the areas requiring prime protection and the response procedures. Prefects of 5 departments, those of Finistère and Morbihan (Brittany region), Loire-Atlantique and Vendée (Pays-de-Loire region) and Charente maritime (Poitou-Charente region) activated their Polmar/Land plans between December 22nd and 24th.

In a spill affecting several departments, co-ordination of required national means and public communication may be undertaken at the level of the civil defence zone. Given to the Prefect of Charente maritime during the slick drift period, co-ordination was shifted in late December to the delegated prefect of the Western civil defence zone, with headquarters in Rennes (Brittany region), when it became clear that most of the oil landings would

definitely take place in Brittany and Pays de Loire.

Through the established procedure, public manpower required by the department prefects is provided by the Army and Navy (national staff under the ministry of Defence), the civil defence forces (national staff under the ministry of the Interior) and firemen brigades (staff under department authority). Financial means for exceptional expenses are provided by the Polmar Fund, a budget line under the ministry of the Environment.

Inter-ministerial co-ordination required at central level is taken care of by the secretary general of the Sea, an inter-ministerial co-ordination body under the Prime minister. Furthermore, in this incident, the Prime minister gave to the minister of the Equipment the particular charge of decision making on the wreck threat, including arranging fully transparent public information.

That organisation may look complex. It is in fact the simplest and most efficient way to make use in an exceptional emergency of all forces and capacities of interest, through their specific organisations, under a single command at sea and a unified one on land. Homogeneity of technical approach is ensured by common standards in all Polmar plans, joint training and the provision by *Cedre* of technical advisers to the command centres.

12th-23rd December 1999 : response at sea

Right from the first days, the response organisation was severely challenged by a number of adverse factors.

Journalists without experience of oil spills, who had been sent to cover an urgent hospitalisation in Brest of a famous French actor, crowded within hours of the wreckage at the doors of the maritime prefecture. There was little to tell and show them beyond the first images of the rescue operations. Although the communication team of the maritime prefecture spared no effort, it was far too small for the task and was submerged right from the first day by media pressure. Journalists turned to *Cedre*, quickly submerged its small staff and looked for expertise everywhere. In a few days, for a number of them, the scene was set : insufficiently staffed to fulfil its information

duties, the whole Polmar organisation wasn't up to its overall task.

Actual pollution response was in fact quickly underway. Beyond the towing attempt of the first day and night, operations at sea centred until 23rd December on 3 main tasks : monitoring the spill, forecasting slick drift and combating oil at sea.

Monitoring the spill was undertaken by Navy vessels and patrol planes, with the support of the two specialised oil spill surveillance planes of the French Customs, equipped with side looking airborne radar, infra-red and microwave sensors. Satellites failed to provide constructive contribution : in their few passes covering the area, their sensors detected nothing of interest. Weather remained most of the time a succession of storms and the slicks monitoring task proved extremely difficult. It was only on the 30th of December, after much oil had reached the coast, that a first really calm day enabled to undertake an actual full survey of slicks situation.

Slick drift prevision was performed on a daily basis by Météo France, the national meteorological service, in the frame of a co-operation with *Cedre* for the improvement of slick drift modelling. Results of the model runs, using monitoring information of the morning provided by the Navy and mapped for Météo France by *Cedre*, were delivered each afternoon. They were commented each evening in the technical information message of *Cedre* to the authorities in charge. As that message wasn't made public, media pressure quickly grew for public slick drift prevision information and, with the agreement of the maritime prefect, Météo France provided forecast animations on its Internet site. However, in the prevailing conditions, monitoring couldn't detect small slicks drifting far away from the main ones and drift modelling failed to announce the first oil landings, on the coast of Finistère, on 23rd December. But it duly forecasted the progressive 330 degrees turn of the main slicks along 20-25th December, out of which the main impacted area wasn't the department of Charente maritime, but Loire-Atlantique.

A constructive technical achievement, the forecasting proved far insufficient for the public and local authorities. Threatened for 11

full days by invisible slicks drifting in the open sea, they had grown to expect the impossible from forecasters : actual day, hour and volume of the landings.

The first Polmar meeting of 12th December clearly established that no effort to combat the spill offshore would be spared. Offshore response could not prevent oil to reach the coastline when and where nature would decide. But, knowing from *Cedre* that the oil wasn't dispersible, the maritime prefect was determined to recover as much as he could. The Mancheplan (assistance plan between United Kingdom and France) and the Biscaye plan (assistance plan between Spain and France) were soon activated. Three specialised oil recovery vessels, the British shield (UK), the Neuwerk (Germany) and the Arca (Dutch) and two high seas tugs equipped with booms (but unfortunately not yet with recovery equipment), the Alonzo de Chavez and the Ibaizadal 2 (Spain) sailed to join in Brest the two French navy supply vessels equipped for oil spill response in the Atlantic, the Ailette and the Alcyon. A small tanker was mobilised by TotalFina to receive the oil to be recovered.

On 15th December, a first recovery attempt by the Ailette with a Transrec high capacity recuperator failed : the fuel proved more emulsified than the sample in the test tank of *Cedre* and too viscous for the gear. The vessel returned to Brest, to be equipped with a smaller capacity, high viscosity Foilex recuperator. A second attempt in severe meteorological conditions, on 16th December, resulted in physical damage to equipment. Improved sea conditions authorised the recuperation of 60 m³ of fuel on 20th December. The recovery was increased to 500 m³ on the 21st and 1000 m³ on the 22nd. In the evening of 23rd December, when a major storm forced the response fleet to look for shelter, a total of 1200 m³ of fuel had been recovered. Although a success, considering the type of oil and the sea conditions, the achievement was little noticed in the turmoil created by oil landing.

24th December 1999 – end of January 2000 : the oil landing crisis

Black beaches had been forecasted for Christmas and the symbolism of that image

had been exploited at large by the Press. When the exceptional south-western storm of the 24th-25th December scattered the real thing not only on beaches, but high on dunes and cliffs, the French public was deeply shocked by an ugly reality it thought had been banned for ever from our coastline. Mobilisation of the Polmar/Land forces and means was underway. Booms had already been installed in pre-determined highly sensitive areas. Others were urgently added. But little cleaning could be made in the prevailing meteorological conditions.

Thousands of volunteers rushed to the beaches, asking for equipment and guidance. Some risked their lives in the heavy surf to collect oiled birds. The command centres of Polmar/Land were submerged by a flow of eager to do something and unprepared manpower, which they were not organised to make use of.

Over weeks, with improving weather conditions and less volunteers after the end of the New year holidays, the operational situation improved. By mid-January the Polmar forces were everywhere in full scale action. A constructive contribution was the opening by TotalFina of the Elf refinery at Donges, to store the oily waste collected on the coastline, a perfect solution to an essential problem.

During the same period, the maritime prefecture did its best to implement a second line of response in front of the coastline, with its smaller vessels and chartered fishing boats. But slicks had become too small, or too difficult to track, available recovery equipment was little adapted to the needs and only some 20 tonnes of fuel were recovered that way.

In the same time, exploration of the wrecks was undertaken, first with the search equipment of a mine chaser, then with two remotely operated vehicles, one of which was lost in operation and later washed ashore. Small seeps were observed and sealed.

Bird protection associations actively took care of an aspect little catered by the Polmar plans : saving oiled birds. They made efficient use of a consistent part of the flow of volunteers, organising oiled bird collection on the

coastline and manning a network of bird clinics. Some adamantly rejected any relation with TotalFina. Others sought and accepted its support. In a way or another, oiled seabirds were actively cleaned, fed and, for those which survived, later released. However, the toll was very high : the final record of live and dead oiled birds reached the impressive number of 63 600 at the end of June. Saved, released ones would only total 2 240.

While responders were doing their best on all fronts, controversies roared over their heads about the responsibilities in the incident, the preparedness and efficiency of the Polmar organisation, the “we are not legally responsible, we have no reason to undertake response or finance it” original attitude of TotalFina. No party was spared, *Cedre* included : a national daily viciously accused us of having understated the importance of the pollution because there was a representative of TotalFina in our board. As many others, the accusation was shown to be wrong, but the damage was done.

The greatest controversy of all grew on the Internet. The manager of a small chemical laboratory claimed on the Web that the cargo of the Erika was not fuel oil n° 6, but an illegal, highly carcinogenic industrial waste. He accused the Polmar organisation of having knowingly let volunteers risk their lives collecting it on the beaches, without proper information and protection. Over a few weeks, most of the volunteers deserted the beaches. And over the subsequent months, considerable time and effort had to be spent on the demonstration that the controversy had no substance. It would take a public hearing of all experts concerned, by the Erika investigation commission of the parliament, to convince a majority of the journalists that the accusations had no scientific basis.

February – June 2000 : saving the summer season

While the controversies roared, and in spite of the time Polmar management had to spend on them, active pollution response proceeded on all fronts.

A major asset to the success of that response was a new attitude of TotalFina. On 30th

December 1999, the company announced for the first time that it would not exclude some voluntary contribution to pollution response on the coastline. After an interview of the company chairman with the Prime minister, the contribution was scaled in mid-January at FF 640 million (close to US \$ 100 million). The company would in particular manage and finance the neutralisation of the wreck. And another good news was that it would build an oil waste processing plant at the Donges refinery, to take care of waste elimination under the control of the ministries of Industry and of the Environment.

With those two key tasks in the hands of engineers of the largest French industrial company, the Polmar organisation could concentrate over the whole February-June period on fully cleaning the beaches and all easily accessible rocky shores for the summer visitors to come. It was not an easy task. Thick, sticky oil had been spread by the waves and wind all over, including in the least accessible places. Many small slicks, some up to half a meter thick, had been buried by the surf in a number of sand beaches, by and below the low tide level, under a few centimetres to a full meter of sand. Waves action on coastal sites still to be cleaned, seeps from the wreck and ballast washing by passing ships, all contributed to make so that each new storm brought new patches of oil on the cleaned beaches.

But determined hand labour, some bulldozing and a mobilisation of all solid waste beach cleaning machines available on the European market did the work. More than 90% of the beaches in the affected area were opened to public use by mid-June. All were by mid-July. However, frightened by the dramatic images shown by the media, a number of the usual summer visitors had most unfortunately cancelled their bookings. But those who came were happy they did, finding beaches cleaner than the years before.

July – September 2000 : summer slowdown and wreck pumping

While beach users enjoyed their holidays, the Polmar organisation slowed down activity, keeping only small teams in action to recover oil occasionally washed ashore and to continue

cleaning sites of key economic or environmental importance. Specialised oil cleaning companies financed by TotalFina worked on rocky sites of uneasy access.

After 4 months of careful planning and preparation, the consortium contracted by TotalFina to pump the oil trapped in the wreck started actual operations at the end of June. A total of 11 245 tonnes of heavy fuel were recovered in little more than 2 months of hard work, setting an unprecedented standard for such an operation. It demonstrated the value of a technique never used before in such circumstances : fuel fluidification with 4000 m³ of diester, a green diesel oil. On 6th September, the threat of any new, major oil pollution coming from the wreck was eliminated.

After careful consideration of experts reports, the minister of the Equipment determined that the emptied and sealed wrecks presented no more danger. They would stay were they were.

September 2000 – May 2001 : final cleaning

Once vacationers left the beaches, the Polmar/Land forces resumed work with far less military hands than before and more contracted workers. The whole coastline was carefully surveyed, looking for areas still oiled or newly oiled by fuel re-suspended after the Autumn storms. The last patches of oil still stuck on rocks below low tide level or buried within and in front of sandy beaches were mapped and specific tenders were issued for their recovery.

On 12th December, for the first anniversary of the spill, the Press unanimously recognised that a tremendous work had been performed and that very little remained of what had seemed to many as a pollution due to last for years. At the end of December, a total work time of some 500 000 man.days had been used in coastline response and the recovered waste reached 200 000 tonnes.

A last set of budgetary allocations, both in the Polmar Fund and in the Atlantic mission of TotalFina (now officially TotalFinaElf) will enable to continue final cleaning operations until no consistent trace of the pollution remains, including at provisional waste storage

areas. That goal should be reached hopefully in May and not later than June.

In the same time, the waste processing plant at the Donges refinery was being built, to start operation in late February 2001.

After May 2001 : healing the last wounds

Once the coastline is fully cleaned, two last tasks will have to be completed : waste processing at Donges and restoration of altered flora on cliffs, dunes and around coastal paths used to transport oiled material. Both should be fully finalised by the end of 2002.

Pollution compensation will last longer. This is no part of the responsibilities of the Polmar decision makers. A member of the International Oil Pollution Compensation Fund in its 1992 version, France didn't imagine it would have to face an oil spill the consequences of which would exceed the limit of the 92 Fund. In the particular circumstances, it quickly became clear that [the compensation ceiling \(sum of the maximum amounts payable by the P&I Club of the shipowner and the IOPC Fund 92\)](#), amounting to some FF 1.4 billion, would be exceeded. As a response, the Government first decided that it would not claim [its](#) Polmar expenses, now expected to reach some FF 1.5 billion, field manpower included, until the last of the individual victims had been paid. TotalFina soon followed with a similar decision for its own expenses, now expected to reach some FF 1 billion, field manpower included.

Those decisions led the board of the 92 Fund to applying a relatively high 50% pro-rata on payments made in 2001, and to increase it to 60% in January 2001. But, in the same time, they postponed for long the easy to make, usually fast repayment of pollution response expenses. And this situation gave to the Fund a highly negative image of slow and bad payer : at the end of 2000, it had paid only FF 32 million on 901 claims, out of FF 412 million in 3535 claims received from economic operators, environmental associations and local authorities.

Improvement measures at national level

The image of the Polmar response, as it appears from the Press, is highly negative. An

evident illustration of that situation was the recent nomination by journalists of the Breton of the year 2000. Their choice could have been the maritime prefect, or any of the Polmar/Land civil servants, who spared no effort to fulfil their task. They chose instead an emblematic figure of the volunteer bird rescuers, symbolising the individuals who fulfilled a task the State didn't.

The reality is far less negative than the image propagated by the Press. Enquiry commissions praised much of Polmar response, acknowledging that the situation faced was an unprecedented one. No minister or Polmar decision maker was removed in or after the urgency. The chairman of TotalFina, his staff and the equity of the company were unaffected.

But the difficulties faced clearly demonstrated that there was room for improvement in the prevention of accidental pollution by passing ships and in the Polmar organisation. Less than 2 months after the incident, the French tanker charterers and the minister of Transport signed a charter of good practice practically banning the use of tankers over 20 years by the national oil industry. Within an additional month, an inter-ministerial committee announced a first package of major decisions. On the prevention front, they included the recruitment of more state port control officers and a strengthening of the powers of the maritime prefect in front of a potential polluter. On the response front, they included an international tender for the lease of a high seas pollution response vessel comparable in performance to the Dutch Arca, a full renewal of the Polmar-land stockpiles, technical adjustments in the lines of command of the Polmar organisation, an improved organisation of the Polmar public communication, a procedure for the mobilisation of scientific expertise, an increase in the public budget of Cedre.

Those changes were challenged for the first time on 30th October 2000, when a chemical tanker broke in two off the British isles, generating a bunker fuel and styrene monomer cargo pollution threat. The Polmar communication was taken over right from the first days by the national communication office of the Navy, information of the Public through the Internet was fast and efficient, scientific

advisory committees were at work as soon as needed.

More remains of course to be made and other changes are already being prepared, among which a detailed revision of the Polmar rule to cater for the sound management of volunteers and the efficient monitoring of pollution consequences.

Improvement measures at European level

Following the trend that led to the US Oil Pollution Act as a measure to protect the United State citizen against an oil spill, without consideration to international Conventions, many voices in France pressed the Government to promote an European Oil Pollution Act during its Presidency of the European Union, along the second half of 2000. Resisting an option that would have strongly damaged the International Conventions, the Government chose an intermediate option : the promotion at European level of initiatives that would complement the International Conventions.

As the incident had put in full light the problems related with deballasting at sea off the European coasts, an European directive [under preparation](#) on port reception facilities for ship exploitation and cargo waste was [accelerated and](#) published on 27th November 2000. Among other points, it authorises State port control to prevent a ship from sailing out of a European harbour with onboard waste it could be tempted to discard at sea.

A community action framework for co-operation in front of accidental or intentional pollution, also under preparation at the time of the incident, was [similarly](#) accelerated and published on 20th December 2000. It provides an organisation and financial means to improve co-operation between European countries in such aspects as mutual information, training, improvement of response techniques, dissemination of experience, mutual assistance in emergency situations.

Other European decisions and directives have been formulated and are now at different stages of their finalisation process through what has been named the Erika 1 and Erika 2 packages. The Erika 1 package includes rules

on State port control (application of international norms on maritime safety, pollution prevention and life conditions to vessels calling at European ports or entering European waters), on common norms concerning organisms habilitated to inspect vessels calling at European ports, on the accelerated phasing out of single hull tankers from European waters (2005 for Marpol size tankers without partial protection, 2010 for same tankers with partial protection, 2005 for all tankers above 600 tonnes). The Erika 2 package includes the creation of a Community system for monitoring, control and information on maritime traffic, the creation of an European compensation Fund for oil spill damage in European waters (complementing the International Oil Pollution Compensation Fund), the creation of an European agency for maritime safety.

Improvement measures at International level

French Government initiatives at international level concentrated up to now mostly on supporting the European moves within the meetings of the Marine Environment Protection Committee (MEPC) of the International Maritime Organisation (IMO). It also included general promotion of stronger international action on all fronts of maritime safety and pollution compensation, in the same way as Japan did after the Nakhodka incident.

Those initiatives clearly contributed to the October 2000 decisions of the IMO Legal and Maritime Safety Committees to adopt :

- an amendment to raise by 50% the limits of the compensation payable to victims of pollution by oil from tankers, to enter into force hopefully on 1st November 2003, with an increase of the compensation limit of the IOPC Fund 92 from the present SDR 135 million to 203 million (US \$ 173 million to 260 million) ;
- a new mandatory ship reporting system applicable in the central English channel, making it easier to track and communicate with ships in the area ;
- a set of measures on the elimination of sub-standard tankers, including accelerated phasing out of single hull tankers (latest 1st January 2007 for tankers of 20 000 tonnes deadweight or above without partial

protection, 1st January 2017 for same tankers with partial protection and all tankers down to 5 000 tonnes deadweight.

Improvement measures at industry level

Last but not least, not only TotalFinaElf contributed to the response as indicated above, not only the French oil industry committed to the charter of safer procedures mentioned above, but it is expected that the oil industry will soon take some regional or international initiatives to contribute to safer seas, improved pollution response and better damage compensation. TotalFinaElf will clearly be now among the companies convinced that initiatives are needed to improve the relation of oil industry with the public in a dramatic pollution event. This symposium is an evident demonstration that the question is also on the agenda of far East oil industry decision makers. And future meetings of the International Petroleum Industry Environmental Conservation Association (IPIECA) and Oil Companies International Maritime Forum (OCIMF) will no doubt be places of active discussion on the matter.

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