

DMMP Clarification Paper

PURPOSE OF MAXIMUM LEVEL (ML) - CLARIFICATION OF USE IN REGULATORY PROGRAM

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INTRODUCTION

As described in the Phase I Management Plan Report (MPR), the DMMP agencies (then PSDDA) adopted a tiered dredged material testing approach incorporating an assessment of chemical information that resulted in a determination whether biological testing of the material would be required. Assessment of the suitability of a dredged material for unconfined open-water disposal is based on the results of the chemical testing and any required biological testing, including bioaccumulation. Development of a list of chemicals of concern and chemical values is contained in the Evaluation Procedures Technical Appendix (1988; EPTA). PSDDA found that a single set of chemical values could not be both sensitive (to identify all toxic sediments) and efficient (to ensure that only toxic sediments were identified). Consequently, environmental sensitivity was embodied in a set of lower values (screening levels or SLs), while cost efficiency and environmental protection were ensured by a set of higher values (maximum levels or MLs). The ML derived for each chemical of concern represented the highest Apparent Effects Threshold (AET)—a chemical concentration at which all four biological indicators would have shown significant effects. Indeed, the 1986, and later the 1988, Puget Sound database showed that when sediment stations exceeded MLs, those sediment nearly always failed the biological tests. The same approach was extended to northern and southern Puget Sound in the second phase of PSDDA (MPR II, 1989).

PROBLEM IDENTIFICATION

PSDDA presumed that sediments with chemical values above the ML would be unsuitable for unconfined open-water disposal and defined the ML as setting the upper limit of chemical concentration for which the standard biological tests (which included bioaccumulation) would provide a sufficient basis for regulatory decision-making. Sediments with only one chemical that exceeded the ML by less than 100 percent could still test using the standard suite of tests. Sediments with two or more ML exceedences *required* a determination of unsuitability unless the proponent invoked the “dredger’s option” under which the PSDDA agencies *must* define a project-specific testing regime which would include the standard suite of biological tests, but additionally require other, more specialized tests. This mandatory requirement was imposed due to the lack of chronic tests and the rudimentary status of human health and ecological risk assessment methodologies.

During the initial years of PSDDA implementation, experience with biological testing showed biological failure typically occurred below ML concentrations. Few applicants invoked the “dredger’s option”, in part due to an expectation of failure and in part due to what could be significantly higher testing costs. Because some projects performed synoptic testing (i.e., chemical and biological tests conducted concurrently), the DMMP agencies encountered sediments that passed the standard biological tests, but exceeded more than one ML. Over the years, significant progress has occurred in sediment evaluation. Tiered evaluations have

become more accepted and sophisticated, chemical analyses and biological tests have been refined (see previous clarification papers), the Neanthes test has been added to the standard suite, and evaluation methods to assess human health and ecological risk have improved, particularly with regard to bioaccumulative chemicals of concern. The early presumption, that exceeding more than one ML *necessarily* represents a chemical concentration that is unsuitable for open-water disposal or that somehow *requires* specialized testing, is no longer valid. The need for specialized testing is seen to be more related to the specific chemical of concern and its mode of toxicity rather than to its concentration (e.g., PCBs, TBTs, dioxins and dioxin-like compounds) and the DMMP has worked with applicants on non-standard tests at several projects. This is consistent with national guidance (EPA/USACE 1998).

The DMMP agencies have increasingly come to regard the ML values as a more valuable screen for project proponents rather than as a useful regulatory tool for “testing.” While some sediments with more than one ML exceedence have passed biological testing, the majority have still failed. By comparing sediment chemical data to the MLs, a dredging proponent can better judge how to proceed with the project, i.e., whether to invest more into testing for unconfined, open-water disposal, or to rechannel that effort into other disposal options and testing for that option (e.g., leachate tests).

ACTION

The restriction on use of standard tests and mandatory requirement to augment those tests on any material containing chemical concentrations above the ML imposed by the original PSDDA program is rescinded. The DMMP agencies retain the authority to require “additional, specialized” testing of any dredged material based on “reason-to-believe” whenever the disposal of that material is subject to §404 authority.

REFERENCES

PSDDA. 1988. Management Plan Report (MPR) - Phase I, U.S. Army Corps of Engineers - Seattle District; U.S. Environmental Protection Agency - Region X; Washington State Department of Natural Resources; Washington State Department of Ecology.

PSDDA. 1988. Evaluation Procedures Technical Appendix (EPTA) - Phase I, U.S. Army Corps of Engineers - Seattle District; U.S. Environmental Protection Agency - Region X; Washington State Department of Natural Resources; Washington State Department of Ecology.

PSDDA. 1989. Management Plan Report (MPR- II) - Phase II, U.S. Army Corps of Engineers - Seattle District; U.S. Environmental Protection Agency - Region X; Washington State Department of Natural Resources; Washington State Department of Ecology.

EPA/USACE. 1998. Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual, prepared by the Environmental Protection Agency, Office of Science and Technology, and the Department of the Army, Corps of Engineers, Washington, D.C.