

iann Murphy -JRe: Upper Saginaw rJj^lIiFjJDraft Management Plan

From: Duane Roskoskey
To: Hamilton, David
Date: Friday, November 03, 2006 11:51:43 AM
Subject: Re: Upper Saginaw DMDF - Draft Management Plan

Dave, here are the comments from WHMD on the Operational Management Plan for the Upper Saginaw River DMDF dated October 19, 2006. I have attached a copy of the October 19, 2005 comments that the DEQ made on the previous version of the Operational Management Plan underlining the comments that were not addressed in the current version.

In addition to the attached comments in the attachment a number of other issues have arisen due to the recent construction activities at the DMDF which include:

The text mentions contamination with dioxins and furans (top of page 2). It should also more accurately reflect the wide range of contamination of organics, BCCs, heavy metals, and nutrients, as known to date, and put into context that the highly contaminated sediments ought to be limited from ecological exposures and cause chemical releases to the watershed by a contained upland disposal facility.

There are no plans for the design included in the submittal.

Where did they put the sand they excavated with the soils from the bottoms to build the dikes? Was the sand placed into the constructed dikes? If so, then the plan and design might not be accurate to state that the perimeter dikes and cross-section dikes are built of clay.

What is the fix for the moat created when clay/sand was excavated and the dikes were built of clay and sand, and the sand lenses brought in groundwater to the moat? How is the moat to be filled, compacted, stabilized in place? What quality control is there for the compaction of wet moat backfill if that is done? Is the moat water discharged somewhere (past or future?) and are there approved NPDES construction controls for this storm water discharge?

Are dikes seeded, grassed, and therefore to be mowed? I doubt mowing is possible on 2.5 to 1 slopes; however, the plan is very poor in not defining or providing plans to make it clear what the outside dike slope is.

What vegetation is acceptable on the outside, top, and inside slopes. The plan is not definitive. In fact, it states that "vegetative growth will take place and further limit wildlife exposures in the site." How does this happen? Where? Why? I think wildlife generally lives within and amongst vegetation.

The Appendix A check sheet for inspections is not included in the draft plan.

The dikes should have at least 2 feet of freeboard above the current 100 yr flood elevation, or they will be submerged by larger sized rain storms and snowmelt events that also generate greater flows due to greater runoff rates from the developing Saginaw River watershed. The predicted 100-yr flood elevation has risen on tributaries and the S.R. over the past 30 yrs and will continue to rise in the future.

If any of our comments require clarification, let me know.

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DEQ Comments on the USAGE'S
UPPER SAGINAW RIVER
Dredge Material Disposal Facility (DMDF)
Draft Operational Management Plan (OMP)
October 19, 2005

GENERAL COMMENTS

In order to conduct a complete review of the OMP, the final construction plan and design specifications for the DMDF must be reviewed by the Department of Environmental Quality (DEQ) Water Bureau (WB) prior to construction. The United States Army Corps of Engineers (USAGE) should confirm that the plans and specifications recently submitted to the DEQ with the hydrogeological study report are the final plans and specifications for the DMDF. Throughout the OMP the USAGE states that "as built drawings" will be submitted later. The USAGE must understand that, should they construct the DMDF without allowing the DEQ an opportunity to review the design, significant modification may be required by the DEQ in order to meet the requirements of the 401 Certification. The potential modifications could significantly delay the start of navigational dredging within the Saginaw River and increase the cost of construction. The USAGE must also submit as-built plans for verification that the facility was constructed as planned.

During the 401 Certification development/issuance process (including the USAGE presentation to the public at the March 1, 2005 informational meeting), the USAGE committed to restrict dredging to a point in the n-avigational channel no further upstream than River Mile 16.5 to avoid areas of the river segment where existing information indicates exceptionally high levels of dioxins/furans congeners are present. This critical USAGE decision/commitment is not currently reflected in the OMP or Appendices and must be included.

Several figures and appendices are listed throughout the document but were not included. These figures should be included in the next draft.

There are descriptions throughout the document of monitoring and other activities to be conducted by the USAGE per requirements of the 401 Certification. Many of these descriptions do not accurately represent the conditions of the 401 Certification. All such descriptions should be deleted from the draft OMP to avoid any confusion of the requirements; the USAGE should reference the 401 Certification as needed.

The OMP indicates that chemicals may be used to control dust, odor, mosquitoes, and undesirable plant growth. These materials have the potential to be discharged in the effluent of the DMDF. This information was not provided by the USAGE as part of the application for the 401 Certification. As such, the USAGE must obtain written approval from the DEQ, WB, Saginaw Bay District Supervisor prior to the use of any chemical in or on the DMDF.

Annual Report- The annual report should be submitted to the DEQ Multi Media Coordinator in the Saginaw Bay District, the Department of Natural Resources (DNR), and the United States Fish and Wildlife Service (USFWS). The report should also include the cost of inspections and repairs of the dikes so the county is aware of these potential costs to maintain the facility. The annual report should also note the number and type of wildlife present during the inspection.

Periodic Inspections - The DEQ, DNR, and USFWS should conduct joint inspections of the DMDF with the USAGE in order to identify any potential concerns. The WB Saginaw Bay District Supervisor will be the lead for the DEQ. The inspection checklist should be updated per agency

comments as necessary and approved by the DEQ. The name and phone number of a person with authority to order maintenance of dikes is needed so agency field personnel can contact them between periodic inspections if necessary.

Disposal Of Private Dredging - The 401 Certification does not allow for, and the DEQ did not consider in its development, the disposal of material other than those from the federal navigational channel, approximately 4.7 miles upstream from the entrance to the upstream limits of the navigational channel- To ensure that the addition of unanticipated materials would not have a detrimental effect on water quality or result in inconsistencies with other 401 Certification requirements, the DEQ would need to review and approve of the disposal of material from outside of the federal navigational channel prior to such disposal.

FEATURES OF THE FACILITY

Discharge Weirs and Oil Skimmers - The second paragraph of this section states "Rain events may cause excess water in the facility and will be managed as identified in the water quality certification." The 401 Certification does not address how this water will be addressed. Management of standing water in the DMDF is a key issue for protection of wildlife from exposure to contaminants and to ensure adequate settling of solids. Much more detail on the management of storm/ponded water is needed.

Also, any discharge in addition to what is specified in the 401 Certification must be approved by the DEQ, WB, Saginaw Bay District Supervisor prior to discharge, pursuant to Sections 2.4, 2.5, and 4.0 of the 401 Certification.

Liner - Because of the potential to impact groundwater that is used as a drinking water source, a hydrogeological investigation was conducted and is under review by the DEQ. There will be additional requirements such as a liner, if the investigation doesn't demonstrate adequate isolation based on natural on-site soils.

Deed Restriction - A deed restriction must be placed on the site prior to placement of any contaminated sediments into the DMDF to ensure that the sediments are not disturbed during the filling of the DMDF, that the final cap is not disturbed, and that the contaminated sediments will be properly managed after the DMDF is filled.

Final Cap - The Plan claims that the site will be capped with clean material at the time of closure. In order to minimize the amount of liquids that are exposed to the contaminated dredge material, an impervious cap that is consistent with Part 115 will be required. The "Site Closure" section of the QMP does not adequately describe how the site will be closed or maintained into the future. This section should be revised and expanded to describe how the proposed closure will meet applicable requirements and to provide for the development of a cap design for DEQ review and approval. Maintenance of the cap during post closure must also be addressed.

Perpetual Care-The QMP was developed to address concerns that arise during the filling of the DMDF. The facility will also require ongoing maintenance and monitoring after closure of the DMDF. The Plan should clearly address all postclosure obligations, liabilities, and potential costs that the local sponsor assumes once the USA CE hands the DMDF over to them. This includes perpetual care of the facility without the income of additional dredge disposal fees.

Financial Assurance - The DEQ needs to see assurances that funds will be available to both cap the DMDF and monitor and maintain the site in perpetuity. These funds would cover the potential costs of monitoring effluent discharges, potential groundwater discharges, storm water discharges, the cost of performing yearly inspections, repairs to the DMDF, and costs associated with the final

cap. One option is to make payments into a fund to ensure that there are adequate monies to perform the required duties after closure

Other Dredging - Since significant federal and state dollars are already being applied to the construction of the facility, the OMP should specifically state that federal, state, or county sponsored dredging (including environmental dredging) would not be subject to DMDF "tipping fees" equal to the amount of state funds provided (\$1.3 million!

Emergency Response and Contingency Procedures - A plan is needed to address unauthorized discharges, dike failure, etc. The OMP should describe how the USAGE would respond to complaints by adjacent residents/landowners in the event there is a problem.

Clean Cover Placement - The OMP describes an end of season process where material that has been identified as "less contaminated" will be placed on top of the "more highly contaminated" material. Existing analytical data indicates that the dioxin and furan concentrations in sediment from the Saginaw River are highly variable over short distances. The location(s) of contaminated sediment can also be expected to change overtime as sediment is redistributed by natural and manmade hydraulic events. The data that has been collected by the USAGE, the DEQ, and the Dow

Chemical Company (Dow) provides a good general indication of the range of contamination that can be expected in the areas proposed for dredging. The existing data, however, may not be adequate to determine where clean sediment is present for interim or seasonal capping material. The cover layer threshold concentrations for dioxin TEC, PCB, mercury, and other sediment contaminants must be determined to ensure adequate protection of wildlife and human health. The DMDF cover layer should be monitored regularly by the USAGE and corrective actions taken whenever the cover layer is found to exceed any of the established threshold concentrations.

What values do the USAGE propose for approval by the DEQ? How will the USAGE demonstrate that the cover layer is within the approved threshold concentrations?

One possible option is to obtain additional detailed sediment characterization each year in the project area to better define areas of higher (and lower) contamination. This could be done in a more rapid and cost effective manner by using "screening" technologies, such as those recently tested by United States Environmental Protection Agency's Superfund Innovative Technology Evaluation (SITE) Program. The web link to this information is <http://www.epa.gov/ord/SITE>.

Another option that may simplify the entire operation and address many of the concerns raised in this document is to handle all dredged sediments as if they contained significant amounts of contaminants. Geotubes have been used by the USAGE and others that are dredging contaminated sediments. These could possibly be filled in place inside the DMDF. They would eliminate the interim exposure of contaminated sediment, eliminate the potential of fugitive dust, minimize wildlife exposure, and eliminate the need to handle sediment from different parts of the river differently.

Wildlife Protection - The OMP, other than fencing, does not adequately address the issue of wildlife exposure to dioxin-contaminated sediments. Waterfowl, in particular, will not be limited by the presence of a fence. The OMP also states that "After the first year, vegetative growth will take place and further limit wildlife exposure." Vegetative growth will likely attract wildlife. The USAGE needs to develop appropriate procedures to limit wildlife attracted to vegetative growth.

There are still some concerns over the site attracting migrating waterfowl during the fall (when the dredging activity is proposed). There are several assurances that every measure will be taken to eliminate pools of water and mudflats, but there is little description on how this will take place. The

Plan mentions that drainage trenches will drain water to the weir structure. It appears that there will be water pooled behind the weir (especially with the estimates given for amounts of water to be discharged). Also, "Operation During Dredging, sub section C" states that there will be 24 inches of freeboard, which means with the dike dimensions given, this could mean 9 feet of water impounded. We do not believe this is what the USAGE intends. Please clarify how the water will be managed on the site.

The Plan states that material will be allowed to settle during the winter and under ice, thereby limiting exposure. However, by the time ice forms on site, the greatest portion of the waterfowl migration will be over. The USAGE needs to develop appropriate procedures to limit wildlife exposure during the time period between when the material is placed in the DMDF and the onset of ice and from ice out until the wastewater is discharged. The latter could be extensive, if the effluent does not meet the discharge requirements of the 401 Certification and additional settling and/or treatment is required prior to discharge.

"Operation During Dredging" states that "If the sampling indicates that the pre-release wastewater characterization does not meet the water quality certification limitations, then additional settling time would be allowed and the weir logs would not be lowered until further analytical testing demonstrates that the water quality meets the water quality certification." It appears that there would be standing water left on site and provide a potential attractant to waterfowl. Would this affect dredging the next year if water is not released?

Fugitive Dust/Mosquito Control - The OMP does not adequately address the potential for fugitive dust from the facility. This is an important contaminant migration pathway, as there are residential and agricultural properties directly adjacent to the DMDF. There should be, at a minimum, a "no visible dust" standard for the DMDF. In addition, the USAGE must obtain written approval from the DEQ, WB, Saginaw Bay District Supervisor prior to the use of any product for mosquito or dust control in or on the DMDF.

Local Sponsor Obligations - Before the project proceeds, all obligations of the local sponsor must be identified and agreed upon. Since the USAGE will be managing the DMDF during the 20 years that the facility is being filled, and then Saginaw County will supposedly be responsible for capping and maintaining it afterwards, we should obtain assurances that the County fully understands its long-term obligations. Regardless of who has the long-term obligations, it may be best to develop a separate plan that describes the perpetual care obligations detailed in our comments. Topics that need to be covered include the following: 1) final ca.p design; 2) groundwater, storm water, and effluent monitoring; 3) inspections and maintenance of the DMDF; 4) deed restrictions; 5) financial assurances for capping and perpetual care; and 6) Contingency/Corrective Action Planning.

Technical Issues - There are technical issues that need to be addressed as follows:

The dikes are described as 11 feet high, 10 feet top, and 40 feet toe. Later the side slopes are described as a constant 1 vertical to 2 horizontal. This would make the toe width 54 feet. Please clarify.

Operation During Dredging; Placement of Dredged Material" states that "The dredged material would be placed directly into the lowest areas of the DMDF away from the weir location and be placed in such a manner as to provide runoff and thereby promote drying of the material." It is unclear how the material would be placed in the lowest areas and still flow to the outlet structure.

The Plan doesn't address operational management of the intake pipe on the

easement granted to Saginaw County.

Will perimeter dikes be the existing dikes, or will new dikes be constructed inside the existing dikes? For those dikes that will be shared with the mitigated wetland area (assuming they will be shared) and where water may be impounded against the outside of the dikes, will precautions be taken to reduce wind/wave erosion and animal burrows?

Future Permit Requirements - The permittee needs to apply for a Letter of Map Revision to remove the facility from the floodplain. If the site is not removed from the floodplain, a new floodplain permit may be needed to place materials after the permit expires or fill including cap exceeds 3.1 million cubic yards. A permit revision will likely be needed for fencing, fills, or structures outside the dikes of the containment facility.

Operation During Non-Dredging Periods - This section states that drainage trenches will be constructed to promote good surface drainage. It seems construction of such trenches could expose wildlife to the deeper more highly contaminated sediments. The USAGE should address how they will limit this exposure. There must also be a clear explanation of how water will be managed in the facility, and how the trenches fit into this.

Initial Site Design - PEQ should review site design to ensure integrity of the facility to meet the proposed objectives. The WB Saginaw Bay District Supervisor will be the lead for the DEQ. This includes the following:

- a. Weirs and oil skimmers
- b. Stormwater management controls

Effluent Monitoring - In order to prevent potential confusion, the OMP should refer to the 401 Certification for all effluent monitoring requirements and frequencies. (See also general comments).

Condition 3.1 of the 401 Certification requires the USAGE to report the total flow and the estimated amount of sediment dewatering effluent and storm water that is discharged from outfall 001. The OMP should explain how these flow measurements and estimates will be accomplished.

The OMP states that "If limitations in the water quality certification are not met, a corrective action plan will be developed by the Corp of Engineers." Any proposed corrective action plan will need to be approved by the Saginaw Bay District Supervisor of the DEQ, WB, prior to implementation as specified in the 401 Certification.

Section "a" of the summary of the requirements during operation should be deleted, as it is clearly defined in the 401 Certification and does not need to be included in the OMP.

The statement in Section "b" which states "The State of Michigan must be notified prior to release of any effluent" is incorrect. The DEQ must approve of all discharges prior to discharge.

The OMP should include a pollution incident prevention plan or similar section that describes how potential emergencies (spills, dike failure, power outages, etc.) will be responded to by the USAGE.

The USAGE needs to describe how this facility will be operated to meet the effluent limits within the 401 Certification during the later years of operation when there will be limited capacity for material settling.

Geotubes - An alternative that the USAGE should consider is use of "geotubes" to limit the amount of direct exposure of dredged sediments to wildlife and reduce the potential for fugitive dust and ponded water. In this way, the lack of detailed information on the location(s) of highly contaminated sediments will not be as important, because the sediments will be managed in a conservative manner to prevent exposures. Similar technology has been successfully employed on polychlorinated biphenyl (PCB) contaminated sediments in the Fox River of Wisconsin to de-water sediments prior to placement in a solid waste landfill. In the Saginaw River case, the geotubes would be left in place in the DMDF. The water would be "pre-filtered" by the geotubes and would be expected to contain much lower levels of suspended solids.

The use of "geotubes" or similar technology would potentially result in higher initial cost to operating the DMDF. However, the costs of controlling wildlife exposures, fugitive dust, and the need to perform additional testing of the dredge material to identify the "clean" material that will be placed on top of the more contaminated material at the end of each dredge cycle may make the initial cost acceptable when considering the 20-year operating life of the DMDF.

The Botulism Control section of the OMP has been reviewed by the DNR. Their comments are incorporated into the plan as follows:

BOTULISM CONTROL

General - Botulism poisoning occurs as a result of ingestion of toxin produced by the **spore forming** bacterium *Clostridium botulinum*. The conditions for growth are simply warm temperature, anaerobic conditions, an animal protein food supply and high moisture content or water.

There are **seven** known types of botulism, each type designated by a letter, A-G but all are strains of the same bacterium. Type C is responsible for most waterfowl mortalities. Types A, B, E and F affect humans while D affects cattle. Type E, in addition to causing human disease, also causes losses of some water associated birds in the Great Lakes area. **Type G has been found in soil in Argentina but has not been involved in an outbreak in either humans or animals.**

Perched ponds and mud flats with warm stagnant water and dead fish or invertebrates brought up with dredged material facilitates botulisms and should be avoided. The most effective method of preventing botulism is to manage the DMDF with the objective of drying the dredged sediments, and to maintain close surveillance of the DMDF during high potential botulism periods.

Botulism Surveillance Period - If mud flats are present, botulism can occur when temperatures reach the mid 60s degrees Fahrenheit. Therefore, inspections of the DMDF would be made periodically between 15 June and 31 October. Between 15 June and 1 August inspections would be made at least once per 2 weeks. **The area would be inspected more frequently if excessive precipitation and high ambient temperatures occur during this period.** During the most critical botulism season, 1 August through September, inspections would be made at least once per week. Botulism sickness in waterfowl can be identified by the following symptoms which are a result of the extent to which the central nervous system is paralyzed:

- 1) The bird is unable to fly, but may still be able to swim or walk.
- 2) The bird can only sit, or flop on the ground, often not even being able to raise its head. In this case, the bird will die from lack of food and water **or may drown if deep enough water due to an inability to control its head.** Birds can survive if given fresh water and are protected from direct sunlight and predators. If dead or sick ducks are found in the facility, the following

actions would be taken immediately:

- a. Contact the Chief, Environmental Analysis Branch at 313-226-6752 who will contact the MDNR field representative.
 - b. **A small number (up to 6) of fresh, dead specimens of each species of bird involved in the die-off should be collected by the DNR field personnel for submission to the Wildlife Disease Lab for examination and botulism testing. AM other carcasses should be collected, placed in plastic bags, removed from the site, and buried or incinerated.** A single decomposing carcass (animal, fish or bird) can produce enough botulism infected maggots to kill many waterfowl.
- 3) Sick birds collected shall be given water and provided to the MDNR field representative for **euthanasia or rehabilitation.**
 - 4) If botulism is found to be **the cause of death or sick birds,** the Chief, Engineering and Technical Services will direct the appropriate response in accordance with the Detroit District "Botulism Control Management Plan" prepared for the Upper Saginaw River Dredged