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Managing dredge materials

MINNESOTA POLLUTION CONTROL AGENCY

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Notice

This document is intended solely as guidance and does not contain any mandatory requirements (except where requirements found in statute or administrative rule are referenced). This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Minnesota or the Minnesota Pollution Control Agency (MPCA). Any regulatory decisions made by the MPCA in any matter addressed by this guidance will be made by applying statutes and administrative rules to the relevant facts.

Contents

Background

Purpose and audience

What is dredged material?

Dredged material includes material that is excavated at or below the Ordinary High-Water Level (OHWL) of water basins, watercourses, public waters, or public waters wetlands, as defined by Minn. Stat. ch. 103G.005. Examples of dredged material include sediment from the maintenance of dams and other hydraulic control structures; sediment from habitat improvement projects and other construction activities; sediment from the navigational dredging for shipping cargo and freight in Minnesota's commercial ports; and dredge projects that require the removal of sediment from Minnesota waters at marinas and recreational boating areas.

Who is this manual for?

This guidance document is intended for use by project managers, including owners, operators, and/or consultants at projects or sites where dredged material is removed (generated), and is subsequently treated, stored, and/or beneficially used. In addition, this guidance document is intended for internal staff and other governmental entities to aid them in understanding the regulatory framework under which dredged material is regulated.

What is the purpose of this manual?

The purpose of this guidance document is to facilitate the proper management of dredged material by providing assistance to project managers and governmental entities. The objectives of this guidance manual are to:

- Provide a consistent and understandable regulatory framework for managing dredged materials.
- Promote consistency in the characterization and risk assessment of dredged material.
- Identify best management practices (BMPs) at dredged material sites to protect water quality at project sites.

Identify environmentally appropriate placement levels and management options for dredged material management in land-based systems.

This document is not intended to address issues related to dredging activity itself, or the inherent issues and regulatory controls associated with that activity. It is intended only to address the management of dredged materials, once removed from Minnesota waters, as well as the regulatory controls on the discharge of the effluent from dredge projects and/or management units.

If you have questions or need assistance with the use of this document, contact the Minnesota Pollution Control Agency (MPCA) at 651-296-6300, (metro area) or 800-657-3864 (out state). An electronic version of this document is available at the MPCA website at: https://www.pca.state.mn.us/sites/default/files/wq-gen2-01.pdf.

Regulatory determination

Overview

Dredge projects and management areas have the potential to impact the environment. Carriage water and hydrostatic water from hydraulic or mechanical dredging processes, as well as stormwater runoff from dredged material management, transfer, and off-loading sites, has the potential to pollute surface water when discharged to waters of the state. The management of dredged material also has the potential to affect groundwater through on-land management methods, if not managed in consideration of environmental risk factors.

Dredge projects may produce a variety of regulated wastes, including:

- Dredged material.
- Wastewater from the dredge project and/or management area(s).
- Stormwater originating within the boundary of the dredge project and/or management area(s).
- Stormwater originating outside of the boundary of the dredge project and/or management area(s).

Regulated material

Dredged material is defined as a “waste” and “other waste material” by Minn. Stat. § 115.01. It is therefore the duty of the MPCA, as set forth in Minn. Stat. § 115.03, subd. 1(e), to regulate the management and disposal of dredged material.

The MPCA's permitting role in the dredge program is for authorizing the upland storage and/or beneficial use of dredge materials, not the dredge activity itself. In-water disposal of dredged material is an activity that is regulated by the Minnesota Department of Natural Resources (MDNR) and/or the United States Army Corps of Engineers’ (USACE), depending on the destined site of placement of the dredged material.

The MPCA utilizes the regulatory controls of the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permitting program, as described in this guidance document, to address the environmental issues associated with the management of dredged material and discharges from the dredge project and/or management area(s).

Depending on the specific situation a permit may or may not be required for the management of dredged material in the state of Minnesota. As described below and in the following section, a permit may be required for the management of dredged material in the state of Minnesota. The type of permit required will vary, depending on the level of pollutant contamination in the dredged material, whether stormwater is being discharged, and how the dredged material is managed.

A NPDES/SDS permit may be required to store, treat, and/or beneficially use dredge materials on-land in Minnesota if the dredged material originates from pollution remediation projects or from navigational channels and associated bays, harbors, docks and marinas from the following permitting areas:

- Mississippi River downstream of River Mile 857.6 (which is approximately at the Soo Line Rail crossing near St. Anthony Parkway in Minneapolis).
- Minnesota River downstream of River Mile 27 (which is approximately two miles upstream of the CSAH 101 crossing at Shakopee).

- St. Croix River downstream of River Mile 26 (which is approximately three miles upstream of the East Chestnut Street crossing at Stillwater).
- St. Louis River downstream of the State Highway 23 crossing.
- St. Louis bay or Duluth/Superior Harbor.
- Out of state projects.

Proposers of these projects should proceed to the flow diagram in Figure 1.

Note: If the project is not located in the areas above, an NPDES/SDS permit for the management of dredged material is likely not required. The MPCA reserves the right to require a permit for any dredged material storage or beneficial use if necessary to protect the environment.

Projects involving **sediment removal from municipal or urban stormwater systems** should follow the guidance in the Minnesota Stormwater Manual: https://www.pca.state.mn.us/business-with-us/minnesota-stormwater-manual.

A NPDES/SDS permit is required for any surface water discharge not authorized by Section 404 of the Clean Water Act, including stormwater (if the on-land area disturbed exceeds one acre). See Stormwater website for more information at: https://www.pca.state.mn.us/business-with-us/construction-stormwater. For non-stormwater discharges see: https://www.pca.state.mn.us/business-with-us/wastewater-permit-forms.

Projects not requiring a permit are *recommended* to follow the guidance and BMPs described in this manual including submission of the "Notification to Manage Dredged Materials without a Permit" form. The MPCA is unable to provide additional technical assistance for these projects.

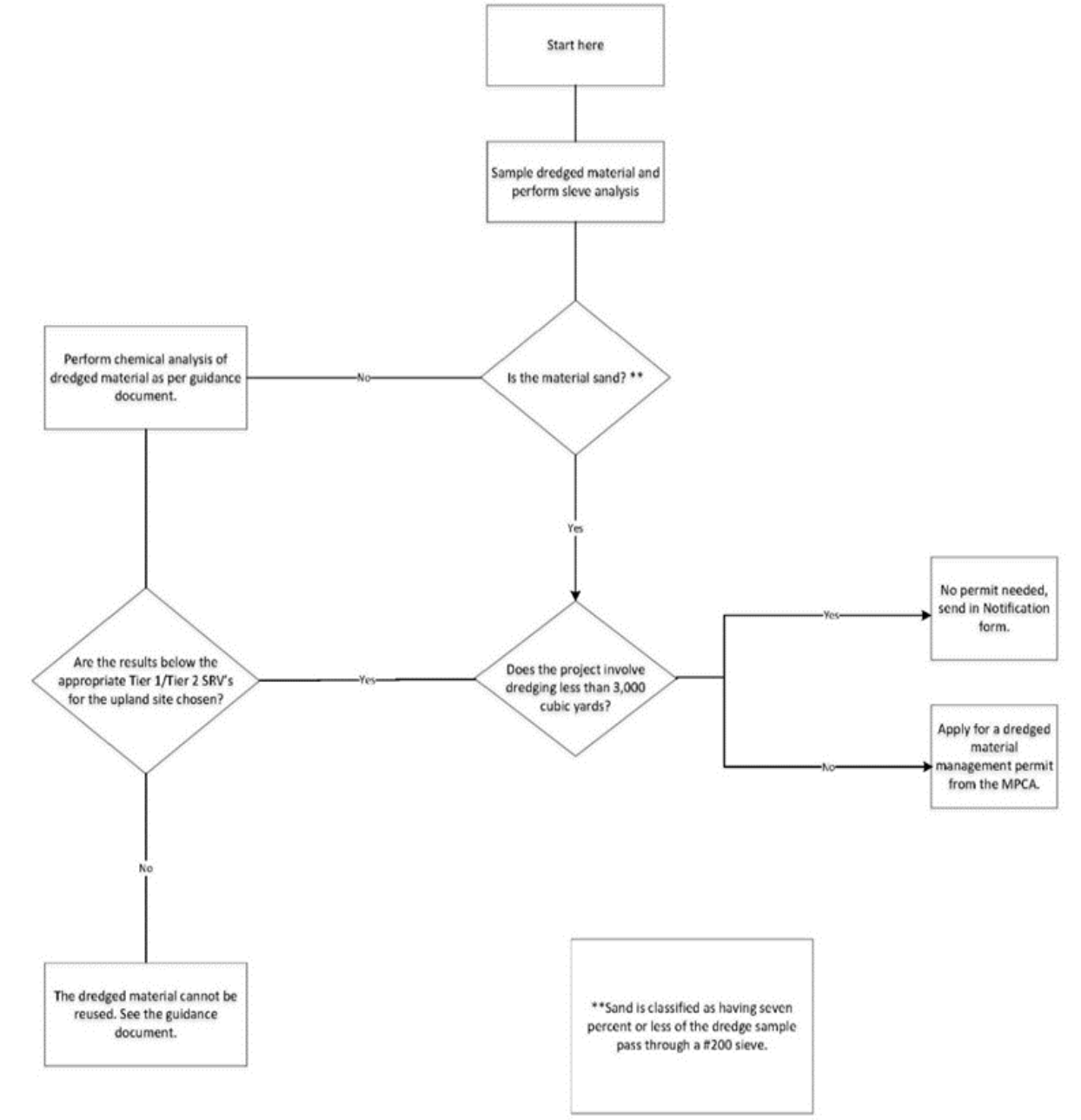
Figure 1 is intended to guide users through the process of determining appropriate management options for dredged material, and the associated permitting requirements for various management methods. Answering "yes" or "no" to a question will lead to the respective answer, in terms of how to proceed through the flow diagram, and the regulatory controls of a particular management route.

As noted in Figure 1, "de minimus" amounts of dredged material from projects involving the removal of less than 3,000 cubic yards of dredged material may not require a permit for the storage and/or beneficial use of this material if the material meets certain specifications.

For the purposes of making the de minimus volume determination, a "project" is defined as a discrete one-time excavation of material, or a series of dredging activities that are connected, or phased actions. Dredged material from connected or phased actions are to be summed over the course of a five-year permitting window and considered in total in making the de minimus volume determination.

Note: For dredge projects resulting from remediation projects being conducted under Superfund authority, disposal of dredged material within the Superfund project area is subject to Superfund preemption and is outside the scope of this guidance manual, as it is formally regulated under Superfund. If disposal outside the Superfund project area is selected however, the guidance contained in this document applies. The balance of this guidance document describes the characterization and management requirements for dredged material.

Figure 1. Permit decision flow diagram for dredge projects located in the permitting areas.



Note: If dredge material is proposed to go to a permitted landfill, disregard the process listed below. A permit for the management of dredged material is not required.

Individual permit

Permits issued for the management of dredged material are issued under the authority of state NPDES/SDS regulations.

An individual permit is developed for a specific project or site activity and situation in mind. In the application process, the following type of information would be submitted for the respective management area(s) and/or project(s) to be covered by the permit:

- Description of the dredge project and any management area(s).
- Location of the dredge project and any management area(s).
- Pollutants present in the material to be dredged.

If a permit is issued for the specific project or site activity, the permit will be unique to the project and provide specific terms and conditions that must be met.

No permit required

Some types of projects do not require a permit from the MPCA. For example, the following types of projects typically do not require a permit from the MPCA for the management of dredged material:

- Projects involving dredged material originating from areas other than those described on page 2 of this manual.
- Projects involving the removal of **less than or equal to 3,000 cubic yards** of material, and is either:
  - Equal to or more than 93% sand, as determined by the grain size analysis
  - Characterized as having contaminant values less than the relevant SRVs for the proposed disposal option
  - Disposed at a site or landfill that already has an MPCA permit that is approved to manage dredged material (Industrial Waste Management Plan)
- Projects involving the removal of more than 3000 cubic yards with no storage that is disposed at a site or landfill that already has an MPCA permit that is approved to manage dredged material (Industrial Waste Management Plan).

Some projects, including de minimus projects, and those with disposal at an already permitted site, may not require dredged material management permit.

For the purposes of making the de minimus determination, a "project" is defined as a discrete one-time excavation of material, or a series of dredging activities, such as with maintenance dredging, which involves multiple projects and multiple stages of a single project that are connected or phased actions. Dredged material from connected or phased actions are to be summed over the course of a five-year permitting window and considered in total in making the de minimus determination.

A notification to manage dredged materials without a permit is recommended to be completed and submitted for all projects not requiring an MPCA permit.

For projects not requiring a permit, information pertaining to the project is recommended to be submitted to the MPCA.

Notification

The Notification to Manage Dredged Materials (notification) form is recommended to be completed and submitted for all projects not requiring an MPCA permit. The notification form is located on the MPCA website: https://www.pca.state.mn.us/sites/default/files/wq-gen2-03.pdf, and should be submitted **at least** 30 days prior to the initiation of dredge activities.

Management requirements for unpermitted projects

Dredged materials must be managed in a manner that protects ground and surface waters of the state. BMPs for the management of dredged material are specified in the MPCA fact sheet “Best Management Practices for the Management of Dredged Material” (wq-gen2-02), included on the MPCA dredged materials website.

Stormwater permits

Stormwater permits are not required for dredging projects below the normal high-water line. If construction projects will be disturbing one acre or more above the normal high-water line, a stormwater construction permit will be required. Information about the construction stormwater program, permit information and permit application forms can be found on the MPCA website located at: https://www.pca.state.mn.us/business-with-us/construction-stormwater.

Other regulatory entities

Projects that impact Minnesota's water resources are regulated by a variety of state, local, and federal agencies. Dredge activities must not be initiated until all applicable federal, state and/or local approvals that may be required for a particular project have been obtained. This includes, but is not limited to, state permits regulating activities in the bed of public waters as defined in Minn. Stat. ch. 103G.245 from the MDNR, federal permits for dredged or fill material from the USACE, and local permits from the appropriate Soil and Water Conservation District, county, or local unit of government.

United State Army Corps of Engineers – Clean Water Act Section 404 Permit

The USACE Regulatory Programs include Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. The St. Paul District's regulatory jurisdiction covers the states of Minnesota and Wisconsin. An overview of USACE regulatory programs is located on the USACE website located at: http://www.mvp.usace.army.mil/Missions/Regulatory.aspx. Under Section 10, a USACE permit is required to do any work in, over or under a Navigable Water of the United States (U.S.) Waterbodies have been designated as Navigable Waters of the U.S. based on their past, present, or potential use for transportation for interstate commerce. These waters include many of the larger rivers and lakes, such as the Minnesota, St. Croix, and Mississippi Rivers, Lake Superior, and the Mississippi headwaters lakes.

Under Section 404, a USACE permit is required for the discharge of dredged or fill material into waters of the U.S. Many waterbodies and wetlands in the nation are waters of the U.S. and are subject to the USACE Section 404 regulatory authority.

Early in 2000, the St. Paul District replaced all USACE Section 404 nationwide permits across Minnesota and Wisconsin with a combination of statewide regional general permits and letter-of-permission evaluation procedures. Permit information and permit application forms can be found on the USACE website located at: http://www.mvp.usace.army.mil/Missions/Regulatory.aspx.

For more information about USACE permits or federal regulatory requirements pertaining to dredge activities, contact the St Paul District of the USACE. A listing of USACE permitting staff for Minnesota counties can be found on the USACE website located at: http://www.mvp.usace.army.mil/Missions/Regulatory/DistrictBoundariesContact.aspx.

Minnesota Pollution Control Agency – Clean Water Act Section 401 Certification

The information in this section was taken from the MPCA's website describing the 401 certification program located at: https://www.pca.state.mn.us/business-with-us/clean-water-act-section-401-water-quality-certifications.

According to the federal Clean Water Act, anyone who wishes to obtain a federal permit for any activity that may result in a discharge to navigable waters of the U.S. must first obtain a state Section 401 water quality certification to ensure the project will comply with state water quality standards. Federal permits include Coast Guard Section 10 permits, Federal Energy Regulatory Commission permits and USACE Section 404 permits.

For example, if someone proposes to discharge dredged or fill material into navigable waters of the U.S., including wetlands; they must obtain a Section 404 permit from the USACE and a Section 401 water quality certification from the MPCA. The Section 404 Corps permit is by far the most common federal permit issued in Minnesota that requires a Section 401 determination from the MPCA.

During 2001-2006, the MPCA predominantly waived its Section 401 determination on projects required to obtain a Section 404 Corps permit, due to budget constraints. In late 2006, however, the MPCA determined it would no longer systematically waive its Section 401 authority on all Section 404 applications, and criteria were established to itemize the type of projects the MPCA would review in the future. In early 2007, the MPCA provided resources for this, and the staff is now implementing the criteria. More specifically, the MPCA is now using its Section 401 authority to review Section 404 Corps Individual Permit applications for projects that:

- Are within areas that directly drain to impaired waters (or those close to being impaired), Outstanding Resource Value Waters, or trout waters
- Affect more than three acres of private project and five acres of public road wetlands within a half mile of listed Impaired Waters (smaller projects with special concerns may also be considered)
- Have the potential to inundate or deepen by excavation greater than two acres of wetland or otherwise not regulated by the Wetlands Conservation Act
- Result in typically large wetland fills or drainage (e.g., linear projects, mining activities, multi-purpose roads with new bed alignments, new judicial ditching that have the potential to affect downstream waters, flood impoundment or diversion projects, large development and projects that may have adverse impacts on the watershed)

Projects that fit these criteria are now being reviewed by the MPCA to ensure they will be in compliance with state water quality standards. In particular, the MPCA intends to ensure that no prudent and feasible alternatives to impacting wetlands are available, the project's impact on wetlands is minimized, and adequate compensatory mitigation will be implemented to protect the designated uses of the wetland and the water quality standards of the affected watershed. Projects in these areas that will be in compliance with the standards will receive an MPCA 401 Certificate, the conditions of which will be incorporated into the Corps 404 Permit and must be adhered to by the Permittee.

Projects that will not be in compliance with state water quality standards cannot be certified. The projects for which none of the above criteria applies will likely be waived by the MPCA; however, there

may be circumstances when that will not be the case. On average, the MPCA receives approximately 60-70 applications for a Section 404 Corps Individual Permit each year.

Examples of activities that may require a Section 404 permit and a Section 401 water quality certification include: placing fill or excavating in a wetland, building in a wetland, construction of boat ramps, placement of riprap for erosion protection, construction of dams, dikes or bridges, stream channelization and stream diversion.

More information on Minnesota's 401 Certification Program can be found at: https://www.pca.state.mn.us/business-with-us/clean-water-act-section-401-water-quality-certifications an overview of the 401 Certification Program is summarized on the U.S. Environmental Protection Agency (U.S. EPA) website located at: https://www.epa.gov/greatlakes.

Minnesota Department of Natural Resources

For projects that potentially impact water resources, one or more permits from the MDNR may be required.

A water use permit is required for all water users in Minnesota withdrawing more than 10,000 gallons of water per day, from surface or groundwater, or one million gallons per year. Permit information and permit application forms can be found on the MDNR website located at: http://www.dnr.state.mn.us/waters/watermgmt_section/appropriations/permits.html.

Projects constructed below the OHWL, which alter the course, current, or cross section of public waters or public waters wetlands, as defined by Minn. Stat. ch. 103G.005 may require a public waters work permit. Such projects may also require an aquatic plant management control permit or a fishery related permit.

- More information about the regulatory requirements for projects involving public waters work permits can be found on the MDNR website at: http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/requirements.html.
- More information aquatic plant management control permits can be found on the MDNR website at: http://www.dnr.state.mn.us/shorelandmgmt/apg/permits.html.
- More information about fishery related permits can be found on the MDNR website located at: http://www.dnr.state.mn.us/permits/fishery/index.html.

Environmental assessments

Environmental review looks at how a proposed project could potentially affect the environment and ways to avoid or minimize impacts before the project is permitted and built. Environmental review can be a one or two-step process – the shorter, less detailed Environmental Assessment Worksheet (EAW) or the longer, more complex and detailed Environmental Impact Statement.

Two key components of environmental review are:

- A multi-program analysis of a proposed project's environmental effects.
- A public comment process.

The environmental review process operates according to the rules of the Environmental Quality Board (EQB), but is carried out by a local government unit or a state agency, which is termed the "responsible governmental unit", or RGU.

Some projects may trigger the need for an environmental review. Minn. R. 4410.4300 contains a list of categories that require environmental review and the RGU for a given type of project.

Examples of categories that may affect dredging projects include the following:

- Construction of a new or expansion of an existing barge fleeting facility.
- A new appropriation for commercial or industrial purposes of either surface water or groundwater averaging 30,000,000 gallons per month, or a new appropriation of either groundwater or surface water for irrigation of 540 acres or more in one continuous parcel from one source of water.
- A new permanent impoundment of water creating additional water surface of 160 or more acres or for an additional permanent impoundment of water creating additional water surface of 160 more acres.
- Construction or expansion of a marina or harbor that results in a 20,000 or more square foot total, or a 20,000 or more square foot increase of water surface area used temporarily or permanently for docks, docking, or maneuvering of watercraft.
- Diversion, realignment, or channelization of any designated trout stream, or affecting greater than 500 feet of watercourse with a total drainage area of ten or more square miles.

If an EAW is required for a particular project, a permit cannot be issued until a negative declaration has been made by the entity required to complete the EAW (RGU).

More information about the Environmental Assessment process can be found on the EQB website at: https://www.eqb.state.mn.us/content/eaw-process or the MPCA website located at: https://www.pca.state.mn.us/business-with-us/environmental-review.

Environmental risk assessment

Overview

In determining the most appropriate management method for dredged material, an evaluation of the reasonable likelihood for a given pollutant to be present in the material must be made. A determination as to whether a pollutant has 'reasonable likelihood' is done through a combination of empirical and technical evaluation of the sediment to be dredged, which may include sampling and analysis.

The following methods are used in preparing a risk assessment for the proposed dredging material:

- Grain size analysis.
- Past industrial activities/sources of pollutants.
- Sampling and analysis of pollutants likely to be present.

Grain size analysis

Begin the dredge site risk assessment by determining whether the material to be dredged is predominantly sand, gravel or pebble, or is comprised of other materials. Dredged material that is predominantly sand, gravel or pebble is unlikely to be contaminated, as pollutants do not generally adhere to these types of particles and are therefore not incorporated into the sediment. Dredge materials that are primarily sand are unlikely to be contaminated and do not require additional chemical evaluation and can proceed to permitting.

To demonstrate that dredged material from a given project or site is predominantly sand, 93 percent of the dredged material must be coarser than silt, i.e., only seven percent of the dredged material can be silty materials that are finer than sand. To make this determination, the following procedure must be used:

- Conduct a sieve grain size analysis using ASTM Method C-136 for the gradation analysis and ASTM Method D-2487 for classification.
- Determine the minimum number of samples required using Table 6, based on the total amount of material to be dredged.
- Conduct the analysis using the following U.S. Standard sieves: 1", ½", 3/8", #4, #10, #100, and #200.
- Report the results for each of the discrete sample locations as a mass percentage of retained sediments.

In projects where more than 93 percent of the dredged material is coarser than sand, additional evaluation is not required, retained on a #200 sieve, that is, the material is coarser than silt, the dredged material is unlikely to be contaminated, and does not require additional evaluation.

Dredged material not excluded from additional analysis, as determined using the grain size analysis described above, must be more thoroughly characterized by evaluation of past industrial activities and analysis of dredged material for any pollutant has a reasonable likelihood to be present in the dredged material.

Continue the evaluation as described by the following sections. Analysis of baseline and additional sediment parameters are described in the following section.

Past industrial activities

Complete an examination of any historical records, data or maps that illustrate current and past land uses on the surrounding watershed, as well an examination of any existing sediment data or information pertaining to the project site. Performing this evaluation helps to identify the list of analytes that need to be tested by focusing only on pollutants that have a reasonable likelihood of being present in the sediment.

Resources that may be useful in making this determination include the following resources:

- Figure 2, which contain a matrix of "Contaminants and Source Industries."
- Appropriate maps, aerial photographs, or other graphics that show surface watercourses and groundwater flow patterns, land use, building locations, and other features.
- A Phase I Site Evaluation of the proposed site.
- Records of past spills and discharges (point and non-point) from various sources.
- Current and past industrial, municipal and stormwater outfalls.
- Levels of naturally occurring parameters in the soils and sediments of the watershed and ubiquitous parameters (e.g., Polyaromatic Hydrocarbons, Polychlorinated Biphenyl, and heavy metals including lead and zinc) from anthropogenic sources.
- Fish and wildlife public health advisories issued for the water body involved.
- Location of a proposed project area in an impoundment behind a dam (soft sediments deposited in the impoundment may be contaminated from upstream sources).
- Surface waters historically treated with copper and arsenic-containing herbicides or herbicides that may have contained dioxins as an unwanted manufacturing byproduct.
- Location of former manufactured gas plants that may have historically discharged wastes including coal tars to the waterway. Mapped locations of former manufactured gas plant locations in Minnesota can be found online at: http://www.hatheway.net
- Contaminated groundwater plumes from landfills and other sources (current and historical).
- Other contaminant sources such as heavy outboard motor usage at marinas.

- Presence of a brownfield in vicinity of the project site.
- Identification of any contaminated sites along the waterway associated with the project, including those within the boundaries of, or in the vicinity of, any Superfund, Resource Conservation and Recovery Act of 1976 (PL 94-580, or remediation or other corrective action site. Use of the MPCA website at: https://www.pca.state.mn.us/about-mpca/whats-in-my-neighborhood may facilitate this identification.
- Field investigations of the proposed dredging site and the disposal location. During the site visit, the physical and biological characteristics of the site can be identified and linked to any of the file, map, and other information compiled from the reviews done on the subjects listed above.

Figure 2. Contaminants and source industries. Adapted from Inland Testing Manual (U.S. EPA/Corps, 1998.)

	Acenapthene	Aldrin	Ammonia	Aniline	Arsenic	Benzo(a)anthracene	Benzo(a)pyrene	Cadmium	Chlordane	Chromium	Copper	Cyanide	DDE	DDT	Dieldrin	Endrin	Ethyl Parathion	Fluoranthene	Heptachlor	Hexachlorobenzene	Hexachlorocyclopentadiene	Lead	Mercury	2-Methylnaphthalene	Nickel	Oil and Grease	Organotin / Tin	PCB	Phenanthrene	Phosphorus	Pyrene	Selenium	Tetrachlorodibenzodioxin (TCDD)	Tetrachlorodibenzofuran (TCDF)	Toxaphene	Zinc
Aluminum Die-casting								■		■														■	■		■		■						
Ammunitions											■																			■					■
Anti-fouling Paints											■											■	■				■								
Automotive					■		■	■		■	■															■		■							■
Batteries																					■	■													
Boat Manufacturing / Boat Repair						■	■	■		■	■							■					■			■	■	■	■		■	■				■
Boat Refueling						■	■											■								■			■		■					
Chemical Manufacturing			■					■		■													■	■		■						■			■	
Coal Gasification (MGP)	■					■	■					■						■						■		■			■		■					
Commercial Farming	■	■	■											■	■															■					■	
Corrosion Metallurgy										■	■	■											■			■										■
Dairy			■																											■						
Detergents / Surfactants																														■						■
Dye	■			■																																
Electrical								■			■											■	■		■			■				■				■
Explosives			■								■																									
Fish and Wildlife Consumption Advisory																							■					■								
Fruits and Vegetables			■																											■						
Leather / Tanning										■																										
Meat Products			■																																	
Metal Finishing / Refining				■	■		■	■		■	■	■									■	■			■	■									■
Metalurgical Processes					■																				■	■									■
Nitric Acid Manufacturing			■																																	
Oxide Manufacturing										■	■																									■
Pesticides / Fertilizers	■	■	■												■	■	■		■	■										■					■	
Petroleum Refining			■																			■										■	■	■		
Phosphate Mining																														■						
Photographic					■					■																				■		■				
Pigments / Inks			■	■																		■	■									■				
Plastics	■																					■														
Printing Plates																														■						■
Pulp and Paper Mills																							■		■	■							■	■		
Rubber																																■				■
Steam Power				■	■		■	■		■	■											■			■										
Steel / Iron			■	■	■	■	■					■										■				■		■	■	■	■					■
Sulferic Acid			■	■																																
Textiles			■				■																													
Utilities																							■						■	■		■				■
Valuable Mineral Mining												■										■														■
Waste Water Treatment Plants			■						■	■	■											■	■		■	■		■		■	■					■

Sediment characterization

Overview

Characterization of sediment from the proposed dredge site must be completed **prior** to the initiation of dredging activity. Results of sediment characterization must be compiled and submitted for MPCA review and approval with permit application or with the notification form, as appropriate.

Additional monitoring and/or samples may be required for specific dredge projects and will be determined at the time of permit application or submittal of the Notification for the project. Any additional monitoring or sampling requirements will be specified by the MPCA prior to permit issuance or general permit coverage.

Sampling and analysis

Baseline sediment analysis

The baseline parameters, required analytical method, and respective method detection levels specified in Tables 3 and 4 reflect the results of scientific research, and the experience of MPCA and regulatory counterparts in dealing with dredge projects.

Dredged material not excluded from additional analysis, as determined using the grain size analysis must be analyzed for the analytes listed in Table 3. Note: If 93 percent or more of the dredged material is retained on a #200 sieve, that is, the material is coarser than silt, the dredged material is unlikely to be contaminated, and does not require additional evaluation.

Table 3. Baseline sediment parameter list

Parameter	Analytical method1,2
Arsenic	EPA 6010 or 7061
Cadmium	EPA 6010 or 7010
Chromium III	EPA 6010 or 7010
Chromium VI	EPA 6010 or 7196
Copper	EPA 6010 or 7010
Lead	EPA 6010 or 7010
Mercury	EPA 7471 or 7473
Nickel	EPA 6010
Selenium	EPA 6010
Zinc	EPA 6010 or 7010
Total Phosphorus	*EPA 365.2/365.3
Nitrate + Nitrite	EPA 9056
Ammonia-Nitrogen	*EPA 350.1
Total Kjeldahl Nitrogen	*EPA 351.2
PCBs (Total)	EPA 8082
Total Organic Carbon	EPA 9060
Sieve and Hydrometer Analysis	ASTM Method C-136 for gradation and ASTM Method D-2487 for classification

[1]SW-846 methods are used unless indicated with an asterisk (*)

[2]Use the most current promulgated version available for Minnesota certification.

Additional sediment analysis

Based on the evaluation of historical land uses and the reasonable likelihood for pollutants in the sediment to be dredged, analysis of analytes beyond the baseline analytes may be required.

Analysis of parameters beyond the baseline analytes may be indicated based on the evaluation of historical land uses and the reasonable likelihood for pollutants in sediment to be dredged. If it is established that it is reasonably likely for a pollutant to be present in sediment at a dredge site, the dredged material must be analyzed for the additional analyte(s) indicated. Table 4 lists additional pollutants of concern.

Table 4. Additional sediment parameter list

Parameter	Analytical method[1,2]
Inorganics	
Barium	EPA 6010
Cyanide	EPA 9012
Manganese	EPA 6010
Oil & Grease	EPA 9071
Organics	
Aldrin	EPA 8081
Chlordane	EPA 8081
Endrin	EPA 8081
Dieldrin	EPA 8081
Heptachlor	EPA 8081
Lindane (Gamma BHC)	EPA 8081
DDT	EPA 8081
DDD, DDE	EPA 8081
Toxaphene	EPA 8081
2,3,7,8-dioxin, 2,3,7,8-furan and 15 2,3,7,8-substituted dioxin and furan congeners	EPA 8290
Polycyclic Aromatic Hydrocarbons (PAHs)	
Quinoline	EPA 8270
Naphthalene	EPA 8270
Pyrene	EPA 8270
Fluorene	EPA 8270
Acenaphthene	EPA 8270
Anthracene	EPA 8270
Fluoranthene	EPA 8270
Benzo (a) pyrene (BAP)/BAP equivalent[3]	EPA 8270

[1]SW-846 methods are used unless indicated with an asterisk (*)

[2]Use the most current promulgated version available for Minnesota certification.

[3]Add the results for the following 25 carcinogenic polycyclic aromatic hydrocarbons using the B[a]P equivalents calculation[4]. The BAP equivalent is compared against the SRV for Benzo (a) pyrene, above: Benzo (a) anthracene, Benzo (b) fluoranthene, Benzo (j) fluoranthene, Benzo (k) fluoranthene, Benzo (a) pyrene, Chrysene, Dibenz (a,j) acridine, Dibenz (a,h) acridine, 7,12-Dimethylbenz[a]anthracene, Dibenz (a,h)anthracene, 7H-Dibenzo(c,g) carbazole, Dibenzo (a,e) pyrene, Dibenzo (a,h) pyrene, Dibenzo (a,i) pyrene, Dibenzo (a,l) pyrene, 1,6-Dinitropyrene, 1,8-Dinitropyrene, Indeno(1,2,3-cd) pyrene, 3-

Methylcholanthrene, 5-Methylchrysene, 5-Nitroacenaphthene, 1-Nitropyrene, 6-Nitrochrysene, 2-Nitrofluorene and 4-Nitropyrene.

[4]See SRV spreadsheet. https://www.pca.state.mn.us/sites/default/files/c-r1-06.xlsx

For example, in the Great Lakes Basin, especially in the large tributaries and harbors, a more extensive list of parameters is required to properly characterize sediment. It is known that many of these tributaries have concentrations of polycyclic aromatic hydrocarbons (PAHs) from former coal gasification plants, urban run-off, oil spills, and vehicle and smokestack particulate emissions that are deposited on the watershed. For projects involving sediment in urban areas associated with inland waters and Great Lakes tributaries, PAH analysis is required.

Two contaminants that bioconcentrate up aquatic food chains are highly bioaccumulative in upper trophic level organisms like game fish are Polychlorinated Biphenyls (PCBs) and mercury. In the risk assessment phase, fish consumption advisories issued by the MDNR should be reviewed to determine if the project area is in a water body included in the advisory. For projects involving sediment from waterbodies included in a fish and/or wildlife consumption advisory, mercury and PCB analysis, as relevant, is required.

Stormwater projects

Guidance for the removal of sediment from constructed and/or designated stormwater collection and conveyance systems is available to help local units of government, and others responsible for the regular operation and maintenance of designated collection and conveyance systems. Stormwater sediment removal guidance highlights important management factors before, during, and at the end of the project. Guidance can be found at this link: https://www.pca.state.mn.us/business-with-us/minnesota-stormwater-manual.

Management levels

Based on the results of completed sediment characterization, that is, the type and level of pollutants in the material in comparison to established SRVs, dredged material is categorized into one or more Management Levels based on the level of contamination. The Management Level of a dredged material dictates the appropriate disposition of the material.

Dredged Material is categorized into three Management Levels:

- Level 1
- Level 2
- Level 3

Level 1 Dredged Material is suitable for beneficial use on properties with a residential or recreational use category.

Level 1 Dredged Material is characterized as being at or below analyte concentrations for all the Tier 1 SRVs listed in the Tier 1 SRV column of Table 5.

The SRVs incorporate the most common human exposure pathways (ingestion, dermal contact, and inhalation of contaminants volatilized from soil in outdoor air) using generic exposure assumptions. The Level 1 SRVs generally use a chronic residential exposure scenario but are also protective of acute health effects in young children when acute toxicological data is available.

For dredged materials, the Tier 1 SRV limits in Table 5 are the most restrictive.

Note: Exposure pathways in an agricultural land use setting have not been evaluated and are therefore not an appropriate land use category for comparison to SRVs.

Level 2 Dredged Material is suitable for beneficial use on properties with an industrial use category.

Level 2 Dredged Material is characterized as being at or below analyte concentrations for all the Tier 2 SRVs listed in the Tier 2 SRV column of Table 5.

The Tier 2 SRVs use an industrial exposure scenario based on average working adults according to a typical industrial site use. Tier 2 SRVs are less restrictive than the Tier 1 SRVs.

Level 3 Dredged Material is not suitable for use or reuse.

Level 3 Dredged Material is characterized as having significant contamination, as demonstrated by one or more analyte concentrations being greater than the Level 2 SRV column of Table 5.

Sites that have potentially important exposure pathways or other conditions that are not incorporated into a residential or industrial risk characterization must be evaluated in the context of a fully site-specific risk assessment for which site-specific SRVs are calculated that account for all potentially significant exposure pathways and characteristics of the site. Level 3 Dredged Material is considered to be significantly contaminated and must be managed specifically for the contaminants present.

In some cases, a Level 3 Dredged Material may have levels of contaminants at levels subject to regulation under the Resource Conservation and Recovery Act (RCRA) and/or the Toxic Substances Control Act (TSCA), if PCB levels in sediment are 50 mg/kg or greater. In these cases, significant additional regulation applies, and disposal of the waste is strictly regulated.

Contact MPCA staff for additional information on regulatory requirements for disposal of Level 3 Dredged Materials.

Larger projects may produce dredge materials that can be segmented into areas with dredged materials that are distinctly different from each other. Subsets of dredged material may be able to be managed differently from each other, depending on the Management Level applicable to each discrete subset.

If subsets of Management Levels exist within the project, dredged material may be managed separately by levels, i.e. each subset of dredged material is managed at the relevant Management Level; managed at the most restrictive Management Level, if separation and management by subset is not feasible or desired; or, managed at the most restrictive Management Level if subsets from a given project or multiple project, such as at a use/reuse staging area, are co-mingled prior to disposal.

Calculation of Benzo (a) pyrene equivalents

Minnesota uses Potency Equivalency Factors (PEFs) to evaluate toxicity and to assess risks of carcinogenic PAHs. A PEF is a relative estimate of toxicity of chemical compared to a reference chemical. Benzo (a) pyrene (BAP) was chosen as a reference chemical for carcinogenic PAHs because its toxicity is well characterized.

More information on Minnesota SRVs found can be found on the MPCA website at: https://www.pca.state.mn.us/business-with-us/cleanup-guidance-and-assistance#pathway .

Table 5: Dredged material soil reference values

Parameter	Level 1: Residential(mg/kg, dry weight)	Level 2: Industrial(mg/kg, dry weight)
In-organics-Metals		
Arsenic	9	9
Cadmium	1.6	23
Chromium III	23,000	100,000
Chromium VI	2.3	62
Copper	120	33,000
Lead	200	460
Mercury	2.7	3.1
Nickel	170	170
Selenium	78	1,200
Zinc	4,700	70,000
Barium	260	41,000
Cyanide	7.3	190
Manganese	730	10,000
Organics		
PCBs (Total)	0.82	10
Aldrin	0.45	2.6
Chlordane	9.6	100
Endrin	4	54
Dieldrin	0.11	1.5
Heptachlor	1.6	8.9
Lindane (Gamma BHC)	0.15	2.1
DDT	7.4	87
DDD	6.7	90
DDE	11	130
Toxaphene	1.2	16
2,3,7,8-dioxin, 2,3,7,8-furan and 15 2,3,7,8-substitued dioxin and furan congeners	7.00E-06	2.80E-05
Polycyclic Aromatic Hydrocarbons (PAHs)		
Quinoline	1.4	7.8
Naphthalene	81	280
Pyrene	220	3,200
Fluorene	390	5,800
Acenaphthene	460	6,800
Anthracene	2,800	42,000
Fluoranthene	210	2,700
Benzo (a) pyrene (BAP)/BAP equivalent	2	23
*Benzo (a) anthracene	*Dibenz (a,h) anthracene	*3-Methylcholanthrene
*Benzo (b) fluoranthene	*7H-Dibenzo (c,g) carbazole	*5-Methylchrysene
*Benzo (j) fluoranthene	*Dibenzo (a,e) pyrene	*5-Nitroacenaphthene
*Benzo (k) fluoranthene	*Dibenzo (a,h) pyrene	*1-Nitropyrene
*Benzo (a) pyrene	*Dibenzo (a,i) pyrene	*6-Nitrochrysene
*Chrysene	*Dibenzo (a,l) pyrene	*2-Nitrofluorene
*Dibenz (a,j) acridine	*1,6-Dinitropyrene	*4-Nitropyrene
*Dibenz (a,h) acridine	*1,8-Dinitropyrene	
*7,12-Dimethylbenz[a]anthracene	*Indeno (1, 2, 3-cd) pyrene	

***The results for these analytes should be added together and treated as the BAP equivalent which is compared against the value for Benzo (a) pyrene, above.**

Number and location of samples

Number of samples

Analysis must be conducted on samples that are representative of, and in consideration of the dredged material and activities at the project site. At a minimum, the number of samples to be collected at a proposed dredge site is specified in Table 6.

In some cases, the minimum number of samples indicated on Table 6 will not be adequate to obtain representative samples, and properly characterize the dredged material. It is the responsibility of the generator of the dredged material to properly and completely characterize material to be dredged. All samples collected and analyzed must be reported.

In the event that the MPCA, upon review of the information submitted, determines that the dredged material has not been sufficiently characterized, additional sampling requirements will be specified prior to permit issuance or general permit coverage.

Table 6: Minimum number of samples for sediment characterization and evaluation.

Volume planned for removal, yd^3	Number of core sample sites	Number of sieve analysis sites
</=1,000	1	3
1,000-30,000	3	6
30,000-100,000	5	10
100,000-500,000	6	12
500,000-1,000,000	8	16
>1,000,000	>8	>16

Location of samples

Sample locations and depth must properly characterize the dredged sediment.

The MPCA may request reference or control samples outside the project area if review of sediment characterization suggests that some background sediment contamination is likely (e.g., PAHs are often elevated in urban settings from man-made sources). Ideally, the reference site would have similar physical and location characteristics as the project sediments.

Sampling methods

The following standards should be applied to the collection and handling of dredged material samples.

- A laboratory certified by the Minnesota Department of Health must conduct analyses of dredged material.
- Samples must be managed in accordance with ASTM E1391-03 Standard Guide for Collection, Storage, Characterization, and Manipulation of Sediments for Toxicological Testing and for Selection of Samplers Used to Collect Benthic Invertebrates.
- All samples must be taken with a core sampler, or another MPCA approved method.
- All sampling equipment must be properly cleaned prior to and following each sample collection.
- Samples collected for PCB, pesticide and other organic analyses must be collected and processed using metallic (stainless steel preferred) liners, tubs, spoons, and spatulas. Samples collected for other chemical analysis, including heavy metals, must be collected and processed using non-metallic liners, tubs, spoons, and spatulas.

- Core samples from the dredging site must be taken to the proposed dredging depth plus two feet, and must be analyzed from each distinct layer observed in the material to be dredged. If no strata formation exists, core samples shall be divided into two-foot segments, and each segment shall be analyzed for the required chemicals and characteristics. For cores extending into parent material, analysis of only the top two-foot segment of parent material is required.
- Core samples must be visually inspected for the existence of strata formation, and a written description including position, length, odor, texture, and color of the strata shall be provided to the MPCA.

U.S. EPA has published a guidance manual in regard to collecting, storing, and handling sediments for chemical and toxicological analyses:

U.S. EPA. 2001. Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual. EPA 823-B-01-002. U.S. Environmental Protection Agency. Office of Water, Washington, D.C.

Surface water discharges

Effluent associated with the project

Depending on the set up of the dredging site, the dredged material and/or other site characteristics, excess carriage or conveyance water, or interstitial or pore water may be present at the management area and need to be managed appropriately. In addition, stormwater impacted by the dredging project and/or activities at the site, may need to be managed.

Discharges to surface water

The MPCA is not authorized to issue NPDES permits for discharges of dredged or fill material from dredge activities [40 CFR 122.3 (b)]. The USACE Regulatory Programs include Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. The St. Paul District's regulatory jurisdiction covers the states of Minnesota and Wisconsin.

A NPDES/SDS permit is required for any surface water discharge not authorized by Section 404 of the Clean Water Act, including stormwater.

Discharges to wastewater treatment facilities

Discharge from the dredge project and/or management area to a municipal wastewater treatment system is not allowed unless authorized by the pretreatment standards of the MPCA and the municipal authority.

In addition, if discharge is authorized, the transport of pollutants to a municipal wastewater treatment system must not interfere with the operation of the treatment system or cause pass-through violations of effluent limits or water quality standards.

Land application of effluent

As with the land application of dredged material, land application of effluent from the project and/or management unit may be a viable alternative for management of the effluent. Land application of effluent from a management unit or the project site requires permit authorization under an individual permit, so that appropriate environmental controls can be placed on the activity.

Management standards

Overview

Once dredged material is excavated, it meets the definition of an “other waste” material, as defined by Minn. Stat. ch. 115.01, subd. 9. Dredged material has the potential to affect surface and groundwater through on-land management methods if not managed in consideration of environmental risk factors.

In general, dredged material may be disposed at a permitted solid waste facility or through use or reuse for a beneficial purpose, including fill. Interim management methods, such as the short-term placement of dredged material during off-loading or re-handling activities and the temporary storage of dredged material for dewatering prior to beneficial use of the material are often used for the management of dredged materials. These management methods can be used either at the dredge project site, at an off-site location, or a combination of the two.

Whether managed on-site or another off-site location, there are a number of considerations for the proper management, mainly relating to mitigating the impact that the project and/or dredged material management area(s) have on stormwater entering, passing through or leaving the site(s).

Requirements for specific management areas are typically addressed in a dredged material management permit, either in the context of a general permit or an individual permit. A discussion of requirements for the management of dredged material, in general, follows.

Re-handling, off-loading, and transportation of dredged material

After excavation, dredged material is often placed in a temporary placement site, which may involve the re-handling, off-loading and/or transportation of dredged material. This interim management is often done to facilitate dewatering prior to final disposition of the dredged material.

Re-handling and off-loading loading activities

In general, sites for the management of dredged material must be managed to control runoff, including stormwater, from the facility to prevent the exceedance of water quality standards specified in Minn. R. chs. 7050 and 7060**.**

In addition, use of materials at the facility that may cause exceedances of groundwater standards specified in Minn. R. ch. 7060 must be limited and controlled. These materials include, but are not limited to, detergents and cleaning agents, solvents, chemical dust suppressants, lubricants, fuels, drilling fluids, oils, fertilizers, explosives and blasting agents.

All of the following standards apply specifically to sites used for the re-handling and off-loading of dredged material:

- Dredged materials must be managed in a manner so as to minimize the amount of material returned by spillage, erosion or other discharge to waters of the state during re-handling and/or off-loading activities.

Areas for their handling and/or off-loading of dredged material must be sloped away from surface water.

Transportation of dredged materials

All of the following standards apply specifically to dredged material transportation activities:

- Dredged materials must be managed in a manner so as to minimize the amount of material returned by spillage, erosion or other discharge to waters of the state during transportation activities.
- Dredged material hauled on federal, state, or local highways, roads, or streets must be hauled in such a way as to prevent dredged material from leaking, spilling, or otherwise being deposited in the right-of-way. Dredged material deposited on a public roadway must be immediately removed and properly disposed.
- Minimize vehicle tracking of soil or dredged material off-site at locations where vehicles exit the dredging storage.
- Tracked soil and/or dredged material must be removed from impervious surfaces that do not drain back to the dredged material storage and/or beneficial use facility within 24 hours of discovery, and placed in the storage and/or beneficial use facility site.

Temporary storage and treatment of dredged materials

Temporary storage is defined as storage of dredged material for a period of less than or equal to one year unless the permit otherwise authorizes a different timeframe.

In general, sites for the management of dredged material must be managed to control runoff, including stormwater, from the facility to prevent the exceedance of water quality standards specified in Minn. R. chs. 7050 and 7060.

In addition, use of materials at the facility that may cause exceedances of groundwater standards specified in Minn. R. ch. 7060 must be limited and controlled. These materials include, but are not limited to, detergents and cleaning agents, solvents, chemical dust suppressants, lubricants, fuels, drilling fluids, oils, fertilizers, explosives and blasting agents.

All of the following standards apply specifically to sites used for the temporary storage of dredged material and to treatment activities:

- The quantity of dredged material to be stored at the site must not exceed the quantity of material that can reasonably be managed at the site during the allowed storage timeframe.
- Dredged materials must be managed in a manner so as to minimize the amount of material returned by spillage, erosion or other discharged to waters of the state.
- If dikes or berms have been constructed to contain temporary stockpiles of dredged material, they must not be removed until all material has been removed from the stockpile.

Long-term storage and disposal of dredged material

Storage of dredged material at a site for more than one year or an alternate timeframe approved by the permit, begins when dredged material is first placed at the storage site. Long term storage constitutes disposal and is not authorized by the management of dredged material permit.

Beneficial use of dredged material

Except in cases where the dredged material is heavily contaminated, the use or reuse of dredged material is a viable and suitable management method. Beneficial use of dredged material, where suitable, is highly recommended as a management option by the MPCA.

Management levels

Dredged material is categorized into one or more management levels based on the results of completed sediment characterization, that is, the type and level of pollutants in the material in comparison to established SRVs.

The Management Level of a dredged material dictates the use/reuse potential of the dredged material. Dredged Material is categorized into three Management Levels:

- Level 1
- Level 2
- Level 3

Level 1 Dredged Material is characterized as being at or below analyte concentrations for **all** of the SRVs listed in the Level 1 SRV column of Table 5.

Level 1 Dredged Material is suitable for beneficial use on properties with a residential or recreational use category.

Level 2 Dredged Material is characterized as being at or below analyte concentrations for **all** of the SRVs listed in the Level 2 SRV column of Table 5.

Level 2 Dredged Material is suitable for beneficial use on properties with an industrial use category.

Level 3 Dredged Material is characterized as having significant contamination, as demonstrated by one or more analyte concentrations being greater than the Level 2 SRV column of Table 5.

Level 3 Dredged Material is not suitable for beneficial use and must be disposed of at an appropriate solid waste facility.

Land application of dredged material

Land application of dredged material is not commonly used and is probably most applicable to inland lake dredging projects with highly organic, mucky sediments which can be easily removed and land-applied by hydraulic pumping.

Land application of dredged material and/or effluent from a management unit or the project site requires permit authorization, except for de minimus amounts of dredged material, as described on page 5 of this document.

Land application of Level 1 and/or Level 2 (see Table 5) dredged material may be appropriate within the context of an individual permit, depending on the specific material and reuse proposal and levels of pollutants. Individual land application authorization of dredged material and/or effluent is evaluated on a case-by-case basis, with limitations based on the agronomic uptake of pollutants/nutrients by the

planted crop is taken into consideration. In addition, individual permits can contain specific requirements and provisions where environmental safeguards specific to the given situation can be required and implemented. **Land application of Level 3 dredged materials is not allowed.**

Co-mingling of dredged materials

Depending on the project and sediment characterization, subsets of dredged materials may be identified, in which case, multiple Management Tiers may be applied. If subsets of Management Tiers exist within the project, dredged material may be managed separately by subsets, i.e. each subset of dredged material is managed at the relevant Management Tier; managed at the most restrictive Management Tier, if separation and management by subset is not feasible or desired; or, managed at the most restrictive Management Tier if subsets from a given project or multiple project, such as at a staging area, are co-mingled prior to beneficial use or disposal.

Storage of dredged material prior to beneficial use

The storage of dredged material prior to reuse or use is subject to the temporary storage requirements, as applicable, based on the length of time the material is stored before it is beneficially used.

Beach amendments

Some dredged materials may be suitable for beneficial use on beaches to replenish or prevent the erosion of beach material above the OHWL.

Use of dredged material as a beach amendment is not authorized under the context of a permit for the management of dredged material. For more information on permits that may be required for this activity, refer to the Other Regulatory Entities section of this document.

In-water and deep-water disposal

In-water disposal of dredged material at the same or another site may be a viable and legitimate use/reuse of a dredged material. In-water disposal differs from deep water disposal in that the dredged material is being legitimately used or reused for a specified purpose, such as fill material, whereas deep water disposal typically constitutes disposal. That is, the material is disposed of in deep water for the purposes of disposal.

Neither in-water or deep-water disposal of dredged material are authorized by the management of dredged materials permit. In-water disposal of dredged material is an activity that is regulated by the MDNR and/or the USACE, depending on the destined site of placement of the dredged material. For more information on permits that may be required for this activity, refer to the Other Regulatory Entities section of this document.

Considerations for off-site facilities

Even if managed at another off-site location, the generator of the dredged material, as well as the operator and/or owner of the site, if different, is responsible for the proper characterization and management of dredged material.

The generator of the waste may not relinquish control of the dredged material if there is reason to believe that it will not be managed in accordance with applicable management standards.

Sites used for the management of dredged materials must be specifically authorized to receive and manage dredged material. In most cases, this authorization comes from an NPDES/SDS dredged material permit that is issued by the MPCA; these requirements are discussed in detail in the sections that follow.

In some cases, however, the regulatory mechanism for this authorization does not come from a dredged material management permit.

United States Army Corps of Engineers placement sites

The USACE has extensively reviewed sites that are suitable for dredged material management in the St. Paul District; suitable sites are compiled in the USACE publication "Channel Maintenance Management Plan (CMMP), 4/96." An electronic version of this document can be located on the USACE website located at: https://www.mvp.usace.army.mil/Missions/Navigation/Channel-Maintenance/Channel-Maint-Mgmt/.

Each suitable site is identified by name and number and is graphically represented with specific boundaries and characteristics on a site map. A given site may or may not be owned and/or operated by the USACE, and may or may not have been used for dredged material management in the past.

Sites identified by the USACE as suitable for dredged material management may be used for dredged material management under the context of a dredged material management permit, notwithstanding a discharge from the site, without being re-approved by the MPCA. Although these sites are, in essence, pre-approved, a given site must be identified in the permit for a given project prior to using the site.

Minnesota Pollution Control Agency permitted solid waste facilities

In some cases, management of dredged material at an MPCA permitted solid waste facility may be a desirable management method. In order to dispose of dredged material at a solid waste facility, the facility must be permitted to receive the waste – recall that dredged material meets the definition of a solid waste. For permitting, a facility must have an approved industrial waste management plan that identifies where and how industrial waste at the facility will be managed; dredged material must be explicitly authorized for disposal at the facility prior to disposal of the dredged material.

A separate permit is not required for the disposal of dredged material at a solid waste management facility with an approved industrial waste management plan for dredged material, notwithstanding a discharge from the site or other activities requiring a permit.

Contaminated sediment is currently guided to a landfill if it cannot be used as a clean fill. Depending on the types and concentrations of contaminants; sediment may need to be disposed of at a Municipal Solid Waste (MSW) landfill that has an industrial solid waste management plan. This means contaminated sediment must go to a MSW landfill that has a liner and a leachate collection system.

MSW landfills in Minnesota that can accept these types of waste can be found on this webpage: https://www.pca.state.mn.us/business-with-us/landfills

Some additional landfills that are permitted to accept industrial waste, and which may also accept contaminated sediments, include:

- Voyageur Industrial Landfill in Cannon Falls, Minnesota
- Vonco II Landfill in Becker, Minnesota
- Vonco V Landfill in Duluth, Minnesota
- Shamrock Environmental Landfill in Cloquet, Minnesota
- Dem-Con Landfill in Shakopee, Minnesota
- Veolia E S Rolling Hills Landfill in Buffalo, Minnesota
- SKB Rosemount Industrial Waste Facility in Rosemount, Minnesota

It is recommended that you contact the facility to ensure they will be able to accept your waste and to determine what sampling requirements are required by the facility.

Permitting and other forms

Overview

The MPCA's permitting role in the dredge program is for authorizing the on-land storage and beneficial use of dredge materials, not the dredge activity itself. In-water disposal of dredged material is an activity that is regulated by the MDNR and/or the USACE, depending on the destined site of placement of the dredged material.

In cases where a permit is not required, a notification to manage dredged materials without a permit (Notification) must be completed and submitted. See page 2 for permit criteria.

Permit application

To apply for a permit to manage dredge materials and/or discharge stormwater from the dredge project site and/or management unit(s), the appropriate forms should be completed and submitted at least 180 days before the anticipated date of dredging, to allow ample time for processing of the permit.

Current versions of permitting forms are maintained on the MPCA website located at: https://www.pca.state.mn.us/business-with-us/water-permits-and-regulations.

The following forms are applicable to dredge projects:

- Water Quality Transmittal Form
  https://www.pca.state.mn.us/sites/default/files/wq-wwprm7-03.doc
- Attachment for Dredge Material Management
  https://www.pca.state.mn.us/sites/default/files/wq-wwprm7-26.docx

The Permittee should fill in all blanks in the form, using 'Not Applicable' (N/A) to show that a response has been made. It is the responsibility of the applicant to fill out the application forms and attachments completely and accurately. Filling out the application completely means that there are no blank lines, and all requested information has been provided. Incomplete applications will be returned.

Send the completed permit application, attachments (including plans and specifications, if applicable), and the applicable permit application fee as indicated on the Transmittal Form to:

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Checks should be made payable to the MPCA. Applications that are submitted without an authorized signature, the required application fee, and applicable attachment(s) will be returned.

Upon receipt of a completed application, MPCA staff will review the application and determine whether the activity can be covered under the general permit to manage dredged material, or whether it needs to have individual permit coverage. If a specific activity does not meet the applicability criteria set forth in the general permit, coverage cannot be granted, and would have to be covered under an individual permit.

Notification to managed dredged material without a permit (notification)

For projects not requiring a permit, information pertaining to the project is recommended to be submitted to the MPCA for review prior to initiation of dredge activities. A Notification to Manage Dredged Material without a Permit (Notification) is used for this purpose and should be submitted **at least** 30 days prior to the initiation of dredge activities.

- Current versions of dredged materials publications are maintained on the MPCA website located at: https://www.pca.state.mn.us/business-with-us/dredged-materials-management.

If, after review of the Notification submitted, the MPCA does not concur with your determination that a permit is not required for the project, the MPCA will notify you of this determination within the 30-day time period. Dredging activity may not commence until the discrepancy has been resolved and a permit issued for the project, if required.

Annual dredged material report form

An annual report detailing the generation and disposition of dredged material is required for projects requiring a permit, even if no dredging occurred during the preceding calendar year.

Annual Dredged Material Reports are due by February 1 of each year for the preceding calendar year.

Note: The annual dredged material report form is only required for permitted projects.

Current versions of dredged materials publications are maintained on the MPCA webpage located at: https://www.pca.state.mn.us/business-with-us/dredge-materials-management.

The Dredged Material Annual Report must be completed on the MPCA form.

Appendices

Definitions

Beach nourishment means the placement of dredged material on the beaches or in the water ward starting at or above the ordinary high-water level for the purpose of adding to, replenishing, or preventing the erosion of, beach material.

Beneficial use means the use or re-use of dredged material, after the material has been dewatered, in projects such as, but not limited to road base, building base or pad, etc.

Best management practices (BMPs) means practices to prevent or reduce pollution of the waters of the state, including schedules of activities, prohibitions of practices, and other management practices and also includes treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge, or waste disposal or drainage from material storage, as defined in Minnesota R. pt. 7001.1020, subp.5.

Carriage, or conveyance, water means the water portion of slurry of water and dredged material.

Carriage water return flow means the carriage water which is returned to receiving water after separation of the dredged material from the carriage water in a disposal, re-handling, storage, or treatment facility.

Construction activity means a disturbance to the land that results in a change in the topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result

in accelerated stormwater runoff, leading to soil erosion and movement of sediment into waters of the state. Examples can include clearing, grading, filling, and excavating.

Design capacity means the total volume of compacted dredged materials, along with any topsoil, intermittent, intermediate, and/or final cover, as calculated from final contour and cross-sectional plan sheets that define the areal and vertical extent of the fill area.

Discharges of dredged material means any addition of dredged material into waters of the state and includes discharges of water from dredged material operations including beach nourishment, upland storage, or confined disposal which return to waters of state. Material re-suspended during normal dredging operations is considered "de minimis" and is not a dredged material discharge.

Disposal facility means a structure, site, or area for the disposal of dredged material. This includes, but is not limited to landfills.

Dredged material means any material removed from the bed of any waterway by dredging.

Dredging means any part of the process of the removal of material from the beds of waterways; transport of the material to a disposal, re-handling, storage, or treatment facility; treatment or rehandling of the material; discharge of carriage or interstitial water; and storage and disposal of the material.

Erosion control means methods employed to prevent erosion. Examples include soil stabilization practices, horizontal slope grading, temporary or permanent cover, and construction phasing.

Final stabilization means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover (a density of 70 percent cover for unpaved areas and areas not covered by permanent structures) has been established or equivalent permanent stabilization measures have been employed. Examples of vegetative cover practices can be found in Supplemental Specifications to the 1988 Standard Specifications for Construction (Minnesota Department of Transportation, 1991).

Flood event means that the surface elevation of a water body has risen to a level that causes the inundation or submersion of areas normally above the ordinary high-water level.

Grain size analysis means a method to determine dredged material sediment particle size distribution.

Groundwater means water contained below the surface of the earth in the saturated zone including, without limitation, all waters whether under confined, unconfined, or perched conditions, in near-surface unconsolidated sediment or regolith, or in rock formations deeper underground.

Hazardous waste has the meaning given in Minn. Stat. § 116.06, subd. 11.

Impervious surface means a constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development. Examples include rooftops, sidewalks, patios, driveways, parking lots, storage areas, and concrete, asphalt, or gravel roads.

Impoundment means a natural or artificial body of water or sludge confined by a dam, dike, floodgate, or other barrier.

Interstitial, or pore, water means water contained in the interstices or voids of soil or rock in the dredged material.

MPCA means the Minnesota Pollution Control Agency, or Minnesota Pollution Control Agency staff as delegated by the Minnesota Pollution Control Agency.

Ordinary high-water level (OHWL) means the boundary of water basins, watercourses, public waters, and public waters wetlands, and shall be an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation Cs from predominantly aquatic to predominantly terrestrial. For watercourses, the ordinary high-water level is the elevation of the top of the bank of the channel. For reservoirs and flowages, the ordinary high-water level is the operating elevation of the normal summer pool. (Minn. Stat. § 103G.005, subd. 14 and Minn R. 6120.2500, subp. 11.)

Other waste means garbage, municipal refuse, decayed wood, sawdust, shavings, bark, lime, ashes, offal, oil, tar, chemicals, dredged spoil, solid waste, incinerator residue, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, cellar dirt or municipal or agricultural waste, and all other substances not included within the definitions of sewage and industrial waste set forth in Minnesota Statutes Chapter 115.01 which may pollute or tend to pollute waters of the state. (Minn. Stat. ch. 115.01, subd. 9).

Permittee means the entity identified as Permittee on the cover letter authorizing coverage under the permit.

Pollutant means any sewage, industrial waste, or other wastes, as defined in Minnesota Statutes permit 115.01, discharged into a disposal system or to waters of the state.

Pollution of water, water pollution, or pollute the water means: (a) the discharge of any pollutant into any waters of the state or the contamination of any waters of the state so as to create a nuisance or render such waters unclean, or noxious, or impure so as to be actually or potentially harmful or detrimental or injurious to public health, safety or welfare, to domestic, agricultural, commercial, industrial, recreational or other legitimate uses, or to livestock, animals, birds, fish or other aquatic life; or (b) the alteration made or induced by human activity of the chemical, physical, biological, or radiological integrity of waters of the state. (Minn. Stat. ch. 115.01, subd. 13).

Re-handling facility means a temporary storage site or facility used during the transportation of dredged material to a treatment, storage site, or disposal facility.

Return Water Flow means the carriage/conveyance or interstitial/pore water that is returned to a receiving water after separation of the dredge material from the water in a rehandling or storage site.

Run-off means any liquid that drains over land from any part of a facility.

Run-on means any liquid that drains over land onto any part of a facility.

Sediment means the unconsolidated inorganic and organic material that is suspended in and being transported by surface water or have settled out and has deposited into beds.

Sediment Control means methods employed to prevent sediment from leaving the site. Sediment control practices include silt fences, sediment traps, earth dikes, drainage swales, check dams, subsurface drains, pipe slope drains, storm drain inlet protection, and temporary or permanent sedimentation basins.

Significant Storm Event means a storm event that is greater than 1.0 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 1.0-inch rainfall) storm event. The 72-hour storm event interval may be waived where:

- The preceding measurable storm event did not result in a measurable discharge from the facility.
- Document that less than a 72-hour interval is representative for local storm events during the season when sampling is being conducted.

Solid waste means garbage, refuse, sludge from a water supply treatment plant or air contaminant treatment facility, and other discarded waste materials and sludge's, in solid, semisolid, liquid, or contained gaseous form, resulting from industrial, commercial, mining and agricultural operations, and from community activities, but does not include hazardous waste; animal waste used as fertilizer; earthen fill, boulders, rock; sewage sludge; solid or dissolved material in domestic sewage or other common pollutants in water resources, such as silt, dissolved or suspended solids in industrial waste water effluents or discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended, dissolved materials in irrigation return flows; or source, special nuclear, or by-product material as defined by The Atomic Energy Act of 1954, as amended. (Minn. R. 7035.0300, subp. 100.)

Stabilized means staked sod, riprap, wood fiber blanket, or other material that prevents erosion from occurring has covered the exposed ground surface. Grass seed is not stabilization.

Storage site means a structure, site, or area for the holding of dredged material for more than 48 hours in quantities equal to or greater than ten cubic yards. Storage for more than one year constitutes disposal.

Surface Water means all streams, lakes, ponds, marshes, wetlands, reservoirs, springs, rivers, drainage systems, waterways, watercourses, and irrigation systems whether natural or artificial, public or private.

Treatment facility in this permit means a natural or artificial confinement structure, site or area used for the separation of dredged material solids from the interstitial or carriage water.

Unconfined disposal means the deposition of dredged material, in water, on the bed of a waterway.

Upland means the disposal, storage, or beneficial use of dredged materials landward from the ordinary high-water level of a waterway or water body.

Waters of the State means all streams, lakes, ponds, marshes, wetlands, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

Water table means the surface of the groundwater at which the pressure is atmospheric. Generally, this is the top of the saturated zone.

Wetlands means those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Constructed wetlands designed for wastewater treatment are not waters of the state. Wetlands must have the following attributes:

- A predominance of hydric soils.
- Inundated or saturated by surface water or groundwater at a frequency and duration to support a prevalence of hydrophytic vegetation typically adapted for life in a saturated soil condition.
- Under normal circumstances support a prevalence of such vegetation.

Best management practices for the management of dredged material

Current versions of dredged materials publications are maintained on the MPCA webpage located at: https://www.pca.state.mn.us/business-with-us/dredge-materials-management.

Internet links and other resources

MPCA Dredged Material Management page
Link: https://www.pca.state.mn.us/business-with-us/dredge-materials-management.

HUSACE Channel Maintenance Management Plan (CMMP)
Link: St. Paul District > Missions > Navigation > Channel Maintenance > Channel Maint. & Mgmt (army.mil)

Resources for requirements of other regulatory entities

USACE Regulatory Programs information
Link: http://www.mvp.usace.army.mil/Missions/Regulatory.aspx.

USACE listing of permitting staff for Minnesota counties
Link: https://www.mvp.usace.army.mil/Missions/Regulatory/Regulatory-Team-Contact-Information/.

MDNR Public Waters Work Permit information and forms
Link: http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/requirements.html.

MDNR Aquatic Plant Management Permit information and forms
Link: http://www.dnr.state.mn.us/shorelandmgmt/apg/permits.html.

MDNR Fisheries related permit information and forms
Link: http://www.dnr.state.mn.us/permits/fishery/index.html.

MDNR Dam Safety Program information
Link: files.dnr.state.mn.us/publications/waters/damperm.pdf.

401 Certification Program information
Link: https://www.pca.state.mn.us/business-with-us/clean-water-act-section-401-water-quality-certifications.

MPCA Construction Stormwater Permit information and forms
Link: https://www.pca.state.mn.us/business-with-us/construction-stormwater

Environmental review information
EQB Link: https://www.eqb.state.mn.us/.
MPCA Link: https://www.pca.state.mn.us/business-with-us/environmental-review.

Resources for completing site assessments

MPCA "What's in My Neighborhood?"
Link: https://www.pca.state.mn.us/about-mpca/whats-in-my-neighborhood.

MPCA permitted mixed municipal solid waste facilities
Link: https://www.pca.state.mn.us/business-with-us/landfills.

Resources for dredged material characterization

Sediment Sampling and Evaluation Guidance
U.S. EPA, U.S. Army Corps of Engineers, 1998. Evaluation of Dredged Material Proposed For Discharge in Waters of the U.S. - Testing Manual: Inland Testing Manual. EPA-823-B-98-004. Washington, D.C.
Link: https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1005F5K.txt.

U.S. EPA, 2001. Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual. EPA 823-B-01-002. Washington, D.C.
Link: https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=20003PLT.txt.

Wastewater and Upland Disposal Guidance, including elutriate testing
US Army Corps of Engineers, January 2003. Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities — Testing Manual. ERDC/ EL TR-03-1. Washington, D.C. Link: https://frtr.gov/matrix/documents/Environmental-Dredging/2003-Evaluation-of-Dredged-Material-Proposed-for-Disposal-at-Island-Nearshore-and-Upland-Facilities.pdf.

Links to permitting forms

MPCA Water Quality Transmittal form
Link: https://www.pca.state.mn.us/sites/default/files/wq-wwprm7-03.doc.

MPCA attachment for Dredged Material Management
Link: https://www.pca.state.mn.us/sites/default/files/wq-wwprm7-26.docx.