	WATER RESOURCES DIVISION POLICY AND PROCEDURE		DEPARTMENT OF ENVIRONMENTAL QUALITY
Original Effective Date: April 13, 2018	Subject: Sediment Testing for Dredging Projects		Category: <input type="checkbox"/> Internal/Administrative <input type="checkbox"/> External/Non-Interpretive <input checked="" type="checkbox"/> External/Interpretive
Revised Date:	Program Name: Water Resources Program	Number: WRD-048	Type: <input type="checkbox"/> Policy <input type="checkbox"/> Procedure <input checked="" type="checkbox"/> Policy and Procedure
Reformatted Date:	Page: 1 of 9		

A Department of Environmental Quality (DEQ) Policy and Procedure cannot establish regulatory requirements for parties outside of the DEQ. This document provides direction to DEQ staff regarding the implementation of rules and laws administered by the DEQ. It is merely explanatory; does not affect the rights of or procedures and practices available to the public, and does not have the force and effect of law. DEQ staff shall follow the directions contained in this document.

ISSUE:

Identify when sediment testing is required and how results will be used when processing applications for permits under authority of Part 301, Inland Lakes and Streams; Part 303, Wetlands Protection; and Part 325, Great Lakes Submerged Lands, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). Sediment testing results are used as one avenue to determine whether a proposed project will result in an unacceptable negative impact on aquatic resources, related either to the mobilization of contaminants to a new location or by exposing wildlife (including fish and other aquatic life) to contaminants previously buried. The specific permit decision criteria are stated differently in each part of the NREPA but each part requires an assessment of the project's impact on the aquatic resource and related organisms. In addition, state permits under these parts may also provide authorization under Section 404 of the federal Clean Water Act, which requires that the project must not violate water quality standards. Michigan's water quality standards require the protection of designated uses including, but not limited to, aquatic life, wildlife, and public health.

This policy applies to projects that can mobilize or expose contaminated sediments including, but not limited to, sediment removals using dredges, draglines, excavators, etc., and other projects that may not directly remove sediment from the aquatic system but may result in sediment being mobilized to other areas of the aquatic system.

AUTHORITY:

- Part 31, Water Resources Protection, of the NREPA
- Part 301, Inland Lakes and Streams, of the NREPA
- Part 303, Wetlands Protection, of the NREPA
- Part 325, Great Lakes Submerged Lands, of the NREPA

STAKEHOLDER INVOLVEMENT:

This policy was placed on public notice for 30 days beginning June 26, 2017. Notification was made in the DEQ Calendar; on the DEQ dredging Web site; and to specific stakeholder groups known to have an interest in this policy, including Michigan Manufacturers Association, dredging

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contractors, resource consultants, environmental groups, Michigan Townships Association, Michigan Association of Counties, Michigan Association of County Drain Commissioners, Department of Natural Resources (Fisheries, Wildlife, and Parks and Recreation Divisions), and Michigan Boating Industries Association. Comments received were used to finalize this document.

DEFINITIONS:

Area of known or suspected contamination: An area identified in MiWaters or other databases as containing contaminated or polluted sediment, or a facility, as defined in Part 201 (may show up as Act 307 in MiWaters), Environmental Remediation, of the NREPA, or a National Priorities List Superfund site, or any site that has known or suspected contamination as determined by DEQ staff or the applicant. This may include project sites within Great Lakes Areas of Concern, where designated uses are currently impaired by a pollutant, in areas where a historical dredge area is being expanded vertically and/or horizontally into areas of suspected contamination, new sites in areas of historically known or suspected contamination, sites in proximity and downstream of chemical storage/handling facilities, agricultural or industrial operations, or other sites where contaminants are suspected to be present in the water body's sediments within the project dredge area due to past or current land use practice, at DEQ staff's discretion. In addition, project areas greater than 2,000 cubic yards are assumed to be in sites of suspected contamination because large projects pose a greater risk of negative aquatic impacts should undetected contaminants be present.

Dioxins and Furans Test Area: The Tittabawassee River downstream of the city of Midland, the Saginaw River downstream of the Tittabawassee River, and the portion of Saginaw Bay that lies between the mouth of the Saginaw River and a line drawn between the tip of Fish Point (Tuscola County) and the tip of the unnamed point east of the lakeward end of East Pinconning Road (Bay County) (Figure 1).

MiWaters: The permit tracking and information system used by the Water Resources Division (WRD) staff to electronically record permit file information, such as locations, that are cross-referenced against spatial information stored in multiple databases.

PROCEDURE:

1. Projects involving dredging may require sediment testing, and permit applications submitted for these projects under Parts 301, 303, and 325 will not be considered administratively complete until the WRD determines that either:
 - a. Testing is not required.
 - b. The required testing results have been received.

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2. WRD district staff reviews the proposed dredging project to determine if sediment testing is required. Sediment testing is required for dredging proposed in areas of known or suspected contamination and in the Dioxins and Furans Test Area.
3. Sediment testing may be waived if one of the following conditions is met:
 - a. The applicant provides approved previous test data from the site, or from a site immediately adjacent to (i.e., within 100 feet) and representative of the proposed dredge area, including project depth. The test data must include results for all default parameters identified in step 5.b., below; polychlorinated biphenyl (PCB) if the project site is in a water body identified in step 5.b., below, as requiring PCB testing; and for dioxins and furans if the proposed dredging site is in the Dioxins and Furans Test Area. The test data must have been collected and analyzed within the last ten years.
 - b. The total dredge volume is 2,000 cubic yards or less and the applicant has agreed to permit conditions in an applicable general permit or minor project category that isolate the area to be dredged and prevent downstream movement of sediment, or the project area is not within an area of known or suspected contamination or in the Dioxins and Furans Test Area.
 - c. The total dredge volume is greater than 2,000 cubic yards but due to the specific details of the project site and implementation methods, WRD district staff determines that there is minimal risk of impacts to the aquatic resources at or downstream of the project site should contaminants be present. Note that this waiver is expected to occur only rarely. An example of when this waiver may be appropriate is dredging of a small regulated pond that is entirely on one property and has no outlet or has an outlet and the applicant proposes to use silt screens or other technology to prevent downstream movement of sediment.
4. If testing is not required (and the permit application meets all other administrative completeness criteria), WRD district staff marks the application file in MiWaters as administratively complete and continues processing the application file outside of this policy and procedure. If testing is required and results have not been provided by the applicant, the file remains incomplete and WRD district staff continues processing per this policy and procedure, continuing to step 5.
5. WRD district staff sends a Sediment Testing for Dredging Projects letter to the applicant, which contains the following guidance:
 - a. Applicant may opt to conduct sieve grain analysis test for sand content, or move to step 5.b., below, if the sediment is believed to be less than 90 percent sand. For all sieve grain analysis testing for dredging projects of less than 10,000 cubic yards, the applicant shall collect sample sediment cores to project depth from 6 discrete locations within the proposed dredge area. If more than 10,000 cubic yards of dredging is

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proposed, at least 1 additional sample shall be obtained and analyzed for each 10,000 cubic yards of additional material proposed for dredging. Typically, each core sample will be composited and a subset will be analyzed using United States Standard Sieve Number 200 (Number 200 Sieve). WRD district staff may mandate specific sampling criteria, locations, and/or depth intervals based on their site-specific knowledge. Applicant reports the results for each of the six (or more) discrete sample locations as a mass percentage of retained sediments. If the average mass percentage retained on the Number 200 Sieve is 90 percent sand or greater, no additional sediment testing is required unless the project is located in the Dioxins and Furans Test Area; in which case, dioxins and furans must also be analyzed. The sieve grain analysis test is a pass/fail test. If the average mass percentage of sand is less than 90 percent, then the material must be analyzed according to step 5.b., below, for at least 6 discrete sampling locations.

- b. If the result of the mass percentage retained on the Number 200 Sieve is less than 90 percent sand, on average, or the applicant opted not to conduct sieve grain analysis, contaminant testing is required. For all analytical testing of dredging projects of less than 10,000 cubic yards, applicant shall sample sediments from 6 discrete locations within the proposed dredge area. If more than 10,000 cubic yards of dredging is proposed, at least 1 additional sample shall be obtained and analyzed for each 10,000 cubic yards of additional material proposed for dredging. Typically, each sample will consist of a subset of a composited core taken to full project depth. WRD district staff may mandate specific sampling criteria, locations, and/or depth intervals based on their site-specific knowledge.

The default analytical parameters include nine heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc), polycyclic aromatic hydrocarbons (PAH) listed in Table 1, and biochemical oxygen demand (BOD). Additionally, phosphorus will be required if the proposed dredge spoil disposal location is in a surface water of the state as defined in the Part 4 Rules, Water Quality Standards, promulgated under Part 31, Water Resources Protection, of the NREPA. Default analytical parameters also include PCBs if the project is on one of the following bodies of water: Detroit River, Rouge River, Raisin River, Kalamazoo River, Saginaw River, Saginaw Bay, or Manistique Harbor; or canals that connect to any of the listed bodies of water or canals in the St. Clair Shores area between 11 Mile and 10 Mile Roads.

Additions or deletions to the default testing parameters can be made on a project-specific basis if district staff or the applicant has additional information related to the project. WRD district staff shall coordinate with other WRD and DEQ staff as needed to determine appropriate testing criteria if WRD district staff believes it should be different than the default parameters.

For projects in the Dioxins and Furans Test Area, dioxins and furans must also be analyzed.

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- c. Sediment testing must be conducted according to a United States Environmental Protection Agency-approved laboratory method and reported results must specify the reporting limits.
6. The applicant forwards the sediment analysis results to WRD district staff for review.
7. If the test data is for grain size analysis as detailed in step 5.a., above, WRD district staff performs an arithmetic mean on the grain size results of all samples to determine if the project dredge materials consist of 90 percent sand or greater by grain size.
8. If the sediment to be dredged is 90 percent sand or greater and the project is not located in a Dioxin and Furans Test Area, sediment contaminant testing is not required. Placement of dredged materials is subject to review under Parts 31, 301, 303, and 325 of the NREPA as part of a Joint Permit Application review conducted by WRD district staff.
9. If the sediment to be dredged is less than 90 percent sand or dioxins and furans testing is required, WRD district staff reviews sediment test results:
 - a. If any sample test result exceeds any screening guidelines in Table 2, results shall be sent to the Lakes Erie, Huron, and Superior Unit (LEHSU) supervisor, Surface Water Assessment Section, WRD, for review pursuant to Part 31. If sediment results show PCB and/or mercury concentrations greater than 1 part per million or metals, PAH, or dioxin/furan concentrations greater than the screening guidelines in Table 2, additional sediment testing may be required to evaluate the newly exposed sediment quality or potential downstream impacts. Any additional sediment testing data will be used to evaluate potential impacts to surface water designated uses, as defined in the Part 4 Rules. The LEHSU staff will advise WRD district staff, generally within two weeks, as to the next steps based on the test results.
 - b. If any BOD sample result is 250 milligrams per liter or greater, results shall be sent to the Groundwater Permits Unit (GPU) supervisor, Permits Section, WRD. The GPU supervisor will instruct WRD district staff as to the next steps based on the test results.
10. WRD staff considers the proposed placement of dredged material subject to Parts 31, 301, 303, and 325 of the NREPA, if applicable.
11. If the proposed dredge project is permissible, WRD district staff drafts the permit, including any conditions related to protection of designated uses and the disposal of dredged material, forwards the permit and information related to dredged material disposal requirements under Part 115, Solid Waste Management, of the NREPA, to the applicant, and updates MiWaters.

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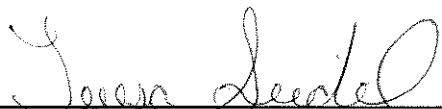
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ATTACHMENTS:

- Table 1. Required PAH Testing
- Table 2. Aquatic Life and Wildlife Screening Guidelines
- Figure 1. Dioxins and Furans Test Area

DIVISION DIRECTOR APPROVAL:



Teresa Seidel, Director
Water Resources Division

DEPUTY DIRECTOR APPROVAL:



Michael McClellan, Environment Deputy Director

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Table 1. Required PAH Testing

Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(g,h,i)perylene
Benzo(a)pyrene
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene
Fluorene
Indeno(1,2,3-cd)pyrene
2-Methylnaphthalene
Naphthalene
Phenanthrene
Pyrene

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Table 2. Aquatic Life and Wildlife Screening Guidelines

CHEMICAL	CONCENTRATION
Metals (mg/kg)	
Arsenic*	33.00
Cadmium*	4.98
Chromium	111.00
Copper*	149.00
Lead*	128.00
Mercury*	1.06
Nickel*	48.60
Selenium**	1.90
Zinc*	459.00
PAH (ug/kg)	
Anthracene*	845
Benz(a)anthracene*	1,050
Benzo(a)pyrene*	1,450
Chrysene*	1,290
Fluorene*	536
Fluranthene*	2,230
Naphthalene*	561
Phenanthrene*	1,170
Pyrene*	1,520
Total PAH*	22,800
Total PCB (mg/kg)	
	0.676
Dioxin/furans as 2,3,7,8 TCDD TEQ (ug/kg)***	
	0.00012

References:

*Probable Effect Concentrations (PEC) from MacDonald et al., 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Arch. Environ. Contam. Toxicol. 39. 20-31.

**Thompson, P.A., J. Kurias, and S. Mihok. 2005. Derivation and Use of Sediment Quality Guidelines for Ecological Risk Assessment of Metals and Radionuclides Released to the Environment from Uranium Mining and Milling Activities in Canada. Environmental Monitoring and Assessment 110:71-85.

***United States Environmental Protection Agency, Region 5, RCRA Ecological Screening Levels. August 22, 2003. Toxic Equivalency should be calculated using the 2005 World Health Organization Toxic Equivalency Factor in Table 1 of Van den Berg et al., Toxicological Sciences 93(2), 223-241 (2006). The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxin and Dioxin-Like Compounds.

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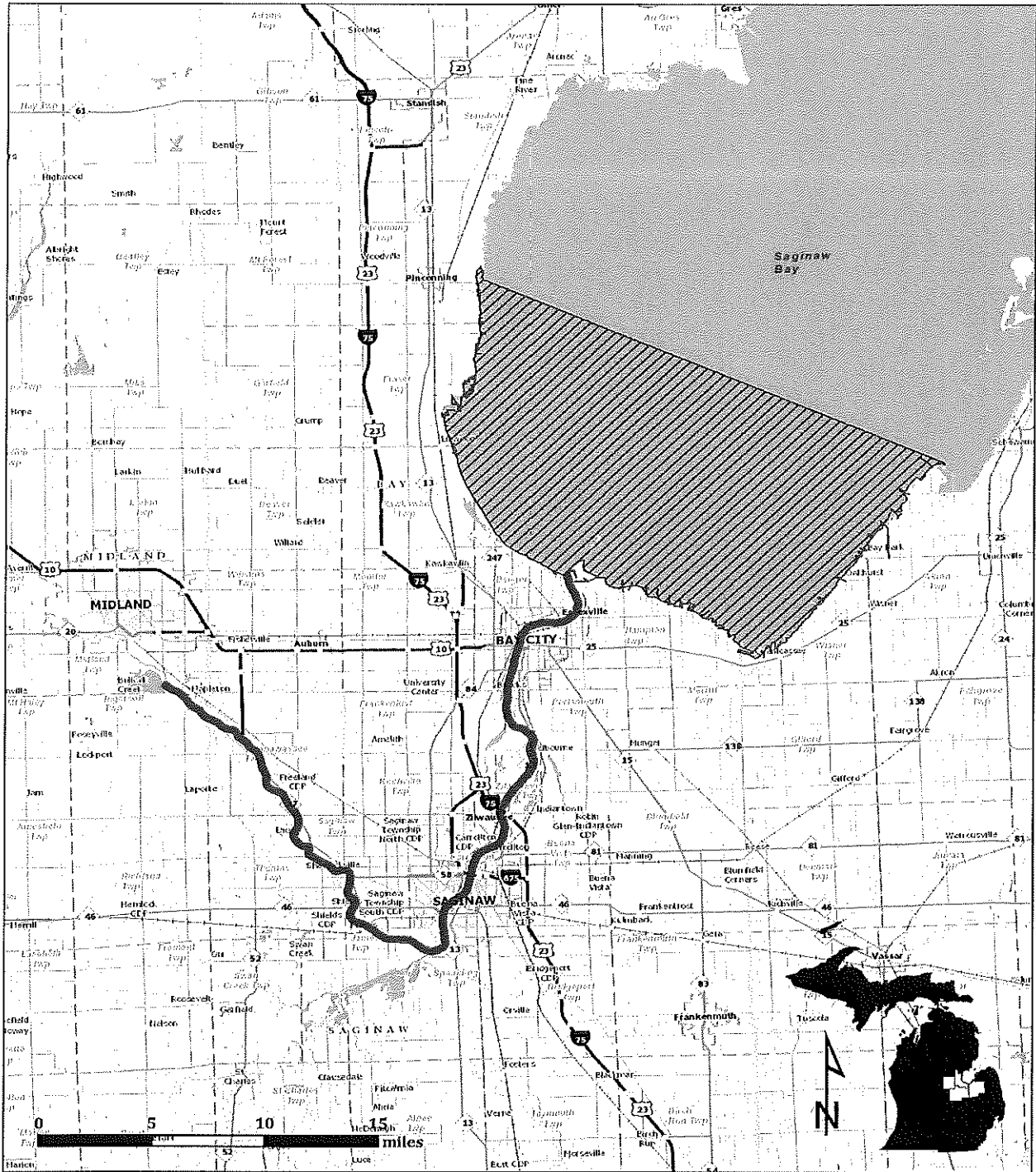


Figure 1. Dioxins and Furans Test Area