Waste Assessment Guidance: Disposal Management Measures (e.g., Capping)

The First United Kingdom Offshore Contaminated Dredge Material Capping Trial: Lessons Learned

Submitted by the United Kingdom

SUMMARY

Executive summary: This document contains the Executive Summary of the "First United Kingdom Offshore Contaminated Dredge Material Capping Trial: Lessons Learned" document that reports the experiences of the licensing authority and their advisors in licensing and monitoring this project.

Action to be taken: Paragraph 3

Related documents: LC/SG 30/14, paragraphs 3.62 and 3.63 and LC/SG 30/INF.3

Introduction

1 In December 2004 the Port of Tyne started a trial capping project for 60,000 m³ contaminated dredged material. The "First United Kingdom Offshore Contaminated Dredge Material Capping Trial: Lessons Learned" report documents the lessons learned by the licensing authority and their advisors from the experience of licensing the project and reviewing the results of the monitoring programme. The Executive Summary from the report is at annex to this document.


Action requested of the Scientific Groups

3 The Scientific Groups are invited to take note of the information presented here and to advise the governing bodies as appropriate.

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Introduction

There is a legacy of contaminated marine sediments in many of the heavily industrialized estuaries of the United Kingdom and this can cause practical and economic problems for operators wanting to carry out capital or maintenance dredging operations in areas where those sediments are too contaminated for disposal to sea to be considered. In this situation, operators are required to find alternative options for the re-use, remediation or disposal of this material. However, options such as treatment, incineration and landfill can often be environmentally unacceptable, legislatively challenging, logistically difficult and prohibitively expensive.

Without a viable option for treatment or disposal for the contaminated material, areas of contaminated sediments cannot be dredged and this can impact on navigation and port development and hence potentially result in the loss of local industry and jobs.

This report reviews the investigation of a novel approach in the United Kingdom (UK) for the disposal of some heavily contaminated dredged material (CDM) from the Tyne Estuary where alternative means of treatment or disposal were not found to be available. The approach investigated was to use level bottom capping offshore and the report describes the lessons that have been learned in the process. While the design and methods used in this project are specific to the conditions of this project, this report highlights a number of generic issues that would apply to any "capping" project.

Lessons Learned

Capping Site Selection

1 Any capping site needs to be well characterized prior to placement to provide a sound baseline for interpreting the results of monitoring.

Capping Project Design

2 Before licensing any future capping project, a thorough assessment should be made to ensure that the necessary volumes of suitable capping material are available both for the initial capping operation and for the subsequent long-term needs for topping-up the cap.

3 Using silt material as part of the cap made it difficult to distinguish from the CDM in monitoring. This should be avoided in future if possible.

4 In any future level-bottom capping projects, consideration should be given to the placement of a containment dyke or embankment of denser or bulky material to prevent spread of the CDM.
Disposal Operations

5 It was possible to place the CDM accurately in water of up to 50 m depth in good to moderate conditions.

6 There was a considerable period of time from the initial placement of CDM in December 2004 until the cap was finally placed in mid-April 2005 during which the CDM sat exposed on the seabed. This no doubt significantly contributed to the spread of thin layers of CDM. Any future placement should preferably be undertaken in good weather conditions to ensure that the cap was placed as soon as possible after commencement of the placement of the CDM.

7 Despite point 6, only small volumes of CDM moved from where it was placed. This was probably largely due to the very cohesive nature of the CDM and to the way it was dredged and dumped that largely maintained its cohesive nature.

Monitoring

8 The range of monitoring methods used in this trial was appropriate but could be refined.

9 Following placement of the CDM, there were limited weather windows to undertake suitable monitoring to provide baseline information and this too suggests that any future projects would be better undertaken in good weather.

10 The multi-beam bathymetry monitoring in later surveys was not consistently of good quality due largely to adverse weather conditions affecting data quality and this led to ambiguity and difficult interpretation. Such monitoring of any future projects should be undertaken in good weather conditions.

11 To ensure the best data quality, the instrumentation used for multi-beam bathymetry and sub-bottom profiling needs to be state-of-the-art.

12 The Sediment Profile Imagery instrument was invaluable in detecting thin layers of CDM. More extensive use of the SPI is recommended in future to provide more comprehensive data on thin layers.

13 Additional/improved ways of determining cap thickness are needed to check estimates derived from differences between bathymetric surveys.

14 There is a need for an explicit agreement at the time of licence issue on the principles of the minimum long-term monitoring programme that will be required on expiry of the licence.

15 Given the likely need to monitor and top-up such capping sites in perpetuity, the Marine and Fisheries Agency (MFA) and Defra should consider contingency plans to deal with situations where the body responsible for maintaining the cap goes out of existence and yet monitoring and topping-up of the cap or other measures will need to occur to protect the marine environment. This is closely tied to the liability issue.
**Licensing Issues**

16 When discussing such proposals at an early stage, there needs to be clear agreement on actions, protocols and deadlines to avoid any misunderstandings or delays.

17 The wording of licence conditions should be unambiguous.

18 Licence conditions should clearly specify agreed responses or actions to be carried out in circumstances when things go wrong. Such conditions should clearly assign responsibility for any responses or actions and the timescales within which they should be completed.

19 If aspects of a project have to be changed during the project operations, then the licence should be varied within a matter of days to ensure that it covers the agreed changes.

20 Where the regulator requires the licensee to take a particular action, such actions should be speedily incorporated in licence conditions.

21 All future projects should be widely debated and an Environmental Impact Assessment carried out to ensure thorough and transparent assessment of the proposal.

22 All future projects should be considered within an overall sediment or dredged material management strategy for the area concerned, e.g., an estuary and not in isolation from surrounding areas.

23 A clear agreement on who takes on responsibility for monitoring, mitigation and remediation in both the short and long-term should be put in place before any licence is issued.

**Liability**

24 An unambiguous agreement on who takes on responsibility for long-term liabilities arising from a project should be put in place before any licence is issued.

**Research**

25 Although the Tyne capping trial has been considered to be a qualified success, further studies are required to provide a strong scientific knowledge base to assess the long-term success of the trial.