

PAJ SYMPOSIUM '98 PRESENTATION

Edward A. Svitil
Crisis Management Coordinator
ADNOC

The United Arab Emirates

The United Arab Emirates was formed in 1971 following the British departure from the Gulf. His Highness Sheikh Zayed bin Sultan Al Nahyan was the leader in calling for a federation among the seven emirates. Sheikh Zayed was elected the first President of the Federation, a post to which he has been successively re-elected at five year intervals.

When the flag of the UAE was raised on Decembernd, 1971, the individual emirates moved into a new period of their history, facing the future as one. In the intervening years, the UAE has been utterly transformed. Development has touched all aspects of life in the Emirates, from roads to airports, from health and social services to housing. One key area has been in agriculture and forestry, with over 100,000 hectares brought under the plow, and with nearly 1 00 million trees planted to hold back the desert sands.

Geography and Ecology

The UAE has a total length of coastline of some 550 kilometres. The longest sections extends about 450 km along the Arabian Gulf between the Qatar Peninsula in the west and the border with the Sultantate of Oman at the Musandam Peninsula in the east. A further 1 00 km of coastline is contained between the Omani borders immediately south of the Musandam Peninsula and faces the Gulf of Oman.

The Arabian Gulf coast of the UAE is typically low-lying with lagoon areas, extensive tidal sand flats called "sabkhas", creeks "khors" sand dunes. The sabkhas and khors are important spawning and nursery areas for fish and also support a wide variety of other animal and plant life. There are numerous offshore islands and banks bordering the coast. Breeding colonies of seabirds can be found on many of the offshore islands of the UAE and hawksbill and green turtles can also be found nesting here.

Coastal waters are very shallow, sometime drying out during the ebb cycle and are susceptible to wide-ranging temperatures and salinity fluctuations. The shallow areas are often cut with deeper water channels through which the water may move at high speed. Coral reefs occur in patches close inshore along the Arabian Gulf coast. Extensive stands of mangrove exist in certain parts of the UAE coastline on the Arabian Gulf.

An important ecological resource located in UAE coastal waters is the dugong population found in the central western area bordered by Abu al Abyad Island Bu Tinah

shoal and Ruwais. This population comprises a large proportion of the total Gulf dugong population and is of international significance for the conservation of this species.

Coastal Resources at Risk

The United Arab Emirates has many resources located on its coastline which would be vulnerable to marine-borne oil pollution. These may be conveniently classified into three categories of resource: industrial, recreational and ecological.

Industrial resources of one sort or another can be found along the whole length of the UAE coast. These comprise a variety of critical and sub-critical facilities. Of primary importance are the desalination and power plants. Without these facilities operating, all activities in the UAE will come to a standstill in a very short period of time with catastrophic long-term effects on the national economy.

Oil installations are also sensitive to the impact of oil pollution but at a slightly less critical level than desalination and power plants. Economic consequences of an extended shutdown as a result of oil pollution would, however, become serious within a short period of time.

There will be many other industrial facilities across the UAE which, though not of such national significance as those described earlier, would be very seriously affected by large-scale oil pollution with consequent adverse effect on businesses.

Recreational Resources. As with industrial facilities, recreational resources can be found along the whole length of the UAE coastline. As well as providing sites for the people of the UAE, they also have significant importance as key elements in the leisure and tourist industry in the State. Many of the larger hotels and leisure clubs have coastal frontages and place considerable reliance upon water-related activities for attracting client business. Tourism is an important and growing money earner for the UAE and would be very badly affected by coastal oil pollution.

Ecological Resources. Although difficult to quantify in economic terms, the ecological resources of any country adds to the quality of life in that country and its people. As discussed earlier, there are many examples of ecological sensitivity. Extensive oil pollution can wreak enormous damage on such resources and it is essential for any pollution protection strategy to take full account of such resources.

Environment

Sheikh Zayed's abiding interest in the environment and in agriculture has been marked in a variety of ways over the last few years. The establishment of the Abu Dhabi-based Environmental Research and Wildlife Development Agency (ERWDA) took place with Zayed's encouragement and his firm belief that its objectives: "enhancement of sustainable development of Abu Dhabi's wildlife and environment", are as important, if not more so, that many of the major industrial projects that gain international attention.

In a broader reflection of his own interest in the environment, Sheikh Zayed has long displayed a concern to ensure that the country wildlife is protected and preserved. In the 1970's, recognizing the threat that uncontrolled hunting posed to the survival of the country's wildlife, he promoted federal legislation that effectively outlawed hunting throughout the country, following this up with the establishment of a Higher Environmental Council which was charged with ensuring that man's constructions do not have a damaging effect upon the land; and also with preserving the country's flora and fauna.

At a personal level, on his island reserve of Sir Bani Yas, Sheikh Zayed has created a reserve free of predators, so that endangered species like the Arabian oryx and the sand gazelle may breed freely. Sheikh Zayed believes that care for the environment is important not simply because it is held upon trust for future generations, but also because an understanding of it is an essential part of comprehending the heritage and history of the people of the UAE themselves. Only through their own recognition of the structure of the local environment and its fragility was it possible for man to survive in the harsh climate of the Emirates, but, by doing so, the ancestors of today's UAE citizens were able to create a society that did not simply survive: it also flourished over thousand of years, establishing trading links that stretched as far away as China.

Zayed's deep commitment to wildlife conservation was also marked during 1997 by a number of awards. In early March Sheikh Zayed was presented with the World Wildlife Fund's "Gold Panda", its top international conservation award. It was the first time in the history of the award that a head of state had been its recipient. Later in the same month Zayed received another important environmental award: the first-ever "Gulf Business Award for Environmental Action" which was given as a regional tribute for his contributions in the field of environmental protection. As with other accolades, it re-emphasised Sheikh Zayed's life-long dedication to improving the environmental of the UAE and the Gulf region.

ADNOC

The Abu Dhabi National Oil Company (ADNOC) was established on 27 November 1971 to operate in all areas of Abu Dhabi oil and gas industry, both at home and abroad. ADNOC is a fully owned government company controlled and supervised by the Supreme Petroleum Council (SPC) who is responsible for formulating Abu Dhabi petroleum policy and overseeing the Emirate's oil and gas operations and related industry.

The Company started its move into the oil industry in 1972 by setting up the National Drilling Company (NDC). In 1973, four joint ventures were established. Today ADNOC has major shareholding in 14 ventures forming the ADNOC Group of Companies in addition to its own concession areas and operations.

ADNOC owns and operates two refineries at Umm Al Nar and Ruwais, the gas treatment plants at Habshan, gas pipelines distribution network and the Chlorine Industries

at Umm Al Nar.

The ADNOC Group of Companies consists of three main oil and gas operating companies, five support companies providing services to the oil and gas industry, three joint ventures to fully utilise the produced gas, two maritime transport companies for crude oil, refined products and LNG and one refined product distribution company. ADNOC managed to add important oil and gas discoveries and through the large scale development programs and projects, implemented to expand oil and gas production capacity. ADNOC established the necessary oil and gas infrastructure and the base for advanced industry. ADNOC also decided to go ahead with two new projects, the expansion of Ruwais Refinery and the construction of a petrochemical complex, marking a new phases in ADNOC evolution.

ADNOC has become one of the world's leading oil companies with substantial business interests in upstream and downstream activities, including transportation, shipping, marketing and distribution. The Company strives to maintain its development strides, while ensuring the highest standards of safety and environmental protection.

Ruwais Oil Spill Center

In 1978 Law No. 8, Conservation of Petroleum Resources, came into effect. Article 56 of this law deals specifically with oil pollution and places the responsibility for spill response on the polluter, stating that the operator "shall immediately eliminate the resulting effects in accordance with modern techniques".

The ADNOC Petroleum Ports Authority (PPA) was formed in accordance with the Petroleum Ports Law No. 12 of 1973, and empowered to deal with operating companies and visiting oil tankers. It was decided to rationalize the approach to oil spill response under the authority of the PPA, offering benefits in increased efficiency and cost savings by consolidation of oil spill response. It was seen that a group approach to pollution control avoids duplication of equipment and makes available to all Group Companies a more comprehensive response equipment inventory along with expertise and trained manpower to deal with oil spill emergencies.

The ADNOC Oil Spill Response Center was formed in 1985 with the headquarters and main equipment storage at Ruwais. Equipment was identified and transferred to Ruwais to fit the concept of tiered response to spills, as determined by risk assessments carried out by the Group Companies. The headquarters at Ruwais stores and maintains major equipment, and provides training courses in the theory and practice of oil spill response. Other equipment is stored at outstations such as Das Island and Umm Al Nar to provide the capabilities of swift response or if necessary to hold the situations until additional manpower and equipment is mobilized from Ruwais.

The Pontoon 300 Incident

Approximately 0300 on the morning of January 17 1998, the Pontoon 300, an open-compartment barge designed for bulk cargo, began to founder in relatively heavy seas

off the coast of Sharjah, United Arab Emirates. This vessel had been condemned several years prior to this incident after encountering similar problems. The vessel was carrying some 8,000 tons of bunker oil from an unknown source (the destination was never officially determined).

After several hours the tugboat captain decided he could no longer control the vessel and either cut the towlines or allowed them to part. The tug captain then departed the area, without reporting the incident or seeking assistance. Later that morning, a passing vessel reported the foundering Pontoon 300 to the Captain of Sharjah Port, and subsequently to the UAE Coast Guard.

The spill spread eastward from Ajman towards Umm Al Quwain and Al Hamriyah (Sharjah), covering some 60 kilometres of beach area. After more than 5,000 tons of the barge's cargo had been lost, it sank in 22 meters of water 5 kilometres off the Ajman coast. The sea currents should have held the slick offshore, but the north-eastern winds blew the slick towards Alseniah Island, Umm Al Quwain Creek and Al Hamriyah.

The spill caused extensive damage to the Umm Al Quwain area, a spawning ground for fish and shrimp managed by the Agriculture and Fisheries Ministry. Although booming efforts were mounted, because of the response timing and high currents the spill was transported into the creek. Because of the viscosity and thickness of the Pontoon 300 cargo spill, there was little evaporation. Dispersion of the slick was slow at first, but the sea wave action and wind began to agitate and disperse the slick. The agitation formed a mousse of oil and water; residues were thick. Tar balls formed and sank, entering the sediments on the sea floor. The mousse adhered to mangroves or was carried to the beach and rocky shorewalls.

Because of the lack of oil spill response equipment in the Northern Emirates, Abu Dhabi and ADNOC were asked to provide assistance on January¹⁸. The ADNOC General Manager approved this support outside of the Abu Dhabi area and manpower and equipment were sent from the Ruwais Oil Spill Center to Sharjah.

The ADNOC Crisis Management Team was also activated. The ADNOC CMT activated those positions required for a response to the incident, considering it was not an ADNOC spill, nor even in the Emirate of Abu Dhabi. Those positions activated were Team Leader; Environmental, Health and Safety; Public Relations; and the CMT Facilitator position. Assets from the Ruwais Oil Spill Center and the PAJ stockpile in Mussafah were deployed. Personnel advisors from Oil Spill Response Limited (OSRL) in Southampton and a representative from the International Tanker Owners Pollution Federation (ITOPF) in London arrived soon on the scene.

Response Issues

It was clear from the outset that many factors complicated the response to the spill. For example, there was no Federal Contingency Plan nor a Federal budget for oil spill response. There was a deficit of leadership by the government in mounting a coordinated oil spill response, leading to a lack of coordination among the involved parties.

On the arrival of Federal officials to the scene, it was not readily apparent who would be in charge of the spill response.

Because of the nature of the barge and its cargo, there was little information available on its construction, type and amount of cargo on board, and other vital data that would have greatly helped in the response. There was also insufficient information on the ecological and commercial resources that were or could be threatened by the spill.

There was a lack of experienced oil spill response personnel to provide a cadre of trained and ready manpower in all facets of the oil spill response. It was readily apparent that an extensive training program for oil spill response teams would have to be planned and organized.

Recommendations (Contingency Planning)

Improve oil spill contingency planning throughout the UAE, working to IPIECA guidelines and standardised layout, fully adopting the three tiered response concept.

The highest levels of the government and industry must support the need for an effective oil spill response program by development of a vision and values. This "Oil Spill Charter will cascade down through the government and line management of industry to provide clear communication of the government's commitment and industry's support to the highest global standards of oil pollution and preparedness.

The lines of communication and responsibility must be developed and clarified within and between industry and government to ensure:

- rapid reporting, surveillance and assessment of spills
- appropriate authority to finance, mobilise and direct resources under the tiered response system
- equipment and expertise support from industry and available contractors under government direction
- supply of services during response without bureaucratic barriers causing unnecessary delays

A fundamental review of response equipment capability within the UAE should be carried out as a part of improved planning. Stockpile size, type and location should derive from spill risk, resources threatened and integrate within the tiered response system. It is clear that an increased equipment inventory will be necessary but until planning work has been carried out it is not possible to predict exactly what is required.

Ruwais should remain a Tier II Center for ADNOC and develop detailed guidelines and logistical routes showing response times and capability for the full suite of spill risks throughout the group. The development of additional Tier II capability at different location(s) should be considered during the planning review.

The proposal to upgrade oil spill modelling capability to a Windows-based application should be actioned. The capability of the latest spill models to also display environmental sensitivity and clean-up information through GIS should be investigated for suitability in the UAE.

Recommendations (Training)

A vital element of improved preparedness must be the instigation of a program of oil spill training and exercise throughout the UAE, adapting IMO standard courses at levels 1 , 2 and 3 (operator, supervisor and senior manager)

- 1 .It is crucial that this training is accurately targeted and delivered at the convenience of those requiring it. There needs to be full training needs analysis and proper recording of received training. Training provision should be proactive, pre-empting training needs rather than reacting to them. Training programs should be built into contingency plans
2. Exercises should be developed to cover all operations and tiers of spill, ultimately covering notifications, table-top responses, equipment deployments and incident management. Prescriptive exercises can have value but must be regarded as training and planning. Some unscripted drills will also be required as a truer test of preparedness. Procedures must allow for the lessons learned from spills to be incorporated into contingency plans.
3. Develop a skilled and trained cadre of personnel to be the Abu Dhabi Oil Spill Service (ADOSS). Members will be drawn from the ADNOC Group and its Tier provider as appropriate. ADOSS will be able to provide oil spill response team functions for any operating company requesting such support in a crisis. It is likely that at Tiers and , operating companies will require assistance due to any of the following:
 - shortage of specialists
 - need for relief personnel after first day of response
 - due to operating company personnel dealing with other elements of a crisis, e.g. fire, source control and safety concerns
 - allow operating company either to maintain or resume normal business

Action Plan

An ADNOC presentation was made to the UAE Federal Government February 1998 covering critical items of emergency planning, including:

- Contingency planning
- Overview of ADNOC's crisis strategy
 - Phases of a crisis
 - Workings of a CMT
 - ADNOC crisis strategy
- Need for a national contingency plan
- ADNOC/Government partnership
- Develop an action plan/timetable

A Working Committee was formed consisting of representatives from key government agencies, including:

- Federal Environmental Agency
- Environmental Resources and Wildlife Development Agency
- Abu Dhabi National Oil Company
- Mini Zayed Ports Authority
- Civil Defense
- Ministry of Petroleum
- UAE Armed Forces

At the first meeting of the Working Committee in May, action was taken to "begin the process", including clarifying the purpose and objectives of the committee. Committee members were selected to compile the draft of the National Contingency Plan for the various sections: a strategy section, which should describe the scope of the plan, including geographical coverage, perceived risks, division of responsibilities and roles of authorities and the proposed response strategy; an action and operations section, which should set out the emergency procedures that will allow rapid mobilization of resources and an early response to the situation; and a data directory, which should contain all relevant maps, lists and data sheets required to assess an oil spill situation and conduct the response according to an agreed strategy. These Terms of Reference were approved, Plan section leaders appointed, and a date set for the next meeting.

At the June 30th meeting, work continued with a discussion of the draft law to establish six (6) oil spill centers throughout the UAE. It was important for the Committee to make use of existing stockpiles of equipment from ADNOC and the PAJ, for example. It was understood that the Committee will need to establish and maintain contacts in other agencies and companies to assist in developing the contingency plan sections. Additionally, this will encompass the responsibilities and capabilities of each agency and authority and their inclusion in the National Contingency Plan.

At the most recent meeting of the Committee on September¹⁸ the subjects addressed included how to organize the existing base of knowledge in the Emirates and the talents and skills of its people to develop a meaningful contingency plan for each of the six oil spill response centers to be established and to train the staff for readiness of response to an emergency.

The PAJ Role in Oil Spill Response in the UAE

The UAE looks to the Petroleum Association of Japan for assistance in three areas: first, stockpiling and lending of oil spill response equipment; second, research and development related to oil spill response techniques; and third, invitation to and participation in various seminars and conferences.