

THE RESPONSE TO THE

---

***PORT STANVAC***

---

**OIL SPILL**

**REPORT OF THE  
INCIDENT ANALYSIS TEAM**



*Cover photograph reproduced  
with the permission of the  
Adelaide Advertiser/Sunday Mail.*

**Response to the oil spill at Port Stanvac  
on 28 June 1999**

**Report of the Incident Analysis Team  
April 2000**

Report by the Incident Analysis Team into the response by the National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances, to the oil spill at the single buoy mooring at Port Stanvac in South Australia on 28 June 1999

A full colour version of this report is available at AMSA's web site:  
[www.amsa.gov.au/me/incident/inc\\_ind.htm](http://www.amsa.gov.au/me/incident/inc_ind.htm)



*Beach cleanup operations at Sellicks Beach*

## CONTENTS

	Page
Preface	iv
Executive Summary	v
Incident description	1
The Response: initial and overall effectiveness	7
Planning: adequacy and effectiveness of the incident response plans, and their implementation	9
Personnel and equipment	10
Adequacy and effectiveness of wildlife rescue and rehabilitation	12
Environmental advice and support	13
Occupational health and safety issues	16
Administrative support services	17
Adequacy and effectiveness of aerial dispersant capability	19
Relationships among parties involved in the incident including media aspects	23
Contingency plans: National, State and Local	26
Recommendations	28

## APPENDICES

Appendix 1 Terms of Reference	30
Appendix 2 Glossary	32

## PREFACE

Following the oil spill that occurred at the single buoy mooring at Port Stanvac in South Australia on 28 June 1999 an inquiry was undertaken to investigate the reason for the spill and whether any corporation or individuals were responsible for the spill and should be prosecuted. The investigation was established by the South Australia Minister for Environment Housing and Aboriginal Affairs under the South Australian Environment Protection Act 1993 and is quite separate from this report.

The response to the spill was carried out as part of the National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances (National Plan). An incident response analysis, the subject of this report and which is a routine matter after any significant pollution incident, was undertaken under the general terms of reference adopted by the National Plan Advisory Committee in 1998. An Incident Analysis Team was established in September 1999 to undertake a comprehensive analysis of the management of the incident from an oil spill response perspective and to assess any deficiencies in the National Plan or in the actual response. The Terms of Reference for the Incident Analysis including details of the Analysis Team are at Appendix 1.

Members of the Incident Analysis Team, none of whom were directly involved in the incident conducted personal interviews and held discussions with many of the people involved with the response and with community and environmental groups.

Any comments or criticisms in the report must be read in a constructive sense. As with any analysis of an emergency incident it is essential to ensure that the lessons learned are used to improve arrangements and plans in readiness for any future incidents.

The Incident Analysis Team greatly appreciates the input of the many organisations and individuals who provided their written notes and made time available for informal interviews and discussion.

All times used in the report are expressed as Australian Central Standard Time.

Michael Julian  
Chair  
Incident Analysis Team  
14 April 2000

## Executive Summary

On Monday 28 June 1999 just before dawn the *Chanda*, a 148 500 dwt Liberian registered oil tanker having completed discharging its cargo of Oman crude oil, was preparing for departure from Mobil's Port Stanvac single buoy mooring in the Gulf of St Vincent, South Australia.

At 0600 hours the Mobil pilot who was on the bridge assisting the Master with the vessel's departure became aware that the discharge hose, which was in the process of being pressure tested, had parted and that oil was on the sea.

It was difficult to gauge the amount of oil on the water in the half light, but the pilot estimated it was in the range of 30 to 50 cubic metres, sufficient to classify the spill as a 'Tier Two'.

The pilot immediately notified the various shore authorities including the Transport SA Marine Environmental and Safety Operations Manager, who is the State Spill Commander, and by 0609 hours the Mobil Incident Support Centre at the Mobil Adelaide Refinery at Port Stanvac had been activated.

In discussions between the State Spill Commander and the Mobil pilot it was agreed the primary response would be aerial dispersant application.

Following receipt of information from the Mobil Adelaide Refinery of the likely loss of oil from the shore tank, the Mobil pilot advised the State Spill Commander the upper limit of the spill size as being approximately 260 cubic metres.

The weather at the time was fine with a northerly wind at 25 knots, which with the ebb tide took the oil slick in a southerly direction, parallel with the coast.

The National Plan Fixed Wing Aerial Dispersant Capability contract was activated, two agricultural spraying aircraft commenced dispersant application operations, the first at 0906 hours and the second at 0940 hours.

Dispersant application operations were at all times under the direction of an Air Attack Supervisor, on board the control helicopter, who reported the dispersant as being 'very effective'.

At 1015 hours the quantity of the oil slick, based on visual observations, was recorded in the Incident Support Centre log as about 25 cubic metres. This spill size figure was promulgated to some response personnel and was also released to the media.

The Mobil tug *Pegasus* and the South Australian Fire Service's emergency response vessel *Gallantry* with other work boats were utilised in assisting the dispersion of oil by agitating the sprayed dispersant and oil mixture with their propellers. A trailboom and a self propelled oil recovery vessel were also mobilised and by the end of the day had recovered 9 cubic metres of oil.

Aerial dispersant application continued throughout the day until 1602 hours, using a total of 18.2 cubic metres of dispersant. Using a conservative application rate of 10:1 for this type of oil would indicate that about 180 cubic metres of oil had been treated on the first day.

At 0829 hours on Tuesday 29 June the northern end of the slick was about 5.5 nautical miles south and 3 nautical miles offshore just south of Port Noarlunga. The slick extended a further 4 nautical miles south to about 3 nautical miles offshore from Moana. The quantity of the oil remaining on the sea as a slick was estimated as 50 cubic metres.

One dispersant aircraft was used on the second day and applied 7.9 cubic metres of dispersant on the remaining 50 cubic metres of oil. By 1720 hours almost all dispersible oil had been dispersed and dispersant application operations ceased.

An interruption of about three hours occurred to dispersant application operations when problems arose transporting dispersant by road from Port Stanvac to Aldinga Airport, following the switch in airports due to cross winds at Port Stanvac.

The weather was too rough to use on water oil recovery equipment on the second day and in any event, the dispersant was still effective even though more than 24 hours had elapsed after the release of the oil. Vessels continued throughout the day to agitate the dispersant/oil mixture and bring fresh oil to the surface.

It was predicted that the last remaining remnants of spilt oil, which was mainly sheen, would likely come ashore the following morning. Overnight planning was undertaken to prepare for beach cleanup operations.

The aerial surveillance flight on the morning of Wednesday 30 June reported light oiling of Sellicks and Aldinga Beaches.

Over the next three days some 150 personnel and equipment from the City of Onkaparinga were used to clean the beach. About 400 cubic metres of oiled sand and seaweed was removed.

On Friday 2 July Mobil confirmed the loss of oil from the shore tank and pipeline as approximately 270 cubic metres.

Beach cleanup activities ceased on Saturday 3 July.

The Incident Analysis Team found that overall this was a successful response, with a very good outcome. It clearly demonstrated the capability of aerial dispersant application and the ability of the two principal organisations Transport SA and Mobil to work well together with support from other organisations under the South Australian Marine Spill Contingency Action Plan.

The strong weather conditions and favourable currents combined with the successful application of dispersant resulted in this significant spill having minimal impact on the marine and coastal environment.

The successful outcome is a clear indication that the incident was appropriately managed within the scope of the State, Local and National contingency plans.

Nevertheless, in any analysis of this kind issues will be identified which can help in future response operations. Some fourteen recommendations have been made and a number of other issues listed which need to be addressed by the National Plan Advisory Committee.

### **Three main areas have been identified.**

Firstly, the issue of communicating spill quantities accurately and timely to all involved in the pollution response operation and to the media. In this incident there was confusion amongst responders as well as deep concern in the community about misinformation about the size of the spill. Community and media representatives clearly indicated to the Analysis Team that Mobil lost a lot of credibility in their handling the provision of 'accurate' information.

Secondly, the issue of the method of estimating the quantity of spilled oil, particularly obtaining better estimates of the thickness.

Thirdly, the need to ensure accurate estimates of dispersant requirements are made and recorded and that application rates and dispersant usage are monitored and recorded throughout a response.

## 1

## INCIDENT DESCRIPTION

**Monday 28 June 1999**

Just before dawn the *Chanda*, a 148 500 dwt oil tanker owned by Essar Shipping Limited and registered in Liberia, having completed discharge of its cargo of Oman crude oil, was preparing for departure from the Port Stanvac single buoy mooring (SBM) in the Gulf of St Vincent, South Australia. The SBM is located 1.8 nautical miles off the Mobil Adelaide Refinery at Port Stanvac and consists of a floating hose, mooring buoy and subsea pipeline to the shore tank farm.

At 0600 hours the Mobil duty pilot who was on the bridge of the *Chanda* assisting the Master in the vessel's departure noticed a smell of crude oil. The pilot then saw that the discharge hose, which had been disconnected from the ship and was being leak tested, had parted, at or near, the breakaway coupling and that oil was on the sea.

The duty pilot immediately notified shore personnel to activate the Mobil Incident Support Centre (MISC) at the Mobil Adelaide Refinery. The pilot also notified the Refinery Manager and the Transport SA Marine Environment and Safety Operations Manager who is the State Spill Commander (SSC).

In the initial telephone advice by the Mobil pilot to the SSC it was agreed Oman Crude was amenable to chemical dispersion and that aerial application of dispersant would be the most appropriate response.

The SSC, who was at home, took command of the response initiating pre arranged call out procedures prior to going to the Transport SA office in Port Adelaide.

The duty pilot, in the initial stages, was uncertain of the amount of oil that had escaped from the discharge hose but estimated the spill in the range of 30 to 50 cubic metres. That is a Tier Two spill, between 10 and 1000 cubic metres.

The weather was fine with a northerly wind at 25 knots, which together with the ebb tide took the oil slick in a southerly direction, parallel with the coast.

Between 0602 hours and 0609 hours the SSC activated the South Australian Marine Spill Contingency Action Plan and called out Transport SA pollution response personnel, instructing them to establish the Transport Incident Control Centre (TICC) at Transport SA's depot at Glanville Dockyard. The SSC also telephoned Australian Maritime Resources (AMR), located at Parafield airport to the north of Adelaide, alerting them of the need for aerial dispersant application pending AMR being activated by the Australian Maritime Safety Authority (AMSA) in Canberra.

AMR is the company contracted by AMSA under the National Plan to provide a fixed wing aerial dispersant capability using agricultural crop spraying aircraft.

By 0609 hours the MISC had been activated, divers called out to shut down the sub sea valves and directions given for the company's work boat Beattie to be rigged to apply dispersant. However it was later determined that the vessel would not be used to apply dispersant. A helicopter had been ordered to undertake surveillance of the spill.

Mobil made an initial calculation of the amount of oil in the shore tank and estimated that up to 260 cubic metres of oil could have been released and advised the SSC the upper limit of the spill size as about 260 cubic metres. From previous experience it was noted that these initial calculations should be treated with caution until the oil level in the shore tank had settled.

The MISC at the Mobil Adelaide Refinery was operational by 0630 hours, initially under the direction of a Mobil Marine Pilot who was later appointed Incident Controller (Mobil).

By 0630 hours the SSC had contacted AMSA's Environment Protection Group (EPG) advised that the oil spill was estimated at between 30 to 50 cubic metres and requested activation of the Fixed Wing Aerial Dispersant Capability (FWADC) contract. EPG personnel were called in to AMSA's headquarters to assess the oil spill response requirements including activation of the National Response Team (NRT), the activation of the FWADC contract and the possible need for additional National Plan equipment from interstate.

At 0652 hours Mobil placed the oil industry's Geelong based Australian Marine Oil Spill Centre (AMOSOC) on stand-by.

The Environment and Scientific Coordinators (ESC's) were on site by 0715 hours.

The helicopter chartered by Mobil arrived at Port Stanvac at 0725 hours and was operational throughout the response supporting Mobil operational activities.

At 0725 hours the TICC was operational under the direction of the Principal Marine Environment and Safety Officer with primary responsibility of providing operational support and assisting with logistics and administration.

At 0740 hours AMSA was advised by Mobil of the possible upper limit of 260 cubic metres and following further discussion between AMSA and the SSC and Mobil, AMSA activated the aerial dispersant capability contract at 0757 hours.

Aerial dispersant application operations commenced at 0906 hours. Initial reports received from the control helicopter indicated the dispersant application was very effective.



*Aerial dispersant application by Air Tractor.*

AMSA agreed to initially send two personnel to Port Stanvac to assist with operations, a third officer was sent later in the day.

Two dispersant application aircraft operated throughout the day under the direction of AMR's Air Attack Supervisor on board the control helicopter.

Precautionary booms were placed in the Onkaparinga river mouth and other creeks south of Port Stanvac to reduce the risk of oil entering these rivers. The first boom was in place by 0830 hours.

At 0930 hours the SSC relocated to the MISC at the Mobil Adelaide Refinery and continued the incident command role as well as managing the Operations Section within the Incident Control System structure. The MISC then became the Incident Control Centre and the TICC operated in a support role (TISC) until the following day when its staff relocated to the Advanced Operations Centre (AOC) at the O'Sullivan's Beach boat ramp.

At 1000 hours the first Oil Spill Situation Report (SITREP) was issued by the TISC advising the approximate spill size as 50 cubic metres.

At 1015 hours the aerial surveillance flight reported the dimensions of the slick as 1000m x 250m, it was also observed that the oil was 'quite thick' in the bow and stern waves of the Mobil tug and other work boats in the area. The incident log records the size of the slick as 25 cubic metres, this figure was released to the media and also to some response personnel.

The SSC, who was working to an upper spill size limit of 260 cubic metres as advised by Mobil, estimated that sufficient stocks of dispersant were available within the State to combat the spill.

A number of vessels owned by SA Ports Corporation, Transport SA and Mobil operated to agitate the oil to bring fresh oil to the surface to assist in the dispersant process.

At 1315 hours the SSC confirmed with AMSA that there was no requirement to seek assistance of the NRT or for additional National Plan equipment.

Some on-water oil recovery activity was undertaken between aerial spray runs by Transport SA's vessel Murex and the National Plan oil recovery vessel *Mullo* utilising a trol boom. This operation was successful in recovering 9 cubic metres of oil.

At 1602 hours aerial dispersant application ceased for the day. It was noted that a total of 18.2 cubic metres of dispersant had been used.

During the day the slick was reported to have spread to between 5000 and 10000 metres in length and between 500 and 800 metres in width.

The SSC determined that one dispersant application aircraft would be required the following day.

## Tuesday 29 June



*Advanced Operations Centre,  
O'Sullivan's Beach boatramp.*

At 0700 hours the wind was northerly at 20 to 30 knots.

At 0829 hours the northern end of the slick was about 5.5 nautical miles south and 3 nautical miles offshore, just south of Port Noarlunga. The slick extended a further 4 nautical miles south to about 3 nautical miles offshore from Moana. The spill was observed to be 5500m by 500m and later estimated at about 50 cubic metres volume.

Due to cross winds at the Port Stanvac airstrip aircraft dispersant loading operations were initially transferred to Calvin Grove 50 kms from the oil slick while dispersant supplies were transported to Aldinga Airport.

At 0853 hours it was decided to relocate Transport SA personnel from the Glanville Dockyard ISC to set up an Advanced Operations Centre (AOC) at O'Sullivan's Beach boat ramp in the State Emergency Service (SES) caravan with responsibility for coordinating the beach cleanup operation..

At 0925 hours AMR resumed aerial dispersant application operations using one dispersant application aircraft and the control helicopter. Vessels were again used to agitate the oil/dispersant mixture with their propellers. Weather conditions prevented any attempt at on water recovery.

Aerial dispersant application operations continued throughout the day, except for a 3 hour delay while dispersant was relocated to Aldinga Airport. Road transportation difficulties were the main cause of the delay.

At 1437 hours the wind was continuing from the north at 23 knots.

At 1533 hours the oil slick was reported to consist mainly of sheen and was approximately 5 nautical miles north of Myponga Beach and was 6000m long and 200m to 500m in width. The SSC estimated the quantity of oil remaining as about 8 cubic metres.

By 1720 hours nearly all oil capable of being dispersed had been dispersed, consequently the decision was made to terminate aerial dispersant application.

Despite a forecast of the northerly winds turning south west the wind remained northerly until the evening which assisted in holding the oil offshore.

Throughout the day the South Australian Metropolitan Fire Service's Emergency Response Vessel Gallantry operated in the area of Aldinga Beach using fire monitors to agitate the oil slick to assist in dispersion.

A total of 26.1 cubic metres of dispersant was used in the response.

**Wednesday 30 June**



*Snares ready for use at Sellicks Beach*

At 0745 hours the wind was south to south west at 20 knots.

At 0758 hours, an aerial surveillance flight confirmed that some oil was impacting the shoreline at Sellicks and Aldinga Beaches. Light oiling of about 800m of beach with slight sheen for about 1 kilometre on each side was reported.

Between 0800 hours and 1010 hours beach cleanup gangs and council equipment were organised and sent to Sellicks and Aldinga Beaches.

Some 150 personnel were employed in beach clean up operations, which continued throughout the day. Oiled seaweed and sand debris collected from Sellicks and Aldinga Beaches was transported to the Port Stanvac refinery for remediation.

Arrangements were put in place for further beach cleanup for the following day.

**Thursday 1 July**



*Vehicles and equipment used in beach clean up at Sellicks Beach*

By 0820 hours 100 personnel were deployed to continue beach clean up operations.

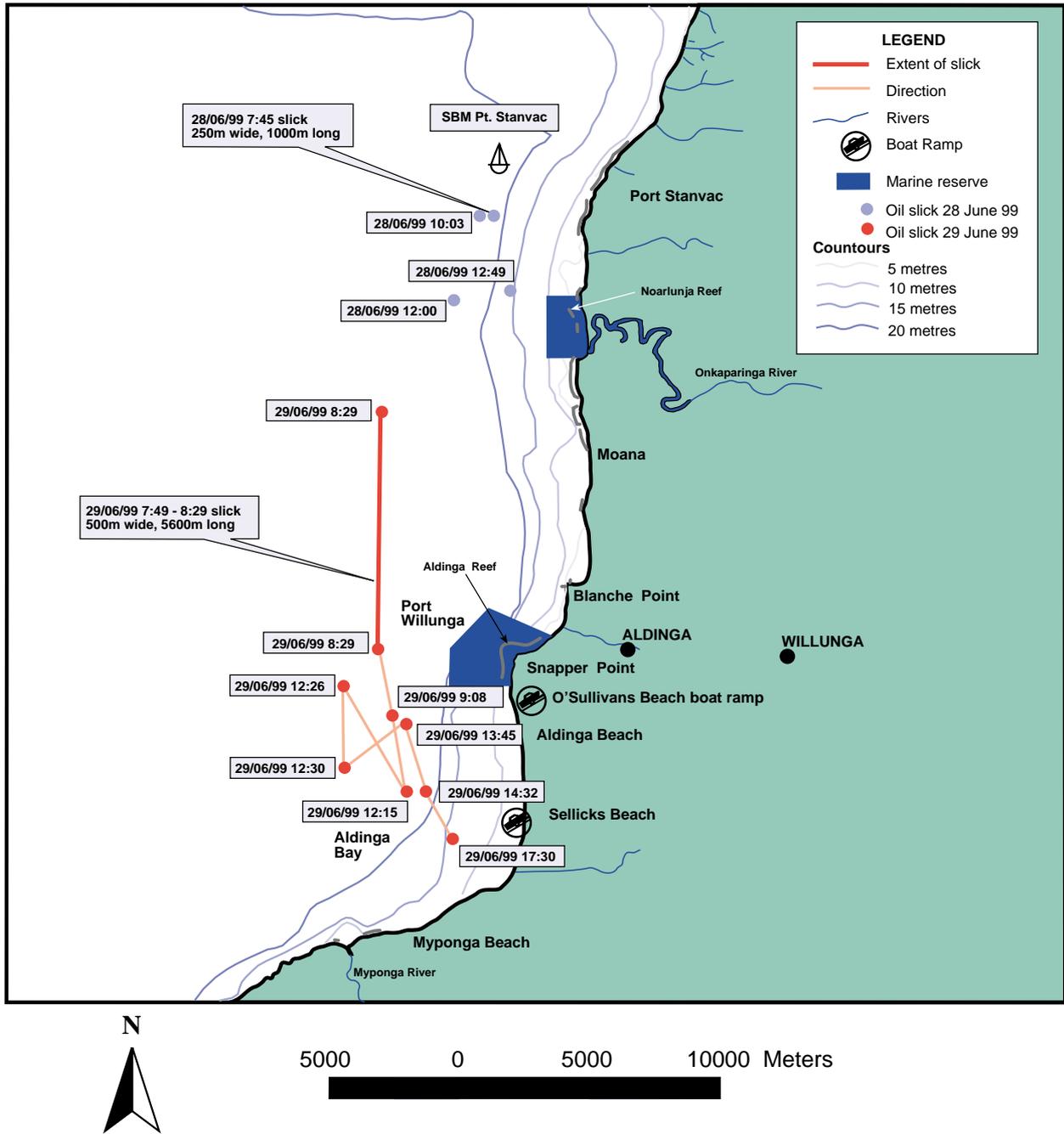
Approval was obtained from the Environment Protection Agency (EPA) for oiled debris to be taken for land disposal.

The aerial surveillance flight at 0855 hours reported no further oil at sea and at 1332 hours reported that the beach was substantially clear of oil.

During the afternoon booms were removed from various creeks and other equipment returned to store for cleaning. A general wind down of response operations was underway.

**Friday 2 July -  
Saturday 3 July**

Spot cleaning of remaining oiled beach pebbles and rocks was carried out with local councils satisfied beach cleanup was completed.



## 2

## THE RESPONSE: initial and overall effectiveness

The response commenced immediately the spill was noticed at 0600 hours on Monday 28 June 1999. The MISC was activated and the South Australia SSC took overall command of the response from the initial notification.

The response continued until Saturday 3 July and consisted of two days aerial dispersant application with some minor on-water oil recovery and three days minor beach cleanup.

Oil spill recovery and response craft from Transport SA, SA Ports Cooperation and Mobil undertook the on-water response. Vessels from these organisations were standing by on the edge of the slick awaiting instruction to recover oil but it was considered the dispersant application operation was sufficiently effective without intervention of oil recovery vessels. However, this aspect was not relayed to them. The surface craft were used to agitate the oil/dispersant mix and also to bring 'fresh' oil to the surface for the next aircraft sortie.

The TISC sent out several reports using the SA Pollution Report (Poll Rep) report form instead of using the more detailed SITREP form specified in the National Contingency Plan. By mid morning and again at other times it was necessary for AMSA to remind the TISC of the requirement to send out regular situation reports.

On the morning of Wednesday 30 June the first surveillance flight determined that there was light oiling at White Sands, Aldinga and Sellicks beaches.

Beach clean-up was coordinated by Transport SA with assistance from Mobil from the AOC located at O'Sullivan's Beach. Beach cleanup resources consisted Mobil's Transfield contract labour as well as personnel and equipment from the City of Onkaparinga, a total of 150 persons were used in beach clean up operations.

Beach clean-up consisted of two main approaches, firstly removing beach debris such as seaweed along the shoreline, prior to the oil hitting the beach. This reduced the amount of waste generated.

Also absorbent snares were used in the surf zone with the intent of restricting oil from beaching.

In the second approach beach clean up crews removed the thicker aggregations of oil and sand debris using three front end loaders and six trucks. Oiled pebbles above the tidal influence were placed into the surf zone for mechanical agitation using City of Onkaparinga equipment.

The beach cleanup produced some 400 cubic metres of oiled debris, mainly sand and seaweed (containing an estimated 2 tonnes of oil) much of which was returned to the refinery site for remediation and the remainder taken to a nearby authorised waste facility after EPA approval.

### Comment

The initial and overall response was timely and effective. The aerial dispersant application operation was the key factor in the successful outcome to this incident, clearly demonstrating the benefit of the National Plan FWADC contract.

Concern was expressed about the time it took AMSA to activate the FWADC contract. AMSA advised that information on several aspects had to be obtained before committing the costs associated with such a response. To speed up the activation process in the future AMSA should specify the type of information required. In future this information should be provided to AMSA at the same time as the request to activate the FWADC contract.

A detrimental aspect of the response was the under estimation of the spill size at 1015 hours on the first day and the confusion caused by the promulgation of the low figure to some of those involved in the response as well as its release to the media.

It has not been made clear to the Incident Analysis Team where the assessment of 25 cubic metres came from. The method and premises on which the estimation was made were not recorded, 'back-tracking' the information that is available does not agree with this estimate. It would appear that

insufficient attention was given to the thickness of the oil in the bow and stern waves of vessels in the slick and the use of helicopter rotor wash may not have been considered to estimate the thickness of the slick.

Despite a spill size of 25 cubic metres being passed to the media as well as to some response personnel, the spill was responded to as a Tier Two spill.

The table for calculating volume of oil spilled by area of slick and colour description in the Mobil Adelaide Refinery Marine Oil Spill Contingency Plan and a similar table in the National Contingency Plan, could be improved, particularly regarding thicknesses likely to be experienced with freshly spilt oil.

Analysis of the amount of dispersant used on the first day clearly demonstrated to all that the spill was greater than the 25 cubic metres recorded in the incident log and communicated to the media, however no attempt appears to have been made to correct this.

The absence of suitable communications from the dispersant application aircraft and helicopters to the ICC and to the support craft resulted in uncertainty regarding the coordination of the on-water recovery and the aerial dispersant application.

The uncertainty of the support craft crews of their role and of the aerial dispersant application strategy being the sole response mechanism led to confusion about the use of their oil recovery capability and at times led to the risk of boat crews being exposed to dispersant drifting over them.

Previous experience had led Mobil personnel to suspect the tank reading, which indicated 260 cubic metres had been lost. However, the Incident Analysis Team was advised that the estimate was likely to have been accurate within 100 cubic metres, which at the lower end would still have been a spill of 150 cubic metres.

Of particular interest was the ability to disperse the Oman crude beyond the 12 hours indicated by the Automated Data Inquiry for Oil Spills (ADIOS) system which provides information on weathering, evaporation and the dispersant window for various oil types.

There was comment that visitors to the ICC could not immediately discern amongst the various groups in

the ICC who was in charge and who was undertaking what. The use of tabards in future would clarify such issues.

With two helicopters and two dispersant application aircraft operating in the area, the lack of an Aviation Coordinator position in the ICC was detrimental to effective coordination of and communication with all aircraft operating in the area of the spill.

A key factor in any emergency response is the issue of regular, succinct SITREPS to keep others informed of progress, this is particularly important when agencies from interstate are being used or even when consideration is being given to using them.

Environmental groups interviewed by the Incident Analysis Team were concerned that too many people and too much heavy vehicular equipment was used in the beach cleanup, risking burying the small amounts of oil on the beach. In their view the beach should have been left to weather naturally.

Other comments were made about a perceived lack of organisational structure in the beach cleanup arrangements, without a specific person clearly identifiable in charge of operations.

### **Issues to be addressed**

- AMSA should promulgate the information required to assess and activate the Fixed Wing Aerial Dispersant Capability contract.
- Improved National Plan training through promulgation of the techniques to be used when estimating spill sizes, particularly with regard to obtaining the thickness and dimensions of oil slicks.
- The table in the National Contingency Plan and the Mobil Adelaide Refinery Marine Oil Spill Contingency Plan used for calculating the volume of oil spilled using the area of slick and colour description should be revised for spills of greater thickness. NPAC should also consider using other oil slick size estimation models such as contained in the Exxon Oil Spill Response Field Manual.
- Need to ensure an Aviation Coordinator is appointed in the ICC whenever more than one aircraft is used.

## 3

## PLANNING: adequacy and effectiveness of incident response plans, and their implementation

There were a number of factors that contributed to the success of planning and executing the response to the spill, ie:

- The location of the spill was close to the resources of the Port Stanvac Refinery.
- The properties of the spilled oil were readily identified.
- The spill was noticed as soon as it had happened.
- Contingency plans for both the Port Stanvac Refinery and the State of South Australia are well developed and integrate well together.
- Both government and industry personnel were very experienced and well known to one another through the National Plan State Committee, exercises and previous incidents.
- The responsibilities were clear and therefore response action was able to be initiated very rapidly.
- There was negligible impact on wildlife.

In the initial stages it became clear and understood by the majority of personnel involved in the incident that the key response strategies were:

- (i) Disperse the crude oil offshore as quickly as possible using the fixed wing aerial dispersant capability;
- (ii) Deploy on water containment and recovery equipment;
- (iii) Boom off sensitive areas such as river mouths;
- (iv) Monitor the trajectory of the oil, prepare and execute such beach clean-up as required; and
- (vi) Monitor wildlife and respond as required.

A decision was made to set up the MISC at the Emergency Response Room in the Mobil Adelaide Refinery administration facility. This facility, centrally located with respect to the incident, has adequate space, is well served by resources such as phone and fax and has controlled access and is the recognised ISC for spills in the vicinity of Port Stanvac. The facility took on the responsibility of managing the incident when the SCC relocated there at 0930 hours on the first day and became the ICC.

The planning process used throughout the incident was relatively informal, based on morning and afternoon meetings of key personnel in the ICC. At these meetings feedback on progress was provided and key strategies modified as necessary, overall agreement was generally obtained by all parties on required action with delegation of the detailed planning of the various strategies given to the operational teams. Detailed action plans, where required, were prepared by the operational teams.

The dispersant application was planned and managed by AMR, with assistance from Mobil in loading dispersant into the aircraft. Application was controlled by discussion between the team in the control helicopter and the pilots, using the normal aircraft communications.

The decision that aerial dispersant application would be the sole response strategy and on water containment and recovery would not be required was not made clear to those involved in operating the oil recovery vessels and equipment.

The on-water recovery operation carried out using National Plan owned equipment was managed by Transport SA personnel, with recovery of oil taking place only on Monday 28 June, the first day.

Detailed planning for the beach clean up was carried out on site and at the AOC, with personnel and equipment required and its deployment resulting from the outcome of shore surveys. The open beach nature of the shoreline and the low concentration of oil meant that shore surveys were rapidly and easily carried out, thus not requiring the use of the full shoreline assessment methodology.

Wildlife support planning and monitoring, while under the overall coordination of the ESC, was provided by the RSPCA.

### Comment

Overall the planning, while informal, was successful and appropriate for an incident of this size and duration.

## 4

# PERSONNEL AND EQUIPMENT

State and Federal government agency personnel together with Mobil and AMOSC were either immediately activated or placed on stand-by. AMR, the National Plan FWADC contractor was alerted to the requirement for aerial dispersant application prior to activation of the FWADC contract by AMSA.

National Plan on water oil recovery equipment held at Port Adelaide was mobilised and transported to the site.

In the initial stages AMSA notified the Chairmen of the National Plan State Committees in Victoria and NSW of the incident in case additional personnel and equipment resources were required from the NRT. This was later determined as not being required.

Likewise it was also determined that additional resources from AMOSC would not be required.

The National Plan equipment was supplemented by Mobil equipment held at the site.

### Personnel

Personnel from Transport SA, SA Ports Corporation, Metropolitan Fire Services, SES, marine oil spill contractors, EPA and DAS Distribution together with Mobil's spill response team responded to the spill.

Three officers from AMSA attended to assist with the response. Local Government in the affected area (Onkaparinga and Marion) played a significant role in the beach cleanup operation.

AMR General Manager, Operations Manager, Air Attack Supervisor and pilots were mobilised and operations commenced shortly after activation by AMSA.

Transport SA Marine Safety Officers and the Principal Marine Environment Safety Operations Officer (PMESOC) opened the Glanville Dockyard Operations Centre. Administration staff were also called in to set up the support function. SA Ports Corporation was requested to provide personnel, vessels and crews.

The Mobil Adelaide Refinery ISC and later ICC was operated mainly by Mobil personnel, whilst other Mobil staff crewed Mobil's tug *Pegasus* and other work boats. The National Plan oil recovery vessel *Mullo* and other work boats were operated by personnel from Transport SA and the SA Ports Corporation.

The beach cleanup was set up with the PMESOC as Incident Controller in conjunction with the Mobil Shoreline Officer. Assisting were the City of Onkaparinga, State Emergency Service, the RSPCA, marine oil services contractors, Mobil Refinery personnel, Transfield personnel, Marine Safety Officers, AMSA advisers, St. John Ambulance, Christies Beach Police and Chubb Security. On Wednesday 30 June 150 people were employed in beach cleanup.

Overall 228 persons were involved in the response from the following 18 organisations: Australian Maritime Resources, Australian Maritime Safety Authority, Chubb Security, City of Onkaparinga, DAS Distribution, Direct Personnel, Environmental



Beach clean-up operation at Sellicks Beach

Photograph reproduced with the permission of the Adelaide Advertiser/Sunday mail.

Protection Agency, Marine Oil Pollution Service, Mobil, National Parks and Wildlife, Ports Corp SA, RSPCA, SA Metropolitan Fire Service, SA Police, State Emergency Service, St John Ambulance Service, Transfield, and Transport SA.

### Equipment

The National Plan equipment comprised the vessel *Murex*, a Troilboom, Transpac, the oil recovery vessel *Mullo* as well as Warren Springs pump and VHF radios etc.

Additionally there were SA Ports Corporation, State Emergency Service vessels, the South Australian Metropolitan Fire Service's Emergency Response vessel *Gallantry* plus vessels from the Mobil Adelaide Refinery.

The SES provided a mobile command centre, which was set up at O' Sullivans Beach boat ramp in addition the RSPCA wild life rescue trailer was activated.

Dispersant stocks available were supplemented by 10 tonnes from industry stock from Port Lincoln.

Consideration was given to marking the slick overnight, however, the request to AMSA to send the National Plan satellite tracking buoy was made too late for the equipment to be put on board the last flight out of Canberra. An improvised technique with a strobe light was not successful.

Shoreline protection boom was deployed in the surf zone off Sellicks Beach during the morning of Thursday 1 July. Snares were successfully used in the surf line and on the beach.

### Comment

Problems were experienced using mobile phones on some beach areas and operators were unaware Telstra could supply a temporary base station to rectify the problem.

The Troilboom was left unattended overnight and was damaged chaffing on a jetty at Port Stanvac.

The response was based entirely on aerial dispersant application operation over two days with some minor on water recovery on day one. Overall the response team had access to adequate and appropriate National Plan, State, Local Government and industry equipment. The equipment utilised in the incident worked to expectations. Comments on the effectiveness of the aerial dispersant operations are provided at Section 9.

Adequate response personnel were available and responded in a timely manner. Decisions made to alert AMOSC and other States that requests may be made for additional equipment and personnel were appropriate and timely. However the delay in advising of their not being required caused some uncertainty and unnecessary telephone calls to obtain the status of the response.



*Snares used in surf line at Sellicks Beach.*

5

## ADEQUACY AND EFFECTIVENESS OF WILDLIFE RESCUE AND REHABILITATION

Under the South Australia Marine Spill Contingency Action Plan (SAMSCAP) the Wildlife Welfare Coordinator (WWC) is mobilised by the ESC. The WWC is responsible for implementing the Department of Environment, Heritage and Aboriginal Affairs (DEHAA) Management Plan for the co-ordination of wildlife rescue and treatment in the event of a major oil spill in South Australia.

The Onkaparinga estuary was the main wildlife habitat at risk. However, oiling to other animals could have occurred in the open gulf and in minor creek outlets along the coast.

The WWC was activated by the ESC at 0638 hours on Monday 28 June. The RSPCA which is tasked with providing wildlife rescue and rehabilitation was placed on stand-by at 1555 hours on Monday 28 June and was on site at Port Stanvac at 1450 hours on

Tuesday 29 June with the wildlife response trailer and a veterinary officer. RSPCA personnel relocated to the O'Sullivan's Beach boat ramp AOC at 0725 hours on Wednesday 30 June, the morning the oil beached.

Although a few lightly oiled seagulls were reported, these proved to be juveniles with their brown plumage. One oiled silver gull was taken for rehabilitation. No dead birds were reported.

### Comment

Although there was no need for a wildlife rescue operation, the notification and activation of the wildlife rescue and rehabilitation resources was timely and appropriate. The ESC noted that *'integration throughout by the parties involved was impressive'*.

## 6

**ENVIRONMENTAL ADVICE AND SUPPORT**

The South Australia DEHAA encompasses the EPA and the National Parks and Wildlife Service (NPWS) and in an oil spill response is responsible for advising on environmental matters and for coordination with other environmental bodies. DEHAA carries out its oil spill response role through liaison officers to the National Plan State Committee including the ESC responsible for advising the State Spill Commander and ICC personnel.

The Senior ESC and ESC were notified of the spill at 0620 hours and 0630 hours respectively, ie almost immediately after the SSC was notified. They were 'on scene' at the MISC by 0715 hours, having notified appropriate officers in NPWS, Primary Industries South Australia, Fisheries Division and EPA.

Sensitive areas considered most at risk were the Onkaparinga estuary which is both a conservation park and aquatic reserve and Aldinga Reef. No oil impacted either of these areas.

The two ESC's have a detailed personal knowledge of the area and were able to determine appropriate protection priorities and environmental sensitivities immediately upon notification of the spill. Their local knowledge was backed up by the State's Coastal Resource Atlas, which consists of portable hard copy maps.

Notwithstanding the prior agreement for the use of dispersants in the vicinity of the SBM at Port Stanvac, the Senior ESC reconfirmed agreement for aerial dispersant application. While possible effects of dispersed oil in the water column were acknowledged there is little information available on the plankton in the area of the spill whereas there were known sensitive shorelines and the likelihood of wildlife in the vicinity being under threat. These shorelines and wildlife were clearly more important to protect.

No commercial fishing takes place in the vicinity of the spill. Consideration of restriction of recreational fishing and other activities were not recorded, however, boating patrol officers and their vessels were on hand and could have been used if required to divert recreational activity away from the area of response operations.

It was reported that 'at all times' the oil slick was in deep water with good current circulation. Nevertheless, in the afternoon of Tuesday 29 June when the remaining slick drifted towards Sellicks beach a 1.5 nautical miles buffer zone was instigated by the ESC around Aldinga Reef and in addition a 10 metres water depth limitation was introduced. Dispersant application was prohibited in these areas

An On Scene Spill Model (OSSM) prediction was requested by the SSC at the time of reporting the spill to AMSA at 0630 hours. However there was a delay in this request being passed to the appropriate AMSA officer until 0830 hours on Monday 28 June. The completed prediction was sent to the ICC at 1120 hours.

A second OSSM prediction requested on Tuesday 29 June was faxed to the ICC at 1504 hours.

The first prediction did not coincide with actual events. The OSSM 'predicted' the spill moving to the east whereas it actually moved south for most of the day.

The second OSSM prediction on day two showed a slick between the release point and Myponga with oil beaching at Port Willunga approx 5 kilometres north and 12 hours earlier than it did. Input data was based on oil continually being released and did not take into account that the oil slick was being treated with dispersant.

The EPA established and supervised a beach monitoring program for hydrocarbons both on the

surface and down to the anaerobic layers which lasted until September 1999. The program consisted regular collection of beach core samples along a ten kilometre length of coastline. No traces of oil were found.

Additional post spill monitoring was undertaken by the EPA by conducting surveys of sediments at Aldinga and Noarlunga Reefs.

Underwater inspection under the spill path was arranged by Mobil to allay concerns that oil was on the seabed. No traces of oil were found.

Mobil commissioned detailed testing of the marine environment after the incident to assess residual oil and dispersant concentrations as well as the effects on marine organisms.

## Comment

The On Scene Spill Model (OSSM) is an oil spill trajectory tool operated by AMSA in Canberra and has been an integral part of the National Plan since the late 1980's. The limitations of OSSM, particularly its user friendliness and map scale, were recognised some years ago and a new system, which has now replaced OSSM, has been under development for the past three years. However, at the time of this incident OSSM was still in use.

An accurate OSSM prediction was reliant on the accuracy of the input information which included quantity and type of oil, whether the oil spill was instantaneous or continuing, tidal information, and current as well as forecast winds.

While the users of the OSSM were generally pleased at the time of the incident with the predictions, as being 'fairly accurate', further analysis after the incident found some discrepancies. The inaccurate predictions were mainly due to not using the best metrological information available and using 'continuing' oil spill instead of the 'instantaneous release' option that should have been used.

In addition to the beach monitoring and sediment survey at Aldinga and Noarlunga Reefs, in view of

the quantities of dispersant used, it could have been informative to have undertaken a sampling program during the incident. Test sampling of appropriate indicative species eg mussels would have been helpful in determining the movement of the oil and the oil/dispersant mixture. However, the problems in setting up such a program in the short time available are recognised.

Results of such tests may have allayed the fears of the community and environmental groups who expressed their concerns about dispersant use.

While the EPA and Mobil undertook some monitoring of the impact of the oil on the environment, uncertainty exists concerning the responsibility for monitoring the environmental impact of dispersant use.

The ESC's local knowledge and experience provided a high level of local awareness and meant that detailed use of foreshore documentation was not necessary.

The assessment of oiled shorelines, prior to cleanup is the responsibility of the appropriate Deputy on Scene Coordinator- Foreshore (DOSC).

The DOSC and cleanup teams suggested that in the future, prior to foreshore cleanup operations commence, a video recording be made of the oiled beach as well as the adjacent non oiled shoreline, as necessary documentation in assisting in demonstrating the effectiveness of foreshore cleaning.

In the early stages of shoreline inspection, foreshore cleanup personnel benefited from the use of Mobil's 35 shoreline sector maps between Kingston Park and Blanche Point and for the Onkaparinga estuary. The maps cover some 30-40 kilometres of detailed shoreline mapping, however the area where the oil beached was 4 to 5 kilometres south of the limit of these maps. Accounts of the oil stranding were that it was light and the cleanup assessments were ad-hoc carried out directly by the foreshore cleanup group and team leaders.

There was also a suggestion for future incidents that a local resident, knowledgeable in the appearance of the beach prior to the oiling be included in the assessment of determining when 'clean is clean' as part of the beach sign off process.

Procedures taught in Shoreline Cleanup Workshops specify a formal process of documenting oiled foreshores prior to cleanup. In this case the light oiling meant that the assessment did not necessarily have to be undertaken by a separate dedicated unit but was done directly by the appropriately trained cleanup teams.

The suggestion that video records could substitute for this is valid providing adequate referencing and filing of the videos is undertaken. Some, 'objective' before and after record is often helpful for demonstrating when 'clean is clean' and also in dealing with insurance claims.

Apart from the issues identified above, overall the level of environmental advice and support was appropriate for this incident.

## Issues to be addressed

- NPAC determine the role of the National Plan in monitoring the environmental impact of dispersant application and where necessary develop procedures for sampling areas treated with dispersant.
- Regardless of local knowledge, the status of an oiled shoreline should be documented prior to cleanup.
- Consideration be given to making a video recording of oiled foreshores and using a local resident knowledgeable in the foreshore status prior to oiling to assist in decision making in termination of beach cleanup and sign off.
- Where a spill prediction model is used the ICC planning team should assign a member to take responsibility for providing accurate input data to AMSA as well as providing feedback on the results of the prediction.

7

## OCCUPATIONAL HEALTH AND SAFETY ISSUES

Detailed planning of the occupational health and safety aspects of the response was delegated to the key operating areas. Evidence of an overall OH&S plan was not provided.

Vessel crews were uncertain about their role and on occasions found themselves close to the area where the aerial application of dispersant was being undertaken and risked being sprayed with wind driven dispersant.

The shoreline cleanup was the most labour intensive area of the response. The trained Mobil contractor personnel were provided with personal protective equipment suitable for working in the wintry conditions and inducted into the specific requirements of the beach work.

Difficulties were experienced deploying a shoreline protection boom in rough weather conditions using a small low powered inflatable dinghy which flipped spilling its two occupants into the sea.



*Shoreline protection boom being deployed at Sellicks Beach*

An AMSA officer was appointed as Safety Officer for the beach cleanup activity. First aid standby was provided by St John Ambulance volunteers on Wednesday 30 June. However, due to a misunderstanding between the ICC and the beach team, the St Johns personnel were stood down for the next day.

Overall, the only incidents reported were a wrenched neck, back and wrist from a slip off a pontoon at the O'Sullivan's Beach boat ramp and a sore shoulder from one of the beach cleanup team personnel. Neither of these injuries required any treatment.

### Comment

The absence of any significant injuries resulting from the difficult work in mid-winter both offshore and on the shoreline is a very good result.

It is noted that there appeared to be no safety issue with respect to vapours from the freshly spilled oil, possibly contributed to by the 25 knot wind blowing at the time. Nevertheless, no gas tests were carried out to confirm this in a quantitative way.

A combination of a lack of coordination and poor communication with surface vessels led to uncertainty about their role in the response and where they should operate. It would appear that this led to the risk of wind driven dispersant falling on vessel crews. Had the dispersant been of a type injurious to human health this could have led to sickness problems.

The attempt to deploy shoreline protection boom in adverse weather using an inflatable dinghy is questionable. Boom such as this will not be effective in adverse weather. The resultant flipping of the dinghy and the occupants being tipped out could have been avoided if supervised more closely.

Overall the management of OH&S issues was adequate for the incident.

# 8 ADMINISTRATIVE SUPPORT SERVICES

Mobil assigned its own administrative resources to the Mobil Adelaide Refinery ISC and later the ICC.

Transport SA and DAS Distribution provided the administrative/logistics/finance functions initially from the ISC at Glanville Dockyard and later at the AOC at O'Sullivan's Beach boat ramp.

A close liaison evolved between the two teams with personnel from Mobil participating at the Transport SA AOC and vice versa.

A comprehensive track of spending was maintained during the response.

The ICC, ISC and AOC maintained a continuing log for the duration of the response.

At the incident de-brief a number of suggestions were made to improve the operations of the ICC. These included presentation of information on status boards such as the organisational structure and the location and tasks for personnel and equipment, the for improved communications such as Internet access for weather reports and separate 'in/out' faxes etc.

**Comment**

The Mobil and Transport SA administrative personnel have undertaken a number of oil spill training exercises and have attended administrative courses so were well aware of what was required of them.

The close liaison between the two groups ensured a mainly smooth operation with minimal overlaps , however there were two exceptions; helicopters and catering services were booked by both administrative sections on one day. In any future similar incidents consideration should be given to combining the administrative sections.

The comprehensive daily log of all key events was of great assistance in preparing post-spill assessments. As was the excellent track records kept of spending which resulted in successful recovery of costs and an uneventful post-spill follow-up.

Comment was received which suggested that conditions at the AOC working in the SES caravans at O'Sullivan's Beach were marginal. Such units are somewhat difficult to operate from in the best of



SES Catering Service at O'Sullivan's Beach boat ramp.

conditions. In cold weather with the power and telephone communication problems experienced in this incident the difficulties are exacerbated. The functions and number of personnel assigned to the AOC needs to be carefully assessed to ensure optimal working conditions.

A clear distinction needs to be made between the functions of the AOC, which need to be close to where the response operational activity is taking place, and the ICC. This point should be emphasised in future National Plan training and documentation.

Suggestions were made by some that it would have assisted record keeping if key personnel carried dictaphones to keep a record of all decision making, another was for a video camera to record beach clean up activity to assist with the final record of the incident.

### **Issues to be addressed**

- Consideration be given to combining government and industry administrative sections in any future incidents.
- Transport SA should undertake a review of potential spill response locations in South Australia where an Advanced Operations Centre (AOC) will be likely and assess the optimum arrangements for the AOC whether using SES or other emergency service mobile operational units or suitable buildings.
- Improvements to the ICC to assist operations such as provision of additional status boards, access to the Internet and 'in/ out' fax machines etc.

## 9

**ADEQUACY AND EFFECTIVENESS OF AERIAL DISPERSANT CAPABILITY**

In the initial telephone alert to the SSC shortly after 0600 hours on Monday 26 June, the Mobil Duty Pilot and the SSC agreed that aerial dispersant application would be the primary response to the oil spill.

The area in the vicinity of the SBM off Port Stanvac is pre-designated in the SAMSCAP as an approved area for the use of dispersant as the water depth is 24 metres with good water circulation. The SSC was also aware that Oman Crude was amenable to dispersant application. However, the SSC still confirmed this fact before notifying AMR at 0608 hours of the likely activation of the contract.

AMR is the company contracted by AMSA to provide the National Plan with a fixed wing aerial dispersant capability (FWADC) using large agricultural crop spraying aircraft. Under the contract AMR is required to have available at least two aircraft on any one day throughout the year. The aircraft are located at Tintinara or Adelaide in South Australia and either Emerald or St. George in Queensland. Additionally other aircraft are available for approximately 275 days per year from the same or other locations including Victoria and NSW. Aircraft are required to be available to fly within 4 hours of being requested to respond to an incident.

A delay of about ten minutes occurred before the SSC was able to contact AMSA's EPG duty officer to request the necessary activation the FWADC contract. When the SSC first telephoned the AMSA Rescue Coordination Centre (RCC) and asked for the telephone number of the EPG duty officer he was given an incorrect telephone number. At 0630 hours the SSC contacted another EPG officer who then alerted the duty officer and advised details of the incident and the request to activate the FWADC contract using the primary aircraft.

The AMSA Oil Spill Operations Centre was operational by 0650 hours and commenced obtaining

the necessary information to assess the overall response requirement and particularly to respond to the request to activate the FWADC contract.

At 0710 hours AMSA personnel sought more information about the size of the oil spill from the SSC and Mobil.

At 0740 hours AMSA was advised by Mobil of the possible upper limit of 260 cubic metres and following further discussion between AMSA and the SSC and Mobil, AMSA activated the aerial dispersant capability contract at 0757 hours.

Having been advised earlier by the SSC of the likely need of aerial dispersant application, AMR was ready to fly and despatched their first aircraft at 0800 hours to load dispersant at the Port Stanvac airstrip. AMSA activated a second aircraft at 0825 hours, which departed Maitland on the Cape Yorke Peninsula at 0845 hours also for Port Stanvac.

The first aircraft, an Air Tractor AT502 was on site and commenced dispersant application operations shortly after taking off from the Port Stanvac airstrip, 4 kilometres away from the spill site, at 0906 hours. The second aircraft, an Air Tractor AT802 after loading dispersant departed the Port Stanvac airstrip at 0935 hours. Aircraft re-fuelling was undertaken at Calvin Grove Airport some 50 kilometres from the site.

Once dispersant application commenced observations from the control helicopter were that the dispersant was very effective.

The ADIOS data obtained later in the morning indicated Oman Crude has only a short theoretical window of opportunity of not less than 12 hours depending on wind speed during which dispersant would be most effective

Dispersant application operations were at all times under the direction of AMR's Air Attack Supervisor

on board the control helicopter together with representatives of the EPA and Mobil. The control helicopter would be positioned to direct the dispersant application aircraft in the approach they should take and would advise the aircraft when to start and stop applying dispersant.

At 1015 hours the aerial surveillance flight reported the dimensions of the slick as 1000m x 250m, it was also observed that the oil was 'quite thick' in the bow and stern waves of the Mobil tug and other work boats in the area. The incident log records the size of the slick as 25 cubic metres.

The reported 25 cubic metres spill size which circulated after being recorded at 1015 hours caused some uncertainty with AMR in planning dispersant and aircraft fuel requirements.

There was a level of uncertainty by the pilots of the helicopters and the fixed wing dispersant application aircraft as to the management of aircraft movements, primarily because an Air Coordinator had not been appointed to the ICC contrary to the stated requirement in the SAMSCAP.

Comments were made to the Incident Analysis Team from personnel experienced in aerial dispersant techniques after viewing video footage of the dispersant application.

It would appear that dispersant application aircraft were directed more to the thinner outer edges of the

slick rather than the more concentrated oil patches in the centre of the slick. In addition, insufficient allowance may have been made for the effect the wind would have on the dispersant spray, resulting in dispersant being sprayed onto clear water and consequential dispersant wastage on some runs.

By noon all of the 9300 litres of dispersant located at the Port Stanvac airstrip had been utilised, this amount of dispersant would have been sufficient to treat at least 90 cubic metres of oil. Between noon and 1400 hours while more dispersant was transported to Port Stanvac by road, loading of aircraft with dispersant was transferred to Calvin Grove Airport.

Between 0917 hours and 1602 hours on day one the two dispersant application aircraft flew 17 sorties and delivered 18.2 cubic metres of dispersant at a rate of 1100 litres per aircraft per hour, including loading and transit time. Dispersant used was 10.2 cubic metres of Tergo R40 and 8 cubic metres of Shell VDC.

Based on the amount of oil remaining the SSC determined that one dispersant application aircraft would be required for the following day.

At 0645 hours on 29 June it was decided that because of strong cross winds at the Port Stanvac airstrip the single dispersant application aircraft would operate out of Calvin Grove Airport.

When early trials conducted by the ESC demonstrated the dispersant was still effective some



*An Air Tractor used in dispersant application operations*

24 hours after the spill, it was agreed to continue with the one dispersant application aircraft. The first aircraft sortie for day two commenced at 0925 hours and observations made confirmed the earlier trial, the dispersant continued to be effective.

Aerial dispersant application continued through the day until about 1720 hours. However, a three hour delay occurred after the decision to relocate aircraft operations from Calvin Grove to Aldinga Airport, which was much closer to the slick. The delay was due to dispersant supplies being incorrectly stowed on the truck and shifting during transport to Aldinga Airport.

Overall, 26.1 cubic metres of dispersant was used in aerial spraying, which with the spill size reported by Mobil would indicate a 1:10 application rate.

## Comment

It would appear the usual process of the RCC alerting the EPG duty officer to a pollution incident when informed of such was not followed due to the RCC being specifically asked for the phone number of the duty EPG. The consequential ten minutes delay before an EPG officer was informed of the incident had no impact on the response.

While the one and a half hour delay in obtaining approval from AMSA to activate the contract to utilise aerial dispersant aircraft did not materially affect the outcome of the overall response, it nevertheless was frustrating to those on scene at the spill and wanting to commence operations immediately. AMSA indicated to the Incident Analysis Team that had the sea current and wind conditions been such that the oil was being driven onshore the response in activating the FWADC contract would have been quicker.

The Incident Analysis Team understands that caution in FWADC contract activation is warranted due to the high costs involved but believes some improvements could be examined to speed up the process such as providing in advance the type of information AMSA requires to make a decision. This will assist those making such requests to ensure they

have the required information when requesting contract activation. The procedure for activating the FWADC contract does not appear to be laid down in either the National or State Contingency Plans.

Overall, 26.1 cubic metres of dispersant was applied to an oil spill which was subsequently estimated as having been about 270 cubic metres. This is a ratio of approximately 10:1. A typical planning basis is 20:1 and in responses such as the Sea Empress incident in Wales in 1996 a success ratio of 50:1 is claimed.

The Exxon Oil Spill Response field manual notes that application rates may range from 100:1 to 10:1 depending on thickness. It would therefore appear that the 10:1 ratio achieved was a generous application of dispersant, particularly as the condition and oil type were conducive to successful dispersion beyond the anticipated 'window of opportunity'.

Monitoring the affects of the dispersant on the oil would have helped assess whether the optimum dispersant application rate was being used enabling the application rate to be adjusted if necessary. AMSA is in the process of implementing an "In-Situ Monitoring" capability to monitor the effectiveness of dispersant on oil and the fate of dispersed oil. The necessary equipment, including two flurometers and associated accessories are on order.

This response demonstrates that the monitoring capability needs to be on site and in operation very quickly in order to be effective.

Clearly the aerial dispersant application was the most significant factor in the successful outcome of this incident and in preventing any real quantities of oil coming ashore.

## Issues to be addressed

- AMSA to examine means to speed up the process to activate the Fixed Wing Aerial Dispersant Capability contract and to reinforce to State Spill Commanders and the Rescue Coordination Centre the appropriate means of alerting the AMSA Marine Environment Group duty officer to reports of pollution incidents.

- AMSA and AMR to review the dispersant operations in this incident and develop improved dispersant application techniques and prepare more comprehensive written procedures on aerial dispersant application.
- Specific procedures be developed for activation of the Fixed Wing Aerial Dispersant Contract and for these to be published in National and all State/ NT National Plan operating procedures.
- AMSA/NPAC to examine better utilisation of personnel with appropriate experience as

helicopter observers when determining quantities of oil spills and examine means of providing appropriate training in this area.

- Control helicopters used for directing aerial dispersant application must be supplied with marine radios or already have marine frequencies fitted to communicate with vessels and the ICC.
- When the necessary equipment has been supplied, assess the operation of “In Situ Monitoring” and develop procedures to gauge the effectiveness of dispersant and the fate of dispersed oil.

*An Air Tractor at a dispersant training session*



*Marine personnel attending aircraft familiarisation and dispersant loader training on an Air Tractor*



## 10

**RELATIONSHIPS AMONG PARTIES INVOLVED IN THE INCIDENT INCLUDING MEDIA ASPECTS**

The main parties involved in the incident were Transport SA and Mobil with assistance and input from the City of Onkaparinga and 15 other organisations working under the SA Marine Spill Contingency Action Plan.

The SSC assumed immediate command of the incident as soon as notified by Mobil and worked closely throughout the incident with Mobil senior managers at Mobil Adelaide Refinery including the Refinery Manager.

Mobil personnel filled most of the positions at the Mobil Adelaide Refinery ISC later ICC while Transport SA and other State Government personnel filled the positions at the ICC later ISC located at the Transport SA Glanville Dockyard office and at the AOC at O'Sullivan's Beach boat ramp. Communications between the two centres was mainly by telephone.

Mobil alerted the local City of Onkaparinga of the incident about mid morning on Monday 26 June and thereafter made regular calls to ensure the Council was aware of progress. However, the Council did not recognise the magnitude of the problem until it was made aware of the actual spill size.

Mobil was particularly mindful of the community in the immediate Port Stanvac area, initially establishing an 1800 telephone hotline at the refinery and undertaking a letterbox drop on the second day of the response to keep local residents informed.

On Saturday 3 July, following the completion of the response, Mobil used the medium of a public meeting at Aldinga to further advise the community of its regret for the spill and the actions that had been taken to alleviate the affect of the spill and what it was doing to ensure such a spill did not occur again.

At the political level the pollution response came under the SA Minister for Transport while the source of the spill, the Mobil Adelaide Refinery storage tanks and pipelines, came within the portfolio responsibilities of the SA Minister for the Environment.

The media demonstrated a very keen interest in the entire incident and had a vital role to play in communicating to the public the successful progress in the oil spill response but also in trying to establish who was to blame. A key issue for the media was establishing the true spill size.

Media arrangements in SA are such that the State Government spokesperson for all aspects of the response was an official in the Premier's Department, with media experience from a number of previous oil spill incidents. This officer gave many media interviews for TV, radio and the press.

Mobil's media statements were issued by Mobil's Melbourne based PR Manager who arrived at the Mobil Adelaide Refinery on the second day of the response. Mobil adopted a proactive approach in contacting radio stations on an hourly basis to provide updates on progress. Mobil's Refinery Manager undertook interviews with TV and radio stations.

Some elements of the media were critical of Mobil for their inaccurate reporting of the size of the spill and some used still photographs as well as video of black seaweed to maintain public pressure. Others commented favourably on access to senior people for interviews, however, no formal media conferences were held with the SSC or other senior response personnel.

One prominent radio station director of news commented that 'the spin being applied was not conducive to the facts becoming known'.

Environmental groups were also critical on a number of issues. These included; the lack of direct communication between Transport SA and environmental groups about their concerns regarding environmental aspects of the response, misinformation about the response from the media. Also the need for more factual information on dispersants, the various types available to be used, conditions in a response when dispersants are used and whether there are any environmental effects from dispersant use.

## Comment

Overall the key organisations worked very well together. There was a good rapport between senior Transport SA and Mobil personnel who had worked together in previous incidents as well as a number of exercises where mutual trust had been well established. This relationship was a significant contributor to ensuring a successful outcome to the spill. The media personnel from the State Government and Mobil also worked well together.

The SSC was left to manage the response uninterrupted, not being required to undertake media interviews or brief the Minister. The media spokesperson in the Premier's Office undertook these functions from the advice given him by the SSC.

Mobil's efforts in keeping local residents in the immediate proximity to the Port Stanvac refinery were appropriate and well appreciated by most of the local population. However, representatives of other communities further south adjacent to where the oil slick was drifting and eventually came ashore commented that they had not been kept as well informed as the Port Stanvac residents. Also comments were made that the public meeting held on Saturday

3 July 1999 was restricted to those immediately adjacent to Sellicks and Aldinga Beaches, when there was a wider community concern, not just by those who lived adjacent to the beach.

While there were favourable and unfavourable comments from the media on how they had been dealt with the main area of concern was with regard to the inaccurate statements by Mobil and Transport SA regarding the size of the spill.

The issue of releasing information on spill size has to be addressed, the actual spill size was not released to the media until Friday 2 July, four days after the incident. Not only was it confusing to the media but also to some of the response agencies which were not informed of the spill size until the second day. In some media quarters the delay and confusion of the spill size was seen as a cover-up rather than an underestimation. This was clearly counterproductive to achieving a good outcome.

Community representatives commented that Mobil has lost a great deal of credibility over the misinformation and delay in releasing the actual size of the spill, which they claim has happened with previous spills, they mentioned it will be hard to believe them in the future should another spill occur.

Media personnel to whom the Analysis Team spoke noted their appreciation for being taken out by boat by Mobil and shown the likely cause of the spill but noted the inevitably chaotic media arrangements on the first day.

Some media personnel indicated that in addition to interviewing the media spokesperson from the Premier's office and the Refinery Manager they would have benefited from also being able to question operational people involved in the response, particularly regarding the use of dispersant and its likely effects on marine life.

Those responsible for providing information to the media did not appear to be aware of the media arrangements developed from experience obtained in previous significant oil spill incidents, that is holding one or two media conferences per day at a fixed time suitable for TV and print deadlines. These conferences enable operational people such as the SSC and other senior industry personnel to be available for a short time each day to provide media briefings and answer questions. This also reduces the need for time consuming 'one on one' interviews with the numerous media outlets all seeking information.

### **Issues to be addressed**

- Mobil to review the size of the 'local' area it provides letter box drops and other information on its activities, to ensure that those members of the community with a genuine interest are informed.
- NPAC to establish clear principles on the provision of timely and accurate information to the media and the community on spill size. These could be used by all NPAC parties including the oil industry.
- AMSA and other NPAC agencies should provide additional information on their Websites on the use of dispersants under the National Plan to assist members of the community to better understand its uses, properties and benefits. This could be achieved through Website linking, including a link to ITOPE.
- NPAC to include in its training program an occasional seminar or workshop for media personnel from AMSA, State/NT NPAC agencies and industry who have responsibility for managing the media in an oil spill response. The objective of the workshop being to review current media practices, update the National Plan Media Plan and establish consistent national approaches to media issues that arise in major incidents.

## CONTINGENCY PLANS : NATIONAL, STATE AND LOCAL

Three sets of contingency plans were applicable to the incident;

- National Marine Oil Spill Contingency Plan (the National Plan) issued in May 1999.
- South Australian Marine Spill Contingency Action Plan Operations and Procedures Manual (the State Plan) issued in December 1998.
- Mobil's Adelaide Refinery Marine Oil Spill Contingency Plan (the Local Plan) issued in November 1993 with seven revisions, the last in October 1998.

The State Plan is comprehensive and is indicative of a plan in transition between the previous National Plan model contingency plan and the new guidelines on contingency plans, which takes account the Oil Spill Response Incident Control System (OSRICS).

Under NPAC agreement there is a three year period commencing 1 January 1999 for State/NT contingency plans to be updated to include OSRICS. The State Plan was recently reviewed under the National Plan policy of auditing national and State/NT contingency plans and recommendations for improvements such as standardising terminology has yet to be carried out.

The State Plan includes Standard Operating Procedures which describe action to be taken under certain circumstances together with standard reporting and information forms plus checklists for each nominated area of Planning, Logistics, Administration Support and On Scene Coordinator.

Appropriate to this incident the State Plan has detailed guidelines for the use of chemical dispersants (Appendix C-3) it also contains a

copy of AMR's policy, procedures and guidelines for dispersant application from aircraft (Appendix C-4). However this Appendix does not contain procedures to activate and use the FWADC contract.

The State Plan does not contain an integral wildlife plan or a media plan. However somewhat buried in the plan there are brief instructions from the appropriate authority on how to activate the wildlife response.

At Appendix C-4 of the State Plan reference is made to the integration into the Control and Command Structure. The role of Aviation Coordinator as established in OSRICS is not yet mentioned in this section or elsewhere in the State Plan.

The aviation section of the Local Plan at 2.6 uses different terminology to the State Plan regarding the designated positions for handling aircraft also the call out procedures for aerial dispersant aircraft at 2.6 require updating. Details of external contacts contained in Appendix C were out of date at the time of the incident.

The information provided in the National Plan at paragraph 3.9.2 about the aerial dispersant application contract and use of aircraft is very scant and there is no information in the National Plan Management Policies and Procedures on aerial dispersant application arrangements or activation of the FWADC contract.

### Comment

The State Plan appears to have operated effectively with some minor difficulties encountered mainly related to terminology.

The fact that there is no provision in the State Plan for an Aviation Coordinator to be located in the ICC led to concerns by the pilots and crews in

the dispersant application aircraft and the two helicopters. This position would have been helpful in coordinating the operations of both surveillance and spraying aircraft as well as monitoring air exclusion zones above the spill and on the affected beaches.

There appears some uncertainty again with terminology and whether the positions referred to in Appendix C-4 of the State Plan (which appear to be AMR's procedures rather than the State Government's) are filled by AMR personnel or those from other agencies.

The Local Plan uses different terminology again from the State Plan with regard the sections dealing with the use of dispersant application aircraft.

The State Plan has not been updated since the adoption of the National Oil Spill Response Incident Control System (OSRICS). The State Plan is also inconsistent with national terminology.

In light of the experience gained from this incident the Standard Operational Procedure (SOP) on the FWADC issued by AMSA should be updated and incorporated in the National Plan Procedures Manual.

## Issues which need to be addressed

- The National Plan needs to be updated to include procedures for the activation and on going use of fixed wing aerial dispersant application operations
- The State Contingency Plan needs to be updated to:
  - include the Oil Spill Response Incident Control System;
  - remove inconsistent terminology;
  - provide for an Air Operations Coordinator position in Incident Control Centre;
  - be brought up to date on arrangements for utilising the Fixed Wing Aerial Dispersant Contract;
  - include a more conspicuous reference to the SA wildlife rescue and rehabilitation plan; and
  - include a media plan.
- The Local Plan needs to be updated to reflect the terminology and procedures for utilising aircraft under the National Plan FWADC contract. The external contact details at Appendix C also need updating.

12

RECOMMENDATIONS

The Incident Analysis Team recommends that:

- 1 The National Plan Advisory Committee establishes clear principles on the provision of timely and accurate information to the media and the community on spill size. These to be used by all NPAC parties including the oil industry; (page 25).
- 2 The National Plan Advisory Committee review current training and the provision of information on the techniques for assessing the quantity of oil slicks on the sea particularly obtaining the thickness and dimensions of oil slicks. Including assessing the table used in the National Contingency Plan for calculating the volume of spilled oil. Where necessary provide additional training and circulate procedures, requiring trained personnel to be used in surveillance aircraft when assessing quantities of spilled oil; (pages 8 and 22).
- 3 The National Plan Advisory Committee review current procedures regarding the use of aerial dispersant application and the Fixed Wing Aerial Dispersant Capability to ensure:
  - (i) appropriate procedures are published in National and State/NT National Plan operation and procedures manuals for the activation of the Fixed Wing Aerial Dispersant Capability contract including the type of information required by AMSA to authorise the use of aircraft under the contract, with a view to speeding up the activation process; ( pages 8, 22 and 27).
  - (ii) that aircraft used for control and surveillance/observation operations are either fitted with or supplied with marine radio frequencies to enable communications with vessels and work boats in the area and the Incident Control Centre; (page 22).
  - (iii) that an Aviation Coordinator is appointed to the Incident Control Centre when more than one aircraft is used in a response;(page 8).
  - (iv) that the effectiveness of 'In Situ Monitoring' capability, when available, is assessed; (page 22).
- 4 The National Plan Advisory Committee determine the role of the National Plan in monitoring the environmental impact of dispersant application and develop procedures for sampling to determine the movement of dispersed oil including the proposed in situ monitoring program; (pages 15 and 22).
- 5 AMSA and other National Plan Advisory Committee agencies enhance and better identify where to find information on their Websites on the facts about using dispersants. This will assist members of the community in having a better understanding of the reason for using dispersant, how it works, its non toxic properties and its benefits. Use of hyperlinks and the ITOPF Website should be considered; (page 25).
- 6 National Plan Advisory Committee includes in its training program a seminar or workshop for media personnel from AMSA, State/Northern Territory National Plan Advisory Committee agencies and industry who have responsibility for managing the media in an oil spill response. The workshop should review current procedures and practices for managing media interests during a major pollution incident and update the National Plan Media Plan to ensure a consistent approach to dealing with media issues which arise in pollution incidents; (page 25).

- 7 The National Plan Advisory Committee give consideration to implementing, as standard procedure, the use of a video camera to film oiled shorelines before and after cleanup to assist in decision making in the termination of beach cleanup operations, deciding when 'clean is clean' and the associated sign off procedure; (page 15).
- 8 National Plan procedures should specify that where an oil spill trajectory prediction model is used the Incident Control Centre planning team should assign one of its members to take responsibility for providing accurate input data to AMSA as well as providing feedback on the results of the prediction; (page 15).
- 9 AMSA and AMR review the aerial dispersant application operations in this incident and develop improved dispersant application techniques and prepare more comprehensive procedures on aerial dispersant application; (page 22).
- 10 Transport SA review and update the South Australia Marine Spill Contingency Action Plan to: (pages 27)
  - (i) include the National Plan Advisory Committee agreed Oil Spill Response Incident Control System
  - (ii) remove terminology which is inconsistent with NPAC guidelines on contingency plans
  - (iii) include provision for an Air Operations Coordinator position in the Incident Control Centre structure
  - (iv) update arrangements for utilising the Fixed Wing Aerial Dispersant Contract
  - (v) provide clearer details how to access the State wildlife rescue and rehabilitation plan
  - (vi) include a media plan
- 11 Transport SA undertakes a review of potential locations in South Australia where an oil spill may occur and where it may be necessary to establish an Advanced Operations Centre. Where possible make arrangements in advance with the local council or other authority to utilise a local school, motel or other suitable building for the Advanced Operations Centre; (page 18).
- 12 Mobil review the concept of the 'local' area to which it provides letter box drops and other information on its activities during an incident, to ensure those members of the wider community outside the Port Stanvac region, are appropriately informed; (page 25).
- 13 Mobil modify its Incident Control Centre to assist operations such as the provision of additional status boards, access to the Internet and both an 'in' and 'out' fax machine; (page 18).
- 14 Mobil update the Mobil Adelaide Refinery Marine Oil Spill Contingency Plan at Section 2.6 to better reflect the procedures for activating the Fixed Wing Aerial Dispersant Capability contract and bring consistency with other plans regarding the aviation terminology and procedures. Also bring up to date the list of external contacts at Attachment C; (page 27).

## APPENDIX 1

### Terms of Reference

#### **National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances**

##### **National Plan Response to the Mobil Port Stanvac Pollution Incident**

**Aim:** To undertake a comprehensive analysis of the pollution response to the loss of oil at the Mobil facility in Port Stanvac on 28 June 1999, in accordance with the Terms of Reference for the National Plan Advisory Committee adopted on 11 September 1998.

**Assessment Team Membership:** The assessment team is to comprise persons with expertise in response to ship-sourced marine pollution incidents and related matters, but who had no role in the Port Stanvac incident.

Members of the assessment team are:

- Mr Michael Julian,  
Executive Manager, International Relations, Australian Maritime Safety Authority (Chairman)
- Captain Kerry Dwyer,  
Marine Consultant
- Mr Don Blackmore,  
Manager, Australian Marine Oil Spill Centre, Industry Representative
- Mr Brian Wagstaff,  
Environmental Consultant, SA State Nominee

##### **Terms of Reference**

Analyse the management of the incident from the oil pollution response perspective and assess any deficiencies in the National Plan arrangements or in the actual response to the Port Stanvac incident. In this context:

1. Assess the response with particular reference to:
  - (i) the call out procedures used and the effectiveness of the initial and subsequent response;
  - (ii) the suitability and accessibility of National Plan equipment
  - (iii) availability and timeliness of response personnel;
  - (iv) the decisions made in respect of calls for equipment and personnel in regard effectiveness and timeliness;
  - (v) the adequacy and effectiveness of the wildlife rescue and rehabilitation response;
  - (vi) the adequacy and effectiveness of incident response plans and their implementation;
  - (vii) the adequacy of the management of Occupational Health and Safety issues;
  - (viii) the adequacy of the administrative support, environmental advice and support, and other related activities;
  - (ix) the interaction with the media and other interested parties;
  - (x) the adequacy and effectiveness of the Fixed Wing Aerial Dispersant Capability.

2. Assess the involvement of the various parties to the response from the viewpoint of appropriateness, timeliness and adequacy. In this regard, particular attention should be given to the inter-relationship between the parties involved in the incident response.
3. Within the context of this incident, assess the National, State and local contingency plans and report on the adequacy of each.
4. Provide recommendations for improvements and initiatives based on the lessons learned from the incident.

As far as is practicable, the assessment team or member(s) thereof should attend the various debriefing sessions to be carried out by relevant agencies and bodies involved in the incident and consider the written reports of the various entities in the response

A draft written report on the findings and recommendations of the analysis is to be submitted to the 13th session of the National Plan Advisory Committee to be held on 19 October 1999.

## APPENDIX 2

### Glossary

ADIOS	Automated Data Inquiry for Oil Spills <i>(Data base which provides information on weathering and evaporation rates of various types of oil)</i>
AMOSC	Australian Marine Oil Spill Centre <i>(The oil industry's major response facility in Geelong)</i>
AMR	Australian Maritime Resources <i>(The Fixed Wing Aerial Dispersant Capability contractor)</i>
AMSA	Australian Maritime Safety Authority <i>(Self funded Commonwealth government safety agency, responsible for combating pollution in the marine environment)</i>
AOC	Advanced Operations Centre
DOSC	Deputy on Scene Coordinator
EPA	Environment Protection Agency  <i>(SA State government agency)</i>
EPG	Environment Protection Group <i>(Section within AMSA responsible for National Plan operational requirements)</i>
ESC	Environment and Scientific Coordinator
FWADC	Fixed Wing Aerial Dispersant application
ICS	Incident Control System
ICC	Incident Control Centre
ITOPF	International Tanker Owners Pollution Federation
National Plan	National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances
MISC	Mobil Incident Support Centre
NPAC	National Plan Advisory Committee <i>(Committee chaired by AMSA and made up of all States/NT, shipping, oil and exploration industries and other relevant Commonwealth agencies)</i>
NPWS	SA National Parks and Wildlife Service

NRT	National Response Team <i>(Group of Commonwealth, State/NT and industry personnel identified as having the skills and ability to assist in pollution response)</i>
OH&S	Occupational Health and Safety
OSSM	On Scene Spill Model <i>( Oil spill trajectory model )</i>
OSRICS	Oil Spill Response Incident Control System
RCC	Rescue Coordination Centre
RSPCA	Royal Society for the Prevention of Cruelty to Animals
SAMSCAP	South Australian Marine Spill Contingency Action Plan
SBM	Single Buoy Mooring
SES	State Emergency Service
SSC	State Spill Commander
TICC	Transport Incident Control Centre