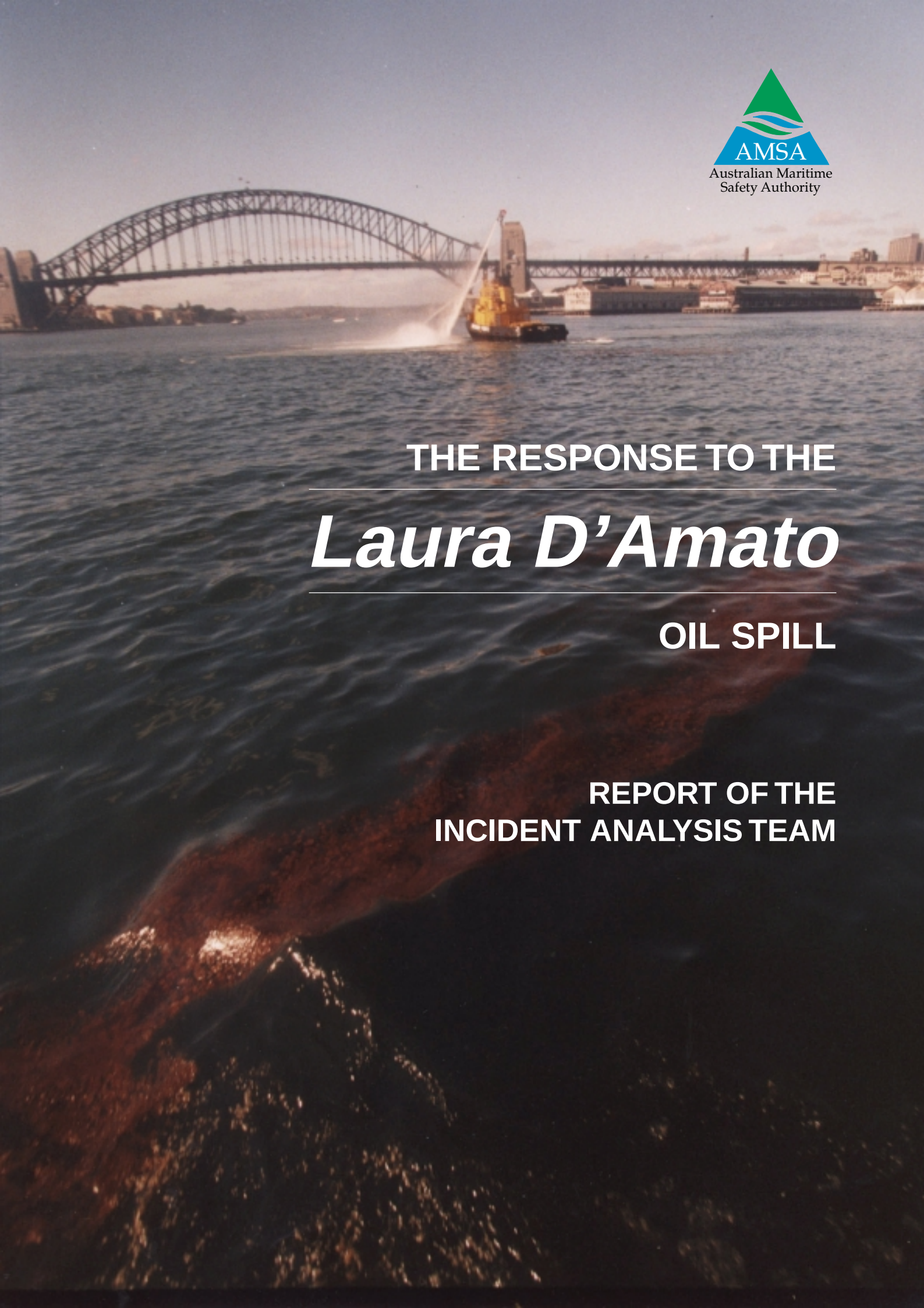

AMSA
Australian Maritime Safety Authority

THE RESPONSE TO THE *Laura D'Amato* OIL SPILL

REPORT OF THE INCIDENT ANALYSIS TEAM

Response to the *Laura D'Amato* oil spill

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 from the *Laura D'Amato* in Sydney Harbour NSW on 3 August 1999.

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PREFACE

Following the oil spill from the *Laura D'Amato* in Sydney Harbour on 3 August 1999 two inquiries were undertaken to investigate the circumstances surrounding the cause of the oil spill. One investigation was established by the NSW Minister for Transport under the NSW Marine Pollution Act 1987 to determine the reasons for the spill and whether any corporation or individuals were responsible for the spill and should be prosecuted. The second investigation undertaken by the Marine Incident Investigation Unit (MIIU) in the Australian Transport Safety Bureau was established under the provisions of the Navigation (Marine Casualty) Regulations, of the *Navigation Act 1912*. The purpose of the MIIU investigation was to identify the factors contributing to the incident so as to assist in preventing similar incidents in the future.

An Incident Analysis, the subject of this report, was undertaken under general terms of reference adopted by the National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances 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 asses any deficiencies in the National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances 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 attended key debriefing sessions of the main organisations involved with the response, conducted personal interviews and 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 response of the many individuals and organisations who provided written reports and made time available for informal interviews and discussion.

Michael Julian
Chair
Incident Analysis Team

14 April 2000

Executive Summary

On 3 August 1999 the *Laura D'Amato*, a 96 121 DWT Italian registered oil tanker, was berthed alongside at the Shell Gore Bay terminal in Sydney discharging its cargo of Murban light crude oil. Between 1826 and 1850 hours an estimated 250 to 300 tonnes of cargo was pumped into Sydney Harbour from the ship through an open sea valve system. These sea valves are normally closed. This was the largest ship sourced oil spill in Sydney Harbour.

The prevailing conditions of a southerly wind and flood tide confined the majority of the oil to Gore Cove and Balls Head Bay, thus restricting the movement of the oil throughout the Harbour.

Rapid reaction by the Sydney Ports Corporation duty operational crew and the Shell Gore Bay terminal staff had the vessel surrounded by boom by 1910 thereby minimising the spread of oil.

By 1930 hours the Sydney Ports Corporation oil spill response Incident Control Centre at Moores Warehouse, Millers Point was operational, with the Incident Commander in position and the overall Incident Controller mobilised soon after.

The Master of the *Laura D'Amato* reported that the spill was 14 cubic metres in size. However, estimates late in the evening by the Shell Gore Bay terminal staff showed that the spill could have been between 80 and 300 cubic metres. It was on this basis that Shell mobilised its own staff and contractors, including additional response equipment and personnel from the industry's central stockpile at the Geelong based Australian Marine Oil Spill Centre. The range of spill size was not formally communicated to the Incident Commander at the time.

During the night it became clear from observations of the extensive oil movement in the harbour that a significantly larger quantity than 14 cubic metres of oil had been spilt, confirming a higher spill size, possibly within the range estimated by Shell. It was then that the Incident Commander mobilised National Plan resources directly from other NSW ports and interstate from Brisbane, Melbourne and Canberra through the Australian Maritime Safety Authority.

Oil recovery operations using 5 Marco oil spill recovery vessels, a boat mounted brush skimmer, a number of disk and weir skimmers together with a variety of boom types and shore flushing equipment was used on a daily basis up to 14 August 1999. Spot cleaning of foreshores continued until 20 August 1999.

Overall, a very high proportion of the spilt oil was recovered. Of the 250 - 300 tonnes spilt, an estimated 120 - 150 tonnes of oil was lost through evaporation and of the remaining oil 90 percent was recovered.

Not surprisingly the location and size of the spill in one of the world's most well known harbours created massive media interest both locally and internationally.

The Incident Analysis Team found that the response was effective and well executed. The end result of 'a clean harbour' with no reported signs of environmental damage is a clear testament to the success of the response operation and how it was managed.

Nevertheless there are lessons that can be learned from this incident and areas where improvements can be made. These have been identified in order for an improved National Plan response to any future incident, particularly one that may be of a considerably larger size.

Some 18 recommendations have been made, mostly of an operational nature. It needs to be recognised that the issues giving rise to the recommendations did not materially affect the overall outcome of the incident. However, they could do so in a more complex or larger spill with more environmentally sensitive issues to be dealt with.

There are three main areas arising out of this incident that are worthy of further consideration by the National Plan Advisory Committee.

Firstly, the need to hasten the implementation of the National Plan Oil Spill Response Incident Control System and to issue guidelines on the structure to be used in ICCs during the remainder of the implementation phase. Such guidelines shall make it clear that a common national approach to this matter is necessary so that those providing a response role will be familiar with the response structure anywhere in Australia.

Secondly, the need to adopt a policy which clearly spells out that spill sizes should be estimated using all appropriate techniques and the estimated figures should be immediately communicated to all interested parties, including the public. The upper amount should be used as a 'worst case scenario' in planning the response.

Thirdly, the importance of having unified management of an incident with a single Incident Control Centre. In this case, the split responsibilities between the Incident Control Centre at Moores Warehouse and the Shell Operational Centre at Gore Bay Terminal caused unnecessary confusion and uncertainty about use of resources, what operational requirements had been completed and what remained to be undertaken.

1 INCIDENT DESCRIPTION

Tuesday 3 August 1999

Laura D'Amato at Gore Bay

The *Laura D'Amato*, a 96 121 dwt (deadweight tonne) oil tanker owned by D'Amato Armatore and registered in Italy was berthed alongside No. 1 berth at the Shell terminal at Gore Bay, Sydney, discharging its cargo of Murban light crude oil. At approximately 1826 hours the Shell Shore Officer noticed an offensive smell and on investigating observed oil in the water in the vicinity of the stern of the vessel. All cargo discharge pumping was stopped at 1836 hours. However, oil release continued through open sea valves until approximately 1850 hours when the valves were closed.

Between 1840 and 1845 hours calls were made by Shell's Gore Bay terminal staff to the Sydney Ports Corporation (SPC) 'duty operational crew' based at the Moores Warehouse depot advising the spill and the need for assistance. Between 1847 and 1852 hours the duty crew mobilised two vessels with Austpol Lite and GP 500 foam filled fence and buoyancy booms and proceeded to the Gore Bay terminal. Shell terminal personnel with the assistance of SPC were also deploying boom to contain the oil, while other staff alerted Shell senior management.

Formal notification of the spill to Sydney Ports Harbour Control was made by the cargo agents Barwil at 1850 hours, advising that the Master of the *Laura D'Amato* estimated the spill at 10 to 14 cubic metres. Harbour Control immediately commenced its pre-planned emergency call-out procedures.

The wind at that time was from the south, and a flood tide was running which resulted initially in most of the oil being pushed into Gore Cove and Balls Head Bay.

At 1844 hours the NSW Fire Brigade's Sydney Communications Centre received the first of some 600 calls via the '000' emergency network from residents, mainly north of the harbour, complaining of a strong gas smell. The furthest was from Hornsby, 15 kilometres away.

The NSW Fire Brigade dispatched a number of units to ascertain the location of what was thought to be a major gas leak. By 1902 hours it was thought that the 'gas' was possibly coming from the Gore Bay terminal. The first units arrived at the Shell Gore Bay facility at 1913 hours and commenced investigating the source of the smell. By 1927 hours the NSW Fire Brigade had ascertained the source as the oil spill at the Gore Bay terminal, and, with the police, set up a forward operational base in the Shell Gore Bay terminal Operations Centre.

By 1910 hours the vessel was enclosed by boom, by 2040 hours a second containment boom, GP 500 boom, was deployed from Manns Point to Balls Head across the inner part of Gore Cove, and by 2242 a third boom enclosed the outer Gore Cove.

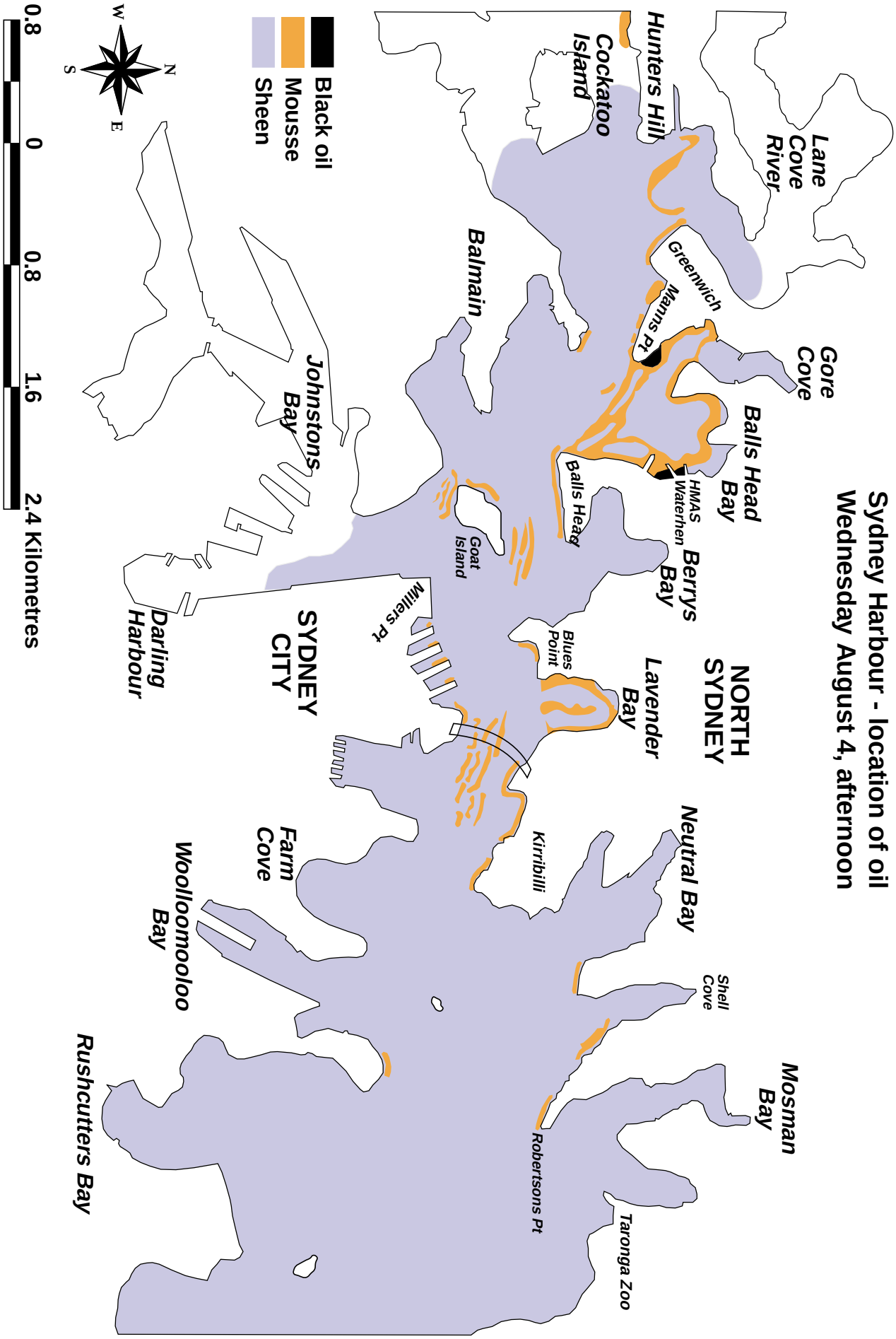
The NSW Fire Brigade was concerned about the flammability of the oil, the possible risk of explosion, and the ship perhaps catching fire. Shell personnel provided the NSW Fire Brigade with the relevant Material Safety Data Sheet for Murban crude. By 2000 hours the HAZMAT unit arrived and continued to monitor the area for the remainder of the night. Gore Bay terminal staff also used their own equipment to test continually for explosive mixtures, establishing that there was a low risk of either fire or explosion.

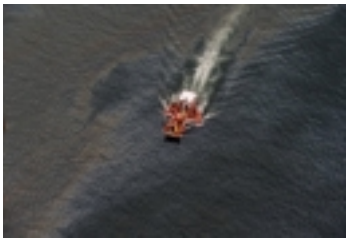
It was coincidental that the spill site and source of the strong odour were close to the Gore Hill studios of ABC TV, whose 'The 7.30 Report' compere Kerry O'Brien mentioned the smell and the oil spill at the Gore Bay Terminal. That early television coverage alerted several key personnel in Sydney and others interstate. The coverage prompted the Australian Marine Safety Authority (AMSA) Environment Protection Group (EPG) duty officer to telephone Sydney Harbour Control. After several attempts the EPG duty officer made contact at 2005 hours and was informed of the 14 cubic metre spill and that the vessel had been boomed-off.

Under the Sydney Ports Marine Services Procedures and which integrate with the NSW Disaster Management Structure, this type of incident falls into the category Single Agency Supported Response. Such a response is managed by the Sydney Ports Incident Commander, a position filled by the Sydney Ports Corporation General Manager Port Services. Under the NSW State Disaster Management Organisation the Incident (Oil Spill) Commander reports to the Emergency Operations (Oil Spill) Controller. The designated Emergency Operations (Oil Spill) Controller, referred to as the Incident Controller, is currently the Chief Executive of the NSW Waterways Authority.

The Incident Commander, who was at home, was notified of the incident at 1905 hours and drove to Moores Warehouse, the nominated Sydney Incident Control Centre (ICC) arriving at 1920 hours. The Incident Controller, who heard on television about the oil spill and telephoned the Incident Commander just before 2000 hours to seek confirmation, arrived at the ICC at 2020 hours. Between 1925 and 2030 hours other personnel arrived to join the response and to set up and operate the ICC.

The NSW Fire Brigade were requested to provide a liaison officer at the ICC at 1945 hours, by 2041 a NSW Fire Brigade Inspector was located at the ICC.


Sydney Harbour - location of oil
Wednesday August 4, afternoon
Lane Cove River
Hunters Hill
Cockatoo Island
Greenwich
Mauns Pt
Gore Cove
Balls Head Bay
HMAS Waterhen
Balls Head
Berrys Bay
Balmain
Goat Island
Millers Pt
Johnstons Bay
Darling Harbour
SYDNEY CITY
Blues Point
NORTH SYDNEY
Lavender Bay
Kirribilli
Neutral Bay
Shell Cove
Mosman Bay
Robertsons Pt
Taronga Zoo
Farm Cove
Woolloomooloo Bay
Rushcutters Bay
Black oil
Mousse
Sheen
N
S
E
W
0.8
0
0.8
1.6
2.4 Kilometres



Botany Protector transitting oil sheen to discharge recovered oil

The Incident Controller arranged for members of the State National Plan Technical Working Group (TWG) to meet at the Department of Transport's Kent Street Incident Support Centre at 0630 hours the following morning. This included personnel from Port Kembla and the Port of Newcastle.

Following discussions among the NSW Fire Brigade, Ambulance Officers at the scene and the Department of Health, it was agreed to release the following advice to the public about the smell:

> *May cause irritation to the throat, however, no long-term effects to be expected. People with concerns should remain indoors and any person suffering an increase in asthma symptoms or other respiratory problems should seek further medical advice.*

Botany Protector discharging recovered oil

At 2200 hours AMSA's General Manager Maritime Operations telephoned the Incident Controller to seek advice on the extent of the spill and whether National Plan assistance was required. The Incident Controller indicated that at that stage National Plan assistance was not required but might be required when the full extent of the spill was known. The situation was to be reviewed overnight and, if circumstances changed, assistance would be sought.

At 2300 hours the ICC mobilised the Caltex Kurnell Refinery's brush skimmer equipped oil response vessel *Botany Protector* to assist.

At about 2300 hours Shell personnel at the Gore Bay Terminal using various methodologies estimated the spill at between 80 and 300 cubic metres, compared with the advice of the ship's Master of 10 to 14 cubic metres.

By 2330 hours skimming activity in Gore Gove had commenced using one of SPC's National Plan Marco oil spill recovery vessels (OSRVs), the *Anadara*.

Wednesday 4 August 1999

At midnight Shell mobilised the oil industry's Geelong based Australian Marine Oil Spill Centre (AMOSC), on stand-by since being alerted shortly after the spill. AMOSC selected a range of equipment and despatched it by truck. Two technical personnel were also sent to assist.

At 0005 hours the crane barge *Poolya* was also deployed to recover oil with its brush skimmer and 7000 litre storage tank. At 0200 hours an SPC National Plan Marco H28 OSRV from Botany Bay also began recovering oil.

Shell personnel commenced oil recovery operations using a Komara 12K disc skimmer and a twin drum skimmer.

Oil and oiled debris collected by Marco oil spill recovery vessel

At about 0300 hours oil was evident as far east as Blues Point, and it was clear the spill was much larger than the 14 cubic metres estimated by the ship's Master, and supporting estimates by Shell of a higher amount. The Incident Commander decided more assistance was required. At 0420 hours a call was made to Port of Newcastle for marine crew to assist in boom deployment and to bring a Komara skimmer. The Port of Newcastle also decided to bring a GP 500 boom, which was mounted on a trailer and ready for immediate departure.

Marco OSRV maintenance at Moores Warehouse wharf

By 0432 hours some 5500 litres of oil/emulsion had been recovered.

At 0500 hours AMSA's EPG Duty Officer was contacted with advice that the spill could be as much as 300 cubic metres. At 0515 the Incident Commander contacted AMSA's EPG Duty Officer requesting National Plan assistance. It was agreed that two or three additional OSRVs and personnel to operate them were required. In a later call to AMSA it was agreed that two Marco OSRVs be brought in from interstate and assistance with the response organisation structure would be required, that is, planners, supervisors, aerial surveillance and media relations. It was agreed that AMSA would provide that support from its own staff, who are members of the National Response Team.

AMSA discussed equipment requirements with Queensland Transport. It was agreed to dispatch two H28 Marco OSRVs with four personnel. A further Marco OSRV was put on stand-by in Melbourne pending the result of the first aerial surveillance flight.

Surveillance briefing at Moores Warehouse ICC

AMSA made arrangements with Emergency Management Australia (EMA) for two RAAF aircraft to be used to transport the two Marco OSRVs from Brisbane. Based on advice given to AMSA it was estimated these could be in the water recovering oil by 1500 hours that day. It was agreed later in the day that there was a requirement for the Melbourne Marco OSRV and that it would be transported overnight by road.

At 0700 hours the first aerial surveillance flight over Sydney Harbour revealed a significant concentration of oil in Balls Head Bay extending to Goat Island, and patches in the northern end of Lavender Bay. Heavy sheen was observed from Cockatoo Island to the Opera House.

Information gathered from this flight was used later in the day to estimate the quantity of oil on Sydney Harbour to be in the region of 120 tonnes. This was the figure used by the ICC for response planning purposes. The methodology used in estimating surface oil was as recommended by the International Tanker Owners Pollution Federation (ITOPF), using the formula of 1mm of black oil over 1 square kilometre in area equates to 1000 cubic metres.

Media interviews with NSW Minister for Transport, Carl Scully and State Incident Controller (Chairman State Marine Oil Pollution Committee) Matt Taylor

It was agreed that surveillance flights would be undertaken at 0700 hours, 1100 hours and 1700 hours each day. Debriefing sessions were held an hour after each flight to give ICC personnel the latest intelligence and provide the opportunity to make 'strategic comments'.

At 0700 hours an interview with the Incident Controller was conducted on Channel 9's 'Today' show.

At 0800 hours the *Botany Protector* commenced skimming operations in Darling Harbour before working toward Berrys Bay. The fire tug *Ted Noffs* was used to break up the sheen in the area east of Kirribilli Point.

Oil spill response craft at Moores wharf

The on-water recovery operations were divided into five sectors:

- Gore Cove, with Shell being made responsible utilising Shell and AMOSC resources;
- Balls Head Bay, with SPC using National Plan as well as its own equipment;
- Greenwich Point to Balls Head, with recovery operations undertaken by Caltex using the *Botany Protector*,
- east of Balls Head, the SPC's firefighting and emergency tug *Ted Noffs* used to herd oil for two Marco OSRVs to recover; and
- west of Greenwich Point, the Waterways harbour cleaning service vessels used to collect oil and break up sheen.

Foreshore assessment briefing at Moores Warehouse ICC

A key strategy in the overall response was the segmentation of foreshores for assessment and clean-up purposes.

During the morning, response personnel arrived at Moores Warehouse ICC from other NSW ports as well as AMSA National Response Team (NRT) members from the ACT.

Representatives of the media were also arriving at the ICC in large numbers.

Other NRT members from Victoria and Queensland arrived in the afternoon and early evening. A representative of the Maritime Safety Authority of New Zealand arrived the following morning.

On-site media briefing

AMSA forwarded to the ICC the Automated Data Inquiry for Oil Spills (ADIOS) weathering model which indicated the Murban crude would weather consistently in the first few hours with a residue of around 40 per cent after a few days. Evaporation would be about 50 per cent over the first few hours, and natural dispersion could be as high as 25 per cent.

During the day oil recovery operations continued while the response organisation structure was established, the first 'outline' being posted at about 1400 hours, a more complete version at about 1900 hours.

Overnight, oil recovery operations continued on a 24hour basis.

Thursday 5 August 1999

Aerial surveillance flights identified considerable free-floating emulsified oil along the shoreline of the northern harbour coastline as well as in Rose Bay and as far east as South Head, patches were also along the Darling Harbour wharves. There remained large concentrations of oil within the boomed areas at Gore Cove.

AMSA, ITOPF and SPC personnel at HMAS Waterhen

There were around 20 reported sightings of oiled birds, and some marine invertebrates had been cleaned and released. The NSW National Parks and Wildlife Service (NPWS) advertised a dedicated contact telephone number for reports of oiled birds and marine fauna.

During the day oil recovery operations and foreshore assessment continued. Three Marco OSRVs operated in Lavender Bay while two other Marco OSRVs and the Botany Protector continued recovery in Gore Cove.

The first of the ITOPF representatives arrived to monitor the response on behalf of the vessel's P & I Club and to provide advice in the cleanup operation.

At the end of Thursday it was reported that 85 tonnes of oil-water mixture had been recovered.

Friday 6 August 1999

The ICC reinforced its earlier decision to minimise the use of absorbent materials where possible because of its concern regarding disposal. However, limited approval was given for their use in isolated areas.

Emulsified oil

Emulsified oil

The NSW Environment Protection Authority (EPA) and NPWS continued qualitative survey of the foreshores of the Lane Cove River and affected areas of the northern harbour coastline. Also, the EPA in collaboration with the Centre for Environmental Impacts of Coastal Cities (EICC) at the University of Sydney studied the short-term ecological impacts of the spill. EICC already held relevant data for the affected sites, pre-dating the spill.

Meanwhile a contingency plan for the departure of the *Laura D'Amato* was being developed.

Three Marco OSRVs continued to operate in Berrys Bay and two in Balls Head Bay.

The afternoon surveillance flights showed the situation had improved significantly. Emulsified oil along the northern harbour coastline was breaking down and producing extensive rainbow sheen. The amount of free-floating oil in the worst-affected areas of Gore Cove, Gore Bay, Balls Head Bay and Lavender Bay had greatly reduced.

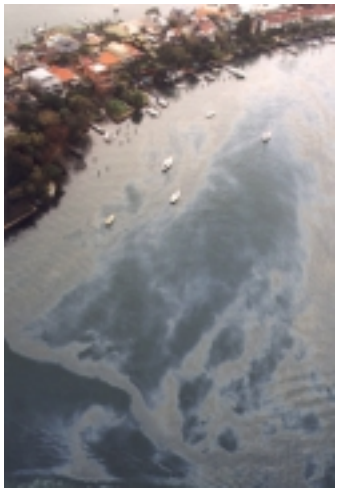
Oil surrounding naval vessels at HMAS Waterhen

Foreshore clean-up continued along the northern coastline, with the NSW Fire Brigade flushing the foreshores of Gore Bay and at *HMAS Waterhen*.

The two Marco OSRVs operating in the Balls Head Bay area adjacent to *HMAS Waterhen* recovered 21 tonnes of black oil.

Saturday 7 August 1999

Surveillance flights indicated a vast improvement on the previous day. The volume of sheen had reduced considerably, and only minor pockets of mousse were seen east of the Harbour Bridge.



Extensive sheen, Sydney Harbour

Operations focused on the Balls Head Bay area with four Marco OSRVs, one in Lavender Bay. Four foreshore assessment and clean-up teams continued to operate along the northern coastline of the harbour but focused major effort on Gore Bay and Balls Head Bay.

Divers inspected the hull of the *Laura D'Amato* and removed small patches of trapped oil in preparation for the ship's departure.

The sustained southerly wind throughout the response changed to a northerly late on Saturday. The forecast change prompted some responders to volunteer to operate late Saturday night to early Sunday morning to remove as much remaining oil on the water in the vicinity of *HMAS Waterhen* as possible. Using two Marco OSRVs and a static skimmer they successfully recovered 40 cubic metres of oil and water-in-oil emulsion (mousse).

Sunday 8 August 1999

The ICC established a shoreline sign-off group to signify foreshores as clean, comprising the EPA, NPWS, SPC, NSW DOT and ITOPF. The NSW Fire Brigade continued assisting with a crew of 24 undertaking foreshore cleaning south of *HMAS Waterhen* and in the Balls Head Bay area. Foreshore cleaning of sandy beaches was suspended while a more appropriate technique was developed.

Clean up of Berry Island Reserve using pumps and booms.

Foreshore cleaning assessment and cleaning teams reported all areas except the Gore Cove and Balls Bay areas clear of oil and oily debris.

On-water oil recovery continued with four Marco OSRVs and three static skimmers operating in the Balls Head Bay and Gore Cove, and one Marco OSRV in Lavender Bay.

On the wildlife side a fifth oiled cormorant and a second fairy penguin were cleaned at the Taronga Zoo.

The last surveillance flight of the day reported that most of the oil in Balls Head Bay had been removed. Skimming operations over the previous 24 hours had recovered approximately 100 tonnes of oil and mousse.

Monday 9 to Friday 13 August 1999

Laura D'Amato departure from Sydney

The *Laura D'Amato* departed Gore Bay at 1300 hours on Monday 9 August, escorted to Sydney Heads by SPC response vessels and under aerial observation. The vessel cleared the Heads without incident at 1400 hours.

Foreshore cleaning continued and was gradually signed-off as clean by the shoreline sign-off group. Some spot cleaning and on-water recovery continued, and gradual demobilisation, including equipment cleaning.

The estimated size of spill was 250 tonnes. Approximately 130 tonnes were recovered by skimming, 120 tonnes lost to evaporation.

Saturday 14 to Friday 20 August 1999

Equipment washdown, Moores Warehouse

Shoreline 'spot' clean-up continued in isolated areas, particularly in the vicinity of *HMAS Waterhen*, and between Gore Cove and Balls Head on an as-required basis.

By 20 August all foreshore and beach 'sign-off', except for Berrys Island, had been completed. Equipment was progressively cleaned and returned to base, with boom cleaning at Gore Bay terminal finally completed by 27 September 1999.

Berrys Island is a recreational amenity area, which required it to be totally clean without the use of aggressive cleaning techniques. Final sign-off was achieved 30 September 1999.

Overall 557 persons from 32 organisations were involved in the response operation.

2 THE RESPONSE: initial and overall effectiveness

As soon as alerted, SPC and Shell implemented a pre-planned response. SPC duty operational crew at Moores Warehouse were notified at approximately 1845 hours by Shell Gore Bay terminal staff and by 1852 hours two vessels loaded with Austpol Lite and GP 500 foam filled fence and buoyancy booms were on their way to Gore Cove. Shell terminal staff alerted Shell senior management.

When Sydney Ports Harbour Control were advised of the incident they immediately commenced their pre-planned emergency call-out procedure. The ABC's 'The 7.30 Report' was the alert medium for many people; however key response people alerted by Sydney Ports Harbour Control and the Port Services team responded quickly. The ICC was operational by 1930 hours.

By 1900 hours both SPC and Shell teams were proceeding independently in planning their responses. Booms were installed ahead of the vessel, protecting Gore Cove, and around the vessel, by 2000 hours, and by 2130 hours across from Manns Point to Balls Head enclosing Balls Heads Bay. A third boom of GP500 was laid later in the evening, and by 2330 hours skimming with a Marco OSRV had commenced to recover oil outside the boomed area.

In initial discussions between AMSA and the Incident Controller at 2200 hours it was agreed that National Plan assistance could be made available. However, based on the Master's reported 14 cubic metres oil spill, assistance was not required at that stage.

Details of response strategies and overall personnel and equipment requirements were not discussed between Shell and the Incident Commander at this stage. In addition, a range of possible spill sizes up 300 cubic metres was estimated by Shell Gore Bay terminal staff at about 2300 hours, however this range was not formally communicated to either the Incident Controller or the Incident Commander at the time. However, SPC personnel involved in the NSW official investigation were made aware of Shell's estimates and relayed this information to the Incident Controller and Incident Commander on their return to the ICC later that night.

Shell made direct arrangements with AMOSC for additional resources to be provided.

Overnight, additional personnel were requested from the Newcastle and Port Kembla Ports Corporations.

National Plan assistance from AMSA was sought at 0515 hours the following morning when it was agreed that additional Marco OSRVs and operating personnel were required. In addition it was also agreed that additional personnel were required to assist in ICC operation.

A helicopter was based nearby the ICC to help monitor the spill movement, and was used frequently throughout each day to assess oil movement, the fate and effect of the oil, direct oil recovery operations and to assist planning the continued response.

There was commensurate scaling-up of required resources. The Marco OSRVs from Queensland arrived in the evening of 4 August supplementing the two SPC Marco OSRVs plus the Botany Protector brush skimmer from Caltex. A further Marco OSRV was transported by road from Victoria arriving overnight it was ready for operation early on the 5 August 1999.

The above equipment was in use daily with some night use until 14 August after which the daily response requirement reduced to spot cleaning.

Comment

The initial rapid response by the SPC duty operational crew and the Shell Gore Bay Terminal personnel booming off the vessel in a short time frame is to be highly commended, their joint actions clearly averted a larger response requirement.

SPC's initial planning was based on the Master's report of 14 cubic metres. It was not until observations were made at about 0300 hours, of oil extending outside the boomed area and as far as Blues Point, that the Incident Commander was able to confirm the spill was much larger than had been reported by the ship's Master and was likely to be within the range estimated by Shell.

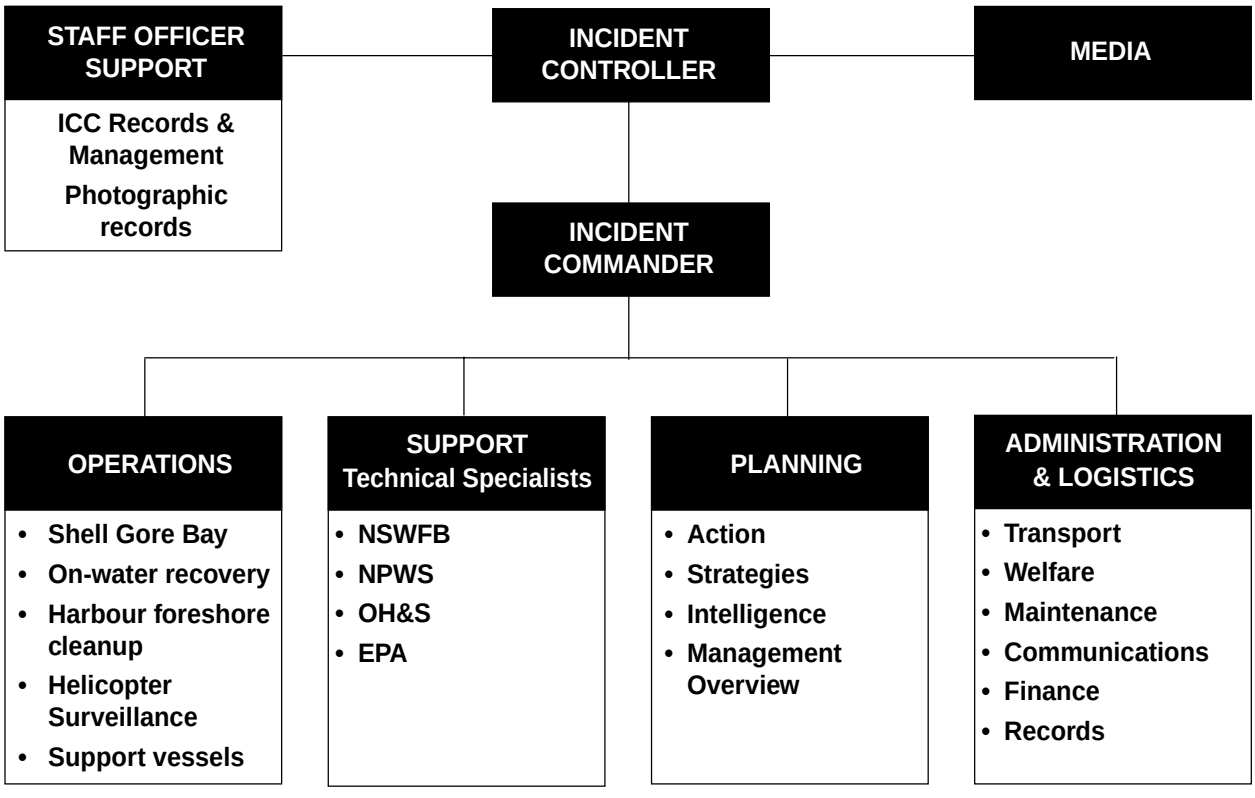
It would have been expected that Shell personnel and the Incident Commander would have discussed and agreed the appropriate response strategy on Tuesday night. This would have established a clear understanding between the main players on likely spill size, equipment and personnel resources required and from where these would be sourced.

It is essential that the estimated amount of oil spilt is correctly advised as early as possible at least to key response personnel, if not the public at large. Concern was expressed by most people interviewed that the approximate 300 cubic metres figure estimated by Shell at 2300 hours should have been promulgated at the time and used as the 'worse case scenario' by all concerned.

The Incident Analysis Team is of the view that it is more appropriate to promulgate the upper estimated spill amount to all concerned, including the public. If further calculations or actual experience prove a lower amount this will be more easily explainable than the converse. From a media perspective this is also a better strategy.

Because of the delay in formally communicating the estimated upper spill size, the need for additional equipment and assistance from the National Response Team (NRT) was not recognised early enough.

Incident Control Centre organisational structure



With the exception of the names of the Incident Controller and the Incident Commander, no names were initially set against ICC roles. The initial command structure 'appeared confused and fairly chaotic', according to key observers. The ICC organisational structure was slow to become established and was not adequately dealt with until the afternoon of Wednesday 4 August, and not posted until 7 p.m. on that day. The Incident Controller commented on the need for key ICC roles to be pre-planned.

While complying with the Sydney Ports Marine Services Procedures the ICC structure did not accord with the National Plan Oil Spill Response Incident Control System (OSRICS). This led to some uncertainty by those ICC personnel who were not familiar with the Sydney Ports Marine Services Procedures. While SPC personnel were aware of the new system, formal advice to implement the transition was not sent to SPC until December 1999.

The Incident Analysis Team recognises that NPAC has set a three year implementation period for OSRICS, essentially to allow sufficient time for the numerous contingency plans to be updated. Accordingly SPC cannot be criticised for not having utilised the new system in this incident. However when an incident requires assistance from personnel from other organisations both within the State as well as interstate a more standard national approach is required.

For many of those involved in the response this was their first experience at dealing with an actual oil spill, consequently there was need for additional 'on site training', particularly in foreshore cleaning and wildlife rescue.

It needs to be recognised that the issues discussed above did not materially effect the overall outcome of the incident. Perhaps a few hours less in foreshore cleanup could have been achieved, however this is purely speculative. However, they could have done so if the spill had been larger or of a heavier oil resulting in a more complex response with more environmentally sensitive issues to be dealt with.

Despite the issues discussed above, the initial and overall response was very effective, and the outcome was particularly good, with 90 per cent of recoverable oil being recovered.

Issues to be addressed

- The full implementation of the National Plan Oil Spill Response Incident Control System (OSRICS), including training should be speeded up. NPAC should issue guidelines on the response structure to be used during the remaining period of implementation.
- In similar incidents to this one there should be early and close contact between the oil company and the State Marine Pollution Controller to plan the strategic approach to the response and determine the required equipment and personnel resources.
- When spill size estimates are thought to be larger than first advised, the company involved must without delay provide appropriate information to the State Marine Pollution Controller and Incident Controller.
- Incident Control Centres (ICCs) should have the National Plan Oil Spill Response Incident Control System (OSRICS) structure permanently displayed on a whiteboard or similar, so that individuals' names at the four functional heads level can be added quickly in the early stages of the incident.

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

As expected, in the initial phase of any response the response planning process is informal, urgent and focused first on assessing the incident, followed by decisions on strategy and then the initial mobilisation of resources. In this case the initial planning during the first few hours occurred by a process of site inspection (difficult in the dark) and telephone discussions among such parties as the Incident Controller and the Incident Commander, and between Shell at Gore Bay and AMOSC. AMSA did not become directly involved until some ten hours later. In the early stages of the incident there was no response planning discussions held between Shell and SPC/ICC.

The first formal planning document issued by the Incident Commander from the ICC was at approximately 0600 hours on Wednesday 4 August. The document took the form of a combined Situation Report and Response Action Plan. The report concisely and clearly set out the background to the incident, including a sketch of the boom deployment, outlined the responsibilities and actions by sector, and set out the status of resources.

At 0800 hours a Situation Report was prepared based on the surveillance flight made at first light. Actual information about the extent and location of the spilled oil was included, and the contents of the Situation Report effectively became the Response Action Plan for the rest of the day.

During the morning of Wednesday 4 August the SPC planning resources were supplemented by AMSA and Port Kembla Port Corporation personnel. The three-person team produced the required Response Action Plans throughout the response. Also in the Planning Section was an intelligence (aerial surveillance) role provided by AMSA as well as a management overview of the process provided by the NSW Fire Brigade. A representative of NSW DOT also played a valuable role in preparing Situation Reports.

The Planning Team produced the Response Action Plans twice daily initially from Thursday 5 August and daily later in the response. The plans, each no more than two pages, covered such items as surveillance, priorities, actions, issues and additional resources. Additional specific plans were also prepared:

- Site Health and Safety Plan;
- Vessel Departure Plan;
- Foreshore Inspection and Termination of Clean-up; and
- Decommissioning Equipment.

The Planning Team obtained the information it required by direct contact with the Operations and Foreshore Sections, together with surveillance information obtained during the 'briefing' sessions. As the Response Action Plans were typically prepared for the briefing sessions, new surveillance information often required significant revision to the plans. That fact resulted in the perception that the planning process was at times reactive rather than proactive.

The first Response Action Plan nominated 'Shell to undertake response in the Gore Cove area utilising both Shell and AMOSC resources'. Accordingly Shell undertook that activity, planning and resourcing that part of the clean-up.

During the initial phase of the incident the Clyde Refinery Manager together with other Gore Bay Terminal managers initiated Shell's oil spill response activities. This included activation of the Shell Crisis Team, obtaining additional interstate resources and securing local Clyde Refinery contractor resources to undertake oil spill recovery operations.

Shell also mobilised personnel and equipment from the industry's central oil spill response facility, AMOSC in Geelong.

After the first 12 hours, planning was carried out by the 24 hour shift working Response Operations Managers and the deputies.

In the early stages of the incident Shell experienced considerable difficulty with crowd and media control in the vicinity of the Gore Bay Terminal. Of particular concern was photographers taking flash photographs in areas close to heavy oil contamination.

Comment

At all times it was recognised that planning is a very important part of a successful response activity. The required plans were well produced and of great use.

An essential component in an Incident Control System is that the planning process is centred round meetings of the response management team, in this case consisting of the Incident Commander, advisers and key personnel who report to the Incident Commander. At the meeting information is exchanged, strategies proposed, and action agreed. The management process is separate to the necessary process of briefing interested parties.

The role of the planning section is to propose strategy and then to translate agreed strategy into sufficiently detailed plans.

It is recognised that each response management team has the flexibility to set up the planning process that works for it. However, in this case while the three response sections regularly discussed their ideas and plans with the Incident Commander there were no formal management meetings of the section heads with the Incident Commander as a management team, separate from the briefing meetings. Consequently the Planning Team was somewhat outside the strategy development process.

For most of the response the Planning Team worked in a small office on a different floor from the operational response personnel, mainly for the convenience of access to a network printer and telephone. The separation, particularly from the operational personnel sometimes frustrated the planning and operational process.

The Planning Team found it valuable to be able to participate directly in surveillance flights.

The team commented that the availability of templates of simple forms would have assisted the planning process.

The National Marine Oil Spill Contingency Plan envisages a single response management structure. This structure can accommodate separate operating areas, but implies a single planning section. In this case there was a separate 'SPC' response and a 'Shell' response. There was recognition that there had to be close liaison at senior management level, this liaison was achieved by the Industry Adviser role being carried out by the Clyde Refinery Manager.

However, particularly at the early stages of the response, there appeared to be no close liaison at planning and operations levels. It showed in the fact that the Response Action Plans beginning on Thursday 5 August called repeatedly for deployment of the high capacity Desmi weir skimmer in the Shell Gore Bay area.

Planners were not aware of the status of that activity, in particular the reason the equipment was not in service. In addition the Response Action Plans were not received by Shell at Gore Bay. At the end of the day the success of the response was not affected, but it was a source of frustration along the way.

The National Plan envisages that the provision of response resources from interstate should be coordinated by AMSA. As was its right, Shell directly mobilised AMOSC to assist in the Shell response. The mobilisation was arranged without first consulting the Incident Commander, and also without AMOSC's advising AMSA at the time of mobilisation. The mobilisation of AMOSC also took place before the Incident Commander called for assistance through AMSA. Initial uncertainty was therefore created in AMSA as to the scale of the incident and the resources that might be required.

Comments were made by a number of key ICC personnel of the difficulty in tracking response equipment and personnel movements. Difficulty was also experienced receiving and recording progress and completion reports. These factors impacted across the Planning, Operations, and the Administrative and Finance and Logistics Sections.

The tracking of response equipment and personnel is a key element in any major oil spill response as is the need for all key personnel to be fully aware of what has been achieved and what remains to be done. While the recording on status boards is laborious and time consuming it cannot be achieved if the information is not provided in a timely and organised way. This issue has been a constant in nearly all oil spill incidents in Australia.

It is recognised that the Incident Command System utilised in the USA uses a vast array of forms and reporting procedures which go far beyond what is required in Australia, particularly with the limited ICC personnel available. A more specific computer system with only a few essential forms for tracking personnel and equipment as well as operational tasks set and completed and designed to Australian requirements would provide significant benefits in information exchange.

Response planning, ICC, Moores Warehouse

Issues to be addressed

- The four key units, Planning, Operations, Logistics and Finance/Admin should all be physically close to each other and have suitable computer, telephone and administrative support resources.
- Separate oil spill response organisations should not be set up. If a forward base is required when an incident is remote from the ICC, there should be strong links between the forward base and the ICC.
- When supporting a State/NT pollution incident, AMSA is organising interstate personnel and equipment, and an affected oil company is mobilising AMOSC directly, there should be early and close contact between AMSA and AMOSC to ensure that appropriate decisions are being made on the amount and type of resources required.
- NPAC should research designing a national computerised oil spill management system to handle all written operational and administrative communications, track equipment and personnel resources, etc. In the meantime a simple ICC Operations and Procedures manual should be developed.

Response activity, Moores Wharf

Oiled yacht, Sydney Harbour

4 PERSONNEL AND EQUIPMENT

SPC in setting up the ICC and initiating the response during the evening of 3 August 1999 sought personnel and equipment resources from Sydney and Botany, based on the reported 14 cubic metres spill size. During the night visual observations of the extent of the spill clearly indicated a larger spill and that additional personnel and equipment resources would be required. These were obtained from Port Kembla, Port of Newcastle, Brisbane, Melbourne and Canberra and included members of the National Response Team (NRT).

Shell initially used personnel and equipment from the Gore Bay terminal as well as personnel from the Clyde Refinery. Shell alerted AMOSC in Geelong, putting them on stand-by. Following the calculations that indicated a spill size of up to 300 cubic metres Shell sought additional equipment resources from AMOSC.

Personnel

Personnel used in the incident came from some 32 organisations, however the majority were from SPC, NSW Fire Brigade, Shell, NSW NPWS, and the NSW State Emergency Service.

The NSW Fire Brigade initially attended at the Shell Gore Bay terminal to ascertain the source of a purported gas leak and to provide fire and rescue services in the event of these being required. Having arrived on scene the NSW Fire Brigade personnel assisted Shell with boom laying and the HAZMAT team assisted with monitoring for explosive mixtures. The NSW Fire Brigade media spokesperson also dealt with the initial media inquiries regarding the strong odour.

In the evening of the first day the Incident Controller called a meeting of the newly formed TWG for 0630 hours the following day at the NSW DOT offices in Kent Street, Sydney. After an initial delay it was decided that members of the TWG should be incorporated in the ICC at Moores Point Warehouse.

On the second and subsequent days NSW Fire Brigade personnel were made available to assist mainly in foreshore assessment and clean up operations. A Superintendent and an Inspector were appointed to the ICC to provide a technical support role and a third Fire Brigade officer oversighted the Occupational Health and Safety function.

While a significant number of persons telephoned in offering their assistance as volunteers, none were required or utilised. However, on one occasion there was confusion when 20 volunteer State Emergency Service personnel arrived to assist in foreshore clean up operations, even though the ICC had been advised previously that additional assistance was not required.

Overall 526 persons were involved in the response from 31 organisations as shown below.

Organisations	Number
Australian Maritime Safety Authority	9
Australian Marine Oil Spill Centre	2
Axiom Industries	6
Brisbane Port Authority	1
Caltex Refineries NSW	7
Collex	20
Environment Protection Authority	11
FS Cranes	1
Grays Diving Services	7
International Tankers Owners Pollution Federation	2
Marine Board of Victoria	1
Moss Australia	1
National Parks and Wildlife Service	34
New Zealand Maritime Safety Authority	1
Newcastle Ports Corporation	8
NSW Department of Transport	4
NSW Fire Brigade	47
Oil Check	1
Port Kembla Ports Corporation	1
Queensland Department of Transport	3
Salvation Army	20
Shell Refining (Aust) P/L	156
Skilled Maritime Services Victoria	1
Stannards	23
State Emergency Service	18
Sydney Helicopters	2
Sydney Ports Corporation	94
University of Sydney	1
Water Police	14
Waterways Authority	28
Gardiner Perrott	2
TOTAL	**526**

Equipment

The Marco OSRVs as well as a boat mounted brush skimmer and some disk skimmers together with a variety of boom types and shore flushing systems were the major response and recovery items of equipment used in the incident.

Radio communications were undertaken using SPC modified National Plan UHF system utilising modern hand-held sets. Some modifications were made to the helmet microphone communications system used by the helicopter surveillance crew during the incident which improved clarity of messages received.

Shell vessels had difficulty communicating with SPC and the Marco oil recovery vessels were found to be very noisy, adversely affecting operator ability to use the radio communications equipment.

A communication problem, resulting in some confusion, arose in regard to an 'availability' enquiry direct from personnel at the Taronga Zoo to colleagues in New Zealand for water heating equipment to wash oiled wildlife which was followed by a formal request to AMSA. When AMSA checked with the ICC the ICC was not aware of the request. It turned out that this equipment was not required and was not sent.

A number of difficulties were experienced with booms and boom deployment. In particular not using shore line barrier boom and not providing a seal at the interface between booms and the shoreline. This allowed quantities of oil to escape. Egress of oil at the connectors between different types and sizes of boom also occurred. Some booms had twists in them. Also booms were not monitored or adjusted following a tidal change. In some cases excessive lengths of boom were used and incidents of boom being laid across the top of another were observed. Some booms appear to have been laid with insufficient anchoring to hold them out of traffic lanes resulting in them being overrun by passing vessels, particularly at night due to lack of visibility.

Comment

Good use was made of available personnel from the initial stages of the response. The fact that the initial response decisions in respect of equipment and personnel were made on the basis of a spill of 14 cubic metres resulted in a delay of approximately 7 hours in requesting National Plan equipment and the activation of personnel from the NRT.

As in previous incidents with a similar spill size, the need for personnel to work closely and in cooperation with each other was again clearly demonstrated to all concerned. In an overall context there was good

Use of Marco oil spill recovery vessel.

cooperation among all response personnel, although there was some indication of reluctance of SPC personnel to respond to requests from NRT supervisors, preferring to work through normal line management, this resulted in operational difficulties.

It is noted that the newly formed NSW National Plan Executive Committee (NPEC) was not called to meet yet the NSW TWG was requested to meet but was subsequently incorporated into the ICC. Comment was made that the NPEC should have met.

It is the view of the Incident Analysis Team that the NPEC and its subordinate TWG would not normally meet during an oil spill response. The NPEC and TWG are charged with managing State National Plan activities during 'peace time'. Certainly members of the two groups may have a role to play within the ICC. However, it is the ICC's responsibility under the direction of the Incident Controller to manage the spill response, not the NPEC.

Apart from a delay of a few hours in the delivery of two Marco OSRVs from Brisbane all other equipment was available when required. The delay of the RAAF C130s was not explained; however, it is not considered to have affected response effectiveness.

National Plan equipment, which includes Sydney based SPC equipment as well as equipment from other ports in NSW, Queensland and Victoria and also AMOSC was in a general sense very effective and achieved a satisfactory outcome.

The Marco OSRVs, which are designed for this type of response, were particularly effective and demonstrated their worth as Australia's primary inshore on water recovery equipment.

Public criticism of the need to bring equipment from interstate was indicative of the lack of understanding in the community of the National Plan arrangements. The transport arrangements were effective, but it might have been prudent in the case of the of the two Brisbane Marco OSRVs, to consider whether road transport would have been more appropriate than air in the circumstances.

It was mentioned that one additional Marco OSRV, as a spare, in case of breakdown, could have been provided.

There was a strong suggestion of the need to evaluate the offloading of recovered oil from the Marco OSRVs, this gave rise to two areas of concern. Firstly where vacuum trucks are to be used, to avoid unnecessary delays planners should consider better coordination of vacuum trucks to meet vessels adjacent to operating areas rather than vessels tracking unnecessary distances to meet trucks. Secondly the need to re-examine the Marco OSRV pumping arrangements used to discharge recovered oil in circumstances where vacuum trucks are not available.

There seemed some confusion as to the appropriate use of the SPC Desmi weir skimmer, and its delayed use until Saturday 7 August at the HMAS Waterhen naval base, where it was reported very effective in recovering a considerable mix of oil and water.

The modified National Plan radio system in use by SPC requires further evaluation for use interstate but appears very promising. Its primary advantage over the existing system was the ability to work the National Plan frequency in simplex or duplex modes, and having the SPC frequency available.

The ability of Shell (which has an SPC radio located in its Gore Bay Operations Centre) to better integrate radio communications with SPC vessels should be examined.

There is a demonstrated need to identify a suitable location on the Marco OSRVs to house portable radio/telephone equipment, and/or investigate the use of the 'headset/ear-mike' arrangement successfully trialed in the helicopter.

Oil contained in booms at HMAS Waterhen, 500 metres east of the spill point.

Comment was made that the National Plan infrared camera or cold-light iridescent tubes could have been used to help identify oil movement at night.

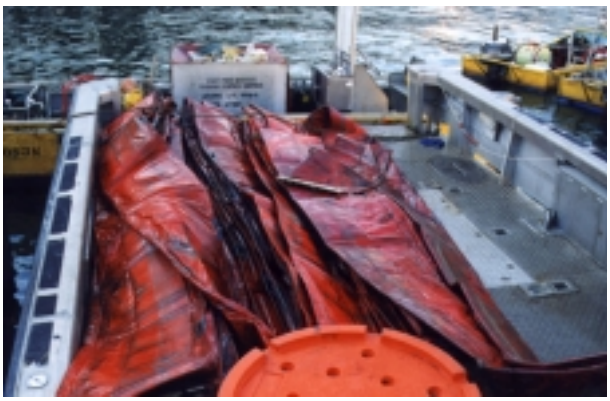
It appeared that no one was appointed to monitor or inspect booms for efficiency, position or damage. Better use could have been made of anchor systems including anchor marking buoys. It appeared that some SPC personnel believed that it was acceptable practice to drive across booms.

Shell personnel at Gore Bay advised that the permanent boom mooring fixtures within the area which falls under the responsibility of Shell assisted significantly in quickly securing boom. They pointed out that consideration should be given to providing similar features outside the Shell area in Gore Cove and the adjacent Berry Island.

A considerable advantage to the response throughout the operation was the SPC night-shift personnel refuelling and maintaining watercraft ready for service at first light. This was a very effective use of night shift personnel.

Issues to be addressed

- NPAC should review NATPLAN hand-held radio communications equipment to take advantage of SPC initiatives, and review the use of special headsets for use in helicopters and possibly alongside noisy machinery such as Marco OSRVs.
- Shell to examine how to better integrate Gore Bay radio communications with SPC
- Consideration be given to providing additional permanent boom mooring fixtures in Gore Gove outside Shell's area of responsibility.
- Capability of the oil discharge pumps in Marco OSRVs to be examined.
- SPC personnel should undergo further training in boom deployment and monitoring. The training should highlight the need to check boom deployment and anchoring mechanisms to ensure optimal use of booms including shoreline sealing, particularly after changes in tide and or wind direction, and the correct procedure for getting inside the boomed area.



Response activity

5 ADEQUACY AND EFFECTIVENESS OF WILDLIFE RESCUE AND REHABILITATION

Wildlife rescue operations were handled by the NPWS and rehabilitation was undertaken using existing resources by staff at the Taronga Zoo. Wildlife injury was low, only 16 oiled birds caught and cleaned. Two Cormorants died. Other oiled birds were sighted at various times but could not be caught.

NPWS undertook nightly patrols looking for native water rats at various locations. Concern for that species led to a shore-flushing operation to minimise any risk of adverse effects. Night patrols in the Manly area also observed Fairy Penguins leaving the water at night and returning to their burrows. Only two Penguins required cleaning. Sea Hares (large marine snails) were collected from oiled areas and relocated at clean sites.

Approximately 25 personnel and four vessels were used in this component of the response.

A qualitative survey by EPA ecologists of the most heavily oiled areas indicated little evidence of the immediate mortality of intertidal animals.

The NPWS set up a special telephone number for the public to report injured wildlife. More than 300 calls were received.

The NPWS was invited to attend the TWG meeting at 0630 hours on 4 August 1999 and when the TWG moved to the ICC at Moores Warehouse the NPWS officer assumed a technical advice role in the ICC.

No specific role is nominated for NPWS within the NSW Marine Oil Spill Contingency Plan. The Environment and Scientific Coordinator (ESC) nominated by the EPA has a duty to coordinate wildlife rescue and rehabilitation through NPWS and to arrange access to spill sites for NPWS.

NPWS personnel were uncertain about the ICC structure and whether there should be recognition of NPWS in its own right.

The respective roles of EPA and NPWS in oil spill response and the treatment of wildlife and items of cultural significance in the NSW Marine Oil Spill Contingency Plan areas also appeared uncertain.

It was suggested that NPWS had insufficient resources for the various locations and that the NSW Fire Brigade could have assisted.

Comment

The NSW Marine Oil Spill Contingency Plan includes provision for an Agriculture and Animal Services Functional Coordinator and also refers to the Agriculture and Animal Services Functional Area Supporting Plan. However, there does not appear to be a documented role for the NPWS in oil spill response, the situation including the role expected of the NPWS needs to be clarified with NPWS.

The Incident Analysis Team notes that following the *Iron Baron* incident the National Plan Advisory Committee recommended that the States and the Northern Territory introduce oil-spill wildlife rehabilitation plans. NSW does not yet have such a plan, see further comment in Chapter 10 Contingency Plans.

Rather than as a Support Technical Specialist reporting to the Incident Commander, the NPWS officer would more appropriately be located in either the Planning or Operations Section of the response structure. Whichever it is, there should be improved integration and communication about wildlife and rehabilitation activities in both Planning and Operations Sections. A review of this aspect should recognise that NPWS is also responsible for National Park Heritage Sites.

Comment was made that the level of awareness of the environmental consequences of oil spills by many staff involved in the wildlife response was

minimal and this may have been the first time they had been confronted by this type of incident.

Apart from the organisational issues and training needs identified above, the wildlife rescue and rehabilitation response, while somewhat limited in demand, was adequate and effective.

Issues to be addressed

- Section 10.13 of the NSW Marine Oil Spill Contingency Plan should be reviewed to clarify the role of NPWS in an oil spill response, with a view to including NPWS in the Plan.
- The NSW Marine Oil Spill Contingency Plan and the Incident Control Response Structure should be reviewed to improve the interaction between and clarify the respective roles of the EPA and NPWS with regard to wildlife rescue and rehabilitation.

Decontamination station

Vacuum truck removing recovered oil from Marco OSRV

6 ENVIRONMENTAL ADVICE AND SUPPORT

Initial on-scene response

The EPA representatives, on learning of the spill from both the EPA emergency 'pollution line' and Sydney Ports Harbour Control on the evening of Tuesday 3 August 1999, attended the Shell Gore Bay terminal and provided information to the responding organisations, Shell and the NSW Fire Brigade. The properties of the oil and its effects on the environment and on human health were critical issues at this stage.

At 2230 hours EPA personnel were invited to attend the NSW National Plan TWG at 0630 hours the following morning and were later requested, along with other members of the TWG, to join the ICC.

On their arrival at the ICC the two EPA representatives, who attended as Environment and Scientific Coordinators (ESCs), like others, expected to be assigned tasks in accordance with the OSRICS. They anticipated working in the Environment Unit helping the planning and operations sections and providing specific scientific advice to the Incident Commander when required. Instead, they were positioned to one side as Support Technical Specialists advising all team members.

One ESC is an ecotoxicologist, the other a marine ecologist. They saw their priorities not so much as EPA representatives but as members of the response team. They contributed in a number of ways, including providing scientific input, arranging to monitor the effects of the oil on the marine environment, helping develop shoreline cleaning techniques, coordinating oily waste disposal, and agreeing protocols for boat-cleaning and signing-off shorelines with local councils. They also helped NSW NPWS coordinate wildlife rescue and rehabilitation.

The ESCs made use of AMSA's Environment and Scientific Adviser through telephone requests on a range of issues, including information on the characteristics of the oil and its likely weathering obtained from the ADIOS Weathering Model. In their view the likely risk to the environment in this particular oil spill did not warrant having the AMSA Adviser on site.

Environmental issues

Queries from boat owners relating to the cleaning of oil stained watercraft were received early. There was some initial confusion following public recommendations by the EPA that all pleasure craft be taken out of the water to be cleaned. The issue was later resolved after undertaking field trials using different cleaning products to identify products and techniques likely to be successful, and after discussions with the Australian representative of the insurer. EPA subsequently agreed that some vessels could be cleaned while in the water. This information was made available for SPC to promulgate via the 1800 information line.

Some operational practices and decisions influenced the environmental outcome of the response. For example lack of boom monitoring and in one reported case an environmentaly sensitive foreshore area was unprotected by boom. Special attention was given by the ICC to booming sensitive resource areas within the Gore Gove area, which includes mangroves and seagrasses, and the early booming of the water intakes of the Sydney Aquarium and Taronga Zoo.

A foreshore clean-up plan setting environmental goals was developed by the ESC's. Foreshore assessment and cleaning operations were sectored and undertaken by four teams comprising NSW NPWS, NSW Fire Brigade, NSW Waterways and Newcastle Ports personnel. Use was made of the *NSW Oiled Shoreline Assessment Field Book* in both training personnel and recording operations. Assistance and advice in foreshore cleaning techniques were provided also by ITOPF personnel.

Trials of various foreshore-cleaning techniques ranging from aggressive high-pressure blasting to gentle washing were undertaken.

Disposal of waste

The need to dispose of oily waste, both as liquid and solid, arose early in the incident. The ICC issued strict guidelines that efforts should be made to minimise solid waste by not using sorbents. Other types of oily waste were stored in skips and, after approval by local authorities, were land-filled.

Liquid waste, mostly in the form of an oil-water mixture, was returned to the spill vessel *Laura D'Amato*.

Environmental monitoring

Various studies of the marine environment, including inter-tidal zones and beaches in the vicinity of Gore Cove, commenced in the early 1990s and were being undertaken at the time of the spill by the University of Sydney's Centre for Environmental Impacts of Coastal Cities (EICC) .

Environmental monitoring was undertaken using two approaches: firstly, documenting the extent of oiling and determining the level of impact in various areas to guide response priorities and, secondly, assessing and documenting the extent of environmental damage and evaluating any restoration requirement.

The extent of oiling was undertaken as part of the foreshore assessment, and the level of impact assessed qualitatively by a team of scientists from EPA. The team found little obvious immediate impact on biological assemblages.

Assessing environmental damage was through two main projects:

- Samples of bivalves to determine the extent of bio-accumulation of hydrocarbons were collected by EPA personnel shortly after the spill and again a few weeks later to determine whether the level of contamination had declined to background levels; and
- The EICC gathered data on the immediate effects of oil exposure on biological assemblages on the constructed rock walls around Berrys Island.

EICC commented on the responsible approach adopted by EPA in allocating some remote areas where cleaning was deemed unnecessary so that effective comparison monitoring could be undertaken.

EPA also undertook an assessment of marine life (mussels) on Goat Island to ascertain hydrocarbon content. After a restoration period, the results will be compared with samples taken some distance from the spill area.

Washing down oily foreshore at Berry Island Reserve.

Comment

Closer involvement of the ESCs in decision making for laying and the ongoing maintenance of the booms would have helped restrict potential environmental damage. Had they been more closely linked to the Planning and/or the Operations Section, that might have been the case.

Despite initial uncertainty associated with the reporting structure, advice and decision on the disposal of solid waste was well managed. Prompt advice was given on appropriate wrapping so that the waste effectively contained the liquid oil without spillage.

With respect to foreshore cleaning, the pragmatic approach of the ESC's in permitting more intensive cleaning of one section of Berrys Island foreshore with a public access requirement is considered a sensible outcome.

Planning foreshore cleaning might have been helped by having available pre-formed documentation based on an analysis of the layout of various areas of Sydney Harbour. Such documentation could have been used to feed back information to the ICC to help future planning operations.

The foreshore clean-up could have been improved had better use been made of SPC's shoreline cleanup guidelines. Delays occurred when disagreements over techniques arose and had to be resolved by cleaning trials.

Greater use of assistance and advice from AMSA's Environment and Scientific Adviser, together with quicker intelligence on the nature of the spill, might have helped the early stages of setting up the required level of response from an environmental perspective. It might also have helped in the provision of environmental advice.

Environmental outcome was positive, showing little damage to animals - molluscs and limpets, for example, where data were available before and after the spill.

Closer liaison among all agencies involved in shoreline clean-up is suggested, to ensure all personnel are aware of the task and how it should be performed. Concern was expressed at over-vigorous shoreline cleaning, where trampling can push oil below the 'redox' level where it is not subject to bacterial action. The oil can later seep up, be remobilised and cause secondary pollution. There was also an incident in an area not boomed and without oil recovery equipment operating where hosing down of the foreshore prematurely caused oil to enter the water before recovery operations were available.

Certain areas were left uncleaned so that the effects of clean-up and natural cleansing over time could be gauged. The move was widely accepted as a positive environmental initiative.

The shoreline 'sign-off system' with local councils worked well. It gave the 'customers' the opportunity to comment on the outcome, to the benefit of residents. The last to sign-off was North Sydney Council on 30 September 1999 in respect of Berrys Island amenity beach, due to its recreational use.

Issues to be addressed

- The role and responsibilities of the ESC's within the NSW response team structure should be reviewed so that integration with the Planning and Operating Sections is improved and their advice is available for the full range of operational activities from the earliest possible stage.

- Sate/NT procedures during a spill response for environmental monitoring and sampling programs of the areas affected by the oil spill should be reviewed to provide the most appropriate scientific advice in future incidents.

- Guidelines on foreshore cleaning techniques for different shoreline types in tropical and subtropical areas of Australia should be further developed to assist shoreline clean-up personnel. Additional training of personnel in shoreline cleaning techniques should be provided.

- Techniques and approved cleaning agents for use on oiled recreational craft while afloat, depending on different oil types, should be established.

7 OCCUPATIONAL HEALTH AND SAFETY ISSUES

Initially the key agencies involved in the incident, SPC and Shell, operated under their own standing occupational health and safety (OH&S) arrangements.

During the evening of Wednesday 4 August 1999 the overall response organisation structure was formalised, including a role with responsibility to coordinate OH&S aspects of the response. The role was filled by a NSW Fire Brigade officer.

An overall Site Health and Safety Plan was prepared and issued on Thursday 5 August. The scope of this plan included organisation, responsibilities, hazards and risks as well as an incident report form and emergency response procedures. The final summary page of the plan covered details of the oil, hazard information, first aid actions and safe working practices on boats, including the wearing of life jackets. An induction program was put in place and each person issued with a copy of the National Plan OH&S leaflet and the summary page from the overall plan. Safety issues were a standing agenda item at the briefing sessions.

A NSW Fire Brigade person carried out a roving audit brief during the response.

Shell continued to manage the OH&S aspects of its response using established terminal procedures, which included induction of personnel, clearance arrangements for work execution, limits to potential sources of ignition, and the 'Take 5' procedures for team evaluation of new tasks. An overall OH&S Coordinator with a roving audit brief was also appointed.

The quality of the air near the spilled oil was monitored. Concentration of vapour in the air remained well below the explosive limit, though for the first half-day the level of benzene was significant, and personnel working near the oil wore canister masks.

During the response the failure of a bow door on a landing vessel resulted in four persons entering the water. In another incident one person was taken to hospital for observation after slipping and striking a knee.

Overall there were three minor injuries with only one requiring medical treatment.

Comment

That only three relatively minor injuries occurred during this incident is an excellent outcome for a response directly involving 557 personnel, and a credit to the planning and safe working practices carried out by all parties.

The issue of on water oil recovery continuing at night gives rise to a number of issues, in particular the increased risks to personnel. The dangers of recovering oil in a marine environment at night are well recognised and the activity is usually minimised. On this occasion some night work was carried out without incident, close to shore-based support and with adequate lighting.

Activities associated with modern day society and the location of oiled beaches close to heavily populated areas resulted in shoreline clean-up teams having to watch out for and deal with used syringes. A significant number of used syringes were collected and disposed of.

In the first few days of the response field supervisors experienced difficulty firstly in obtaining sufficient lifejackets and when these were available enforcing the wearing of them by marine crews. The use of personal safety equipment such as lifejackets and protective clothing requires strong emphasis in such a response.

The fact that the majority of the clean-up was complete within a week meant that there was no requirement for change-out of personnel. As is

typical and expected during such a response, many personnel worked long hours and there is a risk that accidents may be caused by fatigue. The working hours of employees is the responsibility of the employing agency, and it appears that not all have policies in place to ensure their employees get adequate rest.

The initial rapid response by SPC personnel in booming off the ship is commendable. However, the personnel involved did not appear to check the safety risks of oil inflammability and toxic fumes before laying boom. While it is appreciated that the vapour was blowing away from the boom-laying operation, there was potential for the personnel to be put at risk.

Issues to be addressed

- Before booming or other response operations commence close to the source of the spill, supervisors should ensure that there is no risk to personnel of explosion or inhaling toxic fumes.
- NPAC as well as individual agencies should have policies in place to ensure that in major pollution response operations their employees get adequate rest.

8 ADMINISTRATIVE SUPPORT SERVICES

The ICC finance, administration and logistics activities were undertaken primarily by SPC finance and administrative staff with the assistance of an AMSA officer located at the Moores Warehouse. They were able to utilise established SPC finance and purchasing systems.

According to the ICS organisational chart used in the incident the Finance and Administration function is shown as separate from the Logistics function. However, according to the personnel who worked in these areas, the functions were combined into one section. This occurred as a result of there being no formally appointed Logistics Officer.

It would also appear that in the initial stages of the response there was no clearly identified manager of the ICC, which resulted, during the first day, in information not being formally received or distributed to the appropriate response team section heads at the earliest possible opportunity.

Optimum use of available office equipment was not achieved with some cases of reported inadequacy and some equipment not operating as required eg.:

- insufficient telephone handsets in the initial stages;
- insufficient whiteboards to display tasks and/or requests which would allow other team members to be aware of requirements and respond accordingly;
- insufficient STD lines; and
- difficulties with computer network.

The constant use of mobile telephones caused frustration due to the varying ringing tones and users talking louder than when they use a landline phone.

Provision and flexibility of computers also presented difficulties. Many people had brought their own laptop computers, however only one laptop could be connected to a printer at a time. Problems also arose when it was found that discs prepared on the laptops could not be used as the A: drives on the SPC networked computers had been disabled, resulting in information prepared for briefing and for forwarding to other sections being unavailable.

In the early stages of the incident the Finance/Admin/Logistics team experienced difficulty in obtaining information from the field on tasks completed, movement of personnel and equipment. A reported incident of information being delayed in getting to the Logistics Section regarding the need for spare parts for one of the Marco OSRVs resulted in operational delays to one of these vessels.

The provision of a radio to the Finance, Administrative and Logistics Section helped to overcome this communication deficiency to some extent.

The need to develop more formal systems for communicating activities, decision-making and expenditure, particularly on major items, was mentioned.

Cost-tracking and recording was helped by SPC finance staff being on site early while information was fresh.

The established relationship of the SPC administration personnel with suppliers assisted greatly in requests for services and supplies being handled promptly with supply staff willing to assist, particularly outside normal hours.

While catering was generally adequate, comments were made about ICC operations personnel having to undertake shopping visits and preparing meals, particularly breakfast. The quality of some meals received criticism.

In the initial stages of setting up the ICC no security arrangements were in place at the Moores Warehouse. Consequently, unauthorised personnel,

particularly from the media, were able to gain access to the ICC. Even after a security company had been hired to manage security on going difficulties were experienced identifying who had been authorised to enter the ICC.

The location within the Moores Warehouse of the Finance, Administrative & Logistics Section raised criticism from a number of personnel both in and outside this section because of the difficulty they experienced communicating with the Operations and Planning Sections. As well as the difficulty experienced working in individual offices rather than in an open area more conducive to operational activity and being aware of what others in the team are doing.

As the incident progressed it became increasingly difficult for some of the SPC finance and administrative personnel to undertake their own SPC workload as well as perform tasks in the ICC. Some found it necessary to perform their normal duties simultaneously with their spill response duties while others would leave the ICC at the end of the day and then go to their office to complete SPC work. In effect this resulted, at times, in insufficient staff to perform all the required duties.

The SPC administrative personnel operated the 1800 telephone service, set up to enable the public to obtain updates on the progress of the response.

Comment

Despite some of the points mentioned above, the finance and administrative aspects of the incident were well handled. This was borne out by the favourable comment made by the ITOPF representative regarding the finance and purchasing recording system used.

The Finance and Administrative personnel were assisted by their familiarity of the surroundings. The good relationships SPC has with their suppliers as well as the immediate access to SPC warehouse holdings also contributed to services and materials being provided promptly even outside normal office hours.

It may prove beneficial to review procedures for any future incident remote from Sydney, where SPC personnel are likely to be involved. The delay in resupplying from the Sydney warehouse and where the relationship with suppliers are not be well established, it may be necessary to establish lines of credit to ensure timely delivery of supplies and services.

As mentioned elsewhere in this report it is critical to ensure the response structure is established as early as possible and that key personnel are appointed as soon as the ICC is established.

With regard to issues relating to office equipment it is understood that SPC has already addressed this issue however it is important for possible future incidents elsewhere in Australia that adequate office equipment be provided to the ICC. It is not necessary that a vast array of telephones, fax machines and photo copiers be permanently located at ICC's as long as a system is in place to quickly hire in this equipment as soon as it is required.

From experiences in other incidents, as well as this one, there are considerable advantages in having dedicated 'IN' and 'OUT' fax machines as well as having a fax machine solely for the use of the Media Liaison Unit. Provision of sufficient telephones will not only avoid the disruption of mobile phones but will also permit the recording of all telephone calls in the ICC, providing such a recording device is located in the ICC. This may prove beneficial should any legal action be taken or a more significant inquiry established.

Networking of computers, use of visitor's lap- tops and the availability of printers should be reviewed by the States and the NT on an ICC by ICC basis. If ICC's are fitted with analogue dial out facilities this will assist NRT personnel communicating with the host ICC personnel and with email to their parent organisation.

Larger common areas, provided they are properly fitted out with equipment, would be better suited to teamwork than individual offices.

Adequate means of communicating field clean-up and other response activities including equipment and personnel movements, not only to the Finance and Administration / Logistics Section but to all ICC managers, should be provided. In this incident it is noted a hand held radio was provided to the Administration section. This aspect deserves further investigation in conjunction with the use of radio for operational purposes as mentioned elsewhere in this report.

A system of standard forms for recording such activities as personnel on site, sending and receiving faxes and ordering equipment would provide an essential paper trail and history, and help costing. Such a move coupled with closer liaison among Logistics, Operations and Administration/Finance would make cost tracking easier.

While the Administrative staff performed their tasks in an entirely satisfactory manner, given the circumstances in which they were working, it is noted they had not undertaken the National Plan Oil Spill Administration Workshop. It may prove beneficial for them to do so in two respects. Firstly using the benefits of the experienced gained in this incident reviewing the course content and recommending any improvements and secondly identifying issues already provided in the course which might help them in any future incident.

Comment was made by a number of personnel working in the ICC of insufficient personnel to efficiently and effectively operate the ICC. This is an often repeated criticism in National Plan responses. Queensland has managed to overcome this difficulty in utilising State Emergency Service personnel to record operational information, answer telephones and maintain filing systems.

Issues to be addressed

- In future incidents the work areas allocated to the various sections of the National Plan Oil Spill Response Incident Control System (OSRICS) within the ICC and their relative locations to each other should be planned according to their operational needs and to enable personnel to communicate easily with each other.
- A contingency plan should be prepared to quickly acquire additional telephones, fax machines, photocopiers and other office equipment required by the ICC in a major incident.
- Computer facilities at ICC's in all States and the NT be reviewed to ensure networking availability, provision of analogue dial out facilities for visitor's laptops and access to printers by visitor's laptops.
- Further steps be taken to ensure ICC's are provided with adequate numbers of staff to operate the ICC.

9 RELATIONSHIPS AMONG PARTIES INVOLVED IN THE INCIDENT

The main parties involved in the incident were SPC and Shell with assistance and input from and involvement by 30 other organisations, ranging from those representing the ship to many State and Commonwealth National Plan agencies.

The Shell Clyde Refinery Manager was responsible for managing Shell's input to the response and made early contact with the Incident Controller and maintained close contact throughout the incident.

The Refinery Manager continued in day to day refinery management responsibilities and was only able to spend limited time at the ICC particularly attending media conference briefings.

The primary nominated Shell Industry Adviser was not able to be contacted when the incident occurred consequently Shell nominated a Geelong based Liaison Officer to the ICC early in the response.

Shell was particularly mindful of the community in the vicinity of the Gore Cove terminal, in Greenwich, and provided several letterbox drops during the incident to keep local residents informed.

At the political level the pollution response came under the NSW Minister for Transport. Despite being interstate when the incident occurred, the Minister maintained a high profile, particularly in media briefings, as the Government minister with sole responsibility for overseeing the response. More importantly the Minister fulfilled a key role keeping the Premier and ministerial colleagues advised of progress, particularly those whose departments were also involved in the response for example EPA, NPWS and the NSW Fire Brigade.

The NSW Fire Brigade initially became involved through '000' calls because of the vapour smell. However the ICC alerted the NSW Fire Brigade's South Regional Zone at 1945 hours requesting a liaison officer be appointed to the ICC, this officer arrived at 2025 hours. The NSW Fire Brigade established a role both in assisting foreshore clean-up and in assisting in the management of the ICC.

The media played a vital role in communicating to the public what was going on. They were trying to find reasons for the spill and to identify the responsible party, as well as interpreting the response strategy for the public. The 'high profile' location created far greater media interest than previous oil spills.

The NSW Fire Brigade issued the first media release on the evening of the spill to advise the public about the vapour smell and possible health risks.

Public Affairs personnel of SPC and NSW Waterways were jointly responsible for the ICC media function. However, there was a delay of some 12 hours from the time of the oil spill in organising the media function and establishing regular media conferences. Media conferences were conducted at Moores Warehouse at set times, selected to meet the different deadlines of print and television. Some 1828 radio stories, 288 television reports and hundreds of column-inches of newspaper stories were generated.

Comment

Overall there were good relationships among the various parties involved in the response, most of the key personnel having worked together previously in State and National Plan exercises.

The Incident Controller wished to place on record his appreciation for the dedication and assistance provided by all organisations and personnel involved in the response, particularly the support given by the Incident Commander.

The National Plan envisages a role of Industry Adviser. This predesignated representative of the affected oil company liaises with the State Marine Pollution Controller providing company resources to the response and linking the response to the company crisis management activities. However, the primary nominated Shell Industry Adviser, who has considerable National Plan experience was not contactable.

In this incident the Industry Adviser role was partially filled by the Shell Clyde Refinery Manager who established a good relationship with the Incident Controller. However, because of other refinery management responsibilities was not able to be continually available in the ICC.

As a result, Shell appointed a Liaison Officer whose main activities involved the liaison between the ICC and the Shell response centre at Gore Bay. However, the effectiveness of this arrangement was less than optimum due to the lack of personnel continuity in this role and inappropriate recognition of this role in the ICC response structure.

The split operational response centres (Shell's at the Gore Bay Terminal and the ICC at Moores Warehouse) resulted in a lack of understanding at the operational level of what each was doing and what resources were available, resulting in some frustration between the two groups. Better integration of the Shell response function and its personnel into the ICC would have greatly improved the relationships.

The relationship between the NSW Fire Brigade as a support agency and the response organisation was generally good. However, one area of the NSW Fire Brigade was concerned that it was not aware that the Fire Brigade had been formally notified of the incident, as a result there was confusion within NSW Fire Brigade of their expected role. The NSW Fire Brigade is aware that SPC is the combat agency on State waters, but an incident such as this one which has an impact on the community in the adjoining NSW Fire Brigade district it is essential that all agencies liaise fully to bring about proper coordination of activities.

It is a matter of significance that the role of the NSW Fire Brigade in oil pollution response is not spelt out in the NSW Marine Oil Spill Contingency Plan.

The NSW Fire Brigade Media Liaison Officer did a good but difficult job in handling most media concerns during the first night of the incident. In the morning of the second day the 'media frenzy' was not well managed. However, relationships with the media improved considerably when arrangements were announced for providing information to the media, including the holding of media conferences at fixed times.

Good use was made of media conferences, enabling all media outlets to be provided with the latest information from key personnel and ask questions for a set time each day. In particular, the availability of the Incident Controller ensured the Incident Commander was left to get on with the job of the response. While the Incident Controller was invariably always available to undertake media interviews, there were times when a suitable operational person to deputise for the Incident Controller in media interviews would have been an advantage.

Media personnel contacted by the Analysis Team were complimentary about the overall media function and the good cooperation afforded them by the ICC media team. This included taking them out on the harbour to show response equipment and what was being done. The daily 2 p.m. media conference was particularly good for television coverage. Print media representatives commented on the difficulty at times of obtaining verification of facts.

An initiative in an oil pollution response incident in Australia much welcomed by the media, the community and environmental groups was the use by Shell of the Shell website to promulgate media releases and other relevant information.

The Greenwich Village Community Group were complimentary about Shell's informative public statements in particular the 'letter box drops' to homes in the vicinity of the Gore Bay Terminal, which kept residents up to date with the progress of the incident.

The Community Group expressed their concern that an emergency evacuation plan for people living in close proximity to the Gore Bay Terminal needs to be drawn up by the appropriate authorities. Such a plan will provide confidence and make it quite clear to all concerned what they should do in any possible future incident where evacuation becomes necessary.

The shipowner P&I Club's representative commented favourably on the acceptance by ICC personnel of the ITOPF representatives as part of the response team and stated that they were kept fully informed.

Issues to be addressed

- In light of the introduction of the Incident Control System, NPAC should review and emphasise the role of the 'Industry Adviser' in the ICC.
- Only a single Incident Control Centre be established in oil spill response incidents and to be responsible for coordinating all response operations.
- The NSW National Plan Executive Committee should determine the role of the NSW Fire Brigade in oil pollution response on State waters.
- NPAC should take into account the value of utilising a website to promulgate incident information to the public, community and environmental groups.

10 CONTINGENCY PLANS: National, State and local

The National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances (the National Plan) has as its objectives:

- a national contingency plan for preparedness and response which includes the organisational relationship of the various organisations involved, whether public or private;
- an adequate level of pre-positioned spill-combating equipment, commensurate with the risk involved, and programs for its use;
- a comprehensive national training program to familiarise personnel at all levels with the requirements of planning and responding to the needs arising from an oil or chemical spill. The program includes conducting frequent exercises;
- detailed national, State, local and industry plans and communications arrangements for mobilising resources and responding to an oil or chemical pollution incident;
- an awareness by governments, media and the community of the limitations inherent in a response to a major oil or chemical spill.

These objectives provide the framework against which the effectiveness of current plans can be measured.

At the outset it should be understood, in the context of the *Laura D'Amato* spill, there were several plans being used. The National Plan, the New South Wales Marine Oil Spill Contingency Plan (the NSW Plan) which incorporates ' A Subplan of the NSW State Disaster Plan' (Displan) which includes Sydney Ports Marine Services Procedures. In addition there was the site specific Shell Gore Bay Emergency Management Procedures Manual, Section 4 - Emergency Procedures - Oil Spill.

The NSW Plan aims to:

- provide an effective system for reporting, assessing and responding to a marine oil pollution incident or a potential incident;
- ensure that the NSW Government's resources are integrated with the National Plan and effectively mobilised in the event of a major oil spill in or near NSW State waters;
- institute procedures to minimise the impact on the natural and socioeconomic environment of the area; and
- define the division of responsibilities.

The Sydney Ports Marine Services Procedures dated 10 March 1997 define the SPC Response Management Structure and its integration into the NSW Disaster Management Structure. The Procedures list three types of response; Single Agency Response, Single Agency Supported Response and Emergency Response. It was determined early in the incident that the *Laura D'Amato* oil spill came under the Single Agency Supported Response defined in the procedures as:

> *'a response to an operation where additional support is provided through the disaster management structure but the incident is competently controlled by the designated combat authority'*

While the new response system OSRICS began an Australia-wide three-year implementation in January 1999, there has been slow progress in its implementation. While information on the new system was provided to the States and NT during mid 1999, formal training packs were not circulated until October 1999. Consequently OSRICS had not been incorporated into the various NSW contingency plans prior the incident.

During the incident the NSW Plan and the Sydney Ports Marine Services Procedures were used simultaneously by a number of personnel. While the Incident Controller was in no doubt about which plan was being used (the SPC Marine Service Procedures) the situation was not as clear to others.

A NSW wildlife plan as envisaged by NPAC and the National Plan, indicating roles for NPWA, EPA and other related organisations has not been developed.

It would appear that those responsible for dealing with the media were not aware of the Oil Spill Response Media Management Procedures issued by the Office of Marine Administration on 4 December 1998.

Comment

The main issue requiring comment with regard to Contingency Plans is the uncertainty of those responding to the spill knowing which plan was being used.

While references to the various plans are contained in the three plans mentioned above the plans are not integrated.

Relationships between plans, particularly the Shell Gore Bay Terminal Plan, SPC and State Plan are not identified.

SPC has an excellent system of procedural documents and checklists as part of its local plan. However, it is not clear whether the system was in use at the time of the incident.

While it is clear that the National Plan, the NSW Marine Oil Spill Contingency Plan and the SPC Marine Service Procedures were adequate for this spill, steps are required to integrate the various plans and make it quite clear under which circumstances each should be used.

It is understood the NPWS have been requested to complete a NSW wildlife rescue and rehabilitation plan but due to resource problems within the service this has not eventuated.

Issues to be addressed

- The NSW National Plan Executive Committee should bring its oil spill contingency plans up to date, recognising the National Plan Oil Spill Response Incident Control System (OSRICS) and ensure the various State, Port and Terminal plans fully integrate.
- The NSW Marine Oil Spill Contingency Plan should be upgraded to include a wildlife rescue and rehabilitation plan.

11 RECOMMENDATIONS

1. The full implementation of the National Plan Oil Spill Response Incident Control System, including training should be speeded up. The National Plan Advisory Committee should issue guidelines on the response structure to be used during the remaining period of implementation. (p 11)

2. Spill sizes should be estimated using all appropriate techniques and the estimated figures should be immediately communicated to all interested parties. When spill size estimates are found to be larger than first advised, the company involved should provide the revised figure to the State Marine Pollution Controller and Incident Controller without delay. (p 11)

3. Incident Control Centres should have the National Plan Oil Spill Response Incident Control System organisational structure permanently displayed on a whiteboard or similar, so that individuals' names at the four functional heads level, can be added quickly in the early stages of the incident. (p 11)

4. The work areas in the Incident Control Centre allocated to the four functional units, Planning, Operations, Logistics and Finance/Administration should be planned according to their operational needs but should be located close to each other to enable personnel to communicate easily with each other. (p 14 and p28)

5. Management of an oil spill response should be undertaken from a single Incident Control Centre, separate response organisations should not be set up for areas under oil industry jurisdiction. If a forward base is required when an incident is remote from the Incident Control Centre, there should be strong communication links between the forward base and the Incident Control Centre. (p 14 & p 31)

6. When supporting a State/NT pollution incident, AMSA is organising interstate personnel and equipment, and an affected oil company is mobilising AMOSC directly, there should be early and close contact between AMSA and AMOSC to ensure that appropriate decisions are being made on the amount and type of resources required.(p14) Likewise there should be early and close contact between the oil company and the State Marine Pollution Controller for the same reasons. (p11)

7. The National Plan Advisory Committee should research designing a national computerised oil spill management system to handle all written operational and administrative communications, track equipment and personnel resources etc. In the meantime a simple Incident Control Centre Operations and Procedures manual should be developed. (p 14)

8. The National Plan Advisory Committee should review National Plan hand-held radio communication equipment to take advantage of the Sydney Ports Corporation's initiatives and review the use of special headsets for use in helicopters and possibly when alongside noisy machinery such as in Marco Oil Spill Recovery Vessels. (p 18)

9. The National Plan Advisory Committee as well State/NT agencies should have policies in place to ensure that during a major pollution response operation their employees obtain adequate rest. (p 25)

10. The National Plan Advisory Committee should, in light of the introduction of the Incident Control System, review and emphasise the role of industry and other advisers in the Incident Control Centre.(p 31)

11. The National Plan Advisory Committee should further develop guidelines on foreshore cleaning techniques for different shoreline types in tropical and subtropical areas of Australia ie for NSW and all other States and the Northern Territory. Additional training of personnel in shoreline cleaning techniques should also be provided. (p 23)

12. The National Plan Advisory Committee should take into account the value of utilising an Internet Website to promulgate incident information to the public, community and environmental groups. (p 31)

13. State/NT procedures used during a spill response for environmental monitoring and undertaking sampling programs of the areas affected by the oil spill should be reviewed to provide the most appropriate scientific advice in future incidents.(p 23)

14. State/NT National Plan Committees should obtain Environment Protection Agency approval for techniques and cleaning agents to be used to clean oiled recreation craft while afloat. (p 23)

15. State/NT and industry supervisors should ensure before booming or other response operations commence close to the source of a spill that there is no risk to personnel of explosion or inhalation of toxic fumes. (p 25)

16. State/NT National Plan Committees should review arrangements at Incident Control Centre's to ensure (p28):

    (i) computer arrangements permit networking and provision of analogue dial out facilities for visitor laptops and access to printers by visitor laptops

    (ii) contingency plans in place to quickly acquire additional telephones, fax machines, photocopiers and other office equipment required in the Incident Control Centre

    (iii) provision of adequate personnel to operate the Incident Control Centre

17. The NSW National Plan Executive Committee should undertake a review of the NSW Marine Oil Spill Contingency Plan to:

    (i) clarify the role of NSW National Parks and Wildlife Service in an oil spill response and to improve the interaction between the respective roles of the Environment Protection Agency and NSW National Parks and Wildlife Service (p 20)

    (ii) clarify the role of the Environment and Scientific Coordinator with a view to locating this position in the Environment Unit so as to provide improved communication between the Planning and Operations Sections (p 23)

    (iii) ensure appropriate guidelines on shoreline clean-up strategies are available for future spills in conjunction with the NPAC Recommendation 11.

    (iv) determine the role of the NSW Fire Brigade in oil pollution response (p31)

    (v) recognise the National Plan Oil Spill Response Incident Control System (p 33)

    (vi) ensure full integration of the various port and terminal plans with the State plan (p 33)

    (vii) include a wildlife rescue and rehabilitation plan.(p 33)

18. Sydney Ports Corporation personnel should undergo further training in boom deployment and monitoring. The training should highlight the need to check boom deployment and anchoring mechanisms to ensure optimal use of booms including shoreline sealing, particularly after changes in tide and or wind direction , and the correct procedure for getting inside the boomed area.(p 18)

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 *Laura D'Amato* Pollution Incident

Aim:, To undertake a comprehensive analysis of the pollution response to the loss of oil from the *Laura D'Amato* in Sydney on 3 August 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 *Laura D'Amato* 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 Murray Fox, General Manager Navigation & Environment,
  Sydney Ports Corporation, NSW 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 *Laura D'Amato* 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.

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 (Data base which provides information on weathering and evaporation rates of various types of oil)
AMOSC	Australian Marine Oil Spill Centre (The oil industry's major response facility in Geelong)
AMSA	Australian Maritime Safety Authority (Self funded Commonwealth government safety agency, responsible for combating pollution in the marine environment)
EMA	Emergency Management Australia (Commonwealth government agency responsible for coordinating assistance in an emergency)
EPA	Environment Protection Authority (NSW State government agency)
EPG	Environment Protection Group (Section within AMSA responsible for National Plan operational requirements)
ESC	Environment and Scientific Coordinator
ICS	Incident Control System
ICC	Incident Control Centre
ITOPF	International Tanker Owners Pollution Federation (Group of international experts in oil pollution response who attend on site at incidents world-wide on behalf of shipowners their P&I Club insurers and the International Oil Pollution Compensation Funds. Among other things, they provide advice on response techniques and the likely admissibility of claims for compensation)
National Plan	National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances
NPAC	National Plan Advisory Committee (Committee chaired by AMSA and made up of all States/NT, shipping, oil and exploration industries and other relevant Commonwealth agencies)
NPEC	National Plan Executive Committee (New NSW National Plan State Committee)
NPWS	NSW National Parks and Wildlife Service
NSW	New South Wales
NSW DOT	New South Wales Department of Transport

NRT	National Response Team *(Group of Commonwealth, State/NT and industry personnel identified as having the skills and ability to assist in pollution response)*
OH&S	Occupational Health and Safety
OSRICS	Oil Spill Response Incident Control System
OSRV	Oil Spill Recovery Vessel
P&I Club	Protection and indemnity insurers
SPC	Sydney Ports Corporation
TWG	Technical Working Group *(Sub group of the NSW State National Plan Committee)*
UHF	Ultra High Frequency

Terms Used

Gore Bay	Name used by Shell associated with the area of the Shell terminal within Gore Gove
Mousse	An mixture of sea water droplets suspended in oil