

## OIL SPILL CONTROL PRESENTATION JAPAN FEB 2001

Let me introduce myself :

I am Patrick Le Floch, manager of the company LE FLOCH DEPOLLUTION which is registered in France.

The company is a member of the SYCOPOL, association of professionals involved in the oil spill control actions all around the world.

Our main office is based in Morlaix, medium town of Brittany (West of France), a coastal region which has suffered many major oil spills, because of the heavy traffic of tankers in the Channel carrying all the types of oil to feed the refineries of the north of Europe.

The major oil spills are:

TORREY CANYON :	100 000 Tons	1967
AMOCO CADIZ :	220 000 Tons	1978
TANYO :	12 000 Tons	1980

Furthermore, many minor oil spills have happened up to now.

Being involved in oil spill controls for 25 years now, the company LE FLOCH DEPOLLUTION is specialised in all types of cleaning up works off-shore, on-shore, on rivers and decontamination of soils and sands. We are able to control every kind of oil spill.

Active all around the world we make our clients benefit of our wide experience, our adaptability and the know how of our technicians.

Our staff uses specific equipments designed or not by our company which enable a swift reaction and a rapid intervention whatever it is the contaminated site and that every where in the world.

We was involved in the followings oil spill controls:

EXXON VALDEZ	Alaska	40 000 Tons	1989
ARAGON	Portugal	15 000 Tons	1990
AEGEN SEA	Spain	69 000 Tons	1992
NASSIA	Turkey	15 000 Tons	1994
SEKI	U.A.E.	17 000 Tons	1995-1996
PROMOTEA	Jordan	12000 m of beach cleaning up	1996
KATJA	France	1800 m of quay and marina	1997
		12400 m of quay and beaches	1998

The diversity of oils, of climatic conditions, of tidal ranges as well as the diversity of the supports (rocks, sand, mud etc) have forced us to adapt ourselves.

At the moment our teams are involved in oil spill control operations in Turkey, because of the shipwreck of VOLGONEF 248, in Taiwan and in France following to the wreck of the ERIKA since December 1999 and that up to June 2001.

Our targets are as follow :

Contractual obligations  
Supervising of the teams and their permanent training  
Maintenance of the equipments

At the moment our staff is composed of 3 coordinators, 10 supervisors, 10 maintenance technicians, 200 operators and the accounting and secretary department of the main office. We are working for Total Elf Fina for 60 % and for the French government for 40 %.

## ERIKA

As told us already our friend of the CEDRE, the 12<sup>th</sup> December of 1999 occurred a strong gale on the French Atlantic coast with winds velocity from 160 up to 190 km which caused the shipwreck of the tanker ERIKA. After that the crew had been rescued, and the tanker had sunk, causing a oil spill, the control operation started.

As some equipments had shown their inefficiency, we shipped on a vessel of the French navy on which we installed few months ago a skimmer Foilex type TDS 200.

During the complete oil spill control operation off-shore, we had to face an air temperature near to zero degree Celcius, 8 meters high waves and a blustering wind up to 140 km/hour, all the equipments used by the 8 vessels have shown themselves not adapted. Some of them have even stalled in contact with the product. The best of them have not reached 10% of their theoretical efficiency gradient.

During almost 2 weeks the oil slicks drifted towards the shore because of the sea currents and the wind. They reached at first an archipelago of islands and arrived on the shore between the 25th and 26th of December 1999.

On the demand of TOTAL ELF FINA we began our intervention as soon as the 23<sup>rd</sup> of December in applying some "FILMOGENE" on some harbour facilities. This biological product decrease the capacity of the hydrocarbons to stick up on the surfaces which have been treated and enables an easy cleaning up of them. The "FILMOGENE" disappear 3 days after to have been spayed. This product is efficient on harbour facilities such as quays but inefficient on rough stones breakwater, rocks and beaches.

As the first slicks arrived on the shore and as thousands of volunteers and the first army companies began the hand gathering of the oil, we carried out at the same time skimming and pumping tests with the following types of equipments.

Screw pump  
Peristaltic pump  
Lobs pump  
Skimmer TDS 150

Truck with vacuum tank

These tests was not satisfying because of the viscosity of the product and of the difficulties for reaching out most of the polluted beaches.

Our teams was involved at the beginning of the cleaning up of the following sites :

Finistère and its islands

Morbihan and its islands

North of Loire Atlantique and its islands

South of Loire Atlantique

Vendée and its islands

## PROBLEMS WE HAVE MET

Because of the viscosity of the product which had the aspect of a french bread paste and because of the high tidal range, combined with south southwest strong winds we had to face new problems:

Our new designed and approved equipments as:

The pumps: centrifugal pumps, lobs pumps, peristaltic pumps revealed quickly inefficiency after to have been tested.

The skimmers reached out with difficulties 10% of their capacity

The sorbents were inefficient and clogged immediately

Therefore we have adapted some methods :

On the rocky areas and some rocky plateaus we have removed the fresh patches of pollutants in using flushing guns which we concentrated on certain areas in view to gather the patches by hand or with a crane when the access to the shore enabled its use.

After to have removed the highest concentrations on the rocky areas it was necessary to remove by hand (scraping) or to generate a warm dripping water flow where some thick patches was difficult to remove and that before to start the fine washing using high pressure steam cleaners.

According to the nature of the rocks and their friability we used the high pressure steam cleaners either with flat jet or with the rotating nozzle. The cleaning up principle remained common with other pollution cleaning up jobs done previously by us.

The gathering of the pollutant has been done in using "geotextiles" and "pom pom" (synthetic fibres which are more filters and captors than sorbents).

After that these systems was used the result was satisfying.

Due to the strong gale and the high tidal range the pollutant has been splashed up to 40 m high on many islands cliffs. As our speciality is the shore cleaning up, we employed professionals mountain climbers for cleaning up these type of areas. This new phenomenon has led to the use of important safety and protection devices.

A large part of ground and dunes vegetation was oil stained and required to be cleaned by botanists and that mostly by hand.

As I told you that adaptation is an important aspect of our job these 2 examples are its confirmation.

Further to that we meet rather often the same configuration on sand beaches where the pollutants seeped deep into the sand and we had to make borings on a large part of the shore using flushing guns. We had also to excavate the rocks and sand of the higher parts of the beaches by hand or with machineries when it was possible.

The cleaning's technique of the pebbles is to put them in a concrete mixer with filtration and recovering of the effluent.

Two techniques are used for the rough stone breakwater :

In situ's treatment with flushing and high pressure steam cleaning.

Ex situ's treatment with removing of the rocks and high pressure steam cleaning.

Filtration and recovering of the effluents for the two techniques.

Concerning the concrete harbour works and quays, we haven't met particular problems and the washing methods have been more and less the same that we have done on others operations.

On the other hand, on oyster sites, numerous on the Atlantic coasts, and on a specific site of saline, we have placed a number of equipments and booms in position to prevent them from pollution. The pollution was proving very serious in economical and ecological point of view.

## THE ENVIRONMENT

All around the world, the ecology becomes a rising care. The environmental constraints are more and more numerous and for me and our society's staff, it's really normal.

We have appealed to botanists for advising us to find the better position for protecting the environment according to the scarcity of some vegetable's species or to the brittleness of the dunes during the preparation of the site and before the installation of the equipments. Chirurgical washing methods have been devised to preserve the plants and the rocks when they are crumbly.

The clean rocks and vegetation were protected by a geotextil to prevent them for being splashed by the high pressure steam cleaner.

The storage's site of big bag and waste were protected from the soil.

At the beginning, when the pollution has killed numerous of birds, we have helped for the recovering of the polluted birds, which were nursed by specialists afterwards.

By recovering the dead birds, we have helped to index and inform the bird's association.

Now, we request advise from environmental associations in order to avoid working where birds nidify. So we defer sometimes the work to do.

In geological protect zone, chirurgical washing methods have been devised to protect what was able to be.