SCIENTIFIC, TECHNICAL AND OPERATIONAL ADVICE NOTE - STOp 4/2001

IMPORTANT

This STOp notice replaces STOp 2/98, please destroy your copy of STOp 2/98

ADVICE TO LOCAL AUTHORITIES ON THE COLLECTION AND HANDLING OF OIL SAMPLES

Note: This document should be read in conjunction with:

- STOp 1/2001 - The Environment Group and Maritime pollution response in the UK.
- STOp 2/2001 - The Establishment, Management Structure, Roles and Responsibilities of a Shoreline Response Centre during a Maritime Pollution Incident in the United Kingdom.
- The National Contingency Plan for Marine Pollution from Shipping and Offshore Installations (NCP).

All extant MCA STOp notices may be found on the MCA web site: www.mcga.gov.uk and
all enquires regarding this and other MCA STOp notices should be directed to meor_meor@mcga.gov.uk

1. BACKGROUND

Where an oil pollution incident is thought to have arisen from an illegal operational discharge an effort should be made to collect a sample of the pollutant and, if possible, matching samples from the suspect ship or other source for analysis, comparison, and possible subsequent use in legal proceedings. Samples of the pollutant may need to be taken from the sea or coastline. When beach pollution has occurred, local authorities or HM Coastguard would usually take the necessary samples. For advice on sampling at sea, contact the Counter Pollution Branch of the Maritime and Coastguard Agency (MCA) on 02380 329483. This notice sets out the procedures to be followed when collecting and handling oil samples.

The MCA's Enforcement Unit will collect evidence concerning pollution incidents from shipping at sea, upon which a decision will be made as to prosecute or not. In England, Wales and Northern Ireland the MCA will conduct prosecutions. In Scotland the case will be presented to the Procurator Fiscal for action.

If samples are likely to be used in connection with legal proceedings then the following procedures should be implemented:

In England and Wales

Although a single sealed sample of each type of pollutant is required by law, MCA would prefer three samples to be collected.

In Scotland

There is no longer a legal requirement for three sealed samples of each type of pollutant in Scotland but as in England MCA recommend three samples: one for analysis, a second to be handed to the owner or master of the suspect vessel for retention and any appropriate action, and the third for production in court, where the prosecution will be handled by the local Procurator Fiscal.

In Northern Ireland

Although the law in Northern Ireland concerning this matter is the same as that in England and Wales, the Director of Public Prosecutions, who is responsible for handling prosecutions in Northern Ireland has asked that for the sake of safety, three sealed samples of each type of pollutant should be provided on the same basis as in Scotland.

Responsibility for the collection of oil samples in Northern Ireland rests with Environment and Heritage Service, Department of the Environment (Northern Ireland).

Samples will usually be requested by a scientist/mariner in the MCA's Counter Pollution Branch or one of the Principal Counter Pollution and Salvage Officers as part of the response to a reported incident. Once a sample has been taken, agreement must be obtained from the Counter Pollution Branch before it is analysed

Please remember that analysis of samples will only be carried out and paid for by the MCA if authorised by the Counter Pollution Branch.

Please note that organisations such as Ports and Harbours or the Environmental Regulator may be taking independent samples as part of their own individual responsibilities for oil spill response and pollution regulation. The analysis of the samples and the cost of analysis of such samples will be the responsibility of the organisation taking the sample and not the MCA.

2. SAMPLING FROM THE SEA & SHORELINE

When a large oil slick exists at sea or on a coastline, the number of samples that MCA may require is:

offshore spill - minimum of 1 sample / slick / day where possible,

onshore spill - representative samples from the shoreline, following discussion with Counter Pollution Branch .

Following an incident, attempts may be made to infer that not all the oil pollution came from one vessel, and that some of it may have come from other sources. Where therefore an oiled beach is being sampled, a careful and detailed examination of the beach should be made to determine the uniformity of the oil deposit and the extent to which it is polluted by more than one type of oil. In particular, if there are any tarry, semi-solid lumps or wet tarry patches, their presence should be recorded and some idea of their quantity and extent obtained. In addition, samples of such pollution should be retained and an attempt should be made to estimate costs expended on the clean up of different oils.

In cases where samples have been taken at intervals along the beach, these should be clearly identified (see section 6 on labelling). It is desirable that samples of oil are taken in the area where the oil is first washed ashore. This is helpful since the fresher the oil the easier it is to identify by laboratory techniques.

3. SIZE OF SAMPLES

Modern analytical methods mean that very little original pollutant is required to carry out most analyses. However, a larger sample is likely to be more representative. Detailed analyses are often hampered by either contamination or the loss of the oil's lighter fractions. A larger undisturbed sample may consist of a weathered oil crust covering a less weathered (holding a greater percentage of lighter fractions) and therefore more valuable sample. The recommended minimum quantities required for a detailed programme of analyses are:

Unweathered oils that are liquid and substantially free of water	10ml
Oil exposed to seas surface and forming water-in-oil emulsion "chocolate mousse"	10ml
Overside water discharge where contravention of 100ppm or 15ppm is suspected	1 litre of the discharge
Tarry lumps as found on beaches	10 grammes

A sample should not be withheld because the recommended quantity cannot be obtained, since much smaller samples can give useful results. In cases of pollution within UK territorial waters, when it is only necessary to prove that some oil has been discharged, a relatively small sample may be acceptable. Larger samples may be useful to carry out a range of tests to determine the most appropriate response/clean-up strategy. MCA can advise when and why such an approach is desirable

4. METHODS OF COLLECTING SAMPLES

When liquid samples are skimmed off the surface of the sea, care should be taken to ensure that the sample contains sufficient oil. Various techniques may be adopted to skim thin layers of oil from the waters' surface and consolidate using a bucket with a hole.

Care should be taken to minimise contamination of liquid samples by solid matter. Oil deposited on rocks or other impervious materials should be scraped off and placed directly into the sample container. Lumps of tarry or waxy pollutant should be placed directly into sample containers; no attempt should be made to heat

or melt these samples to enable them to flow into a container. The sample container should be sealed as soon as possible to minimise evaporation of the higher fractions.

Oil adhering to seaweed, small pieces of wood, sand, plastic, material, cloth, vegetation or other debris should be dealt with by placing the complete specimen comprising oil and support material into the sample container.

5. BOTTLING, SEALING, PACKAGING AND BOXING OF SAMPLES

All samples should be securely packed and sealed, using screwtopped containers and UN approved fibreboard boxes to ensure safe carriage of the sample. These have been supplied to HM Coastguard Stations and MCA Marine Offices for use by MCA Staff. In consultation with CPB, MCA sampling bottles can be made available to local authorities.

As proof against unauthorised opening, the sample container should be sealed with wire and a lead or sealing wax seal. Alternatively, adhesive labels with a signature stuck on the bottle top in such a way that they have to be broken to open the bottle are acceptable.

The bottle should then be placed inside a plastic bag, which should be sealed with a further adhesive label in the same way as for the sample bottle to ensure that it is not tampered with.

If it is necessary to take an oil sample where one of the standard containers above is not available the receptacle should be of glass with a screw-cover and a seal which would not be affected by the oil. Small (100ml) and medium (500ml) glass bottles are readily obtainable from chemists or hardware shops.

The use of closed metal receptacles or plastic jars is strongly discouraged as contact with metal or plastic can, in some cases, interfere with the analysis. Avoid the use of any metal tool made of nickel or vanadium based alloys, as these metals occur naturally in crude oils and refined products and their levels may assist in the identification of the oil source.

When boxing the sealed samples for transport, the Peters and May (Dangerous Goods) Ltd, packing instructions should be followed, to ensure the integrity of the package for transport under Dangerous Goods regulations. Vermiculite should be used to surround the sample(s) in the box for added protection and to absorb any possible seepage. Make sure that the dangerous goods documentation is completed.

Whenever possible, samples should be stored in refrigerators or cold rooms at less than 5 degrees C in the dark. These precautions are particularly important for samples containing water or sediment, but less so for bulk oil samples.

When ordering sample bottles it is important to consider the following:

- Wide necked bottles make sampling easier.
- Sample security can be achieved with locking cap seal.
- Ensure that no components of the bottle can interfere with analysis, e.g. waxed cap inserts.

6. LABELLING AND ADDRESSING OF SAMPLES

Care should be taken to ensure that every sample bottle is not only suitably sealed but also clearly labelled before being submitted to the MCA for analysis. It is important that a sample is positively identified, particularly where more than one is taken during an incident. It is of vital importance to maintain continuity in the chain of evidence. MCA recommend that each sample is labelled *and* is accompanied by more

detailed information set out on a standard proforma. The form accompanying each container should therefore provide the following details: -

a. An identifying number: year 2 digits
month 2 digits
day 2 digits
and the initials of the official in charge of taking the samples.

For example 02/04/17/JS = Sample taken on 17th April 2002 by John Smith

b. Description of samples.

c. Position from which sample was taken, grid reference if possible.

d. Date and time of sampling.

e. Purpose for which sample was taken.

f. If known, suspected source, e.g. name of tanker or ship.

g. Whether or not dispersants have been used and, if known, their type and make.

h. Method of sampling (description of sampling device and any possible contamination).

h. Name, address and contact details of person taking the samples and of anyone witnessing the taking of it.

If possible the following information would also be helpful:

j. Wind direction and velocity.

k. Air and water temperature.

l. Sample descriptions, i.e. viscosity, colour and contaminants.

m. Description of the oil spill, i.e. distribution and consistency.

An example of the recommended oil pollution sample standard label can be found in Appendix A. The recommended sample form is at Appendix B.

To assist with any subsequent investigations it is important that a letter is sent to MCA quite independently of the sample (but a copy should be sent with the samples), setting out details a. to m, where available.

7. TRANSPORTATION OF SAMPLES

If a sample needs to be analysed the Counter Pollution Branch will contact their contractor to arrange for the sample to be collected by courier and analysed.

Please ensure that samples are labelled correctly and securely packed in UN approved boxes to avoid breakage. It is important that the standard proforma described in section 6 should also be included with the sample along with all carriage documentation. To facilitate sample transportation, clear information on the number of samples to be collected, the location they need to be collected from and a contact name and phone number must be given to Counter Pollution Branch.

8. HANDLING OF SAMPLES FOR BONN AGREEMENT STATES

In cases where samples are taken at the request of a contracting member of the Agreement for Co-operation in Dealing with Pollution of the North Sea by Oil, the BONN Agreement, the Counter Pollution Branch would be the focal point for processing the samples for either analysis or onward transmission to the requesting member state. The results of such tests would not be made public until the contracting party involved was informed.

Appendix A : Oil Pollution Sample – Standard Label

OIL POLLUTION SAMPLE – STANDARD LABEL

ID No. Date/Time Location) (Grid Ref) Name and Address of person taking sample

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For continuity of evidence: Please complete clearly
Sample passed to:

Date Name Address Signature

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OIL POLLUTION SAMPLE - STANDARD LABEL

ID No. Date/Time Location) (Grid Ref) Name and Address of person taking sample

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For continuity of evidence: Please complete clearly
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Appendix B : Oil Pollution Sample – Standard Form

Collection of oil samples - This form to be completed by person taking sample If in doubt please refer to MCA STOp Notice on sampling. Remember to complete sample jar label and sign		
A	ID Number - YY/MM/DD - with initials of person taking sample	
B	Sample description	
C	Location of sample – OS Grid Ref or Lat/Long if possible	
D	Date and time of sample collection	
E	Purpose for which sample was taken	
F	If known, suspected source	
G	Were dispersants used?	
H	Method of sampling (device?)	
I	Name, address, e-mail address & Tel No of person taking sample and any witnesses	
If possible the following information would also be helpful		
J	Wind speed and direction	
K	Air and Sea Temperature	
L	Sample description, viscosity, colour, any contaminants?	
M	Description of the oil spill, distribution and consistency	
Original form to be kept with sample - please send copy of the form to the Counter Pollution Branch of the MCA - Bay 1/11, Spring Place, 105 Commercial Road, Southampton, SO15 1EG Tel:023 8032 9485		