

Date: 01 February 2024

Subject: Sediment sampling at Port of Newport and Port of Barry

Marine licence number DML1955v1 permits the disposal of dredge material from Barry Outer Tidal Harbour and No.3 Dock Basin to licensed disposal sites Merkur Buoy (LU115) and Cardiff Ground (LU110) as a contingency in bad weather. Marine licence number DML1950v1 is also in place to allow the disposal of dredge material from Newport Dock and Approaches to Newport Deep (LU140) licensed disposal site. As part of these marine licences, there is a condition (condition 3.19) that requires interim sediment sampling to be undertaken in accordance with a sediment sampling requested from Natural Resources Wales (NRW). This is to ensure the quality of the sediment remains suitable for disposal at sea.

There are no formal quantitative environmental quality standards (EQSs) for the concentration of contaminants in sediments. Cefas has prepared a series of guideline Action Levels (ALs) to assist in the assessment of dredged material (and its suitability for disposal to sea). In general, contaminant levels in dredged material below Action Level 1 (AL1) are of no concern and are unlikely to influence the licensing decision. However, dredged material with contaminant levels above Action Level 2 (AL2) is generally considered unsuitable for disposal at sea. Dredged material with contaminant levels between AL1 and AL2 requires further consideration before a decision can be made. The Cefas Guideline ALs should not be viewed as pass/fail thresholds. However, these guidelines provide an appropriate context for consideration of contaminant levels in sediments and are used as part of a 'weight of evidence' approach to assessing dredged material.

To satisfy condition 3.19 of DML1955v1 and DML1950v1, sediment sampling was undertaken at the Port of Newport and the Port of Barry in June 2023. A summary of the sediment quality (chemical analysis) of the samples from the dredge areas (both Newport and Barry) is provided below.

- Trace metal concentrations were typically below AL1 in most samples, with some minor exceedances of AL1, mainly for chromium (Newport only), nickel, lead and zinc. All trace metal concentrations were well below AL2.
- Organotin concentrations were all below the limit of detection.
- Concentrations of polyaromatic hydrocarbons (PAHs) were either below AL1, or slightly above AL1. There is currently no AL2 for PAHs. The Gorham test was also used to consider the concentration of PAHs in sediment. The sum of low molecular weight (LMW) PAHs were mostly slightly above the Effects Range Low (ERL) concentration. All samples were below the Effects Range Median (ERM) concentration. With respect to the sum of high molecular weight (HMW) PAHs, concentrations were either below or slightly above the ERL concentration, with all samples well below the ERM concentration.
- Polychlorinated biphenyls (PCBs) (both the sum of ICES 7 and the sum of 25 congeners) were slightly above AL1 but remained well below AL2 for the sum of 25 congeners.

With respect to PAHs, further analysis (in the form of double-ratio plots) was undertaken to determine the chemical composition of the PAHs and their likely source. This analysis shows that the PAHs found in sediments in Barry and Newport are coal derived. This is likely related to naturally occurring coal deposits which are eroded and reworked within the Severn Estuary sediments.

Overall, based on the level of contamination within the sediments sampled at Barry and Newport, the material is considered suitable for disposal at sea.