

Paper 7: State Position Paper: WESTERN AUSTRALIA

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There have been no major oil spills in Western Australian waters, therefore our experience in the role of SSC for oil spill clean-up has been quite limited up until now. The potential exists, nevertheless, for large spills to occur, particularly from marine transport activities. The most likely locations for oil spills in WA coastal waters **are just** south of Perth, in the Kwinana-Fremantle region, and also along the north-west coast at Barrow Island, **Dampier**, Port Walcott and Port Hedland, these being **focusses** for transport storage and handling of oils.

The main oil-related activities are:

- (1) tanker loading eg. at Barrow Island **and** Broome;
- (2) unloading of refined products eg. at Fremantle, Port Hedland, Port Walcott and **Dampier**;
- (3) bunkering eg. Port of Fremantle
- (4) transfer of condensates eg. at **Burrup Peninsula** near **Dampier**, as part of the North-West Shelf Gas Projects of **Woodside** Offshore Petroleum Pty. Ltd.
- (5) oil exploration and production eg. 185 **exploratory** wells were drilled offshore up until June 1983, from the start of this activity in WA in 1968. This has increased recently with the importation of several drilling vessels (**Jones** et al. 1984).

Oil company figures for 1977 **indicated** about 560 000 tonnes (3.9 million barrels) were carried to and from WA ports per month. About 80% of **the** oil was transported from Kwinana. Figures from the Department of Transport (1979) **indicate** about 8.4 million tonnes of oil are handled annually in WA ports, 64% of this at Fremantle, including Kwinana. **Recent** statistics on oil spill risks for Australian ports handling at least 1000 **tonnes** of cargo during at **least one year** between 1982 and 1986 (Cosgrove, 1987) indicate that WA ports **contributed** about 16% of oil-handling (loading, discharging) spills, 8% of bunkering spills and about 7% of **miscellaneous** (ballasting, tank cleaning) spills. The equivalent figure for numbers of "at sea" spills was 10%.

A State oil spill combat committee, consisting of State and Commonwealth representatives, is

responsible for the administration and operation of National Plan in WA. The State Combat Committee in WA consists of: ,

Cpt. W. Spencer (Department of Marine and Harbours)

Cpt. L. Atkinson (Fremantle Port Authority)

Cpt. D. Clarke (Department of Transport)

The Technical Advisory Committee to the above is represented by:

Mr. C. Robinson (BP Refinery; Australian Institute of Petroleum
Environmental Conservation Executive (AIECE))

Mr. T. Wilson (Shell; AIECE).

Dr. H. Jones (Fisheries Dept)

Dr. D. Gordon (Environmental Protection Authority)

Mr. D. Atherden (State Emergency Service)

Mr. D. Schonhut (Department of Mines)

The following agencies are involved in oil response, and their roles and responsibilities are defined in the State Counter Disaster Plan:

Federal Department of Transport

WA **Department** of Marine and Harbours (DMH)

WA State Emergency Service (SES)

WA Police

WA Fire Brigade

WA Dept of Mines

WA Environmental Protection Authority (EPA)

WA Department of Conservation and Land Management (CALM)

WA Fisheries Department

Department of Premier & Cabinet

Australian Institute of Petroleum **Conservation** Executive

Rottnest Island Board

Waterways Commission

Chemistry **Centre** of WA

Local government **authorities**

Under existing arrangements, EPA is the first contact to the State Contact Committee on environmental matters and liaises with other environmental agencies eg. CALM, Fisheries Department, -Waterways Commission, to provide the best advice to the Committee; to do this the SSC role is flexible and therefore the EPA **representative** may or may not be the SSC in the event of a spill.

The EPA representative on **the** State Combat Committee contributes to training courses through

presentation of lectures on environmental aspects of oil pollution at Federal and State-run courses held in WA,

The field organisation for oil spill response in WA is shown in Appendix 1. Under this scheme the SSC liaises directly with other environmental personnel to provide advice to the on-scene co-ordinator (OSC). The SSC also liaises, if necessary, with the deputy **OSC's** responsible for offshore and onshore clean-up, who are linked directly to the OSC. Advice in an SSC role may come from one of several agencies eg. EPA, CALM, Fisheries Department.

Role of SSC in the State Plan

The perceived role of the SSC in the State Plan is to provide accurate, scientifically sound advice to the OSC on the preferred options for handling spilt oil, to ensure minimal damage to the environment. The SSC is usually an environmental scientist with **expertise**, or access to expertise, in marine biology and has three preferred options to consider in **dealing** with **environmental** implications of oil spills:

- (1) containment and collection;
- (2) do nothing; and
- (3) apply chemical dispersants

SSC Responsibilities

a) Pre-incident Phase

Where the SSC is the EPA representative on State Combat Committee, responsibilities include providing an on-call **service** statewide to **give** advice and **scientific** support during **oil pollution** incidents and to **provide** advice to **the committee**, on environmental issues pertaining to spills.

The SSC also liaises with **other** relevant agencies to **keep** up to date on environment information (eg the marine resources inventory) and to be **acquainted** with updating of emergency procedures, eg. those **outlined** within the **State Counter Disaster Plan** (1988).

b) Real-time Phase

Once alerted, the SSC will contact any relevant personnel from other State agencies (eg. CALM, **Fisheries** and Waterways) who can assist.

The SSC ensures that appropriate **environmental** information will be available, or forwarded if necessary, to the field operation **centre**. This may include information on harbours at risk, photographs, **climatological** and **hydrological** data, areas with potential conflicts of interest, preferred site for particular options in the clean-up and special restriction areas, if known.

During the spill the SSC instigates discussions with relevant scientific personnel then advises the OSC. The SSC also advises the OSC on when, and under what conditions, it is appropriate to terminate a mode of action in the clean-up.

c) Post-incident Phase

The SSC reports on the spill. This may include advice given and follow-up action taken, and the needs for, and requirements of, any follow-up monitoring.

Costs and Resources Involved in Meeting the Identified Responsibilities

a) Pre-incident

Actual costs are difficult to allocate since this involves several agencies and the effort is not continuous. The main expenditure is in the preparation and publication of reports **and marine** resources inventories, which can amount to several thousands of dollars per report.

WA presently has three major reports with summary accounts of resources and information pertinent to oil spills:

- (i) The Fisheries Department's Report No.74 (Jones, 1986) and accompanying resources atlases of the coast (**1:250 000**) divided into 16 categories (sectors) between WA/NT border and **WA/SA** border. These summarize (in maps and accompanying reports) the major significant components of the WA coast;
- (ii) an EPA bulletin (Jones *et al.*, 1984) outlining 67 environmentally significant locations along the WA coast, from Cambridge **Gulf** to Esperance. The report describes, generally, the nature of the communities at risk and their locations. It identifies them according to their global and state ecological importance. Nominal boundaries have been placed around these locations, defined as either environmentally-sensitive locations (**ESL**) or special protection localities (**SPL**), to delineate those waters where it is recommended as appropriate and safe to use dispersants. As a guideline this zoning **recognises** an 8km immediate protection zone (**IPZ**) around all **ESLs** and **SPLs**, and two adjacent special conditions zones (**SCZ**) immediately outside the **IPZ**, of 22 and 20km width. The report recommends that no dispersants, should be used, without approval, in all **ESL**, **SPL** and **IPZ** zones. Existing **recommended** limits for dispersant use are waters less than **10m** deep, or less

than 8km from shore, whichever is applicable.

- (iii) the State Counter Disaster Plan; which includes an annex dividing the coast into 22 sectors, for which there are **general** comments on chart (map) references of locations, ESL, SPL and IPZ locations, nature of coastline, predominant winds, currents, tides, nearest ports, nearest air access (long-range Hercules), shipping lanes and local government authorities.

Smaller costs (tens of hundreds of dollars) are met for preparation of lectures in training courses.

b) Real-time

In WA, because of large distances between towns or ports on an extensive coastline, the SSC role usually involves air travel. As an example, approximate costs are \$500 return from Perth to north-west ports. With two incidents in remote locations within ten months in 1988 future air travel expenses for one SSC may **be realistically** estimated at **\$1000-\$1500** pa. This cost is recoverable through the National Plan.

Minor costs may be involved during **the** 'real-time' phase in providing records of incidents (eg. photographs etc.).

c) Post-incident

Post-incident expenses **include** the costs of preparing **incident** reports, much of which will be met by the agency involved. Other costs may be incurred through requirements for undertaking post-spill monitoring. This cost will **usually** be met, however, by the polluter; EPA requires responsible parties to implement post-spill monitoring, and to provide the EPA with detailed **reports on the results of these**.

Further **expenses** may be **incurred** by SSC, or a relevant managing agency for any follow-up action eg. a review of oil **damaged** coast-line. This may require further air travel or deployment of **vessels** and manpower (eg. DMH, EPA, CALM etc.); costs are difficult to determine. They **depend** on location but probably amount to several hundreds of dollars per visit.

Experience in Implementing the SSC Role

a) Pre-incident Phase

'Activities have included:-

- (i) commenting and **advising** on oil spill **contingency plans** prepared by oil, companies and ports (specifically where the SSC is an EPA officer);
- (ii) holding discussions with other personnel (eg. officers in EPA, CALM, Fisheries and Waterways) to maintain or update oil response emergency needs;
- (iii) presentation of information on environmental aspects of oil spills at Federal and State-run training courses. Recent examples in WA are:
 - (a) Equipment Operators' Course, **Bunbury**, August 1988
 - (b) Oil Spill Contingency Planning Workshop, Albany, August 1988
 - (c) Equipment Operators' Course, Mandurah, August 1988

b) Real-time Phase

There have been several potentially-serious spills in WA recently requiring SSC advice:

- (i) Fremantle Fishing Boat Harbour; pipe rupture, in July 1986
- (ii) Port Walcott, north-west Australia; ruptured fuel tank on ore transport vessel, in February 1988.
- (iii) Cape Cuvier, north-west Australia; grounding and break-up of salt transport vessel, in May 1988

The SSC role has varied, **depending** on **the nature** of **the** incident. In the case of **the** Port Walcott spill, which involved a large amount of oil threatening mangroves, corals and beaches, in a location with a large tidal range and strong **water movement**, the SSC advice was largely concerned with the appropriate use of chemical dispersants. The SSC was, in this **case**, advised of the spill through the State Combat Committee and provided the necessary advice from Perth. This was relayed to the OSC, who was the harbour master. Approval was required for dispersant both in inshore waters, where the spill started, and in waters offshore, where the vessel had **been** ordered to minimise the impact on sensitive nearshore environments. Dispersant was applied to those parts of the slick threatening mangrove communities. Assistance was available to the SSC from **regional** environmental personnel in EPA and CALM, who participated in the clean-up. Post-spill **surveys** were undertaken using helicopter and beach inspection. Shires were asked to undertake physical clean-up of beaches. A monitoring programme was subsequently begun voluntarily by the company involved, to assess damage to mangroves and corals by

oil and dispersants. Much of the oil dispersed readily in the first day, and **the** remnants appeared as tar balls on beaches in **the** vicinity over the next few days. Surveys were subsequently conducted farther afield by **the** regional Environmental Officer of EPA. Preliminary reports have been submitted to the EPA on the extent of degradation of corals and mangroves.

In the case of the Cape Cuvier spill, in which a bulk salt carrier ran aground on remote, low sensitivity coastline and leaked several hundred tonnes of bunker oil, **the** SSC was in attendance and inspected the site directly and by air in conjunction with the WA State Combat Committee personnel. In **this** case, the advice given, on account of the weather and sea conditions, the physical nature of **the** coastline and the remote location of the spill, was to leave the oil to weather **naturally**.

Staff from DMH inspected the site several months after the spill and reported little visible evidence of oil remnants on beaches and foreshore areas.

Future Direction and Priority Needs to Enhance SSC Role

The SSC role in WA could be enhanced through more extensive and detailed information on WA marine resources. This requires further surveys of 'high risk' coastlines where there are gaps in the information available.

At present the marine resources atlases in WA are limited in scope and of large-scale (1:250 000). There are many sensitive localities, such as mangrove and coral-dominated communities, for which we have little detailed information, including sites designated as **ESLs** or **SPZs**. Decisions need to be made on priority needs for an information base, priority areas requiring attention, the best scale of coverage and the allocation of resources to do this. Discussions are currently being held on this by officers from EPA and CALM, and the Fisheries Department.

More ~~definitive information on the toxic effects of dispersants and dispersant oil mixtures on marine~~ communities in WA would reduce the **pressure** facing the SSC in providing the correct advice to **the OSC** on the appropriate use of dispersants.

References

1. Commonwealth Department of Transport (1979). Assessing **the** risk of oil spills in Australian Waters. **In:** Joint Meeting of National Plan State Committees, Discussion Papers, Department of Transport, Canberra.
 2. Jones, H.E. (1986) Marine **Resources** Map of Western Australia. Part 1. The Resources. Part 2. The Influence of oil on **Marine** Resources and Associated Activities with an emphasis on those found in **Western** Australia. Report No. 74. Fisheries Department, Western Australia.
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3. Jones, H.E., Field, R.A. and Hancock, D.A. (1984). Procedures for Protection of the Western Australian Marine Environment from Oil Spills. **Bulleting** 104, Department of Conservation and Environment, Western Australia.
4. WA State Counter Disaster Plan (1988). Pollution of the sea and inland waters (Unpublished)
5. Cosgrove, D. (1987). Marine oil spill risk in Australia. **In:** 9th Conference of Australian Institute of Transport Research. University of New South Wales, December 1987, Division of Transport and Communications Economics.