

Shoreline clean-up techniques



Maritime and Coastguard Agency



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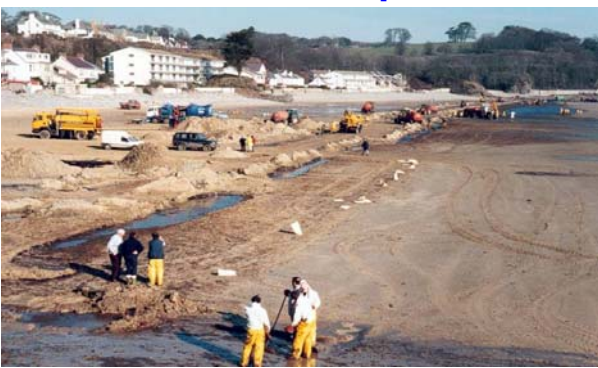
General principles

- Consider the shoreline type
- Minimise oiled material recovery
- Labour intensive
 - Restrict use of heavy equipment
 - Maintain morale
- Act quickly
- Must be “technically reasonable” if costs are to be recovered
- Detailed record keeping
- Rigorous H&S procedures
- Environmental consultation - EG



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Major incident – Operations can be complex



Assessing the problem

- Evaluation
 - Estimating amount of oil is difficult, but rough estimates are useful
 - Geographical extent
 - Length and nature of oiled shorelines
 - Has all spilled oil arrived onshore?
- Shoreline survey
 - Overall assessment from aircraft
 - Detailed evaluation on foot



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Sampling

- Always ensure that representative samples are taken
- Refer to the MCA sampling STOp notice 4/2001 for detail.
 - <http://www.mcga.gov.uk/c4mca/mcga07-home/emergencyresponse/mcga-pollutionresponse/mcga-stop.htm>



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Phases of clean-up

- Stage 1
 - Removal of heavy contamination and floating oil
- Stage 2
 - Removal of moderate contamination and stranded oil
- Stage 3
 - Clean-up of light contamination and final polishing where necessary



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Resources required?

- Estimates can be difficult in early days
 - Manpower
 - Equipment
 - Waste predictions
 - Overall strategy and priorities (SRC)
- Think reasonableness



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Reporting Progress and Problems

- Urgent reports to SRC- as soon as problems arise
- Regular progress/status reports
 - Morning beach survey report
 - End of work report
 - Success of techniques employed and suggested improvements
- Maintain photographic record of the state of the beach that morning
- Need to fine tune yesterdays plan
 - oil can and will move!



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Clean-up techniques

- Depends on shoreline type
 - Man made structures
 - Rocky shores
 - Boulder and cobbles
 - Shingle
 - Sand
- Degree of oiling
- Environmental sensitivity
- Ease of access



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Cleaning rocky shores



Cleaning rocky shores

- Mechanical - skimmers / vacuum
- Manual - buckets / rock wiping
- Sorbents
- High pressure washing
- High volume flushing
- Problems of access



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Cleaning boulders and cobble

- Stage 1- Bulk oil removal
 - Poor load bearing hinders movement of vehicles and personnel
 - Pumping bulk oil - mechanical/vacuum
 - Health and Safety issues
- Stage 2 – Removal of stranded oil
 - High pressure / high volume flushing
 - Stone removal for disposal
 - Push into sea for natural cleaning
 - Stone washing



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Cleaning boulders and cobble



Early intervention may reduce downward penetration

Not easy to clean

Reasonable?



Mechanical washing in skips



Skips must be sealed
Requires energy
Releasing agent
Oily water separation
Reasonable?

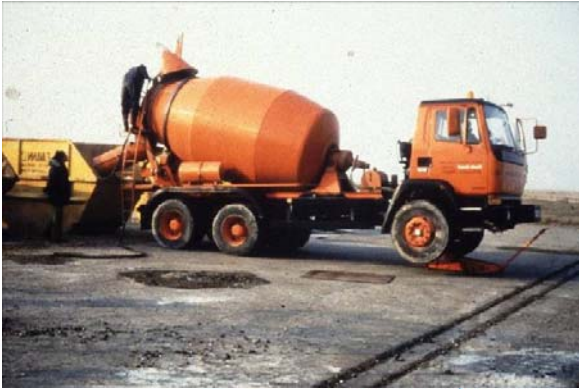
Shingle washing

- Suitable only for small pebble size
- Costly, must have rationale
- 1/2 hour wash cycle, 4 ton loads
- Strict housekeeping and record keeping required
- Technically reasonable?
- EU Waste directives may influence decision

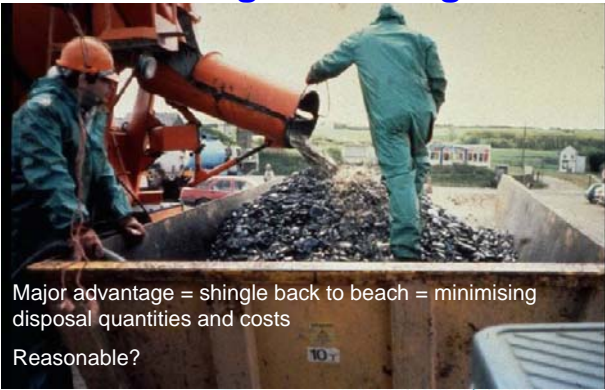


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Shingle washing



Shingle washing



Major advantage = shingle back to beach = minimising disposal quantities and costs

Reasonable?

Cleaning sand beaches

- Mechanical clean-up, trenching and scraping
 - Only for bulk quantities of oil
 - Only on hard sand beaches
 - Aim to minimise beach material pick-up
 - Avoid vehicle movements in oil – entrainment in sand
 - Work from clean end of beach upwards
 - Work only manageable lengths of trench



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Mechanical scraping

- Rubber blade
- Graded sided trench
- Reduce obm pickup
- Sand oil mixture in trench - unpumpable?



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Ideal trench configuration



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Manual clean-up

- Can be supported by front end loader
- 1-2m³ per man per day
- Minimises sand pick-up
- Into bags or drums



Sand washing



70 tonnes per hour machine



Dispersants?
Only with approval

Cleaning salt marsh and mud flats

- Few options
- Small quantity of oil
 - leave alone? Resist pressure to clean if no benefit
- Bulk oil
 - Would we ignore 5,000 tonnes on a saltmarsh? What result?
 - Approach from seaward?
 - Shallow draft vessels
 - Low pressure flushing
 - Vegetation cutting



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Sensitive sites – always consult with the EG



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Beachmaster Role

- He/She is the overall supervisor of a specified section of a shoreline response operation.
- Operation manager at the front line of the response - levels of technical competence.
- Implements the cleanup strategy
- Reports back on progress and problems
- Record keeping



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Essential Issues to be addressed by the Beachmaster:

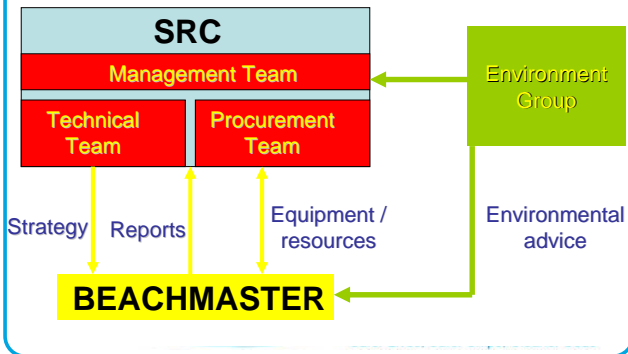


- Health and Safety
- Environmental Sensitivity
- Man Management
- Welfare
- Equipment Management
- Optimal techniques
- Waste Disposal
- Public Safety
- Decontamination
- Record Keeping



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Communications in shoreline clean-up



Summary

- Shoreline type largely dictates technique
- Strategy and stages of clean-up
- Technical reasonableness
- Mechanical versus Manual
- Sensitive shorelines are often best left alone
- Logistics / organisation / record keeping
- Identify temporary storage sites



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