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Shoreline clean-up techniques

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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

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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 spilt 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 (under review) for detail.

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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
- Think reasonableness

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Reporting Progress and Problems

- Urgent reports to TCG/RCG- 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

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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?

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Mechanical washing in skips

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

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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

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Shingle washing

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

Reasonable?

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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
- 1-2m^3 per man per day
- Minimises sand pick-up
- Into bags or drums

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Sand washing

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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

- 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
TCG/RCG
Technical group
Procurement group
Environment Group
Strategy
Reports
Equipment / resources
Environmental advice
BEACHMASTER

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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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