

INTERNATIONAL OIL POLLUTION COMPENSATION FUND
FONDS INTERNATIONAL D'INDEMNISATION POUR LES DOMMAGES
DUS A LA POLLUTION PAR LES HYDROCARBURES

EXECUTIVE COMMITTEE -
6th session
Agenda item 4

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DISCUSSION OF SETTLEMENT OF CLAIMS ARISING
OUT OF THE TANIO INCIDENT

Note by the Director

1 The Executive Committee decided at its fifth session in October 1981 that at its sixth session the different aspects of the TANIO incident of 7 March 1980 should be discussed in order to assist the Director to negotiate a final settlement with all claimants. Such an agreement on the settlement of all claims arising out of the TANIO incident should then be put before the Executive Committee at its seventh session for approval.

2 Some information regarding the TANIO incident was given to the Executive Committee in documents FUND/EXC.3/2 and FUND/EXC.4/2; reference to these documents is made. In order to provide the Executive Committee with all the additional information necessary to enable it to consider the different aspects of the claims in detail, the following documentation will be submitted to the Executive Committee:

- (a) a description of the events leading to the incident, of the extent of the damage and of the actions taken to fight the pollution; this description consists of a summary of the Report of the Enquiry Commission set up by the French Government and of reports on the clean-up response and the pumping operations;

- (b) a summary of the claims submitted; and
- (c) a presentation of the legal problems regarding the possibilities of breaking the owner's limitation or taking recourse action against third parties.

3 A summary of the Enquiry Commission's Report and reports on the clean-up response and the pumping are at the Annex. Also submitted are one copy each per delegation of:

- (a) the full Enquiry Commission's Report; and
- (b) a more detailed report by the Fund's surveyors on the clean-up operations (English only).

The English translation of the Commission's Report was kindly provided by the shipowner's insurer, the United Kingdom Mutual Steamship Assurance Association.

4 The Executive Committee is invited to take note of the information contained in this document.

ANNEXA SUMMARY OF THE ENQUIRY COMMISSION'S REPORT

1 The tanker TANIO (18,048 GRT), flying the flag of the Democratic Republic of Malagasy, broke in two on 7 March 1980, 32 miles off the Brittany coast, France. She was carrying a cargo of 26,000 tonnes of No 6 fuel oil. As a result of the incident, about 12,500 tonnes of the cargo were spilled and caused considerable pollution damage to the French territory. The stern section, with about 7,500 tonnes of cargo on board, remained afloat and was towed to Le Havre. The bow section, with about 6,000 tonnes of cargo on board, sank to a depth of 90 metres; the oil contained in this section was later pumped out.

2 The French Government, on its own behalf as well as on the request of the Malagasy Government, ordered a formal investigation to be held into the circumstances leading to the breaking of the TANIO and set up an Enquiry Commission. This Commission's Report was published on 24 September 1981. Its main findings and conclusions are summarised below (references in the summary refer to sections of the Report).

I Facts prior to the incident

1 CONSTRUCTION OF THE SHIP

The TANIO, originally called LORRAINE, was delivered to a French company, the Société française de transports pétroliers (SFTP), in March 1958 from the shipyard "Dock en Werf Maatschappij Wilton Fijenoord NV" at Schiedam, Netherlands. The ship was built for a deadweight of 27,200 tonnes but later, following the adoption of the International Convention on Load Lines, 1966, the deadweight was increased to 28,572 tonnes (see 2.4).

The Report describes in some detail the construction of the hull, the sort of steel used, the welding and riveting applied and the longitudinal and transversal structure of the ship (see 2.1.4). The cargo section of the ship comprised ten compartments each consisting of port, central and starboard tanks.

2 OWNERSHIP AND MANAGEMENT OF THE VESSEL

After some changes in the ownership, the TANIO was sold in 1973 to the Compagnie malgache de transports maritimes pétroliers (PETROMAD) which was at that time owned in equal shares by the French Worms Group and PETROMER (société bordelaise de transports pétroliers par caboteurs). PETROMER was the manager of the ship which was chartered by ELF. In 1974 the ship was sold to the Panamanian company Cruz del Sol but was at the same time ceded under a leasing agreement to PETROMAD while PETROMER and ELF continued to be manager and charterer respectively. In 1976, following the nationalisation of the Malagasy oil industry, 51% of the shares of PETROMAD were taken over by the Société nationale malgache de transports maritimes, the remainder of the capital of PETROMAD remaining in equal shares with Worms and PETROMER. In 1979, when extensive repairs to the TANIO became necessary, PETROMAD appeared to be unable to finance the repairs in question. The leasing agreement with Cruz del Sol was therefore suspended. A Swiss finance company "Locafrance International Leasing" acquired ownership but ceded the ship by leasing agreement to a new company called "Guardolia Shipping Corporation" which chartered the vessel to PETROMAD under a bareboat agreement. PETROMAD withdrew the management from PETROMER and entrusted it, as far as the commercial activities were concerned, to another French company called SOCATRA, and on the technical side to SFTP. The ship remained under charter to ELF.

The TANIO was, and remained up to the time of the loss, the only vessel operated by PETROMAD.

3 CLASSIFICATION OF THE SHIP

During her whole lifetime the TANIO was classed with the French Classification Society "Bureau Veritas". She held the necessary certificates under SOLAS 1960 (regarding the construction, the provisions of SOLAS 1948 were still applicable) and the Load Lines Convention of 1966. The SOLAS certificates were valid until 30 April 1980 and the free-board certificate under the Load Lines Convention was valid until 10 April 1984. Details of the certification are given in section 2.3.3. The role of the

Classification Society and the relationship between the flag State and the Classification Society are also explained in detail (section 2.3.2), resulting in the statement that "... in its actions, the Classification Society had to be regarded as a servant of the Government of the flag".

4 OFFICERS AND CREW OF THE TANIO

The crew of the TANIO were of either Malagasy or French nationality. The Master and the First Officer, who were among the eight people killed in the incident, were French nationals. The Master held the Master's Certificate of the French Merchant Navy and was entitled, under the French flag, to command vessels up to 7,500 gross tonnes. The First Officer held a certificate enabling him, under the French flag, to be First Mate on vessels up to 3,000 gross tonnes, including deep sea vessels. However, these French regulations are not applicable to vessels flying the Malagasy flag. Under French regulations, it is possible to grant derogations and the Report comes to the conclusion that, in view of their competence and actual experience, both Master and First Officer should have benefitted from derogations to be able to hold their respective positions (see 2.5). At the time of the incident, there were no international regulations in force regarding diplomas for crew members.

The management of the Malagasy personnel was effected directly by PETROMAD. For the French part of the crew, the cancellation of PETROMER management had led in 1979 to the formation of a French company called Maritime d'Armement SARL, partly owned by SOCATRA. Maritime d'Armement undertook, vis-à-vis PETROMAD, to supply officers and assistants of French nationality required to operate the TANIO and, by agreement of 24 September 1979, this company entrusted SFTP with the selection of the required French personnel for the tanker TANIO.

II Events that may have contributed to the incident

1 REPAIR WORK

After a survey of the ship in March 1979 and another special survey in summer 1979 under the rules of the Bureau Veritas, it was decided that repair work be carried out so as to ensure

reclassification of the vessel for a period of four years by Bureau Veritas. The contract for the repair work was signed with "Industrie Navali Meccaniche Affini" (INMA) of La Spezia, Italy, where the TANIO went into graving-dock from 2 August until 15 September 1979. The main work carried out on this occasion was the replacement of bottom plating and bulkhead plating in the tank compartments, as well as the reinforcement of longitudinal bulkheads with stiffeners. The criteria for the replacement of a plate was not its age but its condition and its thickness; so, at the time of the incident some of the bottom plates may have been the original ones. The work included the replacement of the entire system of coils, to enable the heating of the cargo inside the tanks, if necessary. The definition of the work to be carried out resulted in a compromise between the concern to replace worn parts and that of limiting the extent of the repair work (2.6.10).

The extent and the manner of the repair work is described in detail in section 2.6 of the Report.

2 GROUNDING AT WILHELMSHAVEN

The cargo which the TANIO was carrying at the time of the incident had been loaded at Wilhelmshaven, Federal Republic of Germany. Prior to the loading, when entering the port of Wilhelmshaven during low tide and at gale force 7 to 8, the Master noted in his report that, during the manoeuvres to enter the port, the vessel was vibrating slightly and appeared to be touching the bottom; the pilot's report mentioned that it was necessary to keep the starboard quarter of the vessel free from a shoal. It is possible, though this is not established, that the ship struck a shoal with her starboard quarter. An inspection, which was restricted to the essential parts of the ship, was carried out by divers, but did not reveal any distortion of the hull. The Master did not seek advice from an expert of the Classification Society (see 2.7).

3 LOAD OF THE VESSEL

The Report explains in some detail the importance of the bending moment, the upthrust and the cargo movements on the stresses to which the structure of a vessel is subjected (see 3.1).

The Enquiry Commission closely investigated the loading at Wilhelmshaven and the distribution of the cargo in the vessel's tanks. The Commission's findings were that the maximum bending moment on swell of 230,000 tonne x metres was exceeded by approximately 30,000 tonne x metres. It concluded that the Master, who was in charge of the load of the vessel, and the First Officer, to whom such responsibilities may be delegated, were not aware of a load document. Loading on the TANIO was usually done by watching the freeboard marks and by ensuring that the vessel had a satisfactory trim. This was done by the use of tables; a computer showing whether the bending moment and upthrust remained within the accepted limits was not on board the TANIO. The Report recalls that Rule 10 of the Load Line Convention of 1966 provides that "the Master of every new vessel must receive sufficient information in the approved form so as to enable him to control the loading and discharge of his vessel in order to prevent the latter's structure to be subjected to unacceptable stresses".

One reason for the Master unknowingly letting the bending moment exceed the acceptable limit may have been the high density of the cargo (about 0.95) which meant that the vessel was filled in weight without being filled in volume. The tanks in sections 1 and 10 had been left practically empty and the central tank of section 2 was only filled to 27% (see table in section 3.2.2).

The Report also mentions that the problem of excessive fatigue usually arises only in respect of vessels with a tonnage in excess of 7,500 tonnes. Since the Master and the First Officer were not certified for ships exceeding 7,500 tonnes they may not have had sufficient training to deal with problems encountered by the TANIO on her last voyage. The Report mentions this factor as one of the probable causes of the incident.

The Report also notes the lack of control of the loading by the companies involved in the shipment, although it is stressed that the Master is solely responsible for the loading.

4 WEAKNESS OF THE HULL

The ship broke at frame 123, between central tanks 6 and 7. The inspection of the break showed that it occurred exactly at the level of the butting, and that the latter only had a thin welding line which could not reinstate the continuity of the longitudinal resistance of the strake. The chamfers were very weak and did not penetrate the core of the metal. The Report affirms that the quality of these important welds was unsatisfactory. It is also stated that other welding lines, both old and new, gave the vessel certain weak areas (5.3.3.2).

The survey of the aft part of the break made it possible to observe that the hull had several areas of weakness, mainly located in the bottom and in places where the framing was joined to side plating, or where sections of framing were joined to others (4.3.5). Areas covered with cement in n^o 7 tanks were found to be fairly corroded (4.3.3).

III Conclusions on the causes of the accident

The Commission comes to the conclusion that "the hull broke because it was not able to withstand the conjunction of some weakening, an inappropriate load and the bad weather" (5.1.3).

1 Although the TANIO encountered very bad weather at the time of the accident, it is stated clearly in the Report that a vessel such as the TANIO must be designed to withstand winds of 120 kilometres per hour and a sea force 7 as encountered on 7 March 1980 when the TANIO left the Channel (5.1.2). However, it is stated that the accident would not have occurred at that particular spot and at that time if the weather had been fine (5.5.1.1).

2 The actual load distribution led to an excess of the bending moment during the ship's voyage, but the Commission underlines that "... on board the TANIO, the accepted bending moment risked being exceeded as soon as the load was different, even slightly, from the typical cases of loads" (5.5.1.2).

3 The weakness of the hull was due to the age of the vessel and the inadequate quality of the repairs carried out in summer 1979.

4 The Commission does not exclude the possibility that the cause of the accident might have found its origin in the grounding at Wilhelmshaven. However, it observed that it did not find any evidence supporting such a hypothesis (5.5.1.4).

5 The Report remarks that, with the exception of the officers' qualifications, all the questions referred to are dealt with by the Classification Society.

B SUMMARY OF CLEAN-UP RESPONSE

The International Tanker Owners Pollution Federation Limited (ITOPF) was asked by the Fund and the P & I Club to survey the clean-up response by the French authorities to the oil spilt from the TANIO. It has prepared a detailed report of the clean-up operation based primarily upon observations made and information gathered during numerous visits to Brittany made by Dr. I.C. White and Mr. H.D. Parker between 8th March and 5th July 1980 and upon weekly reports prepared by a local surveyor between 19th March and end of June 1980.

The following paper is a summary of this detailed report.

MOVEMENT OF THE OIL

The accident to the TANIO some 32 miles NNE of the Ile de Batz off the north coast of Brittany on the morning of 7th March 1980 resulted in an eventual loss of approximately 12,500 tonnes* of No. 6 Fuel Oil (Fuel Oil No. 2 by French classification). Under the influence of the strong NW wind blowing at the time, the initial oil spill moved towards the Brittany coast. Because of the high viscosity of the oil and the severe weather conditions neither chemical dispersal nor containment and recovery techniques at sea were possible. In view of this, the French authorities had no option but to prepare for its arrival ashore.

Aerial reconnaissance carried out by the Federation to check the reported position of the oil and its predicted movement led to the discovery of the oil early on 9th March, with the downwind edge only some 4 miles off the French coast. It was also confirmed that oil was

*Estimates of the total quantity of oil spilled vary according to the method of calculation. This is discussed in the main report.

leaking from the sunken bow section. Because of the close proximity of the oil to the coast, its position was radioed with some urgency to the French authorities by the representative from the Centre de Documentation, de Recherche et d'Expérimentations sur les Pollutions Accidentelles des Eaux (CEDRE) who was in the aircraft.

Oil began to come ashore later on the 9th March with the bulk of it having arrived by the 10th March. The worst affected area was the Côte de Granit Rose to the east of Perros-Guirec with the north and north west facing bays and beaches in the vicinity of Trégastel and Ploumanac'h being by far the most severely affected. By the 11th March, it was apparent that streaks of heavy sheen and patches of oil were moving out of the bays in an easterly direction. Subsequent changes in wind direction and the high tides over the next few weeks caused further re-distribution of the oil on the coast and this together with oil leaking from the bow section (until the beginning of May 1980 when a sealing operation was completed) resulted in contamination of the two Départements of Finistère and Côtes-du-Nord, extending from just west of Brignongan to approximately St. Quay-Portrieux in the east.

The coastline along this northern part of Brittany consists in general of rocky headlands interspersed by sandy beaches. Tourism is of major importance throughout the two Départements with the pink granite rocks (Côte de Granit Rose) between Trégastel and Perros-Guirec being one of the particular attractions of Côtes-du-Nord.

In considering the impact of the spill it is important to appreciate that many of the areas affected by the TANIO had been similarly affected by the AMOCO CADIZ spill some two years earlier and by the TORREY CANYON spill in 1967. Having completed the clean-up of the AMOCO CADIZ oil some twelve months earlier, the mood of the local communities in areas such as Trégastel after this further severe oiling can be easily imagined. This was clearly an important factor in determining the responses adopted by the French authorities.

CLEAN-UP RESPONSE

By the time the first oil came ashore some booms had been deployed in the C^otes-du-Nord region. Plastic sheeting was also used to cover sea defences, promenades and other man-made structures that might have become oiled during the forthcoming high tides and then required extensive cleaning. By the end of the first week after the accident numerous booms had been deployed at various priority locations in the two Depart^ements, apparently as designated in the appropriate oil spill contingency plans. It is important to realise that because of the nature of the coastline, the extremely large tidal range (8m) and the severity of the weather at the time of the accident many of the worst affected areas along the coast could not be boomed effectively.

Once it was ascertained by aerial reconnaissance on the 11th March that there was no major concentration of oil approaching the coast, a redeployment of some of the booms in the C^otes-du-Nord region was suggested by ITOPF in order to try and contain the oil that at that time was concentrated in the region of Tr^egastel, Ploumanac'h and St. Guirec. Had such an action been attempted and even been only partially successful it might have both restricted the degree of contamination in some of these areas and beyond and also made the controlled removal of the floating oil possible.

Because of the severity of the coastal pollution, PLAN POLMAR (National Oil Spill Contingency Plan) was implemented by both Depart^ements. As a result they received the benefit of national resources and subsequently relied heavily upon the army to provide the necessary manpower for the clean-up operation. Additional personnel came mainly from the S^ecurit^e Civile, the fire service, local government, commercial contractors and farmers. Specialised technical advice was provided by the CEDRE and by engineers from the Direction Depart^ementale de l'Equipement (DDE) enlisted from other regions of France.

In many respects the clean-up response in the two regions was very

different, due mainly to differences in the nature of the shoreline, the severity of contamination and the clean-up policies adopted. The clean-up operation can be best considered under the two headings of a) Techniques and b) Organisation and Control.

TECHNIQUES The first phase of the clean-up required the removal of the bulk oil. In the severely contaminated areas this was in part accomplished by the use of tractor drawn vacuum trucks to pump the viscous oil. However, the effectiveness of this technique was very much related to the oil's temperature and so was impractical on cold, cloudy days when the oil became too viscous. Because of concern that a forthcoming high tide would extend the shoreline contamination it was decided that a more rapid removal of the bulk oil was required. Heavy earth moving equipment (e.g. bulldozers and front-end loaders) was therefore used despite the well-known detrimental effects of driving heavy equipment over severely oiled beaches. Whilst much oil (and a considerable amount of beach material) was removed within a short time, the underlying sediments at a number of sites, particularly in the Port of Ploumanac'h and at St. Guirec were heavily contaminated and required extensive restoration work at a later stage. This might have been avoided or at least reduced had the suggested alternative approach of using booms to contain the free floating bulk oil and appropriate skimmers to recover it been attempted.

Front-end loaders and other mechanical equipment were used at a large number of locations in both Finistère and Côtes-du-Nord. Where contamination was less severe the problem of burial of oil was not so apparent although considerable quantities of beach material were removed. Where access was difficult or where the deposits of oil were thin or well spread-out, men with shovels were employed to pick up the oil and to put it into sacks or tractor drawn trailers. A large scale operation of this sort was mounted to clean-up some of the severely contaminated shoreline of the Ile de Batz off Finistère.

Oil collected during the clean-up operation was taken to the deballasting station at Brest for treatment. Oil/sand mixtures were

treated with quicklime before final disposal, primary treatment being carried out as near the clean-up site as possible to minimise the contamination of roads.

The removal of the bulk oil was followed by the cleaning of the rocks in the tourist areas. Because of the enormous surface area involved, the persistence of the oil and, in many cases, the difficulty of access, this second phase of the clean-up operation posed the greatest difficulties, especially in the vicinity of Trégastel, Ploumanac'h and St. Guirec where contamination of the pink granite rocks was very severe.

The basic approach adopted was to wash the oil off the rock surfaces using medium pressure hot-water washing machines or high pressure cold water jets delivered from specialised vehicles or high capacity pumps. In an attempt to prevent the released oil from recontaminating other areas the two Départements adopted significantly different approaches.

In Finistère dispersants were considered ineffective and so granular sorbents were used on the advice of CEDRE to trap the released oil and make collection easier. The technique appeared relatively successful although inevitably not all the oil/sorbent mixture was recovered. The fact that this mixture was relatively inert and not unlike sand in appearance was probably beneficial in this respect.

In the Côtes-du-Nord region, especially in the very severely contaminated areas near Trégastel, Ploumanac'h and St. Guirec, dispersants were used in very considerable quantities, either mixed with the water used for the rock washing or applied neat to the oil on the rocks before washing. The efficacy of the dispersants was a matter of considerable technical debate with even the most successful formulations appearing to merely reduce the viscosity of the oil by solvent action rather than promote dispersion. As insufficient attempts were made to collect the oil that was released, re-contamination of cleaned areas by each high tide was inevitable.

The extensive use of dispersant at sites such as St. Guirec also resulted in oil penetrating deeply into the beach sediments. Any benefits of the use of dispersant in the severely contaminated areas could certainly have been achieved more economically, a) had the operation been better controlled to avoid wastage of dispersant especially through the multiple application on vertical or near vertical rock surfaces where the chemical rapidly ran off; b) had better mixing of the oil and dispersant been attempted on such surfaces; and c) had more attention been given to collecting the fluid oil that collected around the bottoms of the rocks, in crevices and on pools on the beach.

The final cleaning of the beaches, man-made structures and boats was begun at most sites before the final cleaning of the rocks was complete. In the Finistère region particularly, a number of prototype beach cleaning machines were tried on the hard sand beaches to pick up patches of oil and oily debris. Elsewhere manual labour was used.

The severely contaminated sediments of Trégastel, Ploumanac'h and St. Guirec required the most extensive operation. At St. Guirec high pressure water jets were used to disturb the sediment above the water's edge to release the oil and flush it into a boom. The floating oil was then directed to an Egmolap Skimmer. Within the Port of Ploumanac'h, a similar technique was employed although much of the heavily oiled soft sediment was eventually removed using earth moving equipment. At Trégastel and elsewhere an agricultural harrow was towed along the water's edge by a tractor to disturb the coarse grained sediment and release the oil.

By the time the clean-up operation was completed at the beginning of July most of the beaches and accessible rocks had been restored to something approaching their pre-spill state with the improvement of the pink granite rocks of the Côte de Granit Rose being particularly evident. Whilst beaches throughout the two regions were being used by tourists at the beginning of July, the beach at St. Guirec remained the one major site which showed the signs of a major oil spill. Oil

leaching out of the heavily contaminated sediments was still evident despite the dumping of considerable quantities of clean sand on the beach.

CONTROL

In general the organisation of the clean-up operation appeared effective with both Départements having well run Operations Centres. However, at a number of the severely contaminated sites where there were many groups of people involved, the control and coordination of the clean-up operation actually on-site appeared inadequate. In particular, the rock cleaning and dispersant spraying operation at sites such as St. Guirec proceeded without the systematic approach adopted effectively elsewhere by other military units. The numbers of personnel (and equipment) at some sites also seemed excessive and contrary to effective and economic clean-up whereas elsewhere more men could have been employed usefully. This seemed to result not only from the designation of priorities but also from the necessity to deploy the soldiers in numbers dictated by military command structure. The routine of a normal working day was also rigidly adhered to with little regard for the flexibility demanded by the tide.

There was no shortage of technical advice with the CEDRE personnel being very active throughout both Départements. It was apparent, however, that especially during the early stages their influence and involvement was greater in Finistère than Côtes-du-Nord where greater reliance was placed on the engineers from the DDE.

CONCLUSIONS

The heavy fuel oil spilled from the TANIO presented considerable clean-up problems to which there were no easy solutions. The Côte de Granit Rose was particularly severely affected although contamination spread over a considerable area of the two Départements of Finistère and Côtes-du-Nord. The shore clean-up was successful in restoring the coast to near its pre-spill state by the start of the summer holiday

season but the operation, particularly in the region of Trégastel, Ploumanac'h and St. Guirec could have been conducted more efficiently and economically had a greater degree of control been exacted over the workforce and techniques employed. More acceptance of the advice from CEDRE, especially in the Côtes-du-Nord region during the early stages, might have helped in this regard. The severe contamination of the sediments in this region resulting from the use of heavy mechanical equipment and the excessive use of dispersants and the failure to recover free floating oil were major factors that extended the duration of the clean-up.

The minimal adverse publicity given to the spill outside France should have minimised the number of tourists that chose to change their plans and not visit this part of Brittany during the summer of 1980. Environmental effects should also have been limited due to the low toxicity of the oil although some localised effects will have been caused by the smothering of inter-tidal life and by the extensive clean-up operations at the severely affected areas. Effects on commercial fishing operations and aquaculture were reported to be very limited.

C REPORT ON PUMPING OPERATIONS

I CONSIDERATION OF METHOD

1 Immediately after the incident, the French Government decided that all efforts had to be made to remove the threat of further oil pollution to the French coast that would continue to exist for as long as the bow section of the TANIO remained at the bottom of the sea with more than 6,000 tonnes of oil still in the cargo tanks. The P & I Club and the IOPC Fund agreed with this. Since the permanent removal of this oil appeared to raise considerable technical problems and was, therefore, likely to take some time, it was agreed that some small holes in the ship's hull through which oil had been permanently leaking should be sealed in order to make more time available to consider and carry out a permanent solution.

2 The sealing of the holes in the hull was effected by the French firm INTERSUB who were employed by the owner's insurer, the U K P & I Club. With the exception of one hole through which small quantities of oil continued to leak, the operation was successful and prevented further considerable pollution from the wreck. A claim for the expenses incurred with respect to this sealing has been submitted to the Fund by the U K P & I Club.

3 Alongside the sealing operation, discussions were held between the French Government, the Fund and the P & I Club to find a permanent solution to the continued threat of oil pollution. All considerations were based on the French Government's demand for a quick solution, ie the threat of pollution had to be removed by the beginning of the autumn of 1980. It was feared that the hull which was assumed to be very weak as a result of the accident might not withstand the stresses posed by a long period of bad weather.

4 In addition to the pumping, which was the method eventually accepted, other considerations were to bury the wreck with the oil in it under a concrete dome or to raise the wreck, tow it to a sheltered bay and then pump out the oil. However, these

alternatives were rejected. The burying of the wreck was not acceptable to the French Government because no guarantee of a 100% permanent prevention of further pollution could be given. The raising of the wreck appeared too risky in view of the weakness of the hull and the fact that there was no suitable place available to which to tow the wreck.

5 The decision in favour of the pumping was taken by the French Government after French experts had considered all the different aspects of the situation in depth and after several meetings between Government representatives and the Fund and the P & I Club who had themselves been advised by their own technical experts. After consultation with the P & I Club, the Director of the Fund informed the French Government that, in his view, the pumping solution as proposed and outlined by COMEX seemed to be a reasonable measure to prevent, or at least minimise, further pollution damage.

II CONTRACT

6 A contract for the TANIO pumping operation was agreed between the French Government and the Compagnie Maritime d'Expertise (COMEX France SA) on 4 June 1980. In this contract, COMEX undertook for the sum of FFr 47,015,890 to remove all the oil contained in the sunken fore-section of the TANIO. The details of the contract were based on a technical plan submitted earlier to the French Government, the IOPC Fund and the P & I Club. On the basis of the experience of a similar incident, COMEX outlined a provisional programme for the operation entailing 17 weeks' work, with the actual pumping to take place in the 13th to 16th weeks of this operation. The operation was divided into the following six phases:

- (a) surveying and preparation of the wreck;
- (b) installation of the operating platform above the TANIO;
- (c) preparation and piercing of the tanks;
- (d) installation and anchoring of the pumping column;
- (e) installation of the pumping mechanisms (hoses etc);
- (f) extraction of the oil.

Although 8 September 1980 (14 weeks after conclusion of the contract) was determined as the due completion date in the contract it was agreed that the period would be extendible if delays were experienced as a result of either exceptional meteorological conditions or technical difficulties.

III COURSE OF EVENTS

7 The operations began on 13 June 1980 with the arrival on site of the diving support ship WITCHQUEEN. However, even in the early stage of surveying and preparing the wreck, bad weather conditions caused delays and in early July the currents were found to be too strong for the divers to work in and a shelter had to be built and positioned on the working platform. Technical problems were first experienced in mid-July when a failure in the automatic positioning system caused serious damage and one week's delay. At the end of August a second working platform was installed so that pumping could start from the latter while the piercing of the tanks continued from the original platform. During September the hoses were connected and, with the arrival of the tanker PORT-JOINVILLE on 24 September, the extraction was ready to begin on 4 October 1980.

8 The pumping therefore started 54 days late. After two days the receiving tanker was forced to disconnect due to adverse weather conditions. Throughout October to January all attempts to continue pumping were thwarted by extreme meteorological conditions, with winds of 60 knots and a swell of up to 10 metres. This, in turn, caused damage to the pumping equipment which on occasions had to be taken to the ports of Brest or Roscoff for repair work. The PORT-JOINVILLE was also forced to return to the coast, either to repair storm damage or simply to seek shelter. One effect of the bad weather was a slight escape of oil caused by the loosening of some bolts on the tank valves.

9 As a result of the above-mentioned difficulties and delays, COMEX were obliged to seek amendments to their original contract and three supplements were agreed for additional expenses. In the beginning of February, after an analysis of the operations, a new work programme was outlined aiming to restart pumping in April 1981.

However, during the two months of repair work and preparations, bad weather caused more delays and expenses resulting in the agreement of a fourth supplement. By this stage, the COMEX contract had reached FFr 141,500,000.

10 Extraction of the oil restarted on 3 April 1981 and continued successfully for two months. However, June saw technical problems with the pumping platform and four weeks without pumping necessitated two further supplements bringing the cost of the operation to FFr 236,000,000. Pumping was completed by the middle of August 1981 and the site was cleared by the beginning of September. The PORT-JOINVILLE unloaded a total of 6,067m³ of pumped oil at Brest. The oil was stored for a month until 25 September 1981 when it was sold to the Société Services Maritimes Pétroliers for FFr 3,173,905. Further supplements after completion of the operations brought the final cost of the pumping to FFr 265,000,000.
