Section VI

CONTINGENCY PLANS

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PLANNING AND DEVELOPING A COMPANY OIL SPILL CONTINGENCY PLAN

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INTRODUCTION

"We can cope with small oil spills, but what happens if we suddenly have a large one?" These might have been the thoughts of the manager of a depot, a refinery, or a jetty in any one of over 70 countries where the BP Group has an interest. They underline, however, the problem which faces a great many local personnel who find that although their capability to deal with small spills is adequate, the local resources of equipment, trained personnel, etc. would be unable to deal with large quantities of oil in an emergency.

It was with this sort of problem in mind that the BP Oil Spill Contingency Plan was developed to organise and co-ordinate the expertise that was available in the BP Group and to ensure that backup facilities were available to any department or associate company on a worldwide basis to cope with a large oil spill.

The Contingency Plan, which is additional to any existing national or local plan, consists of three key components:

1. the organisation of a worldwide scheme
2. the choice and purchase of equipment
3. the identification, nomination and training of personnel.

Organisation of a worldwide scheme

A start was made by examining the pertinent data. Although a great deal has been published on the frequency and causes of oil spills in particular locations or particular operations, we needed to know the size of the problem within our company's international operations commencing with exploration and production, through the transport and refining of crude oil, to the marketing and distribution of products. This information was available for recent years as data provided annually to the Environmental Control Centre by the operational arms of the company. Our interest was in identifying principal locations of the spills and estimating the frequency of large ones. The data were provided in three categories of spill size, namely, <1 ton, 1-100 tons, and > 100 tons. Early data indicated that different centres used different cut-off points at the lower end of the <1 ton category, so in subsequent years, the range was defined as 0.1-1 ton. A fourth category, however, of 20 litres -0.1 ton was also introduced for use in the marketing-distribution field. Since most spills were estimated by the eye, there were inevitably variations between observers, and furthermore, some observers tended to err on the small side. Nevertheless, the frankness of reporting gave us a good deal of confidence in the figures. The following table utilises the data from 1972 and 1973.

Size of spill	0.1-1 ton	1.100 tons	>100 tons
% of total number of spills	74	25	1
% of total weight of oil spilled	1	13	86

The table shows that 99% of the spills were <100 tons, but the 1% of spills which exceeded 100 tons accounted for 86% of the total oil lost. Such statistics are easily distorted by a single massive spill, and in fact, the above data includes a spill on land of 12 000 tons. Although the figures vary from year to year, the overall conclusion that large spills account for the bulk of the oil lost is expected to hold good.

When designing the Contingency Plan, it was essential to define the situations with which it was intended to cope and, related to this, the probable range of spill sizes. Our primary purpose was to develop a capability to deal with a large spill anywhere in the world arising from BP Group operations. So what was a large spill? We rather ducked this question by defining it in terms of the capability of an operating centre to clean up an incident. It was not intended that the plan be "activated" for incidents which the local centre could handle using the existing local resources. In the case of an ocean tanker terminal, this might be 100-500 tons, but for a small marketing depot it might be an order of magnitude less. Most locations and centres would welcome backup facilities for spills exceeding 500 tons, but this was not a minimum size for activation of the plan. A small spill might pose a particular local ecological hazard, and for such incidents, the services of a BP ecologist are made available through the plan. The upper size limit was equally uncertain. While it was obviously desirable that the Contingency Plan should be capable of dealing with any oil spill, irrespective of size, it was neither practical nor reasonable to expect a single company to provide a capability for "disaster"-scale spills. In such cases assistance would be sought from all possible sources, e.g., one or more governments, other oil companies, third party contractors, etc. In practical terms, the largest spill to date (*Torrey Canyon*) released 117 000 tons of oil into the English Channel, but an analysis of the world's shipping statistics and our own company records showed that spills exceeding 3 000 tons are infrequent events.

Philosophy of oil spill clearance

Undoubtedly the best method of tackling the problem is prevention, but for this paper we have assumed that preventive devices have failed and that a spill has occurred. The next action is essentially an extension of prevention, namely salvage or avoiding further pollution. This will be the immediate first aid at any oil spill and may have the added benefit of eliminating the fire or explosion risk. As soon as it is safe to do so, the job of cleaning up the spill can commence. It is our belief that where practical, the primary aim of an oil spill task force should be to contain the oil if this is possible. If the oil can be contained then the next step should be one of recovery and ultimately one of disposal. In this way oil is removed from the environment, whether land or water, and environmental damage is reduced to a minimum. Of course it is not always feasible to contain and recover all, or indeed, any of the oil, but the possibility should be examined as a first priority. A spill occurring at sea will spread and drift, during which time small thin patches will break off the main slick. We believe that the only practical method of treating relatively thin and isolated patches of oil is by dispersion. In rough seas, natural dispersion will occur due to wave motion, and in these as well as certain other circumstances, the best approach may be to take no action other than continued observation and tracking. We believe that using modern, low toxicity dispersants is an entirely acceptable method of treating an oil spill, provided of course that they are used with discretion. Experience has certainly shown them to be effective, and hence, their role in our contingency planning.

It is impossible to be specific about the most appropriate methods for oil spill clearance as there are so many factors to be considered, and in any case, this has been the subject of previous papers. We feel that a recent document [1] provides acceptable codes of practice for treating oil in different circumstances. We have, however, designed our Contingency Plan around two main techniques: containment-recovery and dispersant treatment.

Location of spills

A large proportion of the total recorded number of spills (ca 65%) occurred in marketing and distribution operations, mainly as a result of over filling containers such as bulk tanks, road or rail tankers, domestic storage tanks, etc. Most of the spills occurred on land and, with one notable exception, were small (<1 ton). The remaining 35% occurred as a result of shipping, exploration, and production operations or during the handling of crude and products in refining operations. In about 75% of these incidents the oil was spilled onto water, usually in coastal situations at jetties during oil transfer. Only rarely did spillage occur in the open sea, but when it did, the quantity was usually large (tanker collision or grounding).

Analysis of our figures for marine spills for 1972 and 1973 showed the following distribution:

North Atlantic (Europe, including North Sea)	51%
North Atlantic (America)	2%
Baltic	7%
Mediterranean	12%
South Atlantic	1%
Indian Ocean (Africa)	1%
Indian Ocean (India and Far East)	3%
Middle East Gulf	17%
Pacific (Asia, Australasia)	5%
Pacific (America)	–
Others	1%

The most frequent spill locations closely followed our main areas of activity, the major ones being the North Atlantic (Europe), the Mediterranean, and the Middle East Gulf. A further breakdown of shipping incidents in the Northern European sector showed the southern North Sea to be the area where most spills occurred:

Northern North Sea	8%
Southern North Sea	73%
Channel	2%
Celtic Sea	15%
Bay of Biscay	2%

The distribution of oil spill incidents has influenced our choice of sites for locating cleanup equipment, although we have remained aware that a spill can occur almost anywhere, including remote and unfriendly places.

Selection of cleanup equipment

As well as looking at locations of oil spills, we considered what equipment was already available at our operating centres throughout the world. A survey showed that all maintained at least a minimum level of equipment and/or chemicals to handle local spills; sometimes this equipment was individually owned, or sometimes it was part of a cooperative. The supplies varied from considerable stocks of chemical dispersants to simple booms and skimmers or quantities of absorbent materials. In general the sophistication of equipment reflected the complexity and size of the centre. Apart from the dispersant spraying gear, the equipment was only suitable for application in protected coastal or relatively sheltered waters.

Choice of the basic hardware for the plan was quite straightforward. Following the *Torrey Canyon* incident in 1967, BP recognised that no open-sea containment-recovery equipment was available. The VIKOMA System was designed and developed to fill this gap. Consequently VIKOMA SEAPACK and SEASKIMMER units were available to cover the containment-recovery aspect of the plan. We do not believe that for transport, speed, and ease of deployment or operation in adverse conditions any comparable units are available. We decided, rather arbitrarily, to provide initially five of each for the Contingency plan, and only experience will show whether this is too many or too few. Since, under favourable conditions, a SEAPACK should hold around 1 000 tons of oil, and the SEASKIMMER recovery rate is up to 100 tons per hour, each system clearly provides a significant cleanup capability.

In addition to the VIKOMA System equipment, we have purchased several small skimmers which are suitable for inland oil spills. These units are sensitive to wave motion and are unable to deal with very viscous oils, so BP developed a small disc skimmer—the KOMARA MINISKIMMER—which has a pickup rate of up to 15 tons per hour and is not adversely affected by 2- to 3-foot waves. As the units are highly maneuverable, several will be acquired for the Contingency Plan.

The dispersant approach is covered by WSL-type spraying equipment of both the deep sea and in-shore types, while dispersant (at least BP 1100X and BP 1100WD) is available from various manufacturing and stock locations in the UK and overseas. We also hold a certain amount of dispersant and water spraying equipment which is suitable for beach cleaning. A quantity of inshore oil containment boom is available from one of our UK ocean terminals for transport to a spill if necessary. Other equipment consists of sundry pumps, hoses, fittings, etc.

Location of oil spill equipment

Apart from the VIKOMA System and the inshore oil containment boom, our equipment is held at our Cowes, Isle of Wight, depot where maintenance and deployment expertise are available. The locations of all VIKOMA SEAPACKS and SEASKIMMER units under BP control are shown in figure 1 together with those owned by third parties. Of the 5 sets belonging to the Oil Spill Plan, the decision to place three in Northern Europe, one in the Mediterranean, and one in South Africa was taken in the light of the statistics for oil spill locations which were discussed earlier. We deliberately omitted placing units in the Middle East since an effective oil spill cooperative already existed in the Gulf and VIKOMA System equipment was available in the area. Similar arguments applied to Australia and the Baltic. The placement of a unit in South Africa, which could scarcely be justified on the basis of the statistics, was done in view of the large amount of tanker traffic around the Cape of Good Hope and the absence of other units in this geographical area.

Personnel

The success of any contingency plan depends on the quality personnel selected to operate it. We were fortunate in having staff available with experience of oil spill cleanup, with experience of operating equipment at sea, with management ability, and with skills ranging from practical engineering to ecological expertise. It was thus possible to design the plan around the skills of existing staff and to ensure that each had a defined responsibility in its operation. At the same time, a great deal of flexibility was built-in so that appropriate skills could be assembled and the composition of the team varied depending on the exact nature and location of each spill. None of the personnel is employed for the Plan on a full-time basis, but are drawn from a cross-section of the company's operating departments.

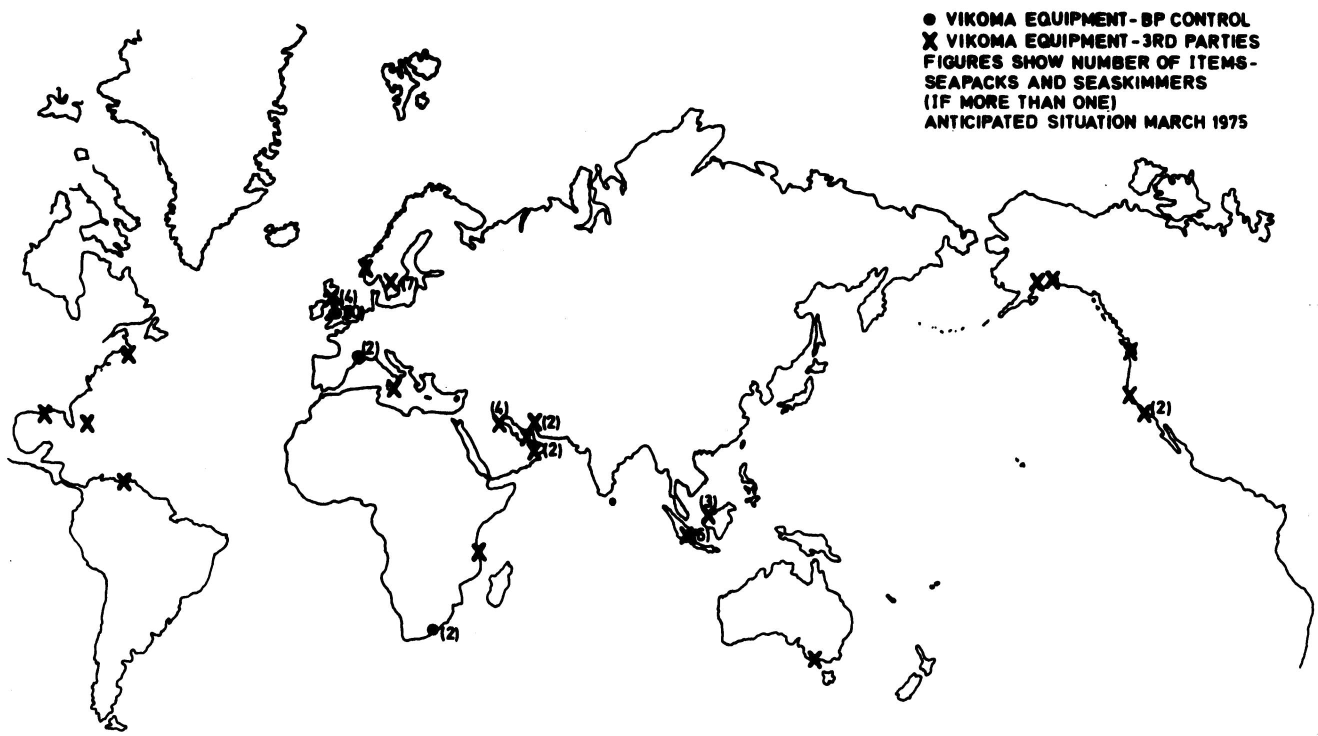

Figure 1. Locations of VIKOMA SEAPACKS and SEASKIMMER units

As with all plans, we found that there were gaps, and in particular, we were aware of a shortage of staff with experience of operating specialised equipment. Concentrated training courses of a highly practical nature were set up to remedy this weakness. These courses will be repeated at intervals.

Interestingly, a major advantage of dispersing the VIKOMA units was connected with the personnel question. It goes without saying that VIKOMA System equipment which forms part of the BP Contingency Plan must be available for transport almost anywhere at short notice. Ideally, this equipment should be accompanied by experienced crews, but it was unrealistic to expect a centre holding the equipment to release more than three or four staff on an emergency basis since they have other normal duties to attend to. Thus, spreading the units around the world avoided placing too heavy a personnel load on any one centre. The situation at the Cowes depot was slightly easier as there were a number of people available who had been concerned with the VIKOMA System developments and these could be supplemented from the research centre.

National plans and responsibility for cleanup

National governments differ considerably in their attitude to large oil spills. Some immediately assume responsibility for cleanup and carry out the task. Others expect those causing the spill to undertake cleanup, perhaps under the watchful eye of government agencies which specify the methods to be used. Others have never really considered the problem. Naturally we had to try to define our role in these various situations as well as to consider certain legal aspects, particularly in the shipping field.

As already noted, the facilities of the plan are available to BP Group associate companies, departments, etc. It is their responsibility to call on these facilities. Guidelines were prepared for cases when action should be taken, for example a spill at any company-owned facility (including a BP tanker), as well as facilities managed by BP and certain ship charter1–1cargo ownership circumstances.

It was also made absolutely clear that where cleanup operations are the responsibility of government, the facilities of the Contingency Plan would be offered to the government. Clearly, whatever the circumstances, cleanup action would only be taken with the full approval of the authorities.

Preplanning

The most essential requirement for any oil spill contingency plan is speed of response when it needs to be activated. Delays can occur if an accident happens at a weekend or on a public holiday or if personnel and equipment have to be transported over long distances. These are minimised by establishing an adequate, but not over-complex, communication system and a routine procedure for contacting personnel who are, in turn, clear about their subsequent duties.

Organisation

The plan was built around two groups, both based in the UK: a *control group* which receives the initial report and remains in London acting as a reporting centre, directing operations and providing the necessary backup and facilities for the *task force* which consists of a team of experts who proceed to the incident and are responsible for on-site activities. The task force has a variable composition determined by the circumstances of the spill, but can call on personnel trained in a wide range of disciplines.

Activation levels

Experience has shown that the initial notification of a spill may omit key data from which the seriousness (or potential seriousness) of the incident may be judged. We have provided the potential reporter with a checklist in the hope that his oil spill reports may contain sufficient information to allow a sound assessment of the problem in London. Such an assessment may not always be possible for a variety of reasons, and in such cases, arrangements may be made for the task force leader and/or his alternate to visit the scene to carry out an on-site survey, so that the need for further action can be assessed. An alerting procedure can save valuable time by bringing the task force and control group personnel to standby. Full action procedure can then proceed rapidly, if needed, or the personnel stood down.

On arrival at site, the task force requires a number of facilities including a local headquarters, arrangement of local travel, information on government involvement (both central and local), arrangements for temporary import of equipment, local weather forecasts, etc. A good deal of this can be organised prior to arrival of the task force, action having been initiated by the control group on notification of the incident. In areas of high potential risk it is advantageous to consider in advance arrangements which will be needed in the event of a spill. It is helpful therefore to nominate in advance a senior representative from the associate company (for example) who can contact immediately the appropriate authorities and who can complete some of the preliminary work before the arrival of the task force. In high risk locations, local contacts are also nominated to provide detailed information on the geography, manpower and equipment availability, contact with local officials, etc.

Effectiveness

The effectiveness of the plan can only be judged by its performance, and it has not yet been activated for a spill where a significant cleanup operation has been required. Since its adoption toward the end of 1973, it has been activated three times, in each case following a tanker accident. All were potentially serious and some oil pollution occurred in each case, but only in one instance was any cleanup considered appropriate. A number of points were highlighted by these incidents.

Experience

The key role played by the local representative and his assistants cannot be overemphasised. Typically the task force leader arrives in a strange country with an unfamiliar language, late at night, following a hasty departure from home, which would make his work difficult in the absence of strong local support. Our experience, fortunately, has been that response from the local contacts has been magnificent. This has extended to working—or being woken up—at all hours of the day and night (including weekends) and, to cite one example, negotiating for the hire of a large fishing boat to survey a slick late one evening—so late that the boat in question had already left harbour for the next day's fishing and had to be recalled by radio. The local representatives with whom we have been involved to date have been either staff of BP Associates or ships' agents.

We have not encountered difficulty establishing contact with the authorities concerned with the incidents. Experience has shown an encouraging reaction from the officials involved, but we have trodden delicately to avoid giving the impression that we were taking over. Rather, we have stressed that we were present to provide advice and assistance if required. Normally, we have met officials to discuss the situation at an early stage and have reported the results of our operations to them regularly. In one case, a local official accompanied us on our initial helicopter survey.

While on the subject of aerial surveys, it is worth noting that the spotting of oil on the sea or shore from the air is a job where some experience is helpful. It is surprisingly difficult in certain circumstances to positively identify the presence, or absence, of oil.

One aspect where we have experienced some teething troubles concerns communications, both within BP Head Office departments or associate companies and between the task force and the control group. The first appears to be improving as people learn more about the objectives and operation of the Contingency Plan. The second, communications between the task force and the control group, gave rise to some anxiety in the first two incidents because the control group was waiting on tenterhooks to learn if their help in organising supplies (of equipment, dispersant, etc.) or in some other way was required. Although readiness of a backup service is important, it may take the field force 24-48 hours to assess accurately the position and decide on the best appraoch. During this period they are probably under considerable pressure, and long delays waiting for international telephone calls reduce the frequency that reports can be made to the control group. Of course, in the case of a *Torrey Canyon*-type incident, one would require all the materials which one could lay one's hands on, and the time lag would not occur.

In two of the incidents, the task force leader and his assistant have worked closely during their on-site survey with a BP marine superintendent who was on the scene to look after the interests of the tanker. Clearly, cooperation of this type is of great help to the task force and opens a number of doors which might otherwise be closed.

We have also had an opportunity to work with representatives of another oil company following a tanker collision. Cooperation was excellent, and by working together more was achieved than could have been done by either team on its own. This cooperation has extended to exchange of oil samples and photographs.

During each incident we have taken a considerable number of colour slides primarily to provide a photographic record, but these pictures have also proved useful for lecturing and subsequent training purposes. We have also collected oil pollution samples as well as reference samples from the tanker's cargo and bunkers. The most surprising feature has been the numbers of pollution samples which analysis has shown to be unconnected with the incidents. Collecting samples and taking photographs can present unexpected difficulties as on one occasion when the task force leader and his alternate were taken into military custody for unwittingly taking photographs (of oil pollution) close to a military airfield.

One may also be involved in working in a difficult environment. The first incident occurred in the north of Norway during winter. Daylight was restricted to 2 hours a day; split gas oil formed a stable water-in-oil emulsion; the dispersant spraying equipment froze after being tested with water; no drum key was available to open dispersant drums; tidal currents were considerably faster than shown on the charts; and so on.

CONCLUSION

We feel that we have made a useful start toward developing a BP Oil Spill Contingency Plan which will not only allay the fears of the terminal manager mentioned in our opening sentence, but will also contribute significantly toward a cleaner, less oily environment.

REFERENCES

1. 1974. European model code of safe practice for dealing with oil spills at sea and on shore. Applied Science Publishers.