

## 12.1 Waste minimisation strategy and waste segregation

At the aftermath of a significant oil spill, dealing with the very large amount of oil-contaminated material can be a major process. Historical data shows that oil spills impacting the shoreline can produce up to 30 times more waste than the volume of oil originally spilled. Waste management needs to be considered during the oil spill contingency planning stage when there is time to undertake a balanced consideration of all options.

Before implementing any waste management plan, consideration should be given to the options available. These should use the principles of waste reduction, reuse and recycling to minimise the amount of waste produced, thus reducing environmental and economic costs and ensuring that legislative requirements are met.

### Waste segregation

During the shoreline clean-up operation, recovered oil and oil-contaminated debris needs to be kept segregated (not mixed), stored, treated and recycled or disposed of. An important first stage is to classify and segregate waste streams at source. Waste should be channelled into separate storage dependent upon type, taking into consideration the most suitable containment for that material.

### Waste minimisation

Waste minimisation reduces the total amount of waste entering the waste stream. This reduces the amount of waste for final disposal and limits the environmental and economic impacts of the oil spill.

Potential impact sites should be identified before the oil has beached. These shoreline sites should then be cleared of debris and rubbish to reduce the final amount of waste to be treated. Waste should be segregated at source of the different types of polluted wastes (liquid, solid, debris, PPE, etc.). Containment sites should have a waterproof cover to prevent excessive rainwater infiltration which could cause overflow of the waste container and also lead to extra contaminated water. Recovery equipment should be cleaned and reused rather than discarded. Reusable personal protective equipment (PPE) should be utilised where appropriate, for example products such as rubber boots that can be cleaned and reused. Sorbents should be used sparingly and effectively.

### Secondary contamination

Secondary contamination is the spread of oil via people, transport and equipment to otherwise unpolluted areas. This should be avoided to control the overall impact of the spill, and can be achieved in a number of ways.

The work site can be divided into designated 'clean' and 'dirty' zones. All pumps and hose connections should be regularly checked for leaks. Personnel and equipment needs to be decontaminated before leaving the work zone. A traffic circulation pattern can be imposed.

## Health and safety

All hydrocarbons potentially pose some degree of health risk and it is therefore essential that a health and safety plan is drawn up before any activity commences. Risks from physical hazards, e.g. storage pits, should not be overlooked. Each stage of the management process should be assessed to establish any potential health and safety risks together with appropriate mitigating methods.

### **12.2 Wastes generated by shoreline clean-up**

The waste stream starts at the point of generation at the spill site. Different environments and different clean-up techniques generate different types of waste.

Stranded oil can be recovered from shorelines either using mechanical or manual means. Manual recovery is the preferred method because it minimises the amount of waste generated. The type of spilled oil will often have a profound effect on the amount of oily waste generated. Waste segregation and minimisation techniques are critical to ensure an efficient operation. These should be established at the initial recovery site and maintained right through to the final disposal site otherwise waste volumes will rapidly spiral out of control. Typical wastes will include:

- Oiled equipment/vessels;
- Oiled PPE and workforce;
- Recovered oil;
- Oiled seaweed and vegetation;
- Oily water;
- Oiled sorbent materials;
- Oiled beach material;
  - sand
  - shingle
  - cobbles
- Oiled flotsam and jetsam;
- Seabird and shoreline carcasses; and
- Oiled transport vehicles.

The characteristics of the shoreline that is impacted by the spilled oil, the spilled oil type and the shoreline clean-up techniques will all determine the waste type and quantity generated. The key factor is to ensure that each waste type is segregated at source and the amount of waste kept to a minimum. Wastes must always be stored on site in suitable containment taking into account the local environment. It is important to establish arrangements for the intermediate storage, transfer and final disposal of the waste at an early stage. Without this, the waste will remain on site, hampering further clean-up operations.