Fremantle Oil Spill Inquiry June 1988

Report and Recommendations of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 368 November 1988

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by the
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EXECUTIVE SUMMARY

A Committee of Inquiry was formed on 29 June, 1988, to report on an oil spill which occurred on 26 June, 1988, due to a fractured pipeline weld. As a result of the weld failure 10-15 kL of diesel oil entered Local Authority and Water Authority stormwater drains, eventually accumulating in Fremantle Fishing Boat Harbour where it was isolated behind two oil containment booms positioned in close proximity to the exit of drainage system.

This spill was a re-occurrence of a similar incident on 27 July, 1986. The Fremantle Oil Spill Inquiry was established following this spill. As a result of this Inquiry, recommendations were made to ensure adequate testing and maintenance of pipelines, as well as recommendations designed to improve the efficiency of emergency response to incidents of this type.

The following are conclusions in relation to the terms of reference of the Inquiry:

. Fully investigate and determine the cause of weld failure of the pipeline

An interim consultant report supplied to EPA by BP has concluded that weld failure occurred as a result of the presence of residual stresses dating from the original construction of the pipeline. It was also concluded that the welds may be suffering from time dependent degradation.

A full report is expected to be submitted to the EPA prior to or soon after the release of this inquiry report.

. Determine corrective action necessary to ensure that incidents of this nature are avoided in the future

It is recommended that all welded joints fitted in 1939 and not subsequently renewed, be fully renewed prior to re-commissioning of the pipeline. In addition, the final consultant's report prepared on behalf of BP should be fully assessed by EPA in conjunction with the Mines Department of WA. The pipeline should not be re-commissioned until this assessment has been completed.

Legislative changes recommended in this report will enable adequate control of pipeline testing and maintenance procedures, however, these procedures will require close auditing by the Mines Department of WA.

. Analyse the overall efficiency of emergency response procedures which took place during the incident and make recommendations, if necessary, to improve emergency response

Overall emergency response to the incident was excellent and certainly contributed to avoiding potential adverse environmental impact from the spill. Minor communication problems were experienced between involved emergency response personnel. These problems will be resolved by adopting further recommendations made following this Inquiry.

The Department of Marine and Harbours, in addition to other involved Departments, are to be congratulated upon their efforts during the incident.

- Determine the extent of implementation of recommendations made in the earlier report compiled during a similar incident on 27 July, 1986, and determine overall action taken following the release of this report.

  Two recommendations from a total of fourteen listed in the 1986 report were found not to have been fully implemented over the two year period. These recommendations were related to required legislative changes in relation to licencing of pipelines and provision of portable radios for use during oil and chemical spill incidents. Investigations by the Mines Department regarding necessary legislative changes have been ongoing since the release of the 1986 report and the issue of supply of portable radios will be resolved by the Police in the near future.

  All other recommendations were found to have been fully investigated or implemented.

1. INTRODUCTION

On Sunday 27 June, 1988, an oil pipeline transporting diesel oil from the BP installation in Fremantle to wharfside at the Port of Fremantle ruptured, spilling approximately 10-15 kL of diesel oil. As a result of the rupture diesel oil entered nearby stormwater drains. The spillage was eventually discharged into Fremantle Fishing Boat Harbour where the total volume of oil was completely contained behind two floating oil containment booms positioned around the exit point of the stormwater drain leading into the harbour.

Due to excellent emergency response to the incident and advantageous environmental conditions at the time of the spill, no oil was lost to the marine environment.

The Environmental Protection Authority established a Committee of Inquiry immediately following the incident. The Inquiry's findings and recommendations are reviewed in this report.

The terms of reference for the Inquiry are as follows:

- Determine accurately the sequence of events as they occurred on 27 June, 1988.
- Fully investigate and determine the cause of weld failure of the pipeline.
- Determine corrective action necessary to ensure that incidents of this nature are avoided in the future.
- Analyse the overall efficiency of emergency response procedures which took place during the incident and make recommendations, if necessary, to improve emergency response.
- Determine the extent of implementation of recommendations made in the earlier report compiled following a similar incident on 27 July, 1986, and determine overall action taken following the release of this report.

Members of the Inquiry represented a diverse range of Government departments with a direct interest in oil spill management. Those members were:

Mr P Ashton (Chairman)	Environmental Protection Authority
Cpt W Spencer	Department of Marine and Harbours
Cpt D Oliver	Department of Marine and Harbours
Mr I Thornton	Water Authority of WA
Mr H Douglas	Mines Department
Mr D Quayle	" "
Sgt Van der Putten	Police Department
Sgt G Hore	" "
Mr O Davies	WA Fire Brigade
Mr S McAll	City of Fremantle

Invited Guests

Dr Murray Mickiewicz	BP
Mr Richard Brooke Smith	BP
Mr John Edwards	Shell

Mr Graham Clements	Shell
Mr Michael Waite	Environmental Protection Authority
Mr Colin Scrimshaw	Environmental Protection Authority
Mr Vic Fitzsimmons	Waterways Commission
Mr Bill Carr	Dept Resources Development

2. SUMMARY OF EVENTS

Sunday 27 June 1988

0940 BP commenced using the pipeline to transfer diesel oil from their facility in Knutsford Street, Fremantle, to wharfside.

1015 Police communications were notified of the spill by a member of the public on the scene at Knutsford Street.

1015 A loss of pressure was noted by BP personnel at wharfside indicating a possible leakage in the pipeline.

1020 BP and Police immediately informed the relevant authorities and emergency response personnel.

1025 Spilled oil entered stormwater drains leading into the main drain to Fremantle Fishing Boat Harbour. Oil in the drains did not enter the harbour due to high tide conditions at the time. As a result, oil was retained within the enclosed stormwater drainage system.

1110 An oil containment boom was positioned in Fremantle Fishing Boat Harbour by Marine and Harbours' employees. This boom was positioned around the exit point of the stormwater drain leading to the harbour.

1145 EPA and Water Authority personnel inspected the main drain immediately prior to the exit point to the harbour. Oil was identified at this point but appeared to be stable within the drain. The Water Authority organised liquid salvage trucks and arrangements were made to transfer collected oil to the BP installation in Fremantle.

1430 As a result of an expected drop in water level within the harbour, oil entered the area behind the oil containment boom. Liquid salvage trucks commenced oil recovery using a floating manta head. This recovery continued until 2030 hours.

Monday 27 June 1988

A small quantity of oil was again recovered following low tide.

Tuesday 28 June 1988

Collected oil behind the boom on this date was noted to be minimal. An inspection of the drain undertaken by Water Authority officers revealed no sign of accumulated oil within the drainage system. It was, however, decided to leave the boom in position until the drains had been flushed by adequate quantities of stormwater. The boom remained in position for a period of two weeks following the spill. During this time heavy rainfall had flushed residual oil from the drainage system. This oil was collected prior to removal of the booms.

Approximately 10-15 kL of oil was lost as a result of the weld fracture. The total volume of oil was contained behind the boom and recovered over an approximate seven hour period by liquid waste tankers. No oil was lost to either the harbour or surrounding marine environment.

3. FULLY INVESTIGATE AND DETERMINE THE CAUSE OF WELD FAILURE OF THE PIPELINE

Quite obviously welding techniques in 1939 can in no way be compared to those methods used in recent years.

Experience in this instance has demonstrated that present pressure testing procedures when used on original welds are not sufficient in themselves to detect faults in the pipeline and may in actual fact lead to weakening of the welds.

Modern day welding methods ensure that the weld itself is equal in strength to the pipeline and as such current pressure testing procedures remain a good test of pipeline safety when used on modern type pipelines.

An interim report supplied by BP to the Environmental Protection Authority has concluded that weld fracture was a result of presence of residual stresses in the pipeline and possible time dependent degradation of the weld.

4. DETERMINE CORRECTIVE ACTION NECESSARY TO ENSURE THAT INCIDENTS OF THIS NATURE ARE AVOIDED IN FUTURE

The Hill Street Line was established in 1939 and is currently used to convey light diesel oil from Knutsford Street to Fremantle Wharf. Other oils, however, have been transported through the pipeline in the past. Following the spill of 1986 the line remained empty until it was rehabilitated during October/November 1987. The following work was undertaken prior to re-commissioning of the line in December 1987:

- Stress in the line was relieved at 20 locations over a distance of 1.5 km.
- A total of 18 welds have been serviced using weld bands or inserting "pup" pieces to restore the alignment.
- 35% of the line has been replaced since 1983.
- The line held a pressure of 3800 kPa for 30 hours without rupture prior to re-commissioning of the line in 1987. Normal maximum working pressure is 1200 kPa.

It can be assumed in the absence of further technical information that all welds which have not been renewed since 1939 have the potential to fail under low pressure operations. Welds may in fact be more likely to fail following current pressure testing procedures being carried out.

It is, therefore, essential that all welds currently existing on the pipeline, with the exception of those already renewed by BP, be replaced prior to reuse of the pipeline. In addition, other requirements may be necessary following an assessment of a technical report to be provided by consultants on behalf of BP. Following this assessment, further recommendations may be necessary before the pipeline can be re-commissioned.

5. DETERMINE THE EXTENT OF IMPLEMENTATION OF RECOMMENDATIONS MADE IN THE EARLIER REPORT COMPILED FOLLOWING A SIMILAR INCIDENT ON 27 JUNE, 1986, AND DETERMINE OVERALL ACTION TAKEN FOLLOWING THE RELEASE OF THE REPORT

Recommendation 1

The Department of Marine and Harbours should have equipment on hand to respond to an oil spill in the Fishing Boat Harbour. This should include an adequate length of boom to be stored at the Fishing Boat Harbour. Training in the use of such equipment should be intensified.

Action Recommendation 1

A total of 200 metres of boom is now available at the Marine and Harbours' depot in Mews Road, Fremantle. Oil recovery equipment can be obtained where necessary by utilising available resources supplied by the National Plan to Combat Pollution of the Sea by Oil. Adequate equipment of this nature is stored at the Plan Equipment Store at Fremantle Port. A stock list of available equipment has been made available to participating organisations.

Training related to oil containment and recovery and general management of oil spill incidents is undertaken on an ongoing basis. These training courses are organised by the Department of Marine and Harbours under the auspices of the National Oil Spill Contingency Plan. Structure of training courses is modified on an ongoing basis in order to ensure that attending officers with experience in oil spill management are provided with an avenue to update their knowledge in relation to oil spill techniques and philosophies. Funding for the courses is supplied by the National Plan, however, staff from Marine and Harbours are provided at no cost to attending organisations.

Recommendation 2

The Minister for Minerals and Energy should consider amendments to existing legislation to enable licencing control over all petroleum (and other chemical) pipelines from which spillages could result in a significant environmental hazard.

Action Recommendation 2

Pipeline usage is now controlled under Section 45(1) of the WA Explosives and Dangerous Goods Act 1961 by formulation of licence conditions specifically related to pipeline use. Section 45(1) refers to storage of dangerous goods and as such some doubt exists as to whether the conditions related to pipeline use are capable of being enforced under the Act. It would, therefore, appear advisable to amend the existing Act to include a section specifically related to pipeline usage.

In addition to legislative control BP voluntarily adhere to the Australian Institute of Petroleum Code of Practice for Design and Operation of Wharflines (AIP CP2-1977).

Recommendation 3

The Petroleum Industry should be requested by the Department of Mines to conduct an assessment of the adequacy of warning procedures applied to existing petroleum pipelines and develop programmes where necessary.

Action Recommendation 3

The WA Mines Department has fully discussed warning and shut down procedures with the Petroleum Operating Managers Committee of Western Australia. It would appear that the regulations in Western Australia are as rigorous as any in Australia, and from observations made during a recent visit to Holland by the Director of the Mines Department's Explosives and Dangerous Goods Division, WA's requirements appear to be more stringent than many other countries in the world.

All bunkering pipelines are pressure tested before use at pressure in excess of 125% of the maximum working pressure. Pressure test procedures and non-destructive testing used by the industry are in accordance with the Australian Institute of Petroleum's "Petroleum Pipelines Code for Low Pressure Operations" (ie below 200 kPa). A low pressure cut-off device was investigated following the spill of 1986 but was rejected by industry experts as impractical for such low pressure pipelines currently used in bunkering operations.

A data base has recently been established by the Department of Mines through its liaison with the petroleum companies. The data base assists in identifying the location of all pipelines operating from bulk petroleum terminals at Fremantle. Information regarding size of pipeline, location, name of Company and responsible officer is included in the data base.

In summary, the Mines Department is satisfied with the current testing procedures carried out by BP on the pipeline, which are in line with current practices. It should be noted that, in addition to environmental considerations, it is in the company's best interest to adhere to strict testing procedures in order to avoid oil spillages which result in loss of valuable product. However, it should be stated that some doubt must exist with regard to adequacy of current testing procedures used on the pipeline in use on 26 June, 1988, in Fremantle.

Recommendation 4

A detailed oil spill contingency plan should be prepared for Fishing Boat Harbour and other similar harbours as a matter of urgency.

Action Recommendation 4

This recommendation was fully considered by the Department of Marine and Harbours. As a result oil spill response to spillages within the harbour was reviewed and improved where necessary to increase efficiency of oil spill control. Modifications made have been shown to be successful based upon noted excellent overall response to containment of the spill on 26 June 1988. Contingency plans for harbours throughout the rest of the State are reviewed on a regular basis by either Marine and Harbours or the Fremantle Port Authority as appropriate.

Recommendation 5

The Minister for Transport should consider development of legislation to provide on-scene co-ordinators with legal powers to enable more effective management of oil spill control activities.

Action Recommendation 5

A basic summary of legal powers now available to selected authorised governmental personnel involved in oil spill management is discussed.

. Environmental Protection Authority (Environmental Protection Act 1986)

Section 73(1) of the Act enables EPA inspectors and authorised persons to give directions to abate pollution only with the prior approval of the Chief Executive Officer of the Authority. All directions must, however, be served in writing. Directions can require any person to:

(i) remove, disperse, destroy, dispose of or otherwise deal with the waste which has been or is being discharged; or

(ii) prevent the condition of pollution from rising or control or abate that condition if it arises.

. WA Department of Marine and Harbours (Prevention of Pollution of Water by Oil Act 1960)

The Act provides adequate legal power with regard to oil spills from shipping, including right of entry to shipping and related places on land, for authorised Harbour Authority personnel for the purposes of inspection Entry can be made both during oil spill incidents and for the purpose of ensuring adequate safeguards against oil spills to the marine environment.

A section is not included within the Act which specifically enables authorised persons to give directions, verbal or written, to persons causing pollution. Large penalties do exist in relation to persons found guilty of negligence resulting in oil pollution and as such this may be sufficient incentive in itself to stimulate action designed to prevent pollution from occurring.

. WA Fire Brigade (Fire Brigade Act 1942)

Section 33(e) of the Act enables authorised officers to verbally direct owners or occupiers of premises to abate danger from fire within a reasonable time. Officers are empowered with free access to all premises used for the purposes of public entertainment or used for "public concourse". Section 25 refers to the general duties of the Board and confers on the Board "The duty of taking, superintending and enforcing all necessary steps for the prevention and extinguishing of fires and the protection of life and property from fire and the general control of all fire brigade premises and all fire brigades shall, subject to the provisions of this Act, be vested in the Board".

. WA Police Department

The Police Department has substantial legal powers which can be used to facilitate efficient management of oil spill incidents. Legal powers included within the Police Act, Criminal Code and Explosives and Dangerous Goods Act can all be utilised by the Police to allow full access to buildings or vessels and to enable the Police to direct persons to evacuate an area when danger to the public exists (Section 82(b) Police Act, Section 12(i) Explosives and Dangerous Goods Act). Various other powers relevant to oil and chemical spills are also available to Police under the Police Act and Road Transport Act.

. WA Department of Mines (Explosives and Dangerous Goods Act 1961)

Section 12(f) of the WA Explosives and Dangerous Goods Act empowers inspectors with the right to make directions verbally to persons where spillages of explosives or dangerous goods may endanger the public. Sections are also included within the Act which enable authorised inspectors to enter vessels or premises to prevent explosion or escape of dangerous goods to the surrounding environment.

Based upon a review of current legal powers available to on-scene emergency response organisations, it can be concluded that sufficient legal powers are now available which enable the on-scene co-ordinator, with assistance from other personnel, to adequately manage oil and chemical spill incidents.

Recommendation 6

The small amount of oil continuing to seep from rocks and oiled boats is unlikely to be effectively treated by the spraying of dispersants. Dispersant usage within Fishing Boat Harbour should only continue for boat cleaning.

Action Recommendation 6

This recommendation was obviously formulated specifically in relation to the spill of 1986 in response to identified excessive use of dispersants during clean-up operations. It is recognised that use of oil dispersants within enclosed waters should be minimised as far as is practicably possible. Use of dispersants in any situation is subject to the prior approval of the Environmental Protection Authority. Approval for the use of dispersants is not required where safety requirements override this requirement. However, every attempt should be made to obtain advice from the EPA, if this can be accomplished within a reasonable period of time.

Recommendation 7

The Oil Spill Contingency Plans should define the headquarters to be used and ensure dedicated radio channels are available.

Action Recommendation 7

The main Emergency Operation Centre (EOC) is now located at either the Marine and Harbours or Fremantle Port Authority Head Office in Fremantle as appropriate. Control of road spillages is directed from the Fremantle Regional Police Office. An Advanced Operations Centre (AOC) is established in close proximity to the scene of any major spill. Pollution combat operations are directed from this location. These locations and requirements are clearly stated within the Regional National Plan. An update of this plan is released on a yearly basis.

Communication links between the EOC, on-site control and co-ordination authorities is by existing Telecom or radio facilities. If a breakdown in radio links occurs, radio communications are sought from participating organisations involved in oil spill management.

Recommendation 8

Oil Spill Control Equipment should include dedicated portable radios.

Action Recommendation 8

The supply of portable dedicated radios to be used during spill incidents was subject to the availability of funds from the National Plan. Following the spill of 1986 the Federal Minister for Transport indicated that radios would be supplied provided that funds were available through the National Plan. Although radios can be made available by Marine and Harbours and other involved agencies, difficulty has been experienced in obtaining intrinsically safe radios for use in environments which may present a fire or explosion risk. Nevertheless, it is recognised that supply of portable radios would greatly assist in ensuring effective and efficient management of oil and chemical spills. As a result a mobile emergency unit is soon to be established by the Police Department. This Unit will carry a total of 10 intrinsically safe radios. These radios can be made available to key emergency response personnel at the discretion of the Police.

Recommendation 9

In any future spills, adequate administration staff should be appointed quickly.

Action Recommendation 9

The National Plan (WA Supplement) requires an adequate number of administration staff to be appointed during major spill incidents. In the main, administration staff are required to log incurred expenses as a result of oil and chemical spills. Sufficient numbers of administration staff supplied by Marine and Harbours were on scene during the recent Fremantle spill. Appendix C of the National Plan lists a full range of available personnel at each major port within WA waters including staff responsible for a wide range of administrative matters.

Recommendation 10

The installation of oil traps or surge basins close to the outfall of stormwater drains entering environmentally sensitive areas, to provide a time delay in the escape of oil (or other spilt chemical), should be considered by the Water Authority of Western Australia or Local Authorities as appropriate.

Action Recommendation 10

The Water Authority has investigated the feasibility of the implementation of this recommendation. The expense involved in installation of large size traps on stormwater drains is excessive and would, therefore, not appear to be feasible. Installation of small gates designed to retain oil within stormwater drains has also been discounted due to safety factors involved. It is recognised that a major hazard would result in the majority of instances due to the accumulation of large amounts of flammable liquids within these structures.

Sufficient land is not available within Fremantle, in particular, which would facilitate the installation of compensating basins.

In conclusion, the cost/benefit associated with oil barriers for all stormwater drains with a potential to pollute environmentally sensitive areas is not sufficient to warrant such an exercise.

Recommendation 11

The Department of Conservation and Environment (now EPA) should be the main point of contact for the environmental aspects of oil spills. This Department should then contact appropriate organisations to co-ordinate an efficient response to the emergency in conjunction with the on-scene coordinator. A formal duty system for the Department should be instituted.

Action Recommendation 11

The Environmental Protection Authority (EPA) is now the initial point of contact for environmental advice in the case of oil and chemical spills. Should oil threaten sensitive environmental areas including areas vested in the Department of Conservation and Land Management estate, it is the responsibility of EPA to inform CALM as a matter of urgency.

The marine environment was deemed by on-site EPA officers not to be at risk as a result of the June 1988 oil spill incident, therefore, CALM was not notified in this instance.

During spill incidents, EPA works in close co-operation with other involved agencies and plays a lead role in both providing environmental advice and assisting with oil spill containment and clean-up procedures.

A formal duty officer system has been established by EPA following the Fremantle spill of 1986. Working hours and after hours contact telephone numbers of responsible EPA officers are provided to all EPA staff, Police Communications and other involved Departments. Police Communications are also supplied with an after hours contact number which activates a pager in the possession of a nominated after hours duty inspector. This pager system is used from 5 pm to 8 am on weekdays and all day on weekends and public holidays.

Recommendation 12

The Department of Conservation and Land Management (CALM) and the Waterways Commission should develop contingency plans for protection of susceptible areas under their control and generally for wildlife protection in the event of an oil spill.

Action Recommendation 12

CALM oil spill contingency plans have recently been amended. Responsible officers to be contacted in the event of an oil spill threatening sensitive environmental areas are listed within this plan. The plan also includes information related to the role of CALM during oil spill incidents, together with reporting procedures to be followed by CALM officers. A location map of marine parks, reserves and island reserves managed by CALM in the metropolitan area is also included. Other identified environmentally sensitive areas are documented in "Procedures for the Protection of the Western Australian Marine Environment from Oil Spills" Bulletin 104 EPA, 1984.

The Waterways Commission of WA have also developed contingency plans for dealing with oil spills which are likely to enter the Swan and Canning River systems, and the Peel and Leschenault Inlets. The plans include a full range

of contact numbers of involved departments, in addition, to clear and concise instructions for Waterways Commission personnel likely to become involved in oil spill management. Basic instructions referring to management of chemical spills are also included within the plan.

Recommendation 13

The Water Authority of Western Australia in conjunction with Local Authorities and the petroleum industry should examine the plans for existing petroleum pipelines and provide a clear analysis of Fremantle stormwater outlets which could be affected by pipe breakages. This information should be provided to the Police and State Emergency Service and incorporated in the Chemical Spills and Marine Oil Spills Contingency Plans covering the area.

Action Recommendation 13

Locations of Water Authority stormwater drains within the metropolitan area have been supplied to emergency contact authorities following the spill of 1986. In addition to a pipeline location data base established by the Mines Department, locations of pipelines have been supplied by the petroleum industry to emergency response authorities. Pipeline routes are shown on an aerial photograph of the Fremantle area. Fremantle City Council are close to finalising drainage plans for the area. To this date twenty separate drainage plans have been completed for the Fremantle area. It is not considered feasible to supply these extremely detailed plans to all emergency contact authorities. On-call Fremantle City Council employees can supply drainage information on twenty-four hours, seven days a week basis if required. Supply of drainage plans for all local authorities within the metropolitan area is not considered a possibility due to the amount of paperwork which would need to be supplied to adequately cover this area of concern. It is considered more efficient to contact on-call Local Authority personnel who can supply drainage information from plans or from a working knowledge of the area concerned.

Recommendation 14

The WA Transport Emergency Assistance Scheme should be extended to cover all possible instances of chemical spillage on land and to ensure proper communications control.

Action Recommendation 14

A revised version of the WA Transport Emergency Assistance Scheme is now in draft form. The draft requires scrutiny and approval by the State Counter Disaster Advisory Committee. Subject to final approval, the document will be released as a matter of urgency.

Requirements as stated in the recommendation have been included within this draft report.

6. ANALYSE THE OVERALL EFFICIENCY OF EMERGENCY RESPONSE PROCEDURES WHICH TOOK PLACE DURING THE INCIDENT AND MAKE RECOMMENDATIONS, IF NECESSARY, TO IMPROVE THESE EMERGENCY PROCEDURES.

In general, emergency response to the incident was excellent. Oil containment booms were placed in position approximately 55 minutes after the spill first occurred. This relatively short time lag is a clear indication of the effectiveness of emergency response procedures.

The following recommendations are designed to further refine current procedures. These recommendations have been formulated based upon experience gained from the June 1988 spill and other minor spill incidents which have occurred in recent times. These additional recommendations have been formulated as a result of discussions during the Inquiry with additional input from other officers directly involved in oil spill management.

In the main, the recommendations are designed with the specific aim of improving communication between departments at the scene of a chemical or oil spill.

It should be stressed that a response time of 55 minutes from the time of the spillage to install two oil containment booms is unlikely to be improved upon in circumstances similar to the spill in Fremantle on 27 June, 1988.

Recommendation 1

All key on-site emergency response personnel should be supplied with clearly marked identification jackets. These jackets should clearly display the officer's department. In particular the on-scene co-ordinator should be clearly identified.

Recommendation 2

Initial contact procedures to be followed in the case of an oil or chemical spill should be reviewed by the relevant authorities. Ongoing instruction regarding correct procedures to be followed by personnel responsible for initially contacting nominated emergency officers should be provided on a regular basis. This procedure should not be deviated from at any time.

Recommendation 3

The Police Department should be provided with an updated contact phone list of nominated Local Authority officers. Information regarding amendments to any contact list should be provided to the Police Department as a matter of urgency. Nominated Local Authority officers should have an adequate knowledge of drainage plans for their specific locality.

Recommendation 4

All organisations involved in emergency response to oil spills should ensure that responsible staff are made available to attend training courses related to recovery and general management of oil spills. The Department of Marine and Harbours should use its best endeavours to ensure that frequency of training courses is increased where necessary in order to cater for this demand. If sufficient funding for training courses cannot be obtained from the National Plan an adequate attendance fee should be determined by Marine and Harbours. This fee should be paid to Marine and Harbours by attending organisations and should be sufficient to enable full recovery of costs incurred by Marine and Harbours.

Recommendation 5

The Health Department of WA in conjunction with the Mines Department should provide a list of licenced liquid waste cartage operators who could be contacted by the Police on an urgent basis in the event of oil or chemical

spill incidents. This list should be provided to organisations which become involved in management of oil and chemical spill incidents. The Water Authority of WA should also provide further copies of metropolitan drainage plans to emergency response organisations.

Recommendation 6

The Health Department of WA should provide a list of appropriate landfill sites which are deemed to be suitable for disposal of oil and chemicals recovered following spill incidents. This list should be provided to the Environmental Protection Authority and Police.

6.1 IMPLEMENTATION OF OUTSTANDING RECOMMENDATIONS MADE FOLLOWING THE SPILL OF JUNE 1986.

The following recommendations are made in relation to implementation of outstanding recommendations:

Recommendation 1

The existing WA Explosives and Dangerous Goods Act 1961 should be amended as a matter of urgency. This amendment should provide an avenue for licencing of pipelines and include provision for legally enforceable conditions of licence related to pipeline testing and reporting procedures.

Recommendation 2

Intrinsically safe portable radios should be maintained by the Police Department and made available to key officers involved in on-scene oil and chemical spill management. The establishment of an emergency mobile unit should be finalised as a matter of urgency. Its difficulty is experienced by the Police Department in obtaining funding for supply or maintenance of radios, avenues for obtaining funds from participating organisations should be fully investigated by the Police Department.

General Recommendations

- Dispersants should only be used with the prior approval of the EPA, unless safety considerations preclude this requirement. This requirement should be clearly conveyed to all personnel likely to become involved in oil spill management.

- Organisations involved in oil and chemical spill management should increase liaison with each other with a view to resolving any identified problem. Debriefing meetings following oil and chemical spill incidents should involve all participating organisations. Specific problems not fully resolved during debriefing should be forwarded in writing to the responsible authority for their consideration. Problems identified by emergency response personnel should be resolved where required as a matter of urgency.

7. ACKNOWLEDGEMENTS

The Environmental Protection Authority acknowledges the valued contribution of members and guests of the Inquiry and commends those personnel involved in oil spill containment and clean up activities in Fremantle on 26 June 1988.

8. REFERENCES

National Plan, last EPA report, Bulletin 104.