

Appendix E

Wisconsin Disposal Information

DATE: December 15, 1998

TO: Paul Putzier - RETEC
Chris Carleo - RETEC

FROM: Ed Lynch - DNR RR/3 *EKL*

SUBJECT: Fox River Disposal Issues

Purpose. The purpose of this memo is to outline State upland and in water disposal requirements for use in the preparation of the FS. State laws that need to be considered in evaluating in-river disposal options include Wisconsin's solid waste statutes found in ch. 289, Wis. Stats., and statutes concerning in-water placement of materials found in ch. 30, Wis. Stats. Ch. 289, Wis Stats., is also applicable to upland disposal options.

Please note that this memo is intended as an overview of the issues and that, as proposals are considered, there will need to be case by case determinations regarding the State's various authorities. This concern is that, if you look at the summary re: public trust issues and the potential types of remedies available (bulkhead lines, lakebed grants, etc.) someone can, and probably will, argue in the future that DNR indicated these methods for placing fill were determined to be acceptable in the various reaches of river. All we are saying is that these are potential mechanisms to deal with these stretches, and we will have to review the specific designs and impacts on a case by case basis.

The feasibility study should provide a sufficient analysis of the institutional feasibility of all technically feasible disposal options to select a remedy. Therefore, the feasibility study must be complete in terms of the hurdles to implement an alternative and fully describe them. Discussion such as "the state would have to approve of this but we don't know if they will" is not acceptable. If a decision needs to be made on the institutional feasibility of an alternative that requires a case by case decision by us based on the merits of the technical proposal, then the FS should describe that proposal in sufficient detail so we can make that decision before the FS is finalized. Deferral of the tough issues to after the FS and ROD is not expected.

Applicable State Disposal Laws and Regulations. Dredged sediment material is a solid waste in Wisconsin, defined by the statutory definition of solid waste and by case law. Sediment in place in a water body does not come under solid waste regulation until a person picks it up, say, in a dredging operation. In that case, solid waste authority comes into play only due to the act of dredging and managing the sediment. As a general rule, the solid waste facility siting process in ch. 289, Wis. Stats., (feasibility report, plan of operation, needs, negotiation/arbitration, etc.) applies to any new solid waste disposal facility, including in-water facilities for the disposal of solid waste. The siting process administrative requirements may not apply to on-site Superfund actions (see discussion on this below). There are locational criteria in NR 504.04 (setbacks from navigational waters, flood plains) which may not be met for such facilities, so a DNR exemption or CERCLA waiver would be necessary to allow in-water disposal. DNR has authority to issue exemptions from regulation under ch. 289, Wis. Stats., under some circumstances. For confined engineered, disposal sites, the Waste management program has regulatory authority. For in water disposal in what is essentially a non engineered fill, discharge of dredged material would be subject to Watershed Management Requirements.

DNR Solid Waste Program Exemptions. The primary exemption exists in s. NR 500.08(3), Wis. Adm. Code (June, 1996) that covers dredged materials. This exemption reads as follows:

"(3) DREDGED MATERIAL EXEMPTIONS. The following facilities are exempt from the licensing and plan review requirements of chs. NR 500 to 536 but shall be developed in accordance with the following requirements:

- (a) Facilities for the disposal of non hazardous dredged material consisting of less than 3000 cubic yards from Lake Michigan, Lake Superior, the Wisconsin River, the Sheboygan River, the Milwaukee River, the Brule and Menomonee rivers, the Fox rivers, or from any inland lakes or ponds treated with arsenicals provided the facility complies with the performance standards in s. NR 504.04(4).
- (b) Facilities for the disposal of non-hazardous dredged material from rivers not listed in par. (a) provided the facility complies with the performance standards specified in s. NR 504.04(4).
- (c) Facilities for the disposal of non hazardous dredged material from inland lakes or ponds that have not been treated with arsenicals provided the facility complies with the performance standards specified in s. NR 504.04(4)."

Paragraph (a) allows for the disposal of small amounts of dredged sediment materials (less than 3000 cubic yards) from listed bodies of water to be disposed of into upland land disposal sites without plan review or licensing provided solid waste location and performance standards are met. Paragraph (b) applies to non-listed water bodies and rivers and is similar to (a) but does not have a quantity limit. The focus of par. (c) is dredged sediment material from inland lakes or ponds that have not been treated with arsenicals. S. NR 500.08(3)(a), Wis. Adm. Code, does not seem to apply to the Fox River for this project (because more than 3000 cubic yards of material will be dredged). The underlying assumption is that unengineered upland disposal sites would not affect groundwater or other protected resources. If we suspect that is not the case, the Department can require upgrading or relocation of the disposal site even if volumes or sources fall within exemptions categories listed in the code.

Another option is to seek a Low Hazard Exemption as identified in s. NR 500.08(4) and s. 289.43(8), Wis. Stats. (formerly s. 144.44(7)(g), Wis. Stats.). Finally, the dredge sediment material may be suitable for a Beneficial Reuse Exemption under s. NR 500.08(5), Wis. Adm. Code. Note that the criteria for a low hazard exemption do not apply solely to waste itself, but also considers the way the waste is managed within the specifics of the conditions of the low hazard determination. In practice, this type of exemption should be applied to non hazardous, nontoxic wastes situations.

Examples of past exemptions include the granting of a conditional "low hazard exemption" under s. 289.43(8), Wis. Stats., authorizing disposal of dredge materials in the Kidney Island CDF in Green Bay. This had the effect of waiving the statutory siting process for that solid waste disposal facility. Use of that exemption by DNR in that situation was upheld by the courts in *Public Intervenor v. DNR*, 156 Wis2d 376. DNR has used the low hazard exemption process for the Bayport facility. We required the full landfill siting process for an upland dredge spoil disposal facility in Green Bay (Schuster Pit). For small projects, exemptions have been issued for a variety of disposal options, including disposal in covered mass, land spreading, use in landfills as daily covers and confined disposal facilities. Given the degree of contamination of the dredged material coming from the river, it is not likely that either the beneficial reuse or low hazard exemptions are viable options.

Other Regulations Related to Solid Waste Requirements. Ch. NR 347, Wis. Adm. Code, covers Sediment Sampling and Analysis, Monitoring Protocol and Disposal for Dredging Projects. This code is interpreted by Watershed Management for site specific sampling and analysis needs based on existing knowledge of the site. The code is used by Fish & Habitat Protection, Watershed Management, Waste Management and Air Management programs in evaluation of permit application as well as other

submittals. Section NR 347.04 (1)(b) indicates that all dredging projects must be reviewed under s. 144.44, Wis. Stats. (s. 289.31, Wis. Stats., as of January 1, 1997), and chs. NR 500 to 520 for disposal of dredged material under the Waste Management program. Section NR 347.04 (1)(g) states that sites for the disposal of hazardous waste and PCBs require review under ss. 144.64 (now ss. 291.23 and 291.25, Wis. Stats.) and 144.79 (now s. 299.45.), Wis. Stats., respectively, and chs. NR 600 to 685. (While not stated in Par. (g), ch. NR157 must also be considered when PCBs are being disposed of.) Paragraphs NR 347.04 (1) (b) & (g) apply when the dredged sediment material is removed from the water body for upland disposal and are Waste Management program responsibilities.

There are two additional items to note. The first is that on January 24, 1995, the U.S. EPA issued DNR an approval under the Toxics Substances Control Act (TSCA) allowing the disposal of PCB contaminated sediments resulting from certain sediment remediation projects into solid waste landfills. The second item deals with hazardous waste determination on the PCB contaminated dredge materials. In Wisconsin, unlike some other states, PCB contamination is not a basis for classifying a waste as hazardous. Additionally, there is no basis for stating that any of the dredged material would be listed hazardous waste. In the absence of listing criteria being met, the basis for a hazardous waste determination would be if the sediment failed the toxicity characteristic leaching procedure or TCLP analysis. We ask that you review Fox River data base for TCLP data. Based upon that evaluation you may be able to determine that none of the dredged material is hazardous waste and consequently we can then dismiss RCRA and the State hazardous waste ARARs at this time.

11/2000
being reworked

Upland disposal options by River Reach. The following table identifies the possibility of applying exemptions to upland disposal by River Reach.

Table 1

<i>River Reach</i>	<i>Beneficial Reuse</i>	<i>Low hazard</i>	<i>Site a Landfill</i>	<i>Use Existing Commercial or Private Landfill Capacity</i>
Little Lake Buttes Des Mortes	Not Likely	Possible for low level material	Possible	Yes
Appleton to Little Rapids ¹	No	No	Possible	No
Little Rapids to DePere	Not Likely	Possible for low level material	Possible	Yes
DePere to Green Bay	Not Likely	Possible for low level material	Possible	Yes

1. At this time we do not anticipate removing any sediment from the Appleton to Little Rapids reach of the river.

Applicable State In Water Disposal Laws. For more than 25 years, Wisconsin has had legislation which bans the open water disposal of dredged material on the bed of all navigable waters. This ban has had a significant effect on the ease with which navigational dredging can occur, in particular in the Great Lakes commercial ports in Wisconsin. This ban can be found in s. 30.12(1)(a) Wis. Stats. Structures and deposits in navigable waters prohibited; exceptions; penalty. (1) GENERAL PROHIBITION. Except as provided under sub. (4), unless a permit has been granted by the department pursuant to statute or the legislature has otherwise authorized structures or deposits in navigable waters, it is unlawful:

- (a) To deposit any material or to place any structure upon the bed of any navigable water where no bulkhead line has been established; or

(b) To deposit any material or to place any structure upon the bed of any navigable water beyond a lawfully established bulkhead line.

The following discussion outlines how the law concerning in-water disposal has been applied and interpreted and how some permitted operations have been allowed. Since the law states that open water disposal is prohibited without a permit, the real question becomes when can a permit be issued. The law only authorizes the issuance of permits for the construction of structures on the bed of navigable waters and prohibits the deposition of materials except into structures which are permitted or authorized under statute or other legislative means. A structure has been defined by the Attorney General and the DNR as something which has "form, function and utility" in order to receive a permit. Open water disposal without a structure designed to contain dredged material does not meet this test.

Deposits on the bed of navigable waters in Wisconsin have been authorized under four scenarios. Exceptions to open water disposal prohibition include:

- a) Legislative Authorization. Legislative authorization with riparian owners as applicants or co-applicants (examples: s. 30.202 & 30.203). This must be consistent with the public trust doctrine.
- b) Lakebed Grants. Lakebed grants have been used in the past to authorize CDFs (s.30.05) - limited to natural lakebed, not the bed of a raised lake (dammed lake) unless the is agreement of riparian property owners and special legislation (Note: this is not always straight forward; A lakebed grant has been used in Lake Buttes Des Morts, which is in part a dammed lake. Need to consider area of raised river versus actual lake bed area). Special legislation can result in the issuance of a lakebed grant. While the lakebed grant removes the specific area of the grant from the prohibition of deposits, the structure built to contain the materials deposited in the area must comply with all approvals and permits required to protect the water quality of the surrounding water body.
- c) Bulkhead Lines. Bulkhead lines (s.30.11) can be used, however these are explicitly limited by statute to "conform as nearly as practicable to the existing shores, except in the case of leases...". Bulkhead lines cannot be used to fill large areas or lake or riverbed. Under s. 30.11, a municipality by ordinance and with DNR approval may establish a bulkhead line along the shore of any navigable water within its boundaries. Once a bulkhead line has been established, filling of the area behind the bulkhead line may occur in conformance with DNR conditions and limitations relating to off-site impacts.
- d) Leases. Leases can be granted (s.24.29), but are only applicable to construct or enlarge harbors or improve navigation. This involves the Commission of Public Lands (the State Treasurer, the Secretary State and the Attorney General). This mechanism allows for the issuance of a lease to a municipality for the use of submerged lands, and for deposits on those submerged lands, under s. 24.39(4). A lease can be issued only for the purpose of improvement of navigation or for the improvement or construction of harbor facilities. Prior to granting such a lease, the Department of Natural Resources must find that the issuance of such a lease is in the public interest. As is the case for the establishment of bulkhead lines, the Department may include conditions of use and operation of the site in order to assure the public interest is protected. By statute, the board of commissioners of public lands must include these conditions as part of the lease agreement.

While each of these methods of acquiring the right to deposit materials on the bed of navigable waters has specific statutory authorization, each must still meet the conditions and limitations of the state relating to the protection of water quality and protection of other water related interests in the areas involved.

In Water Options by River Reach and In Green Bay. The following table identifies which in water disposal options are possible by River Reach.

Table 2

<i>River Reach</i>	<i>Legislative Authorization</i>	<i>Lakebed Grants</i>	<i>Bulkhead Lines</i>	<i>Leases</i>
Little Lake Buttes Des Mortes	Yes	Yes	No	No
Appleton to Little Rapids ²	Yes	No	Yes	No
Little Rapids to DePere	Yes	No	Yes	No
DePere to Green Bay	Yes	No	Yes	Yes
Green Bay	Yes	Yes	No	Yes

2. At this time we do not anticipate removing any sediment from the Appleton to Little Rapids reach of the river.

CERCLA On Site Permit Exemption. The "on-site permit exemption" found in section 121(e) of CERCLA (42 U.S.C. ss. 9621(e)) only applies if U.S. EPA is going to be conducting the work or has issued an order or signed a consent decree with PRPs (and, potentially, the state as well) under the authority of CERCLA, which requires the PRPs to conduct the work. The "on-site permit exemption" does not apply if the State of Wisconsin conducts the work or if DNR issues an order or signs a consent decree with PRPs under the authority of state law.

The definition of "on-site" is in sections 300.5 and 300.400(e) of the NCP. Discussion of the topic in the NCP preamble begins on FR 8688, 3/8/90. "On-site" means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action. The distinction between substantive and administrative requirements is discussed in relation to the definitions of "applicable" and "relevant and "appropriate" requirements in section 300.5. This discussion begins on FR 8756, 3/8/90.

CERCLA does not authorize states to issue orders or require PRPs to conduct cleanup actions under CERCLA. Only EPA can do those things under CERCLA. In order for the "on-site permit exemption" to be applicable, CERCLA authority must be used and only EPA can use it. If DNR issues an order under spill law (ch. 292.11, Wis. Stats.), the federal on-site permit exemption does not apply and all required permits and approvals must be obtained.

For this site, DNR's position is upland disposal units immediately adjacent to the River and in-water disposal units are the only ones that could be considered "on-site" under CERCLA. DNR also believes permanent upland disposal units close enough to the river to be considered "on-site" would not meet locational criteria ARARs, and those ARARs should not be exempted or waived.

Please contact me at 608/266-3084 if you have questions.

CC: Bob Paulson - WT/2	Mike Cain - LS/5
Linda Meyer - LS/5	Chuck Leveque - LS/5
Chuck Hammer - LS/5	Gary Edelstein - RR/3
Kevin Kessler - WA/3	Len Polczinski - NER
Tim Thompson - RETEC	

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

3.S.6 5/8/10

w/ 8/6/98 Memo
from EKL
Lundholm

DATE: January 31, 1997

TO: RR Regional Team Supervisors Mark Giesfeldt - RR/3
BRR Section Chiefs & Team Leaders - RR/3

FROM: Ed Lynch - RR/3 *EKL*

SUBJECT: Dredged Sediment Materials Management

At the November 5 & 6, 1996 RR team leaders meeting, Pat McCutcheon of SCR requested information on how regions managed dredged sediment material. The discussion that followed indicated that in most cases this material is handled as a solid waste that may be covered by a waste management program exemption. I agreed to review available information on the management of dredge sediment materials and relay my findings back to you. This memo summarizes my findings. It is not meant to address all the technical or programmatic issues related to dredge sediment materials management. Please share this information with your staff. In preparing this memo, I discussed this topic with staff from the Waste Management program and they concur with the content of this memo. For the most part, upland disposal of dredged sediments is a Waste Management program issue. Please remember to maintain open communications with other programs when dealing with dredge materials management issues.

Dredged sediment material is a solid waste in Wisconsin, defined by the statutory definition of solid waste and by case law. Sediment in place in a water body is not a regulated solid waste operation until someone picks it up in a dredging operation. Contaminated or unwanted sediment in a water body may be a problem for someone and may deserve cleanup, but solid waste authority comes into play only due to the act of dredging and managing the sediment. Liability for discharges from contaminated sediment may fall under state spill law and other authorities in other circumstances.

Department rules and State statutes provide for a range of options for the regulation of dredged sediment materials based on the degree of risk that the materials may present to human health and the environment. In a broad sense ch. NR 150, Wis. Adm. Code and various manual codes provide for a cross program review of the potential for harm to human health and the environment of dredging projects including the effects of removal and disposal of the material.

Management options for dredged sediment material range from low restriction beneficial reuse to highly restrictive disposal due to toxic or hazardous properties or other threats to human health and the environment. The evaluation of the risk of disposal may be based upon information on the dredge sediment material, the proposed disposal site and disposal methods, data requested by Waste Management from the applicant, data from the reporting requirements of ch. NR 347, Wis. Adm. Code, existing data on sediment chemistry, and where applicable ch. NR 150, Wis. Adm. Code requirements.

First of all, there are several specific solid waste rules and statutes that apply to the management of dredged materials and provide exemptions to certain solid waste rules. The primary exemption exists in s. NR 500.08(3), Wis. Adm. Code (June, 1996) that covers dredged materials. This exemption reads as follows:

"(3) DREDGED MATERIAL EXEMPTIONS. The following facilities are exempt from the licensing and plan review requirements of chs. NR 500 to 536 but shall be developed in accordance with the following requirements:

(a) Facilities for the disposal of nonhazardous dredged material consisting of less than 3000 cubic yards from Lake Michigan, Lake Superior, the Wisconsin River, the Sheboygan River, the Milwaukee River, the Brule and Menomonee rivers,



the Fox rivers, or from any inland lakes or ponds treated with arsenicals provided the facility complies with the performance standards in s. NR 504.04(4).

(b) Facilities for the disposal of non-hazardous dredged material from rivers not listed in par. (a) provided the facility complies with the performance standards specified in s. NR 504.04(4).

(c) Facilities for the disposal of nonhazardous dredged material from inland lakes or ponds that have not been treated with arsenicals provided the facility complies with the performance standards specified in s. NR 504.04(4)."

Chapter NR 504, Wis. Adm. Code covers Landfill Location, Performance, Design and Construction Criteria and s. NR 504.04(4) (attachment A) is the performance standards section. This section allows property to be used for a solid waste land disposal facility provided the facility is properly located and there are no significant adverse impacts or detrimental effects. Waste Management staff are the appropriate personnel to make these determinations regarding the effects or impacts from this type of disposal facility.

With regards to s. NR 500.08(3) (a), this allows for the disposal of small amounts of dredged sediment materials (less than 3000 cubic yards) from listed bodies of water to be disposed of into upland land disposal sites without plan review or licensing provided solid waste location and performance standards are met. Paragraph (b) applies to non-listed water bodies and rivers and is similar to (a) but does not have a quantity limit. The focus of par. (c) is dredged sediment material from inland lakes or ponds that have not been treated with arsenicals. It is up to the Watershed Management program and the Waste Management program to make decisions concerning in-water disposal. (This memo is not meant to address issues related to the need for obtaining any COE approvals or permits.)

In cases where the exemption criteria of s. NR 500.08(3) are not met, other options exist. One option is to follow the siting process and eventually establish a solid waste disposal facility. Another option is to seek a Low Hazard Exemption as identified in s. NR 500.08(4) and s. 289.43(8) Stats. (formerly s. 144.44(7)(g), Stats; see attachment B). Finally, the dredge sediment material may be suitable for a beneficial reuse exemption per s. NR 500.08(5), Wis. Adm. Code. The Waste Management program is responsible for making these decisions and for issuing low hazard exemptions. Note that the criteria for a low hazard exemption do not apply solely to waste itself, but also considers the way the waste is managed within the specifics of the conditions of the low hazard determination.

Solid waste staff have generally provided feedback by way of interprogram memos for small projects, for use by dredging permit writers to include as conditions of dredging permits. Larger harbor projects or dredge sediment projects have historically been subject to formal grants of exemptions. Most of the reviews have involved contaminated sediments or disposal locations that would affect protected resources such as wetlands. Exemptions have been issued for a variety of disposal options, including disposal in covered mass, land spreading, use in landfills as daily covers and confined disposal facilities.

Generally, the Waste Management program is part of the multiprogram review of a proposed dredging project. A dredging project coordinator should usually be appointed to address water regulation and environmental impact responsibilities. Historically, the Waste Management program has not been brought into projects until basic decisions have been made concerning the overall dredging project.

In addition, ch. NR 347, Wis. Adm. Code, (attachment C) covers Sediment Sampling and Analysis, Monitoring Protocol and Disposal for Dredging Projects. This code is interpreted by Watershed Management for site specific sampling and analysis needs based on existing knowledge of the site. The code is used by Fish & Habitat Protection, Watershed Management, Waste Management and Air Management programs in evaluation of permit application as well as other submittals. Section NR 347.04 (1)(b) requires all dredging projects be reviewed under s. 144.44, Stats., and chs. NR 500 to 520 for disposal of dredged material under the

department by up to 2 years if the owner or operator demonstrates that there is no available alternative disposal capacity and there is no immediate threat to human health and the environment.

Note: Owners or operators proposing to site a new or expand an existing municipal solid waste landfill within a 5 mile radius of any airport runway end used by turbojet or piston type aircraft must notify the owner or operator of the affected airport and the federal aviation administration (FAA).

- (f) Within 1,200 feet of any public or private water supply well.
- (g) Within 200 feet of a fault that has had displacement in Holocene time.
- (h) Within seismic impact zones.
- (i) Within unstable areas.

(4) **PERFORMANCE STANDARDS.** No person may establish, construct, operate, maintain or permit the use of property for a landfill if there is a reasonable probability that the landfill will cause:

- (a) A significant adverse impact on wetlands as provided in ch. NR 103.
- (b) A significant adverse impact on critical habitat areas.
- (c) A detrimental effect on any surface water.

(d) A detrimental effect on groundwater quality or will cause or exacerbate an attainment or exceedance of any preventive action limit or enforcement standard at a point of standards application as defined in ch. NR 140. For the purposes of design the point of standards application is defined by s. NR 140.22 (1).

(e) The migration and concentration of explosive gases in any landfill structures excluding the leachate collection system or gas control or recovery system components in excess of 25% of the lower explosive limit for such gases at any time. The migration and concentration of explosive gases in the soils outside of the limits of filling within 200 feet of the landfill property boundary or beyond the landfill property boundary in excess of the lower explosive limit for such gases at any time. The migration and concentration of explosive gases in the air outside of the limits of filling within 200 feet of the landfill boundary or beyond the landfill property boundary in excess of the lower explosive limit for such gases at any time.

(f) The emission of any hazardous air contaminant exceeding the limitations for those substances contained in s. NR 445.03.

History: Cr. January, 1988, No. 385, eff. 2-6-88; am. (1), (2)(a), (b), (3) (intro.), (a), (d), (4) (intro.), (a), (3), r. and rec. (3) (e), cr. (3) (g) to (i).

NR 504.05 General design and construction criteria.

(1) Unless otherwise specified in this chapter, the minimum design criteria in ss. NR 504.06 to 504.09 apply to all new landfills and to the expansion of existing landfills for which the plan of operation was approved after July 1, 1996, as well as to proposed design changes for all landfills which are submitted after July 1, 1996. Landfills designed in substantial conformance with these design criteria are presumed to be capable of meeting the performance standards of s. NR 504.04(4)(d) regarding groundwater quality.

(2) If the proposed design differs from the requirements in ss. NR 504.06 to 504.09, the applicant shall provide supporting justification for any differences.

(3) The design capacity of all proposed landfills, except landfills that are exempted in s. 144.44(2)(nr), Stats., shall be determined such that the projected operating life of the landfill is not less than 10 years nor more than 15 years. Expansions of existing landfills are not subject to the 10-year minimum design capacity requirement. Waste approved for use in construction of landfill components is not considered part of the design capacity.

History: Cr. Register, January, 1988, No. 385, eff. 2-6-88; r. and rec., Register, June, 1996, No. 486, eff. 7-1-96.

NR 504.06 Minimum design and construction criteria for landfill liners and leachate collection systems. (1) GENERAL.

(a) All major phases of landfills initially accepting municipal solid waste after July 1, 1996, shall be designed with a

composite liner and a leachate collection system capable of limiting the average leachate head level on the composite liner to one foot or less during operation and after closure of the landfill, except as provided in s. NR 504.10(1)(c). The composite liner shall consist of 2 components; the upper component shall consist of a nominal 60-mil or thicker geomembrane liner with no thickness measurements falling below the minimum industry accepted manufacturing tolerances, and the lower component shall consist of a minimum 4 foot thick layer of compacted clay meeting the specifications of s. NR 504.06(2)(a). The geomembrane component shall be installed in direct and uniform contact with the compacted clay soil component, and the landfill shall meet or exceed the standards in the applicable portions of subs. (2), (3) and (4). All other landfills shall be designed to contain and collect leachate to the maximum practical extent. This shall be accomplished by designing the landfill to meet the standards contained in the applicable portions of subs. (2), (3) and (4), unless the department approves the applicant's alternative design as per s. NR 504.10, which provides an equivalent or better level of performance than the standards contained in this chapter.

(b) If the applicant does not complete construction of the first major phase of the landfill within 2 years from the date of the plan of operation approval, the applicant shall reapply to the department for approval to construct the landfill. This application does not constitute a feasibility report as defined in s. 144.44(2), Stats. The department may require additional conditions of approval and require redesign of the landfill in accordance with state-of-the-art design criteria.

(2) **COMPOSITE OR CLAY LINED LANDFILLS.** All landfills designed with a composite liner or a clay liner shall meet the following requirements:

(a) All clay used in liner construction shall meet the following specifications:

- 1. A minimum of 50% by weight which passes the 200 sieve.
- 2. A saturated hydraulic conductivity of 1×10^{-7} cm/sec or less, when compacted to required moisture contents and densities based on the modified Proctor method, standard Proctor method, or a line of optimums method approved by the department.
- 3. An average liquid limit of 25 or greater with no values less than 20.
- 4. An average plasticity index of 12 or greater with no values less than 10.

(b) The separation distance between the seasonal high groundwater table and the bottom of the clay component of a composite liner or a clay liner shall be at least 10 feet except for zone-of-saturation landfills.

(c) The separation distance between the top of the bedrock surface and the bottom of the clay component of a composite liner or a clay liner shall be at least 10 feet.

(d) The slope of the liner surface toward the leachate collection lines shall be at least 2%.

(e) The minimum thickness of the clay component of a composite liner at all locations shall be at least 4 feet. The minimum thickness of a clay liner at all locations shall be at least 5 feet.

(f) The clay component of a composite liner or a clay liner shall be constructed in the following manner:

- 1. All clay layers in the liner shall be constructed in lift heights no greater than 6 inches after compaction using footed compaction equipment having feet at least as long as the loose lift height. As needed, clay shall be disked or otherwise mechanically processed prior to compaction to break up clods and allow for moisture content adjustment. Clod size shall be no greater than 4 inches. All compaction equipment utilized shall have a minimum static weight of 30,000 pounds. Lighter equipment may be used in small areas where it is not possible to use full size equipment. Alternative procedures or equipment may be proposed for approval by the department.

under this chapter or conditions of operation made applicable to a solid waste disposal facility by the department.

(2) (a) No person engaged in the construction, operation or maintenance of a solid waste disposal facility or hazardous waste disposal facility may dismiss, discipline, demote, transfer, reprimand, harass, reduce the pay of, discriminate against or otherwise retaliate against any employee, or threaten to take any of those actions, because the employee reported to any supervisor, appointing authority, law enforcement official, member of the governing body of the local governmental unit in which the solid waste disposal facility or hazardous waste disposal facility is located or the department any information gained by the employee which the employee reasonably believes demonstrates a violation of this chapter or rules promulgated under this chapter.

(b) Paragraph (a) does not restrict the right of an employer to take appropriate disciplinary action against an employee who knowingly makes an untrue statement or discloses information the disclosure of which is expressly prohibited by state or federal law.

(c) 1. Any employee who believes that his or her rights under par. (a) have been violated may, within 30 days after the violation occurs or the employee obtains knowledge of the violation, whichever is later, file a written complaint with the department specifying the nature of the retaliatory action or threat of retaliatory action and requesting relief. The department shall investigate the complaint and shall determine whether there is probable cause to believe that a violation of par. (a) has occurred. If the department finds that probable cause exists, it shall attempt to resolve the complaint by conference, conciliation or persuasion. If the complaint is not resolved, the department shall proceed with notice and a contested case hearing on the complaint as provided in ch. 227. The hearing shall be held within 60 days after receipt of the complaint by the department, unless the parties to the proceeding agree otherwise.

2. The department shall issue its decision and order on the complaint within 30 days after the hearing. If the department finds that a violation of par. (a) has occurred, it may order the employer to take action to remedy the effects of the violation, including reinstating the employee, providing back pay to the employee or taking disciplinary action against employees responsible for the violation.

(d) This subsection does not limit other protections or remedies available to an employee, including those granted by ordinance, statute, rule, contract or collective bargaining agreement.

History: 1995 a. 227 ss. 531, 532, 991.

289.43 Waivers; exemptions. (1) **DEFINITION.** In this section, "recycling" means the process by which solid waste is returned to productive use as material or energy, but does not include the collection of solid waste.

(2) **WAIVER: EMERGENCY CONDITION.** The department may waive compliance with any requirement of ss. 289.21 to 289.32, 289.47, 289.53 or 289.95 or shorten the time periods under ss. 289.21 to 289.32, 289.47, 289.53 or 289.95 provided to the extent necessary to prevent an emergency condition threatening public health, safety or welfare.

(3) **WAIVER: RESEARCH PROJECTS.** The intent of this subsection is to encourage research projects designed to demonstrate the feasibility of recycling certain solid wastes while providing adequate and reasonable safeguards for the environment. The department may waive compliance with the requirements of this chapter for a project developed for research purposes to evaluate the potential for the recycling of high-volume industrial waste if the following conditions are met:

(a) The project is designed to demonstrate the feasibility of recycling solid waste or the feasibility of improved solid waste disposal methods.

(b) The department determines that the project is unlikely to violate any law relating to surface water or groundwater quality including this chapter or ch. 160 or 283.

(c) The department reviews and approves the project prior to its initiation.

(d) The owner or operator of the project agrees to provide all data, reports and research publications relating to the project to the department.

(e) The owner or operator of the project agrees to take necessary action to maintain compliance with surface water and groundwater laws, including this chapter and chs. 160 and 283 and to take necessary action to regain compliance with these laws if a violation occurs because of the functioning or malfunctioning of the project.

(4) **EXEMPTION FROM LICENSING OR REGULATION: DEVELOPMENT OF IMPROVED METHODS.** For the purpose of encouraging the development of improved methods of solid waste disposal, the department may specify by rule types of solid waste facilities that are not required to be licensed under ss. 289.21 to 289.32 or types of solid waste that need not be disposed of at a licensed solid waste disposal facility.

(5) **EXEMPTION FROM REGULATION: SINGLE-FAMILY WASTE DISPOSAL.** The department may not regulate under chs. 281, 285 or 289 to 299 any solid waste from a single family or household disposed of on the property where it is generated.

(6) **EXEMPTION FROM LICENSING: AGRICULTURAL LANDSPREADING OF SLUDGE.** The department may not require a license under ss. 289.21 to 289.32 for agricultural land on which nonhazardous sludges from a treatment work, as defined under s. 283.01 (18), are land spread for purpose of a soil conditioner or nutrient.

(6m) **EXEMPTION FROM LICENSING, AGRICULTURAL USE OF WOOD ASH.** No license is required under ss. 289.21 to 289.32 for the agricultural use of wood ash.

(7) **EXEMPTION FROM LICENSING: RECYCLING OF HIGH-VOLUME INDUSTRIAL WASTE.** (a) Any person who generates, treats, stores or disposes of high-volume industrial waste may request the department to exempt an individual solid waste facility or specified types of solid waste facilities from this chapter for the purpose of allowing the recycling of any high-volume industrial waste.

(b) A person who requests an exemption under par. (a) shall provide any information requested by the department relating to the characteristics of the high-volume industrial waste, the characteristics of the site of the recycling and the proposed methods of recycling.

(c) The department shall approve the requester's exemption proposal if the department finds that the proposal, as approved, will comply with this chapter and chs. 30, 31, 160 and 280 to 299 and ss. 1.11, 23.40, 59.692, 59.693, 60.627, 61.351, 61.354, 62.231, 62.234 and 87.30. If the proposal does not comply with one or more of the requirements specified in this paragraph, the department shall provide a written statement describing how the proposal fails to comply with those requirements. The department shall respond to an application for an exemption under this subsection within 90 days.

NOTE: Par. (c) is shown as affected by two acts of the 1995 legislature and as merged by the revisor under s. 13.93 (2) (c).

(d) The department may require periodic testing and may impose other conditions on any exemption granted under this subsection. The department may require a person granted an exemption under this subsection to identify the location of any site where high-volume industrial waste is recycled.

(e) 1. Each applicant for an exemption under this subsection shall submit a nonrefundable fee of \$500 with the application to cover the department's cost for the initial screening of the application. The department may waive this fee if the cost of the initial screening to the department will be minimal.

2. The department shall, by rule, establish fees for approved applications which, together with the \$500 application fees, shall, as closely as possible, equal the actual cost of reviewing applications.

3. All fees collected under this paragraph shall be credited to the appropriation under s. 20.370 (2) (dg).

(B) **Exemption from regulation; low-hazard waste.** (a) The department shall conduct a continuing review of the potential hazard to public health or the environment of various types of solid wastes and solid waste facilities. The department shall consider information submitted by any person concerning the potential hazard to public health or the environment of any type of solid waste.

(b) If the department, after a review under par. (a), finds that regulation under this chapter is not warranted in light of the potential hazard to public health or the environment, the department shall either:

1. Promulgate a rule specifying types of solid waste that need not be disposed of at a licensed solid waste disposal facility.

2. On a case-by-case basis, exempt from regulation under this chapter specified types of solid waste facilities.

3. Authorize an individual generator to dispose of a specified type of solid waste at a site other than a licensed solid waste disposal facility.

(c) The department may require periodic testing of solid wastes and impose other conditions on exemptions granted under par. (b).

(9) **EXEMPTION FROM REGULATION; ANIMAL CARCASSES.** The department may not regulate under chs. 281, 285 or 289 to 299 any animal carcass buried or disposed of, in accordance with ss. 95.35 and 95.50, on the property owned or operated by the owner of the carcass, if the owner is a farmer, as defined under s. 102.04 (3).

History: 1995 a. 227 ss. 574, 577 to 580; s. 13.93 (2) (c).

Exemption from regulation under sub. (7) (g) does not prevent municipal regulation but instead places the municipality in the position it would be in regarding regulation if the statutory scheme under ss. 144.43 to 144.47 did not exist. *DeRosso Landfill Co. v. City of Oak Creek*, 191 W (2d) 46, 528 NW (2d) 468 (Cl. App. 1995).

289.44 **Exemption for certain alcohol fuel production systems.** (1) **DEFINITIONS.** As used in this section:

(a) "Distillate waste product" means solid, semisolid or liquid by-products or wastes from the distillation or functionally equivalent process of an alcohol fuel production system.

(b) "Environmentally sound storage facility" means a facility, including a holding lagoon, which is used to store distillate waste products so that no waste products from the facility enter or leach into the waters of the state.

(c) "Private alcohol fuel production system" means an alcohol fuel production system from which no alcohol is sold and from which all the alcohol is used as a fuel by the owner.

(2) **EXEMPTION.** No permit, license or plan approval is required under this chapter for the owner of a private alcohol fuel production system to establish, construct or operate a system for the treatment, storage or disposal of distillate waste products if the distillate waste product is stored in an environmentally sound storage facility and disposed of using an environmentally safe land spreading technique and the storage, treatment or disposal is confined to the property of the owner.

History: 1979 c. 221; 1995 a. 227 s. 537.

289.445 **Exemption for certain fruit and vegetable washing facilities.** (1) **DEFINITIONS.** As used in this section:

(b) "Washing station" has the meaning given in s. 283.62 (1) b).

(c) "Wash water" has the meaning given in s. 283.62 (1) (c).

(d) "Wash water storage facility" has the meaning given in s. 283.62 (1) (d).

(2) **EXEMPTION.** No permit, license or, except as provided in par. (d), plan approval is required under this chapter for the owner of a washing station to establish, construct or operate a solid waste facility for the treatment, storage or disposal of wash water or to compost or land spread plant parts separated from wash water if all of the following requirements are met:

(a) The washing station is not adjacent to or operated as part of a food processing plant, as defined in s. 97.29 (1) (h).

(b) All wash water is either stored in a sealed wash water storage facility or is dispersed on land owned or leased by the owner of the washing station in a manner which avoids ponding, runoff or nuisance conditions and in accordance with acceptable agricultural practices or acceptable practices for the land spreading of waste.

(c) All plant parts that are separated from wash water are either composted or stored in a plant parts storage facility and disposed of using an environmentally safe land spreading technique. The treatment, storage, disposal or composting under this paragraph must be confined to property owned or leased by the owner of the washing station.

(d) For a washing station that anticipates operating at least 100 days per year or that operated at least 100 days during the immediately preceding year, do all of the following:

1. Register annually with the department as a washing station.

2. Submit annually an operating plan that implements best management practices and that is approved by the department.

3. Operate only in accordance with the approved operating plan.

History: 1995 a. 99; 1995 a. 227 s. 538; Stats. 1995 s. 289.445.

289.45 **Solid waste storage.** No person may store or cause the storage of solid waste in a manner which causes environmental pollution.

History: 1981 c. 374.; 1995 a. 227 s. 539; Stats. 1995 s. 289.45.

289.46 **Transference of responsibility.** (1) Any person acquiring rights of ownership, possession or operation in a licensed solid or hazardous waste facility at any time after the facility begins to accept waste is subject to all requirements of the license approved for the facility including any requirements relating to long-term care of the facility and is subject to any negotiated agreement or arbitration award related to the facility under s. 289.33. Upon acquisition of the rights, the department shall issue a new operating license if the previous licensee is no longer connected with the operation of the facility, if the new licensee meets all requirements specified in the previous license, the approved plan of operation, if any, and the rules promulgated under s. 291.05 or 291.07, if applicable.

(2) Any person having or acquiring rights of ownership in land where a solid or hazardous waste disposal facility was previously operated may not undertake any activities on the land which interfere with the closed facility causing a significant threat to public health, safety or welfare.

History: 1977 c. 377; 1981 c. 374; 1983 a. 410 ss. 62, 2202 (38); Stats. 1983 s. 144.444; 1989 a. 31; 1995 a. 227 s. 625; Stats. 1995 s. 289.46.
See note to 144.60, citing *Kelly*, 67 MLR 691 (1984).

289.47 **Closure notice.** At least 120 days prior to the closing of a solid waste disposal facility or at least 180 days prior to the closing of a hazardous waste facility, the owner or operator shall notify the department in writing of the intent to close the facility.

History: 1995 a. 227 s. 573.

SUBCHAPTER V

FACILITIES; REGULATION OF SPECIFIC FACILITY OR WASTE TYPES

289.51 **Solid waste open burning standards.** (1) As used in this section:

(a) "Air curtain destructor" means a solid waste disposal operation that combines a fixed wall open pit and a mechanical air supply which uses an excess of oxygen and turbulence to accomplish the smokeless combustion of clean wood wastes.

Chapter NR 347

SEDIMENT SAMPLING AND ANALYSIS, MONITORING PROTOCOL AND DISPOSAL CRITERIA FOR DREDGING PROJECTS

NR 347.01	Purpose and policy	NR 347.05	Preliminary application and analytical requirements
NR 347.02	Applicability	NR 347.06	Sediment sampling and analysis
NR 347.03	Definitions	NR 347.07	Department review and review criteria
NR 347.04	Permits and approval required	NR 347.08	Monitoring, reporting and enforcement

Note: Chapter NR 347 as it existed on February 28, 1989 was repealed and new chapter NR 347 was created effective March 1, 1989.

NR 347.01 Purpose and policy. (1) The purpose of this chapter is to protect the public rights and interest in the waters of the state by specifying definitions, sediment sampling and analysis requirements, disposal criteria and monitoring requirements for dredging projects regulated under one or more of the following statutes: s. 30.20, Stats., which requires a contract or permit for the removal of material from the beds of waterways; s. 144.04, Stats., which establishes a wastewater treatment facility plan approval program; ss. 144.43 to 144.47, Stats., which establish the solid waste management program; ss. 144.60 to 144.74, Stats., which establish the hazardous waste program; and ch. 147, Stats., which establishes the Wisconsin pollutant discharge elimination system (WPDES) program.

(2) It is department policy to encourage reuse of dredged material and to minimize environmental harm resulting from a dredging project.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89.

NR 347.02 Applicability. The provisions of this chapter apply to the removal and disposal of material from the beds of waterways except where exempted by statute.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89.

NR 347.03 Definitions. (1) "Analyte" means the chemical substance or physical property being tested for in a sample.

(2) "Bathymetry" means the measurement of depth of water in lakes or rivers to determine lake or river bed topography.

(3) "Beach nourishment disposal" means the disposal of dredged material on the beaches or in the water landward from the ordinary high-water mark of Lakes Michigan and Superior for the purpose of adding, replenishing or preventing erosion of beach material.

(4) "Bioassay" means a method for determining the acute or chronic toxicity of a material by studying its effects on test organisms under controlled conditions.

(5) "Bulk sediment analysis" means a test to measure the total concentration of a specific constituent in a sample being analyzed.

(6) "Carriage water" means the water portion of a slurry of water and dredged material.

(7) "Carriage water return flow" means the carriage water which is returned to a receiving water after separation of the dredged material from the carriage water in a disposal, rehandling or treatment facility.

(8) "Connecting waterways" means a portion of a navigable lake or stream which is directly joined to Lake Michigan or Lake Superior and which contains a navigation channel providing access for commercial or recreational watercraft to Lake Michigan or Lake Superior.

(9) "Contamination" means a solid, liquid or gaseous material, microorganism, noise, heat, odor, or radiation, alone or in any combination, that may harm the quality of the environment in any way.

(10) "Contract" means a binding written agreement between the department and a dredging applicant authorizing the removal of material from the bed of a natural navigable lake or outlying water.

(11) "Department" means the department of natural resources

(12) "Disposal facility" means a site or facility for the disposal of dredged material.

(13) "Dredged material" means any material removed from the bed of any waterway by dredging.

(14) "Dredging" means any part of the process of the removal of material from the beds of waterways; transport of the material to a disposal, rehandling or treatment facility; treatment of the material; discharge of carriage or interstitial water; and disposal of the material.

(15) "Grain size analysis" means a method to determine dredged material and disposal site sediment particle size distribution.

(16) "Hazardous waste", as defined in s. 144.61(5), Stats., means any solid waste identified as a hazardous waste under ch. NR 605.

(17) "Interstitial water" means water contained in the interstices or voids of soil or rock in the dredged material.

(18) "Limit of detection" means the lowest concentration level that can be determined to be statistically different from a blank sample for that analytical test method and sample matrix.

(19) "Limit of quantitation" (LOQ) means the concentration of an analyte at which one can state with a stated degree of confidence for that analytical test method and sample matrix that an analyte is present at a specific concentration in the sample tested.

(20) "Parent material" means the native unconsolidated material which overlies the bedrock.

(21) "PCBs" means those materials defined in s. 144.79(1)(a), Stats.

(22) "Particle size distribution" means a cumulative frequency distribution or frequency distribution of percentages of particles of specified diameters in a sample.

(23) "Rehandling facility" means a temporary storage site or facility used during the transportation of dredged material to a treatment or disposal facility.

(24) "Treatment facility" in this chapter means a natural or artificial confinement facility used for the separation of dredged material solids from the interstitial or carriage water.

(25) "Upland disposal" means the disposal of dredged material landward from the ordinary high-water mark of a waterway or waterbody.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; correction in (16) made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1995, No. 478.

NR 347.04 Permits, approvals and reviews required.

(1) The following are the permit, approval and review requirements for dredging projects:

(a) Except where otherwise provided by law, all private and municipal dredging projects require a permit or contract under s. 30.20, Stats., and ch. NR 346. Dredging in portions of the Missis-

issippi, St. Croix and Black rivers by the U.S. army corps of engineers is governed by s. 30.202, Stats.

(b) All dredging projects require review under s. 144.44, Stats., and chs. NR 500 to 520 for disposal of dredged material under the solid waste management program.

(c) All dredging projects shall be reviewed under ss. 1.11 and 23.11(5), Stats., and ch. NR 150 for compliance with the Wisconsin environmental policy act.

(d) All federally funded, permitted or sponsored dredging projects require water quality certification under ss. 144.025 and 147.01, Stats., and ch. NR 299.

(e) A Wisconsin pollutant discharge elimination system (WPDES) permit under ch. 147, Stats., is required for dredging projects with carriage water return flows to surface water or groundwater.

(f) Plan approval under s. 144.04, Stats., is required for dredging projects which include a dredged material treatment facility.

(g) Sites and facilities for the disposal of hazardous waste and PCBs require review under ss. 144.64 and 144.79, Stats., and chs. NR 500 to 520 and chs. NR 600 to 685.

(2) The project application process shall be coordinated by the department. Except as otherwise provided by law, decisions on all applicable department approvals, permits, contracts and licenses relating to a dredging project shall be made concurrently and with the decision on:

(a) Water quality certification under ch. NR 299 for all federally funded, permitted or sponsored projects, or

(b) Permit or contract under s. 30.20, Stats., and ch. NR 346 for all other projects.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; corrections in (1) made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1995, No. 478.

NR 347.05 Preliminary application and analytical requirements. (1) Prior to submission of a formal application, anyone seeking to remove material from the beds of waterways shall provide the department with preliminary information including:

(a) Name of waterbody and location of project;

(b) Volume of material to be dredged;

(c) Brief description of dredging method and equipment;

(d) Brief description of proposed disposal method and location and, if a disposal facility is to be used, size of the disposal facility;

(e) Any previous sediment sampling (including field observations) and analysis data from the area to be dredged or from the proposed disposal site;

(f) Copy of a map showing the area to be dredged, the depth of cut, the specific location of the proposed sediment sampling sites and the bathymetry of the area to be dredged; and

(g) Anticipated starting and completion dates of the proposed project.

(2) An initial evaluation shall be conducted by the department within 30 business days after receipt of the information under sub.

(1) to determine if there is reason to believe that the material proposed to be dredged is contaminated. This initial evaluation shall be used by the department in specifying sediment sampling and analysis requirements to the applicant under s. NR 347.06 and shall be accomplished with existing data. Factors which shall be considered by the department in its evaluation of the dredging site and, if appropriate the disposal site, include, but are not limited to, the following:

(a) Potential that contaminants may be present. Potential routes that may have introduced contaminants into the dredging site shall be identified by examining appropriate maps, aerial photographs, or other graphic materials that show surface water-courses and groundwater flow patterns, surface relief, proximity to surface and groundwater movement, private and public roads, location of buildings, agricultural land, municipal and industrial

sewage and stormwater outfalls, etc., or by making supplemental field inspections.

(b) Previous tests of the material at the dredging site or from other projects in the vicinity when there are similar sources and types of contaminants, water circulation and stratification, accumulation of sediments, general sediment characteristics, and potential for impact on the aquatic environment, as long as nothing is known to have occurred which would render the comparisons inappropriate.

(c) The probability of past introduction of contaminants from land runoff.

(d) Spills of toxic or hazardous substances.

(e) Introduction of contaminants from point sources.

(f) Source and previous use of materials used or proposed to be used as fill.

(g) Natural deposits of minerals and other natural substances.

(h) Any other relevant information available to the department.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89.

NR 347.06 Sampling and analysis. Upon completion of the initial evaluation, the department shall establish sampling and analysis requirements.

(1) EXCEPTION. Except as provided in subs. (3)(a) and (6), the applicant shall collect and analyze data on sediments to be dredged in the manner outlined in this section.

(2) CORRECT METHODS. Unless otherwise specified, sampling, sample handling and sample analysis to demonstrate compliance with this section shall be in accordance with methods from applicable sources enumerated in ch. NR 149.

(3) NUMBER OF SAMPLES. (a) Sediment sampling may be waived by the department if it determines from its review of available information under s. NR 347.05(2) that sediment contamination is unlikely.

(b) If available information is either insufficient to determine the possibility for sediment contamination, or shows a possibility for sediment contamination, the department shall require the applicant to collect sufficient samples to describe the chemical, physical and biological properties of the sediment. The exact number and location of sediment samples required and analyses to be conducted shall be specified by the department, in consultation with the applicant, based on the initial evaluation and on other factors including, but not limited to, the potential for possibility of contamination, volume and aerial extent of material to be dredged, depth of cut and proposed method of disposal.

(c) For a project involving the disposal of dredged material at an upland disposal site, the department may require samples to be taken from the proposed disposal site and analyzed for parameters found to be elevated in the dredged material sediment samples. The number and location of disposal site samples required shall be specified by the department based on the size and other characteristics of the site.

(d) For a project to be conducted in the Great Lakes with beach nourishment disposal, at least one sample every 250 linear feet of beach with a minimum of 2 samples shall be taken from the proposed beach nourishment disposal site and analyzed for particle size and color. Core or grab samplers may be used.

(4) METHOD OF TAKING SAMPLES. (a) All samples shall be taken with a core sampler except as provided in sub. (3)(d). The department may approve other sampling methods if it finds them to be appropriate.

(b) All sampling equipment shall be properly cleaned prior to and following each sample collection.

(c) Samples collected for PCB, pesticide and other organic analyses shall be collected and processed using metallic (stainless steel preferred) liners, tubs, spoons and spatulas. Samples collected for other chemical analysis, including heavy metals, shall

be collected and processed using non-metallic liners, tubs, spoons and spatulas.

(d) Core samples from the dredging site shall be taken to the proposed dredging depth plus 2 feet.

(e) Core samples shall 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 department.

(5) **SAMPLE HANDLING AFTER COLLECTION AND PRIOR TO ANALYSIS.** Sample handling and storage prior to analysis shall be in accordance with the maximum holding times and container types given in table F of ch. NR 219. Samples shall be preserved at the time of collection by cooling to 4°C.

(6) **ANALYSES TO BE PERFORMED ON SEDIMENT SAMPLES.** Analyses shall be done in accordance with methods from applicable sources enumerated in ch. NR 149. Analyses submitted to the department under this chapter shall be done by a laboratory certified or registered under ch. NR 149.

(a) Samples shall be analyzed from each distinct layer observed in the material to be dredged. If no strata formation exists,

core samples shall be divided into 2-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 2-foot segment of parent material is required. The department may approve other subsampling methods if it finds them to be appropriate.

(b) All samples shall be analyzed for those parameters listed in table 1 unless waived by the department as provided in par. (d). Elutriate testing may be required for all chemicals listed in Table 1 unless waived by the department as provided in par. (d).

(c) If previous sampling data or other adequate available information indicates the possibility of contamination by chemicals not listed in table 1, the department may require analysis for those chemicals.

(d) If previous sampling data or other adequate available information demonstrates that the possibility of contamination is negligible, analysis for any chemical may be waived, in writing, by the department.

(e) The department may require additional samples and analyses as specified by law or for other appropriate reasons.

TABLE 1
ANALYSES TO BE PERFORMED ON SEDIMENT SAMPLES

	GREAT LAKES	INLAND WATERS
PCB (Total)	X	X
Total 2,3,7,8 TCDD	X	X
Total 2,3,7,8 TCDF	X	X
	GREAT LAKES	INLAND WATERS
Aldrin	X	X
Dieldrin	X	X
Chlordane	X	X
Endrin	X	X
Heptachlor	X	X
Lindane	X	X
Toxaphene	X	X
DDT	X	X
DDE	X	X
Arsenic	X	X
Barium	X	X
Cadmium	X	X
Chromium	X	
Copper	X	X
Cyanide	X	
Iron	X	
Lead	X	X
Manganese	X	
Mercury	X	X
Nickel	X	X
Selenium	X	X
Zinc	X	X
Oil and Grease	X	X
NO ² , NO ³ , NH ³ -N, TKN	X	X
Total P	X	X
Grain-size	X	X
Percent Solids	X	X
Total Organic Carbon	X	X

Moisture Content
 Settleability
 (if return water)

X		X
X		X

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; am. (5) and (6) (intro.), Register, November, 1992, No. 443, eff. 12-1-92.

NR 347.07 Review procedures and review criteria. (1)

When sediment sampling and analyses have been completed, the applicant shall submit a copy of the testing report to the department. This report shall include raw data for all analyses, a map of the project area showing the specific locations of sediment sampling sites and the name and address of the laboratory which performed the tests. All testing and quality control procedures shall be described and analytical methods, detection limits and quantification limits shall be identified.

(2) The department shall review the information submitted under sub. (1) within 30 business days after receipt and determine the applicable statutory and administrative rule provisions and any additional information required from the applicant under this section.

(3) Based on the submitted testing report the department may after consultation with the applicant require additional sediment sampling and analyses when there is evidence of contamination.

(4) For projects in the Great Lakes involving beach nourishment disposal, grain-size analysis results of the proposed dredged material and the beach shall be compared by the department.

(a) The department may allow beach nourishment disposal if:

1. The average percentage of silt plus clay (material passing a #200 sieve or less than .074 mm dia.) in the dredged material does not exceed the average percentage of silt plus clay in the existing beach by more than 15% and the color of the dredged material does not differ significantly from the color of the beach material.

Note: For example, if the silt plus clay content of the existing beach is 10%, suitable dredged material must have a silt plus clay content of less than 25%.

2. The criteria of any general permit regulating wastewater discharges under the Wisconsin pollutant discharge elimination system is not exceeded.

(5) For all projects where upland disposal is required or planned, the results of sediment sampling and analysis shall be compared by the department to the solid waste disposal standards and criteria specified in chs. NR 500 to 520.

(6) If the bulk sediment analysis criteria in sub. (4) is exceeded, the applicant shall have the option of demonstrating to the department through use of bioassay, or other methods approved by the department, that the dredging and sediment disposal operations will have minimum effects on the environment.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; correction in (5) made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1995, No. 478.

NR 347.08 Monitoring, reporting and enforcement.

(1) SURVEILLANCE. (a) The permittee shall contact the department 5 business days prior to the commencement of dredging to

provide an opportunity for the department to review all required environmental safeguards to ensure they are in place and operable.

(b) The department may inspect the dredging project at any time during operation to determine whether requirements of permits and approvals are being met or to conduct effluent sampling.

(2) MONITORING. (a) For those projects authorized in part by a WPDES permit, monitoring, analyses and reporting shall be performed as specified in the WPDES permit.

(b) For all other projects, monitoring, analyses and reporting shall be performed as specified in ss. NR 347.06 (2) and 347.07 (1).

(c) Project characteristics to be monitored may include, but are not limited to, carriage water return flow, total suspended solids, dissolved oxygen concentrations, effluent and receiving water temperatures, receiving stream flow rates, effluent ammonia-nitrogen concentrations, and pH.

(3) SUSPENSION OF WORK. If the department determines that project performance is not in compliance with permit or contract conditions, the permittee shall suspend work upon written notification from the department. This shall be a condition of any permit or contract issued by the department. The permittee shall be accorded an opportunity for hearing in accordance with s. 227.51 (3), Stats. The issuance of a suspension order under this subsection shall not limit other enforcement actions or penalties. The department and permittee shall analyze operational deficiencies and the department shall prescribe changes necessary to bring project operation into conformance with permit or contract conditions.

(4) PENALTIES. (a) Each violation of the conditions of a permit or contract issued under s. 30.20, Stats., or this chapter, may result in a forfeiture of not less than \$100 nor more than \$10,000 for the first offense and shall forfeit not less than \$500 nor more than \$10,000 upon conviction of the same offense a second or subsequent time. The permit or contract may be rescinded and appropriate restoration orders may be issued as authorized by ss. 23.79, 30.03, 30.12, 30.15, 30.20, 30.292, 30.294 and 30.298, Stats.

(b) The enforcement provisions of s. 147.21, Stats., shall apply to any violations of WPDES permits associated with dredging projects.

(c) The enforcement provisions of ss. 144.47 and 144.99, Stats., and chs. NR 500 to 520 shall apply to violations of solid waste management approvals for this chapter.

(d) The enforcement provisions of ss. 144.73 and 144.74, Stats., shall apply to violations of any hazardous waste approvals for disposal activities associated with dredging projects authorized by this chapter.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; correction in (4) made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1995, No. 478.

DATE: March 20, 1995
TO: District Solid Waste Program Supervisors/Staff
FROM: Dave Carper - SW/3 *DC*
SUBJECT: Solid Waste issues related to disposal of PCB contaminated sediments in Wisconsin landfills

The Environmental Protection Agency, on January 24, 1995, issued an approval to the department allowing disposal of PCB contaminated sediments resulting from remediation projects conducted at sites in Wisconsin. There are a number of issues related to disposal of these sediments in Wisconsin's landfills. In an effort to inform those landfills interested in accepting these sediments of the types of requirements they might expect from the department, we have developed a list of the minimum general requirements. A number of these requirements are specifically related to the EPA approval. The remainder are requirements related to Wisconsin's statutes and administrative codes. Please be advised that this is a general list, and that each individual landfill will have specific conditions related to their facility.

Additionally, a number of landfill owner/operators have inquired about pre-qualification for approval to accept PCB contaminated sediments at their facilities. The Department is prepared to review proposals which address the requirements of this memorandum and discuss general wastehandling criteria for the sediments specific to the individual facilities. Upon review of this information, the Department will issue a preliminary opinion to the landfill owner/operators as to whether they substantially meet the requirements for disposal of PCB contaminated sediments. This would not be in the form of a plan of operation modification approval and should not be considered by the landfill owner/operators as an approval to accept sediments for disposal. The intent would be to enable landfills to commit, for bidding purposes, to a specific remediation. A landfill associated with the selected contractor for sediment remediation/excavation would then have to request a modification to their plan of operation to accept PCB contaminated sediment. The landfill owner/operator would be required to adhere to the public notification requirements of this memorandum, which would require a minimum 30-day public notice period, an informational public meeting, a public comment period, and response to any comments received. It is hoped that the Department's notice of "pre-qualification" would streamline the approval process for a facility requesting approval to accept these contaminated sediments.

Issues related to the TSCA approval:

1. The EPA approval allows the department to approve individual landfills to accept for disposal PCB containing sediments at 50 ppm or greater only if they originate from a specified department project.
2. The landfill is required by the conditions of the TSCA approval and s. 40 CFR Section 761.205(a)(1) to notify U.S. EPA of the landfill's PCB

- Attachment D -

PCB Contaminated Sediment Disposal Issues

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waste handling activities by filing U.S. EPA Form 7710-53, which identifies the EPA identification number; name, owner, contact and location of the facility; and the type of PCB waste activity engaged in at the facility. The landfill operator is also required by 40 CFR Section 761.207 to sign and maintain copies of the PCB manifest accompanying each load of PCB waste received, and to notify the originator of the PCB waste at the end of each business day of confirmation that the loads were received.

3. PCB contaminated sediments must not be commingled with any potentially incompatible waste. Potentially incompatible wastes include organic solvents and waste products containing organic solvents which can increase the mobility of PCBs.
4. Initial testing of the landfill's leachate for PCBs must be performed. This is required to establish site leachate characteristics prior to accepting contaminated dredge material. The specific analytical method is defined as method 8080 found in "Test Methods for Evaluating Solid Waste", SW-846, U.S. EPA, 3rd edition, November, 1986.
5. The landfill will be required to perform quarterly PCB testing of the leachate for the first four quarters after accepting PCB contaminated dredged material and would use the analytical method previously cited. Notification of detectable levels of PCBs in the leachate is required within 60 days of sampling.
6. Annual PCB testing of the leachate will be required after the first year of quarterly sampling is completed, and will continue through the active life and long-term care period of the facility. The analytical method previously cited must be used. Should significant change in the levels of PCBs detected in the leachate occur, this monitoring schedule may be modified.
7. PCB testing for groundwater. Should significant change in the levels of PCBs detected in the leachate occur, groundwater monitoring may be required. A decision would be made based on indicator parameters in groundwater, levels of PCBs detected, and other site conditions. If determined to be required, PCB monitoring would be added to analytical parameters for the Subtitle D wells at MSW landfills, or as otherwise appropriate for the specific landfill to adequately characterize groundwater conditions.
8. Prior to acceptance of sediments by landfills, the landfill must notify the receiving POTW that the landfill intends to accept PCB contaminated sediments.
9. Groundwater sampled at the landfill monitoring wells must meet s. NR 140.10 groundwater preventative action limit for PCBs (0.003 micrograms per liter). The specific analytical method is defined as method 8080 found in "Test Methods for Evaluating Solid Waste", SW-843, U. S. EPA, 3rd edition, November, 1986. This method currently has a minimum detection limit of approximately 0.01 micrograms per liter.

PCB Contaminated Sediment Disposal Issues

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10. Monitoring well water suspected or known to contain PCBs in excess of s. NR 140.10 groundwater enforcement standards for PCBs (0.03 micrograms per liter) must not be allowed to be discharged directly to the ground or to receiving waters and must be contained, managed and treated as leachate.
11. PCB contaminated sediments must be dewatered or solidified to pass the paint filter test prior to disposal at the landfill.
12. The landfill is required to comply with the record keeping requirements of the TSCA PCB regulations s. 40 CFR Part 761.180(b), which require an annual document log identifying the disposal facility, manifest numbers, dates, quantities, and date of confirmation of PCB waste accepted at the landfill in the calendar year covered. Additionally, the landfill must submit an annual report, which briefly summarizes the records and annual document log, to the Regional Administrator of EPA Region 5 by July 15 of each year. This information must also be submitted to the department as part of the annual report requirements for the landfill.

Additional issues:

13. The landfill owner/operator must submit a request for a modification to the plan of operation for the landfill. The request must include a detailed discussion of dredged material disposal procedures, including but not limited to: material handling; placement location; testing; monitoring; and impacts on financial assurance for long-term care. Additionally, a review fee of \$1,500.00 is required to be submitted to the department's Solid Waste Management program.
14. The dredged materials need to be segregated to the degree practical in the landfill. The following type of controls may be required:
 - a. Dredged material should be placed as a "monolith", rather than mixed directly with other waste. A thicker mass of sediments over a smaller lateral area is preferred to the extent allowable by stability considerations. Dredged material should be placed in the landfill cell adjacent to the sideslope liner and as close as practical to the final cover to minimize the measures necessary to reduce commingling with other wastes and the amount of waste materials placed above the dredged material.
 - b. The "monolith" should be underlain by a geofabric of sufficient mesh size to prevent migration of silt-sized particles from the dredged material. The side slopes of the "monolith" should be no greater than 3 horizontal to 1 vertical and the top slopes should be a minimum of 5%. The final surface should be flat-rolled and covered with 12 inches of granular material with a hydraulic conductivity greater than or equal to 1×10^{-6} cm/sec at the anticipated field density to facilitate water movement around the dredged material rather than through it. A geonet/geotextile combination with equivalent hydraulic properties may also be considered for this drainage layer.

- c. The "monolith" of dredged material must have adequate stability to support its own weight and the weight of any other materials placed over it without slumping and be able to maintain stable slopes. A minimum unconfined compressive strength of one ton per square foot for finer grained (silt/clay/organic) or a minimum 60% solids for granular material will be used to determine the stability of the dredged material as placed in the landfill. If addition of stabilizing material such as lime, cement or pozzolanic ash is needed to achieve the required specifications, bench scale testing must be performed on the dredged material to determine proper moisture content ranges and compactability prior to disposal.
 - d. Dredged material should be compacted in maximum 6-inch lifts at the landfill. Thicker lifts would be considered if it can be demonstrated that minimum densities are achievable. Dry density and as-placed moisture content will be determined on the dredged material placed. At least 3 sets of tests should be performed for each acre for every one-foot thickness of dredged material placed.
 - e. The location of the dredged material must be identified by survey, and records maintained. The disturbance of the sediments must be minimized once they are placed in the landfill (as in drilling of gas extraction wells, or during remedial actions).
 - f. Dredged material must be disposed of in a manner which prevents wind-blown dust exposure. The department may require daily cover to be placed over the dredged material if necessary to prevent fugitive dust problems.
15. Measures must be taken to contain PCB contaminated dredged material to the specified disposal area. These would include a vehicle wash for cleaning equipment as necessary. Wash water will need to be collected and treated as leachate.
 16. Health and safety considerations for the disposal project must be addressed with a site-specific health and safety plan meeting Occupational Safety and Health Administration guidance as outlined in 29 C.F.R. § 1910.120.

Long Term Care Costs

17. The established long-term care financial responsibility account would need to be modified to reflect the additional cost associated with PCB leachate monitoring. Financial responsibility in anticipation of leachate treatment or groundwater monitoring will not be required initially. If problems occur in the future which require additional monitoring or remedial action, financial responsibility for monitoring/remediation will have to be established at that time.

PCB Contaminated Sediment Disposal Issues

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Specific conditions will be required for any landfill requesting a plan modification to accept these sediments. The preferred disposal location in a landfill would be such that a minimum amount of municipal solid waste be placed above the "monolith" of dredged material. Priority will be given landfills which can selectively place this dredged material or, ideally, dedicate a monofill for dredged material disposal with a discreet leachate collection system.

APPROVED:

Lakshmi Sridharan

Lakshmi Sridharan, Ph.D, P.E., Chief
Solid Waste Management Section
Bureau of Solid & Hazardous Waste Management

cc: Paul Didier - SW/3
Kevin Kessler - SW/3
Mark Giesfeldt - SW/3
→ Barb Zellner - SW/3
Chuck Leveque - SW/3

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

S. G. 10

8/8/18

DATE: August 6, 1998

TO: Paul Putzier - RETEC
Alessandro Battaglia - RETEC

FROM: Ed Lynch - DNR *EL*

SUBJECT: Landfill Location and Disposal Capacity Information

Attached to this table is a statewide list of municipal and non-municipal solid waste disposal facilities. Municipal sites include those operated by counties and non-municipal sites include company owned landfills. For instance, Brown County -East is the first site listed under municipal and Appleton Papers is the first site listed under non-municipal. Also attached is a separate list of landfills with the facilities' contacts identified. You may need to contact these people to identify the specific location of the landfills. I have also have included an attachment identifying the DNR waste management staff assigned to the counties. These staff may also be contacted for location information.

These landfills are operated in accordance with the requirements of the chapter NR 500 series of the Wis. Adm. Code. The municipal sites and many of the non-municipal sites may be capable of receiving plan modifications for disposal of PCB contaminated sediments should it be necessary. I am forwarding this information to you so you are aware of the available landfill capacity and haul distance in the Northeast Region (NER) as well as other locations that may be near the Fox River for the Feasibility Study. Please note that landfills under construction or proposed are not on the list. In NER, that includes two facilities. One is in Calumet County which will be operated by Superior Environmental Services. The other will be county operated facility in Brown County.

Please note that the Bayport sediment management facility is not included on the attached list. Bayport is not a licensed solid waste landfill because it had an exemption from the normal NR 500 series design and location requirements. This is a key point because DNR could not allow Bayport to accept PCB sediment under the state's TSCA approval from EPA. In your evaluation of alternatives, consideration of available landfill capacity at facilities operated by the PRPs for the management of dredged sediment sludge is an appropriate option, should dredging be necessary. Please be aware that these PRP industrial sites may not meet the requirements to obtain an approval under the DNR's TSCA approval.

You may wish to discuss these existing and proposed facilities with Len Polczinski who is the NER Waste Management Team Supervisor. Len's phone number is 920/492-5870. Len may also help with facilitating communications and discussions with county and local governments as well as serve as a sounding board for ideas dealing with dredged sediment management. You may also want to consider the requirements of the Wisconsin Solid Waste Landfill Siting law when you evaluate the feasibility of alternative using Bayport or the PRP industrial landfills.

For your information I have also attached to this memo a DNR guidance memo discussing applicability or department regulations to dredge sediment material management. Please distribute this information to the appropriate members of your Feasibility Study team. You may give me a call if you have any questions at 608/266-3084.

Attachments:

CC: Len Polczinski - NER
Bob Paulson - WT/2
Tim Thompson - RETEC
Paul Huebner - WA/3

Kevin Kessler - WA/3
George Boronow - NER
Steve Westenbroek - Baird
Jim Hahnenberg - EPA SR/6J

WISCONSIN SOLID WASTE LANDFILL CAPACITY REPORT
 WISCONSIN DEPARTMENT OF NATURAL RESOURCES-BUREAU OF WASTE MANAGEMENT

FACILITY NAME	LIC NO	RE TYPE	INITIAL CAPACITY	CAPACITY AS OF 1/1/97		1997 TONNAGE*		CAPACITY AS OF 1/1/98		STATUS	IL	Out-of-State Waste (in Tons) Received in 1997			
				CU YDS	TONNAGE	TONNAGE	CU YDS	IN	IA			MI	MN	Other	
Municipal Waste Sites															
BROWN COUNTY EAST LANDFILL	2569	NE LF3	4,500,000	1,311,871	181,336	47,893	934,875	0	0	Closed	0	0	0	0	0
BROWN COUNTY WEST LANDFILL	2568	NE LF3	3,500,000	0	0	0	0	0	0		0	0	0	0	0
DOOR COUNTY SANITARY LANDFILL	2937	NE LF3	741,000	69,500	17,277	0	31,184	0	0		0	0	0	0	0
KEWAUNEE COUNTY SW BALEFILL & COMPOST SITE	2975	NE LF3	517,000	287,679	11,638	0	259,367	0	0		0	0	0	0	0
MAR-OCO LANDFILL	3095	NE LF3	1,480,000	1,114,336	16,791	0	1,080,754	0	0		0	0	0	0	0
OUTAGAMIE COUNTY SW DIV LANDFILL	2484	NE LF3	4,740,000	1,255,491	167,189	43,305	1,653,029	0	0	exp 710,000	0	0	0	0	0
SHAWANO CTY PHASE 2 LANDFILL	3069	NE LF3	405,000	11,752	13,865	8,342	88,088	0	0		0	0	0	0	0
W M W1 - RIDGEVIEW RECYCLING & DISPOSAL	3041	NE LF3	9,689,000	1,830,600	241,974	200,313	1,490,800	0	0		0	0	0	0	0
W M W1 - VALLEY TRAIL	3068	NE LF3	2,813,000	4,828,736	239,846	265,269	4,252,805	0	0		0	0	0	1,200	0
WASHINGTON ISLAND LANDFILL/COMPOST SITE	2837	NE LF1	9,320	878	25	10	818	0	0		0	0	0	0	0
WINNEBAGO COUNTY SUNNYVIEW LF/COMPOST SITE	3175	NE LF3	8,000,000	5,362,798	194,655	25,098	5,015,557	0	0		0	0	0	0	0
ANTIGO CITY LANDFILL	3284	NO LF2	203,000	25,559	2,268	0	21,779	0	0		0	0	0	0	0
ASHLAND CITY OF LANDFILL	3087	NO LF2	159,415	27,000	2,585	0	18,337	0	0		0	0	0	0	0
BFI WASTE SYSTEMS OF NORTH AMERICA INC	3144	NO LF3	978,000	9,000	12,964	8,155	0	0	0		0	0	0	6,955	9,233
BFI WASTE SYSTEMS OF NORTH AMERICA INC	3474	NO LF3	4,347,900	329,012	93,341	29,993	219,415	0	0		0	0	0	0	69,298
HIGHWAY G SANITARY LANDFILL	3100	NO LF2	250,000	183,330	8,025	0	169,995	0	0		0	0	0	0	0
LINEOLA COUNTY SANITARY LANDFILL	3141	NO LF3	825,000	638,548	14,246	0	606,966	0	0		0	0	0	0	0
ONEIDA COUNTY	2805	NO LF3	1,100,000	130,918	18,749	6,477	165,000	0	0		0	0	0	0	0
SANITARY NORTHWOODS REFUSE DISPOSAL INC	3212	NO LF3	500,000	363,479	7,471	0	328,320	0	0		0	0	0	0	0
SUPERIOR CITY OF MOCASSIN MIKE LANDFILL	2627	NO LF3	1,500,000	298,318	70,726	3,031	217,488	0	0		0	0	0	0	42,866
W M W1 - TIMBERLINE TRAIL RDF	3455	NO LF3	2,933,000	2,513,335	224,580	50,871	2,155,505	0	0		0	0	0	0	122,959
DANE COUNTY LF #2 RODEFELD	3018	SC LF3	3,800,000	2,913,936	83,448	35,499	2,745,273	0	0		0	0	0	0	0
DEER TRACK PARK INC	3230	SC LF3	2,862,000	1,873,396	229,762	15,692	1,368,862	0	0		0	0	0	0	0
GREEN COUNTY LANDFILL	2990	SC LF3	495,000	127,088	15,260	0	117,167	0	0		0	0	0	0	0
RICHLAND CENTER CITY LANDFILL	3065	SC LF2	250,000	177,336	0	0	177,336	0	0	Site Inactive	0	0	0	0	0
ROCK COUNTY/JANESVILLE CITY OF LANDFILL	3023	SC LF3	4,200,000	1,821,900	124,704	8,731	1,279,449	19,461	0		19,461	0	0	0	0
SAUK COUNTY SANITARY LANDFILL	2978	SC LF3	1,284,000	627,417	24,286	0	586,940	0	0		0	0	0	0	0
SUPERIOR GLACIER RIDGE LANDFILL	3068	SC LF3	3,885,800	1,461,667	254,032	81,800	1,051,934	0	0		0	0	0	0	0
SUPERIOR VALLEY MEADOWS LANDFILL	2686	SC LF3	1,694,700	325,724	89,780	45,910	159,000	0	0		2,744	412	2,884	0	0
KESTREL HAWK PARK	572	SE LF3	5,000,000	7,652,670	115,905	33,995	7,347,615	0	0		36,509	0	0	0	0
SUPERIOR EMERALD PARK INC	3290	SE LF3	3,550,360	2,591,771	473,417	219,968	1,776,867	0	0		2,559	0	2,245	0	0
W M W1 - MALLARD RIDGE NORTHERN EXPANSION	3244	SE LF3	5,187,000	3,891,504	264,141	50,083	3,423,708	0	0		100,560	0	4,450	0	0
W M W1 - METRO RECYCLING & DISPOSAL FACILITY	1098	SE LF3	19,000,000	1,988,335	377,593	85,670	1,432,000	0	0		0	0	0	0	0
W M W1 - ORCHARD RIDGE RECYCLING & DISP FAC	3360	SE	9,352,900	7,582,181	283,127	138,624	6,928,360	0	0		135	0	2,944	0	0
W M W1 - PHEASANT RUN RECYCLING & DISPOSAL	3062	SE LF3	6,936,900	3,488,400	771,774	65,847	2,280,600	0	0		722,188	0	0	0	0
ABBOTSFORD CITY LANDFILL	2932	WC LF1	50,000	8,545	420	0	7,495	0	0		0	0	0	0	0
ADAMS COUNTY LANDFILL & RECYCLING CENTER	3150	WC LF3	700,000	464,486	6,272	0	451,942	0	0		0	0	0	0	0
JACKSON COUNTY SANITARY LANDFILL INC	2004	WC LF3	700,000	94,929	15,119	2,585	68,153	0	0		0	0	0	0	0
JUNEAU COUNTY LANDFILL #2	3070	WC LF2	420,000	237,320	6,383	0	225,265	0	0		0	0	0	0	0
LA CROSSE COUNTY	3253	WC LF3	1,840,000	1,359,983	34,689	10,377	1,300,270	0	0		0	0	0	0	4,382
MARATHON COUNTY LANDFILL AREA B	3338	WC LF3	2,508,000	1,847,300	93,535	40,028	1,851,300	0	0		0	0	0	0	0
MONROE COUNTY RIDGEVILLE SITE & DEMO LF	2858	WC LF3	823,000	229,000	19,644	4,234	193,000	0	0		0	0	0	0	0
PORTAGE COUNTY LANDFILL	2966	WC LF3	1,280,000	356,160	30,360	0	295,440	0	0		0	0	0	0	0
SUPERIOR CRANBERRY CREEK	2967	WC LF3	1,400,000	1,400,000	127,344	0	1,250,000	0	0		0	0	0	153	0
SUPERIOR SEVEN MILE CREEK LANDFILL INC-SEC#2	3097	WC LF3	3,000,000	2,217,800	124,627	6,010	2,039,000	0	0		0	0	0	0	10,369
VERNON COUNTY SOLID WASTE/RECYCLING FACILIT	3268	WC LF2	314,942	232,623	8,042	0	216,539	0	0		0	0	0	0	0
TOTALS (MUNICIPAL)			129,435,237	65,542,608	5,094,214	1,513,712	57,083,657	884,157	412		12,423	7,108	260,317	0	0

LIC NO	FACILITY NAME	RE TYPE	INITIAL CAPACITY	CAPACITY AS OF 1/1/87		1997 TONNAGE		CAPACITY AS OF 1/1/98		STATUS	IL	Out-of-State Waste (in Tons) Received in 1997					Other
				CU YDS	CU YDS	Cat. 1 TONNAGE	Cat. 2-6,20 TONNAGE	CU YDS	CU YDS			IN	IA	MI	MN		
Non-Municipal Waste Sites																	
3038	APPLETON PAPERS INC-LOCKS MILL LF	NE LF2	425,000	42,900	0	22,863	65,800	0	0	0	0	0	0	0	0	0	
1344	BADGER PAPER MILLS INC	NE LF2	375,000	0	0	0	0	0	0	Closed	0	0	0	0	0	0	
2332	FORT JAMES CORP GREEN BAY WEST LANDFILL	NE LF4	9,360,000	4,302,810	0	351,716	3,972,964	0	0	0	0	0	0	0	0	0	
1907	GENERAL CHEMICAL CORP ALUM LF	NE LF2	300,000	128,361	0	1,150	127,334	0	0	0	0	0	0	0	0	0	
2893	JAMES RIVER OPERATING CO-NORTHLAND LANDFILL	NE LF4	700,200	729,000	0	14,038	265,000	0	0	0	0	0	0	0	0	0	
1554	SADOFF & RUDDY INDUSTRIES	NE LF3	700,000	500,000	0	34,425	500,000	0	0	cap >500,000	0	0	0	0	0	0	
2719	SHAWANO PAPER MILLS LANDFILL	NE LF2	108,000	7,554	0	2,376	4,941	0	0	0	0	0	0	0	0	0	
3251	THILMANY PHASE 5 RED HILLS LANDFILL	NE LF3	2,749,471	2,454,460	0	81,963	2,325,954	0	0	0	0	0	0	0	0	0	
3412	WAUPACA FOUNDRY INC LANDFILL #3	NE LF3	1,339,000	1,030,218	0	200,817	881,464	0	0	0	0	0	0	0	0	0	
3131	WISCONSIN TISSUE MILLS INC LF	NE LF4	1,710,300	139,081	0	121,362	0	0	0	0	0	0	0	0	0	0	
3275	WISCONSIN TISSUE MILLS NORTH SITE	NE LF4	3,062,000	378,400	0	57,176	312,869	0	0	0	0	0	0	0	0	0	
2828	FORT JAMES OPERATING CO	NO LF2	410,000	29,963	0	23,986	10,838	0	0	0	0	0	0	0	0	0	
3051	FRASER PAPERS INC LANDFILL	NO LF2	490,000	164,455	0	30,678	133,845	0	0	0	0	0	0	0	0	0	
3233	NSP WOODFIELD ASH LF	NO LF2	255,000	220,870	0	15,911	202,203	0	0	0	0	0	0	0	0	0	
2965	RHINELANDER PAPER CO LANDFILL	NO LF2	394,000	53,000	0	0	53,000	0	0	0	0	0	0	0	0	0	
3114	TENNECO PACKAGING INC-TOMAHAWK LANDFILL	NO LF4	3,014,000	2,548,000	0	25,011	2,467,700	0	0	0	0	0	0	0	0	0	
3122	DAIRYLAND POWER COOP	SC LF2	83,400	59,764	0	0	59,764	0	0	0	0	0	0	0	0	0	
2874	GREDE-REDSBURG FOUNDRY LANDFILL	SC LF2	375,000	104,414	0	18,594	89,342	0	0	0	0	0	0	0	0	0	
1912	TERRA ENGINEERING & CONSTRUCTION	SC LF2	75,000	54,668	0	16	54,642	0	0	0	0	0	0	0	0	0	
3318	US ARMY BADGER ARMY AMMUNITION PLT LANDFILL 3118	SC LF2	130,000	83,424	0	335	82,508	0	0	0	0	0	0	0	0	0	
2325	W M W I - MADISON PRAIRIE	SC LF3	4,284,000	2,715,562	0	113,008	2,556,606	0	0	0	0	0	0	0	0	0	
3025	WIS POWER & LIGHT CO COLUMBIA GEN STN	SC LF4	500,000	2,360	0	0	2,360	0	0	0	0	0	0	0	0	0	
2525	WIS POWER & LIGHT CO COLUMBIA GEN STN	SC LF4	6,529,200	5,106,341	0	59,233	5,056,980	0	0	0	0	0	0	0	0	0	
2525	WIS POWER & LIGHT CO NELSON DEWEY GEN STN	SC LF4	607,000	48,000	0	12,825	22,853	0	0	0	0	0	0	0	0	0	
728	WIS POWER & LIGHT CO ROCK RIVER GEN STN	SC LF2	350,000	91,018	0	3,128	20,000	0	0	98 cap - survey	0	0	0	0	0	0	
1882	FALK CORP	SE LF4	569,000	243,676	0	47,535	208,465	0	0	0	0	0	0	0	0	0	
3120	FUTURE PARKLAND DEVELOPMENT INC	SE LF4	448,000	200,822	0	42,486	163,224	0	0	0	0	0	0	0	0	0	
1508	KOHLER CO LANDFILL	SE LF4	4,240,000	500,000	0	65,010	512,000	0	0	0	0	0	0	0	0	0	
1996	MANN BROS LANDFILL	SE LF2	110,000	110,000	0	5,000	100,000	0	0	cap >500,000	0	0	0	0	0	0	
3232	WEPKO CALEDONIA LANDFILL	SE LF4	4,050,000	3,180,175	0	186,412	2,993,763	0	0	0	0	0	0	0	0	0	
2801	WEPKO HWY 32 LANDFILL	SE LF4	2,000,000	926,566	0	81,599	884,967	0	0	0	0	0	0	0	0	0	
2786	WEPKO PLEASANT PRAIRIE LNDFL	SE LF4	1,470,000	4,067,000	0	8,302	4,058,698	0	0	0	0	0	0	0	0	0	
2887	WEPKO SYSTEMS CONTROL CENTER ASH LANDFILL	SE LF4	560,000	1,444,646	0	7,009	1,437,637	0	0	0	0	0	0	0	0	0	
2853	WIS POWER & LIGHT CO-EDGEWATER POWER PLANT	SE LF4	1,150,000	747,000	0	38,978	714,518	0	0	0	0	0	0	0	0	0	
5840	COLTEC INDUSTRIES-FARNAM MEILLOR SEALING SY-840	WC LF2	0	0	0	0	0	0	0	Closed	0	0	0	0	0	0	
2488	CONSOLIDATED PAPERS-WATER QUALITY CENTER L 2488	WC LF4	2,954,600	679,384	0	26,836	647,040	0	0	0	0	0	0	0	0	0	
1838	CONSOLIDATED PAPERS INC-KRAFT DIV	WC LF4	2,000,000	276,500	0	98,909	161,478	0	0	0	0	0	0	0	0	0	
1886	CONSOLIDATED PAPERS WATER RENEWAL CENTER	WC LF4	1,551,000	659,534	0	53,433	591,001	0	0	0	0	0	0	0	0	0	
2927	DAIRYLAND POWER COOPERATIVE	WC LF4	1,655,700	684,516	0	77,772	724,723	0	0	0	0	0	0	0	0	0	
2806	MOSINEE PAPER CORP LANDFILL	WC LF2	500,000	106,450	0	6,316	100,000	0	0	0	0	0	0	0	0	0	
2578	NEENAH PAPER - WHITING MILL LANDFILL	WC LF2	169,000	107,453	0	0	0	0	0	Closing	0	0	0	0	0	0	
1365	NEENAH PAPER - WHITING MILL LANDFILL	WC LF4	1,280,000	973,099	0	30,106	935,524	0	0	0	0	0	0	0	0	0	
2613	NEKOOSA PAPERS INC ASH BARK SITE	WC LF4	2,738,369	820,642	0	52,303	745,852	0	0	0	0	0	0	0	0	0	
2695	NEKOOSA PAPERS INC WW TREATMENT SITE	WC LF4	1,200,000	125,452	0	33,107	45,000	0	0	0	0	0	0	0	0	0	
3115	PLAINWELL TISSUE	WC LF2	368,900	0	0	14,216	0	0	0	0	0	0	0	0	0	0	
3067	WAUSAU-MOSINEE PAPER CO LANDFILL #3	WC LF4	873,000	863,768	0	0	863,768	0	0	0	0	0	0	0	0	0	
3067	WIS PUBLIC SERV CORP-WESTON ASH DISP SITE #3	WC LF4	873,000	863,768	0	0	863,768	0	0	0	0	0	0	0	0	0	

FACILITY NAME	LIC NO	RE TYPE	INITIAL CAPACITY	CAPACITY AS OF 1/1/87		1997 TONNAGE*		STATUS	IL	Out-of-State Waste (In Tons) Received in 1997					
				CU YDS	AS OF 1/1/88	Cat. 1 TONNAGE	Cal. 2-6.20 TONNAGE			CU YDS	AS OF 1/1/88	IN	IA	MI	MN
WIS PUBLIC SERVICE CORP WESTON #3 LANDFILL	2879	WC LF2	350,000	48,448	0	847	45,742		0	0	0	0	0	0	0
TOTAL (NON-MUNICIPAL)			68,541,140	37,737,754	0	2,057,785	35,182,367		3,932	0	0	0	6	0	0
TOTAL (combined)			197,976,377	103,280,362	5,094,214	3,571,497	92,266,024		888,089	412	12,423	7,108	260,323	0	0

LF1=<50,000 CYDS; LF2=50,000-500,000 CYDS; LF3=>500,000 CYDS; LF4>500,000 CYDS(MONOFILL)

CAT. 1=MUNICIPAL SOLID WASTE

CAT. 2-6=ASHES & SLUDGES FROM UTILITY POWER PLANTS; PULP OR PAPERMILL WASTE/SLUDGES; FOUNDRY MFG

WASTES WASTEWATER TREATMENT PLANT WASTE SLUDGES; AND ALL OTHER SOLID WASTE NOT DESIGNATED AS HAZARDOUS OR MINING WASTE

CAT. 20=ASH FROM INCINERATION FOR ENERGY RECOVERY

EXCLUDED ARE WASTES EXEMPT FROM ENVIRONMENTAL

OUT OF STATE WASTE=ALL WASTE CATEGORIES, INCLUDING WASTE EXEMPT FROM FEES

(APPROX 28,976 TONS OF OUT OF STATE WASTE WAS WASTE EXEMPT FROM FEES)

*Tonnages which have been reported as exempt from environmental fees are not included in these two columns. However, both exempt and non-exempt tonnages are reported in the columns representing waste received from other states. 28,976 tons of waste received from other states were reported as being exempt from environmental fees.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

1/24/95

REPLY TO THE ATTENTION OF

R-19J

George E. Meyer
Secretary
Wisconsin Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

RECEIVED

Dear Mr. Meyer:

Pursuant to the Federal Polychlorinated Biphenyl (PCB) regulations published on February 17, 1978, 40 Code of Federal Regulations (C.F.R.) § 761.60 (a) (5), under the authority of the Toxic Substances Control Act (TSCA) of 1976 (Public Law 94-469), 15 U.S.C. §§ 2605 and 2617, the United States Environmental Protection Agency, Region 5 (U.S. EPA) is issuing the enclosed document entitled "In The Matter of The State of Wisconsin, Department of Natural Resources, Approval To Dispose of Polychlorinated Biphenyls (PCBs)." This approval allows the Wisconsin Department of Natural Resources (WDNR) to select disposal facilities that comply with Wisconsin Administrative Code Chapters NR 500-520 for the disposal of sediments contaminated with PCBs at concentrations of 50 ppm or greater from sediment remediation projects conducted under the authority and supervision of the WDNR. In granting this approval, the U.S. EPA retains all of its authority to issue PCB disposal approvals in the State of Wisconsin under 40 C.F.R. §§ 761.60, 761.70, and 761.75.

This approval is based upon the WDNR's May 6, 1994 application to dispose of dredged sediments by an alternative disposal method, under 40 C.F.R. § 761.60 (a) (5), and upon the U.S. EPA's evaluation of the State of Wisconsin's solid waste landfill regulations (Wisconsin Administrative Code Chapters NR 500-520). In addition, the approval is based upon the Agency's conclusion that the disposal of PCB contaminated sediments in a State of Wisconsin solid waste landfill will provide adequate protection to human health and the environment. In evaluating this application, the U.S. EPA has given great weight to the WDNR's record of commitment to environmental protection and demonstrated ability to administer its programs.

This approval shall be effective upon the date of my signature, and it may be terminated at any time by either the WDNR or the U.S. EPA by written notice to the other party. The WDNR and the U.S. EPA will meet at the end of each year to discuss the

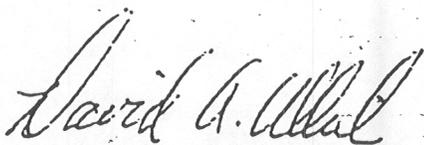
progress made under this program and to discuss the objectives for the next year.

While the U.S. EPA anticipates no significant problems with the State's administration of this approval, it is the responsibility of the WDNR and of the disposal facilities selected under this approval to ensure that all applicable provisions of TSCA, the Federal PCB regulations, and the terms of this approval are followed. Violation of any of the applicable provisions may be cause for an enforcement action under Section 15 of TSCA, 15 U.S.C. § 2614.

In closing, I applaud the WDNR's plans for remediation of PCB contaminated sediments from State waters. The WDNR is clearly at the forefront of such efforts. We at Region 5 also place a high priority on remediation of contaminated sediments from our rivers and lakes. It is my hope that by issuing this disposal approval the U.S. EPA will help to realize WDNR's ambitious sediment program.

Please contact Phyllis Reed of my staff, at (312) 886-6086, if you have any questions pertaining to this matter.

Sincerely yours,



Valdas V. Adamkus
Regional Administrator

Enclosure

Sections 5 or 6 of TSCA, except that a State may regulate the disposal of such chemicals, mixtures, and articles as described at Section 6(a)(6) of TSCA. U.S. EPA has determined that under TSCA, State requirements regarding disposal of PCBs are completely exempt from Federal preemption insofar as they prescribe what may be done within the State boundaries, but that a State may not require PCBs generated within its boundaries to be disposed of by a method less restrictive than prescribed by TSCA (43 FR 7153, February 17, 1978).

FINDINGS

1. On May 6, 1994, the Wisconsin Department of Natural Resources (WDNR) submitted a written application to the Regional Administrator of Region 5 to dispose of sediments containing PCBs at concentrations of 50 ug/g (ppm) or greater from remediation projects authorized and supervised by the WDNR in landfills within Wisconsin which comply with Wisconsin Administrative Code (Wis. Adm. Code) chapters (chs.) NR 500-520 and have been authorized under § NR 157.07, Wis. Adm. Code, to accept PCB contaminated sediments.
2. In 1989, the Wisconsin State Legislature recognized the serious problem contaminated sediments present to the State by providing funding to establish WDNR's sediment remediation program. The goal of the program is to restore the surface waters of the state where the resource uses have been impaired or damaged by the presence of contaminated sediments.
3. Sediments contaminated with PCBs represent a serious risk to human health through consumption of contaminated fish; represent risks to aquatic ecosystems, which include endangered species; and present limitations to economic well-being by impairing commercial fisheries, recreational uses, and commerce through increased dredging costs.
4. The WDNR sediment remediation program has set goals to fully restore aquatic environments with cleanup standards for PCBs in the parts per billion range where environmentally and technically feasible.
5. The PCB contaminated sediment problem in Wisconsin is large in scope. There are approximately seven million cubic yards of sediments contaminated with PCBs which need to be remediated to restore full beneficial uses of impaired overlying waters.
6. Presently, there is no U.S. EPA-approved PCB disposal facility within the State of Wisconsin.

7. The disposal of PCB containing sediments from WDNR remediation projects in existing out of state PCB disposal facilities is not reasonable and appropriate because the WDNR's cleanup goals and the technical constraints of sediment remediation will likely generate a significantly larger volume of TSCA regulated sediments during remediation than existed in situ; because of the risk presented by delaying remediation efforts in dynamic, often high energy, and ecologically sensitive aquatic environments and the additional risk of spills presented by long distance shipping of such large quantities of contaminated sediments; and because increased disposal costs could limit planned State sediment remediation efforts and would prevent much needed sediment remediation and risk reduction in the State of Wisconsin.
8. Based on technical, environmental, and economic considerations, disposal of PCB contaminated sediments within the scope of the WDNR application in a TSCA incinerator or TSCA chemical waste landfill is not reasonable and appropriate.
9. PCBs are regulated in the State of Wisconsin by ch. NR 157, Wis. Adm. Code. Section NR 157.07, Wis. Adm. Code, authorizes the WDNR to approve the disposal of PCB contaminated sediments into chs. NR 500-520, Wis. Adm. Code, landfills as an alternate disposal option.
10. The disposal of sediments contaminated with PCBs at concentrations of 50 ppm or greater in a landfill which fully complies with chs. NR 500-520, Wis. Adm. Code, and with the additional conditions of this approval, as set out herein, provides adequate protection to human health and the environment as required under 40 C.F.R. § 761.60(a)(5).
11. Under the supervision of the WDNR, the disposal of sediments contaminated with PCBs at concentrations of 50 ppm or greater in a landfill which fully complies with chs. NR 500-520, Wis. Adm. Code, and with the additional conditions of this approval set out herein, provides the same level of protection required for these sediments by U.S. EPA, Region 5, and therefore is not less restrictive than TSCA.

CONDITIONS OF APPROVAL

40 C.F.R. § 761.60(a)(5) provides that the Regional Administrator may set limitations in an alternate disposal approval. This approval is conditioned upon the WDNR sediment remediation program's compliance with the following conditions:

1. This approval applies only to sediments contaminated at PCB concentrations of 50 ppm or greater which have originated in Wisconsin waterways. Dilution of sediments to reduce the PCB concentration to below 50 ppm is not allowed. Disposal of sediments contaminated at concentrations of 500 ppm or greater is subject to concurrence by both U.S. EPA, Region 5, and the WDNR on a case by case basis.
2. This approval applies only to sediment remediation projects conducted under the authority and supervision of WDNR.
3. WDNR shall provide a written notice of project activity to U.S. EPA, Region 5 within 30-days following the selection of each sediment disposal landfill under this approval.
4. WDNR shall provide public notification at least 30-days prior to the selection of each sediment disposal landfill under this approval. If this notification generates sufficient public interest, WDNR shall hold a public meeting to discuss the selection of the landfill. WDNR shall consider all oral and written comments received prior to issuing a landfill plan modification to accept PCB contaminated sediments.
5. WDNR shall give full consideration to issues of environmental justice in selecting or siting the sediment disposal landfills under this approval.
6. WDNR shall issue a plan modification to the selected landfill requiring the landfill to comply with approval conditions numbered 11, 12, 14, 16, 18, 19, 21, 24, and 25, as set forth herein.
7. In issuing a plan modification to a chs. NR 500-520, Wis. Adm. Code, landfill for disposal of PCB contaminated sediments, WDNR shall specify to the selected landfill(s) the nature of the remediation and disposal project. This plan modification shall also include a statement that the facility may be used for the disposal of PCB containing sediments at 50 ppm or greater only if they originated from a specified WDNR project.
8. Prior to issuing a plan modification for a landfill to accept PCB contaminated sediment, WDNR shall review all past exemptions from chs. NR 500-520, Wis. Adm. Code, granted to said landfill and determine whether any exemption is relevant to TSCA and the conditions of this approval. If the exemption is relevant to TSCA or the conditions of this approval, WDNR shall receive U.S. EPA concurrence with the exemption before issuing the plan modification.
9. If WDNR issues additional exemptions from chs. NR 500-520, Wis. Adm. Code, relevant to this approval, after a landfill

has received a plan modification, WDNR shall obtain U.S. EPA concurrence before placing additional PCB contaminated sediments in the landfill.

10. WDNR shall provide written notice to each selected landfill that the landfill is required under 40 C.F.R. § 761.205(a)(1) to notify U.S. EPA of the landfill's PCB waste handling activities by filing U.S. EPA Form 7710-53.
11. Prior to placing any PCB contaminated sediment in a landfill, the selected landfill shall file U.S. EPA Form 7710-53, as required by 40 C.F.R. § 761.205(a)(1).
12. PCB contaminated sediments placed in a chs. NR 500-520, Wis. Adm. Code, landfill may not be commingled with any potentially incompatible waste. Potentially incompatible wastes are those wastes that have the capacity to mobilize PCBs.
13. WDNR shall conduct an annual evaluation of PCB (≥ 50 ppm) sediment disposal projects. WDNR shall submit an evaluation report to the Regional Administrator, U.S. EPA, Region 5, by July 1 of each year covering the previous calendar year's activities under the approval. The report shall include the total volume of PCB contaminated sediment disposed under this approval during the year. The conditions of this permit shall serve as a basis for this evaluation. Upon receipt of the WDNR annual evaluation report, U.S. EPA, Region 5 shall comment either by concurring with the evaluation or by indicating where U.S. EPA disagrees with the results.
14. In the event that this permit is terminated by either the U.S. EPA or WDNR, PCB contaminated sediments previously disposed in a landfill designated pursuant to this approval shall be considered by U.S. EPA to have been properly disposed of and in full compliance with 40 C.F.R. § 761.60 requirements, provided that the sediment was disposed of according to State regulatory requirements and the conditions of this approval and that the landfill continues to operate under the terms and conditions of this approval.
15. In the event that this approval is terminated, WDNR shall ensure that the landfill continues to comply with the monitoring and corrective action requirements of this approval.
16. Owners or operators of landfills accepting PCB contaminated sediments under this approval shall be required by WDNR to test for PCBs in the leachate on a quarterly basis for the first year following disposal. If no PCBs are detected in leachate, the WDNR may allow testing on an annual basis. The landfill owner or operator shall be required by WDNR to

perform PCB sampling at site groundwater monitoring wells in the event of any significant change to PCB levels in the leachate. Leachate or groundwater known or suspected of having concentrations of 50 ppm or greater shall be managed as PCB waste in accordance with § NR 157.07, Wis. Adm. Code, and 40 C.F.R. § 761.60.

17. Prior to WDNR issuing a plan modification for a landfill to accept PCB contaminated sediment, the owner or operator of the landfill shall analyze their leachate for PCBs and shall provide WDNR with a copy of the analytical results.
18. Prior to the discharge of leachate to a publicly owned treatment works (POTW), and regardless of the actual PCB concentration in the leachate, a landfill selected under this approval shall notify the POTW that the landfill accepts PCB contaminated sediments.
19. Groundwater at any landfill accepting PCB contaminated sediments under this approval shall meet § NR 140.10, Wis. Adm. Code, groundwater preventive action and enforcement standards for PCBs, as defined in the point of standards application at § NR 140.22, Wis. Adm. Code.
20. The WDNR shall respond to exceedances of groundwater standards in accordance with §§ NR 140.24, NR 140.26, and ch. NR 708, Wis. Adm. Code.
21. Monitoring well water suspected or known to contain PCBs in excess of § NR 140.10, Wis. Adm. Code, groundwater standards for PCBs of 0.03 parts per billion shall not be discharged directly to the ground or to receiving waters and shall be contained, managed, and treated as leachate.
22. The Department shall provide written notice to Region 5 within 10 days of any state-ordered remedial action related to PCB waste at a landfill authorized to accept PCB contaminated sediments under this approval. Remedial response to spills or exceedances of groundwater standards shall be performed under §§ NR 140.24. and NR 140.26 and chs. NR 158 and NR 708, Wis. Adm. Code, authority and 40 C.F.R. § 761.125.
23. Landfills selected under this approval may not be located in the 100 year floodplain.
24. PCB contaminated sediments shall be dewatered or solidified prior to arrival at a landfill selected under this approval.
25. PCB contaminated sediments disposed under this approval may not be used as daily cover.

26. WDNR shall notify each landfill selected under this approval that the landfill shall provide U.S. EPA with an annual document log, complying with 40 C.F.R. § 761.180(b), for each year that the landfill accepts PCB contaminated sediments.
27. This approval will expire five (5) years from the date of the Regional Administrator's signature on the approval. This approval may be renewed upon the concurrence of both parties to the approval at five year intervals. Discussions on approval renewal will begin 180 days before the approval's next expiration date.

APPROVAL

Providing the above mentioned conditions are met, and in accordance with 40 C.F.R. § 761.60(a)(5), and consistent with the WDNR's May 6, 1994 sediment disposal application and its attachments, the WDNR is granted an approval to select disposal facilities having approved plans of operation under § 144.44(3) Wis. Stats. that comply with chs. NR 500-520, Wis. Adm. Code, and are authorized under § NR 157.07, Wis. Adm. Code, for the disposal of sediments contaminated with PCBs at concentrations of 50 ppm or greater. This approval applies only to the disposal of PCB containing sediment originating in Wisconsin and remediated under the authority and supervision of WDNR. WDNR may not approve facilities within the State of Wisconsin to accept sediments containing PCBs at 50 ppm or greater from projects not conducted under the authority and supervision of WDNR. In addition to the terms and conditions of this approval, selected facilities shall comply with all applicable State and Federal environmental statutes and regulations. This approval may be terminated at any time by either the WDNR or U.S. EPA by written notice to the other party.

Valdas V. Adamkus

Valdas V. Adamkus
Regional Administrator
U.S. Environmental Protection Agency
Region 5

1/24/95

Date / /

CORRESPONDENCE/MEMORANDUM _____

BOB PAULSON WT/2

DATE: June 26, 1998
TO: Bernie Robertson - WT/2
FROM: Duane Schuettpelz - WT/2
SUBJECT: Effluent limitations for the Fox River Demonstration Projects



The attached report contains an analysis and recommendations we will use in the development of final recommendations for effluent limitations for the Deposit N and Deposit 56/57 demonstration project sites on the Fox River. Please use this information to develop the WQBEL recommendations for PCB and other substances for these sites. Prepare the memoranda containing this information for my approval and signature.

My conclusions stated in this report indicate that the removal of contaminants from Deposits N and 56/57 will rid the river of hundreds of pounds of PCB. Through well-designed handling and treatment techniques, only a small amount of PCB (less than one pound) will return to the river with the carriage return water and these operations will occur over only a relatively short period of time. These removal actions will not, themselves, cause the water quality criteria for PCB in the Fox River to come into compliance with the water quality standards. They will, however, move the River in a direction toward water quality standards attainment.

Our recommended effluent limitations for PCB at both sites shall not be less than 1.2 ug/L and are to be established on the basis of treatment technology which does not involve additional carbon adsorption treatment processes. Such limitations are appropriate within the overall context of these specific demonstration projects discussed in this report and are not to be used as a precedent for future effluent limitations or requirements for sediment remediation projects. Permits should be proposed for issuance to allow these projects to be implemented in this manner. The result will be the best overall environmental solution to the problem of contaminants in the Fox River.

cc: Fox River Guidance Team
Bob Masnado - WT/2
Mike Witt - WT/2

DEVELOPMENT OF EFFLUENT LIMITATIONS FOR THE FOX RIVER FIELD-SCALE DEMONSTRATION OF RESTORATION PROJECTS

by
Duane H. Schuettpelz
June 26, 1998

1.0 INTRODUCTION

The Department of Natural Resources, in cooperation with several parties in the Fox River Valley (Fox River Group), have agreed to conduct "field-scale demonstration of restoration projects" at two locations along the Fox River. In order to assure completion of these demonstration projects, certain permit or other regulatory and non-regulatory decisions must be made. The purpose of this document is to provide an overall rationale and perspective for use in the decision processes associated with the WPDES permits (and others as it may apply) which must be issued by the Department. This document will not address the handling and disposal of the residual sediments which are removed from the river.

The restoration of the Fox River to the full range of uses which are safe for humans and the ecological integrity of the River and the downstream areas of Green Bay, Lake Michigan and the other Great Lakes requires a reduction in the amount of contaminated sediments which exist in the river. Through on-going erosion and transport, the bioaccumulating contaminants in the sediments continue to move slowly through the system, eventually making their way to the downstream areas. In both the Fox River and downstream, the contaminants are, through various physicochemical and biological processes, available for uptake through the food chain into fish and, eventually, humans and wildlife. Once bioaccumulating substances reach Green Bay and Lake Michigan, they have escaped any realistic means to effect their eventual removal or isolation from the ecosystem.

In removing or otherwise dealing with these sediments, certain activities may result in the release of toxic substances into the water through resuspension, the return of carriage water from dewatering operations, etc. This discussion is specific with respect to the WQBELs for the carriage return water discharges, but may be considered for other decisions as well. Although WPDES permits are required for the discharge of carriage return water from contaminated sediment sites, the application of specific provisions of existing rules to such discharges may not be logical in the context under which the rules were developed. It is with this dilemma as the backdrop that this document is provided.

The conclusions reached in this report are based solely on the situation which is present with respect to these specific projects, including:

- ▶ these projects are demonstration projects
- ▶ these projects are of limited scope and duration

- ▶ these projects are designed to help answer questions for future work
- ▶ these projects will provide directions for future decision processes, including need for changes in statutes, rules and guidance

Therefore, these projects must not be considered precedent setting and the decisions reached will not be considered as establishing the process or decision result for any future project which may or may not have similarities to these projects.

2.0 WATER QUALITY STANDARDS

Water quality standards are contained in NR 102 through NR 106, Wis. Adm. Code. Criteria which serve as the basis for actions of the Department in regulatory or other decisions are contained in NR 102 and NR 105. For purposes of this discussion, only the application of the criterion for PCB will be evaluated and this substance may be used as a surrogate for other substances (toxic or otherwise) in reviewing the decisions which must be made.¹

The applicable PCB criteria for the Fox River are as follows:

Wildlife	0.12 ng/L ²
Human health	0.003 ng/L (criterion applies to all waters of the Great Lakes system)

3.0 SETTING

There are two specific areas which have been designated for the "demonstration of restoration projects". They are called Deposit N and Deposit 56/57 (the Agreement describes this latter deposit only as a site below DePere Dam).

3.1 Deposit N

Deposit N is located a short distance upstream of the lock and dam at the Village of Kimberly and near the south shore of the river. It is a small deposit of soft sediment which contains high concentrations of PCBs. Based on sampling of the Deposit, sediment PCB concentrations range from zero to 180 mg/kg³, with an average of about 45 mg/kg. The estimated mass of PCB in the designated deposition area is 414 pounds (188 kg).

¹Investigation of the contaminants in the sediments at the Deposit 56/57 site have indicated the presence of the substance dioxin in one layer of a single core sample and in the simulated effluent. See Attachment A for additional information.

²A water concentration expressed as ng/L is equivalent to parts per trillion

³A sediment concentration expressed as mg/kg is equivalent to part per million.

Fox River water PCB concentrations at or near this location range from 10 to 200 ng/L depending on the time of year and analytical method. The average measured concentration is approximately 33 ng/L. Fish collected from the River near this location within the past 5 years contain PCB in concentrations ranging from 0.5 mg/kg⁴ to more than 4.0 mg/kg depending on the species, its size and type of sample (fillet or whole fish). Under the existing condition, water quality criteria for PCB in the Fox River are, therefore, being exceeded. Current point-source discharges of PCB are generally less than the analytical detection levels, and the primary source of PCB in the water column is release from the sediments or attached to sediment particles moving with the water.

At this site, the average annual mass of PCB moving with the water in the river from upstream locations is estimated to be 300 pounds per year, including the amount of PCB transported during high flow events. On an annual basis, the Green Bay Mass Balance Study predicted that the loss of PCB from Deposit N is approximately 46 pounds per year, both through release to the water and sediment movement downstream.

3.2 Deposit 56/57

This deposit is located in the lower part of the Fox River below the DePere Dam, the last downstream dam on the River. The River at this point is influenced by the seiche and backwater effects of Green Bay. It is off-shore of the property occupied by the Fort James Corporation paper mill. This deposit is a significantly larger deposit of soft sediments containing, on average, a higher concentration of PCB (85 mg/kg) than Deposit N. This deposit is specifically characterized in the agreement as a large-scale sediment restoration project.

Sediment PCB concentrations at Deposit 56/57 range from zero to 700 mg/kg with an average concentration of 85 mg/kg. The currently estimated mass of PCB in this deposit is 4600 pounds (2090 kg). Water concentrations of PCB measured at or near this location range from 10 to 200 ng/L, with an average of approximately 50 ng/L. Fish collected from the River near this location within the past 5 years contained from 0.2 to over 5 mg/kg of PCB depending on species, size and type of sample (fillet or whole fish). At this location, however, fish are migratory, and not always reflective of residents of this part of the River. Under the existing condition, water quality criteria in the Fox River are not being attained. Current point-source discharges of PCB are less than analytical detection levels, and the primary source of PCB in the water column is release from the sediments.

The estimated average annual mass of PCB from upstream sources moving through the river at this location is 600 pounds per year⁵ including that which is transported during

⁴A tissue concentration expressed as mg/kg is equivalent to parts per million.

⁵River flow at the two project sites is similar as is the measured water column concentration. The difference in the mass loading of PCB at the two sites is caused by differences in the amount of

high flow events. Only about 4 pounds of PCB are predicted to move directly from this site on an annual basis due to the low velocities of the river at this location.

4.0 PROPOSALS FOR DEMONSTRATION OF RESTORATION

Considerable discussion has occurred regarding the best, most practicable, most environmentally sound, least expensive, etc. method for the restoration of the Fox River from the impacts caused by contaminated sediments. Sediment removal has been identified as the methodology which will be used to demonstrate how best to deal with the sediments. Consultants, working under the guidance of the Department and in collaboration with the Fox River Group, have evaluated several means to remove and treat the sediments and have concluded that dredging and on-land dewatering followed by disposal to landfill is the most efficient means to address these sediments. For purposes of these demonstration projects, the proposed restoration scenarios are as follows:

4.1 Deposit N

Sediment would be dredged from the River and piped to an on-shore dewatering facility located on the north shore of the river. Carriage water would be separated from the solids utilizing an active dewatering process, and be sent to a treatment facility from where it would discharge back to the River near the same location (but near the north bank of the River).

Existing design will remove approximately 10,000 cubic yards of sediment from Deposit N. Based on the amount of PCB in this sediment deposit, about 414 pounds (188 kg) of PCB will be removed from the River at this location. The design consultants estimate that no or little PCB will remain within the boundaries of the deposit site after the project. Silt curtains employing the current state of practicable technology would isolate the active dredging area from the surrounding waters of the Fox River. Using modern environmental dredging techniques, approximately 0.1 kg of PCB is predicted to be lost during dredging.

4.2 Deposit 56/57

At this site, environmentally sound dredging techniques will be used similar to the work at the upstream site. Under the current proposed design, the dredged materials would be piped to a passive dewatering facility on property (known as the former Shell Oil Company site) northeast of the railroad tracks which cross the river immediately adjacent to the Fort James paper mill in Green Bay. River velocities at this location may be either upstream or downstream depending on the seiche action.

The proposed passive dewatering facility for this site is a large lagoon which simply relies on quiescent settling of solid particles into the bed of the lagoon with water bled

material transported during high flow events.

off the surface and passed through treatment prior to discharge back to the river a short distance downstream from the dredging site. Preliminary design conditions would allow for the removal of approximately 40,000 cubic yards of sediment from this deposit. Based on the amount of PCB in this sediment deposit, about 2,700 pounds(1,227 kg) of PCB will be removed from the River at this location while an estimated mass of PCBs remaining within the boundaries of the deposit site will be 1,900 pounds(864 kg). Silt curtains employing current state of practicable technology would isolate the active dredging area from the surrounding waters of the Fox River.

5.0 WPDES PERMIT EFFLUENT REQUIREMENTS

The overall purpose of addressing sediments in the Fox River is to remove these substances from continuing long term exposure and movement to Lake Michigan and the other downstream Great Lakes. Without removal from the River, the substances will continue to move with the sediments and into the water column down the river. From the long-term and large-scale perspective, therefore, removal and isolation of these contaminants in places which are not accessible by humans and other organisms in the food chain means the substance is generally not available to cause toxicological effects. Each molecule of contaminant removed from the river now is a molecule which will not be available for exposure through the food chain at a point in the future.

In developing effluent limitations for these discharges of PCB and certain other substances, several different provisions of NR 106 may apply. For bioaccumulative chemicals of concern(BCCs) like PCBs, the limitations for new discharges must be equal to the criterion for that substance. The basis for this provision is contained in the U.S. Environmental Protection Agency's Supplemental Information Document for the Water Quality Guidance for the Great Lakes System and is stated as follows:

The final Guidance is consistent with the Steering Committee's policy that every reasonable effort be made to reduce all loadings of BCCs to the Great Lakes System... A general principle of the Great Lakes Water Quality Agreement supports the elimination of point source impact zones(i.e., mixing zones) for toxic substances as consistent with the overall policy of the virtual elimination of persistent toxic substances.

In summary, the rationale for this BCC provision is to assure that no new BCCs are added to the Great Lakes System.

In the case of these demonstration projects, any substances in the discharge of carriage return water are already present in the system. There is no new introduction of the substance to the system, but, rather, there is a significant net removal from the system.

Based on the above information, it is appropriate to apply the provisions of NR 106.06(6), Wis. Adm. Code. This section of the rule applies when the concentration of a substance in the background of the receiving water at the point of discharge is greater than the established water quality criterion for the substance. In the case of PCB, the concentration of the substance in the water column exceeds the water quality criterion.

If the source of the water being discharged is made up of more than 10% receiving water, the rule requires that the effluent limit be set equal to background . This is the case for these demonstration projects.

Alternatively, the rule allows an effluent limitation or other requirement to be established "*...in the event the discharger's relative contribution to the mass of the...substance...is negligible...*". Furthermore, this is allowed when there is a demonstration that treatment provided is the "*...best demonstrated treatment technology reasonably achievable*", a level of treatment applied on a case-by-case basis within the discretion of the Department.

The carriage return water from the dewatering facilities at both sites require that the Department issue a WPDES permit for these discharges. There are no specific technology-based effluent limitations which apply to such facilities. However, the provisions of NR 220 require the case-by-case establishment of treatment technology-based limitations. In addition, the Department must establish water quality based effluent limitations which are determined through the application of the provisions of NR 106, Wis. Adm. Code. This code is designed to assure that discharges do not result in the exceedance of the water quality criteria applicable at the point of discharge as implemented through the provisions contained in NR 106. For these projects, the following conditions will apply:

- ▶ PCB concentrations in the background(upstream) water of the River at these locations exceeds current water quality criteria
- ▶ PCB and other substances will be present in the material which is sent to the dewatering facilities
- ▶ Treatment of the dredged material should employ the best demonstrated treatment technology reasonably achievable given the nature, duration and overall objective of the each of the demonstration projects
- ▶ Treatment for the carriage return water should employ the best demonstrated treatment technology reasonably achievable given the nature, duration and overall objective of each of the demonstration projects

5.1 Deposit N

5.1.1 Wastewater treatment

The permit application design parameters for the carriage return water at this site include a discharge rate of approximately 360,000 gallons per day. Based on the relatively small amount of sediment removed, an active dewatering process has been proposed. Similarly, because this project also produces a relatively small volume of discharge, the treatment processes identified in. The permit application has been prepared with the assumption that the treatment requirements for this discharge may include carbon adsorption, in addition to coagulation, settling and filtration. Carbon

adsorption removes PCB to concentrations less than detectable levels. Without this latter treatment process, effluent PCB is projected to be between 0.9 ug/L and 1.2 ug/L⁶.

5.1.2 Removal/discharge

As noted above, the mass of the substance PCB being removed from the Fox River at Deposit N is 414 pounds(188 kg). In the permit application for this discharge, the concentration of PCB in the simulated effluent from the system employing advanced treatment as described above was not detected at approximately 0.5 ug/L. The discharge volume will be not more than 360,000 gallons per day for 40 days.

NR 106 requires that whenever a substance in the receiving water is greater than the applicable criterion, the effluent limitation is equal to the background (0.33 ng/L) or an alternative is established according to the provisions contained in NR 106.06(6)(d). However, as reported in the permit application and as is the case for most wastewater discharges, the limit of detection is approximately 0.5 ug/L. NR 106 indicates that any effluent sample reported as less than the limit of detection is in compliance with the permit, and is assumed equal to zero. Therefore, even though a limit equal to 0.33 ng/L may be established in the permit, compliance is determined on the basis of the limit of detection.

For purposes of illustration, if it is assumed the discharge concentration is equal to the limit of detection(0.5 ug/L) and at the noted flow, then the mass of PCB returning to the river would be 0.0015 lbs/day(.0007 kg/day). In this instance the discharge will occur over a 40 day period and the total mass of PCB discharged to the river will not be greater than an estimated 0.06 pounds(.028 kg) over the life of the project.

If the additional carbon adsorption treatment process is removed from the wastewater treatment train, the concentration of PCB in the simulated effluent from the system ranged from 0.9 to 1.2 ug/L. Given the flow conditions noted above, this produces an effluent mass discharge of approximately between 0.108 and .144 pounds(0.049-0.065 kg) for the period of discharge.

Therefore, in removing 414 pounds of PCB from the Fox River system and its potential for long term exposure, the permit may allow, with additional carbon adsorption treatment, the reintroduction of less than one-tenth of a pound back to the River. Without the additional treatment, between one-tenth and two-tenths of a pound may be returned to the river.

5.1.3 Summary

The table below summarizes the several components associated with the removal and discharge of PCB at this site. The short-term discharge of PCB from this project will result in the return of a negligible amount of PCB to the Fox River in relation to the

⁶A water concentration expressed as ug/L is equivalent to parts per billion.

amount being removed. It is also an insignificant amount when compared to the amount of PCB currently in the water column at the site.

PCB removed from River	414 pounds
PCB in River water moving across site during 40 day period	25 pounds
PCB discharged with additional treatment (effluent assumed = LOD)	0.06 pounds
PCB discharged without additional treatment	0.108 - 0.144 pounds

5.2 Deposit 56/57

5.2.1 Wastewater treatment

As described above, this site is proposing to remove a significantly larger volume of contaminated sediment from the River than the site further upstream. Accordingly, under the current proposed design, the amount of carriage return water is much larger both in terms of rate and overall total project volume. The design flow for the carriage return water at this site is projected to be approximately 2.1 mgd (million gallons per day) during the active dredging phase of the project lasting approximately 30 days. This will be followed by a flow rate of 0.14 mgd during the 120-day phase when the sediment in the dewatering facility is undergoing further drying. All flow will be diverted through a wastewater treatment system prior to discharge back to the Fox River.

Two wastewater treatment processes have been evaluated during the design of this project. The first process employs flocculation, coagulation and filtration. Wastewater treatment using this process train produces an effluent containing approximately 0.9 to 1.2 ug/L of PCB. The second involves additional treatment, in the form of carbon adsorption, to the above basic treatment. The addition of carbon adsorption removes PCB to concentrations less than detectable levels (<0.5 ug/L). Simulated effluent from the latter process was used to provide information for the WPDES permit application on the assumption this treatment technology may be required as part of the treatment process.

5.2.2 Removal/discharge

As noted above, the mass of the substance PCB proposed to be removed from the Fox River at Deposit 56/57 is 2,700 pounds (1,227 kg). NR 106 requires that whenever a substance in the receiving water is greater than the applicable criterion, the effluent limitation is equal to the background (0.33 ng/L) or an alternative may be established according to the provisions contained in NR 106.06(6)(d). However, as reported in the permit application, and as is the case for most wastewater discharges, the limit of detection is approximately 0.5 ug/L. NR 106 indicates that any effluent sample reported

as less than the limit of detection is in compliance with the permit, and is assumed equal to zero. Therefore, even though a limit equal to 0.33 ng/L may be established in the permit, compliance is determined on the basis of the limit of detection.

In the permit application for this discharge, the concentration of PCB in simulated effluent from the system employing coagulation, flocculation and filtration plus carbon adsorption treatment system was provided. As with the Deposit N discharge, the concentration of PCB in the simulated effluent was not detected at 0.5 ug/L. However, for purposes of illustration, if it is assumed the discharge concentration is at the limit of detection (0.5 ug/l) and at the noted flow, then the mass of PCB returning to the river would be approximately 0.33 pounds (0.15 kg) for the period of discharge. This results from 0.26 pounds for the 30 day period of active dredging and 0.07 pounds for the estimated 120 day period of further sediment dewatering.

If the additional treatment process (as described) is removed from the wastewater treatment train, the concentration of PCB in the simulated effluent from the system ranged from 0.9 to 1.2 ug/L. Given the flow conditions noted above, this produces an effluent mass discharge of approximately between 0.61 and .80 pounds (0.28 - 0.37 kg) for the period of discharge.

Therefore, this project will result in the removal of 2,700 kg of PCB from the Fox River system and its potential for long term exposure. If a permit is issued to meet effluent concentrations equal to background, the permit could allow the reintroduction of less than one-third of a pound back to the River. If the additional treatment is not employed, then the discharge would be between six-tenths and eight-tenths of a pound.

5.2.3 Summary

The table below summarizes the several components associated with the removal and discharge of PCB at the project 56/57 site. The short-term discharge of PCB from this project will result in the return of a negligible amount of PCB to the Fox River in relation to the amount being removed. It is also an insignificant amount when compared to the amount of PCB currently in the water column at the site.

PCB removed from River	2,700 pounds
PCB in River water moving across site during 30 day period	50 pounds
PCB discharged with additional treatment (effluent assumed = LOD)	0.33 pounds
PCB discharged without additional treatment	0.61 - 0.80 pounds

6.0 COST FOR TREATMENT

Treatment costs increase with the provision of additional technologies to the coagulation-flocculation-filtration treatment trains. Based on the information in the design reports from the Department's consultants, costs for the additional treatment and for treatment without the carbon adsorption technology is provided in the following sections.

6.1 Deposit N

The additional treatment costs associated with providing carbon adsorption treatment for the carriage return water at this site is not available at this writing. However, assuming it is proportionately (based on a comparison of wastewater flow) the same as that for the Deposit 56/57 site (see discussion in Sec. 6.2), the cost are estimated to be approximately \$45,000 to \$50,000. Using the same comparison as shown in Sec. 6.2, an additional significant quantity of sediment may be removed at another river location with this funding.

6.2 Deposit 56/57

The additional treatment costs associated with providing carbon adsorption treatment for the carriage return water for this site is estimated at \$250,000 based on providing this level of treatment for the entire period of discharge. Therefore, at an additional cost of \$250,000, the effluent from the wastewater treatment system will be between 0.3 and 0.5 pounds less than without the additional treatment process. The estimated overall cost associated with the project is \$180 per cubic yard of sediment removed. If the \$250,000 is diverted from wastewater treatment to additional removal of sediment, an additional 1,400 cubic yards of sediment could be removed from this deposit. At the average concentration of PCB in this deposit, this 1,400 cubic yards of sediment would contain 82 pounds of PCB removed from the River.

7.0 DISCUSSION

The primary objective of the Memorandum of Agreement between the Department and the FRG as related to these projects is "to begin certain plans, studies or activities in the Lower Fox River/Green Bay area that will improve natural resources and will serve as the basis for evaluating certain sediment management techniques". More specifically, as stated above, these projects were envisioned to test field-scale demonstration projects for sediment restoration. The underlying purpose of the agreement is to undertake activities to restore the river from the damages which have been claimed due to the deposition of contaminants in the sediments.

The development and issuance of permits for these demonstration projects should, therefore, be in conformance with these principles contained in the agreement. The information in this report describes, to the extent possible, the environmental consequences associated the discharge of treated carriage return water to the Fox River from these specific projects. It compares those consequences with the overall benefits which will accrue from the removal of contaminants from the River. It is apparent, from the information presented, that these projects, when implemented, will result in the removal of significant quantities of PCB from further exposure in the Fox

River/Great Lakes environment. The planned activities will, however, result in the need to discharge back to the River carriage return water containing some of the contaminants which are removed in the dredging process. These projects are short-term in duration and are returning to the River only a small fraction of the material which is removed.

In establishing an alternative effluent limitation under NR 106.06(6)(d), the Department must determine that the "...relative contribution to the mass of the... substance is negligible..." (emphasis added). From the data presented in this document, there is no new contribution of PCB to the River beyond that which already exists in the River environment. The discharges back to the river are in the range of about 0.03% or less of the PCB removed at either site. Therefore, it is reasonable to conclude that these discharges are negligible according to the provisions of the rule.

Existing water quality in the Fox River already exceeds the water quality standards for parameters such as PCB. The addition of PCB in the effluent from the demonstration sites via carriage return water discharges will minimally add to the existing exceedances regardless of which of the treatment technologies described above is applied. The risk associated with these discharges in the over-all context of the existing and on-going risk is insignificant. On the other hand, the opportunity to eliminate the long term release of these contaminants to the water and the continuing level of exposure through uptake of contaminants in the food chain, is great.

In applying existing rules, the Department has discretion in the application of effluent limitations and treatment technologies for the wastewaters generated by these projects. The rule requires the application of best demonstrated treatment technology reasonable achievable whenever the Department determines that an alternative to the background concentration effluent limitation is established. As noted, there is little experience in Wisconsin to determine what technology meets this requirement, especially considering the unique nature of these projects. While the application of additional treatment could be required for these projects, the decision to establish a treatment technology as stated in this report is based on the overall goal of the projects to "...improve natural resources and...serve as a basis for evaluating certain sediment management techniques"(exerpt from the Agreement, part II).

This analysis has considered the individual impacts on the Fox River from the effluents from the demonstration project sites and any conclusions should not be extended to future sediment remediation projects along the River. Any proposals for sediment removal, treatment and disposal at other sites and projects(including whole river strategies) should undergo independent evaluation. However, it may be appropriate, following the implementation of these projects, to consider the development of rules and guidance which would provide more specific direction in decision-making regarding sediment contamination projects.

8.0 CONCLUSION

The removal of substantial quantities of PCBs(and other contaminants) from the Fox River through dredging and treatment of the residual carriage return water is being

implemented to evaluate if a means exists to remove contaminants from the river and to effectively dispose of them in a manner which eliminates them from future exposure. The information presented here substantiates that the removal of contaminants from Deposits N and 56/57 in a manner consistent with the project designs will rid the river of hundreds of pounds of PCB. Through well-designed handling and treatment techniques, only a small amount of PCB (less than one pound) will return to the river with the carriage return water from each site. These operations will occur over only a relatively short period of time. The removal actions will not, themselves, cause the water quality criteria for PCB in the Fox River to come into compliance with the water quality standards. They will, however, move the River in a direction toward water quality standards attainment.

This report establishes that the discharges of carriage water from these specific "demonstration of restoration" projects are negligible in accordance with the provisions of NR 106.06(6)(d). Effluent limitations to meet background water quality are not needed to meet the requirements of the rule. Furthermore, effluent limitations established on the basis of treatment technology which does not involve carbon adsorption treatment processes (maximum effluent concentrations = 1.2 /L) are appropriate within the overall context of the demonstration projects discussed in this report. Permits should be proposed for issuance to allow these projects to be implemented in this manner. The result will be the best overall environmental solution to the problem of contaminants in the Fox River, and will provide data and information to all the parties seeking to identify methods to address contaminated sediment issues in the River.

ATTACHMENT A

IMPLICATIONS OF DIOXIN FOR THE DEPOSIT 56/57 DEMONSTRATION OF RESTORATION PROJECT

Investigation of the contaminants in the sediments at the Deposit 56/57 site have indicated the presence of the substance dioxin in one layer of a single core sample. This substance has the lowest water quality criteria values in current Department rules. Very limited data is available to suggest that the substance is present in the sediments of the river at low concentrations. The extent of dioxin within the sediments of this demonstration project area is unknown.

In the development of the design information for the site, the consultant had provided data which indicates that dioxin was present in the effluent from the bench-scale tests following the application of carbon adsorption treatment. Only one sample analysis is available. Although the reported result for this simulated effluent was qualified by the laboratory due to detection of dioxin in the method blank, the laboratory has confirmed that dioxin was present in the sample. The Department's position is that any such confirmed sample result is sufficient to establish it as "representative" for the purpose of establishing effluent limitations under the provisions of NR 106.

Based on tissue samples from fish in the Fox River, one may logically conclude that water concentrations for dioxin are not equal to zero. In reality, it may also be appropriate to assume that dioxin concentrations in the water column are greater than the most stringent water quality criterion of 0.003 pg/L (parts per quadrillion). As with PCB, therefore, effluent limits for dioxin may be established based upon negligible contributions from the demonstration project discharges. However, the base of data to support precise calculations is not available.

Dioxin is a substance which reacts in the environment similar to PCB. It is hydrophobic and it bioaccumulates in the food chain. It is reasonable dioxin will respond in a manner similar to PCB when treatment technology is employed. Therefore, given the uncertainties in the data with respect to dioxin in sediments, water column and fish, the use of PCB as a surrogate for dioxin in the demonstration projects is appropriate. Monitoring of this substance as part of the project evaluation is necessary, and action appropriate to the situation should be taken if the data reveal these assumptions are not true.

WISCONSIN'S LANDFILL SITING PROCESS

SEPTEMBER 1996

By Paul M. Huebner¹

Wisconsin's landfill siting process is considered one of the most successful in the country because it strikes a balance between the statewide need for environmentally sound waste disposal capacity and the legitimate concerns of local citizens and municipalities. The siting process requires that landfills meet stringent siting, design, construction, operation, monitoring, performance and financial responsibility requirements to maximize the protection of public health and the environment.

In Wisconsin, all new landfills and expansions to existing landfills must obtain both state and any applicable local approvals prior to construction. Licensing of a landfill and the negotiation/arbitration of local approvals are two separate processes and occur concurrently. The landfill licensing process administered by the Wisconsin Department of Natural Resources (WDNR) is a technical decision-making process focusing on the ability of the proposed landfill design to meet all criteria and standards to protect public health and the environment. The local approval process focuses on the local economic, social and land use impacts of the landfill and is overseen by the Wisconsin Waste Facility Siting Board.

Over the last several years, a number of landfill applications in Wisconsin have been significantly delayed by new state and federal locational requirements regarding wetlands and airports and new state statutory changes made to the siting process since 1988. Other major factors contributing to such delays were lack of planning and poor site selection by some applicants, submittal of incomplete information, inadequate justification for exemptions or unique/alternative designs, and of course public opposition.

In 1995 with the assistance of a public technical advisory committee (TAC), the WDNR completed the task of incorporating the necessary changes into Wisconsin's solid waste management regulations (chs. NR 500 - 520, Wis. Adm. Codes) to conform to the new statutory requirements and the federal (Subtitle D) criteria for municipal solid waste landfills. Another primary goal of the TAC and the WDNR was to streamline the NR 500 series of codes without jeopardizing public health or the environment. Areas of duplication and unnecessary and burdensome requirements found over the past several years to not be providing any additional environmental protection were eliminated. Significant clarification was also added to make the codes more user friendly. Since the landfill siting process is laid out in state statutes it essentially remained unaltered. However, substantial changes made to the front of the technical decision making process and streamlining of the technical submittal requirements should lead to some efficiencies being realized.

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Landfill Licensing Process - The WDNR technical decision-making process is summarized in Figure 1. It includes the following mandatory steps:

INITIAL SITE INSPECTION

The purpose of an initial site inspection is to obtain a preliminary evaluation from the WDNR on the potential a proposed property has to comply with the locational criteria and performance standards specified in s. NR 504.04, Wis. Adm. Code. As specified in ch. NR 509, Wis. Adm. Code, an applicant must first submit a written request to the WDNR to arrange for an initial inspection. This request must include the following minimum information:

1. A cover letter identifying the applicant and authorized contact, type of landfill and operation being proposed, property ownership, location by quarter-quarter section and present land use.
2. A letter from the WDNR's Bureau of Endangered Resources addressing the known presence of critical habitat areas and state or local natural areas within one mile of the proposed landfill, in accordance with ch. NR 29, Wis. Adm. Code.
3. A letter from the Wisconsin State Historical Society identifying the presence of any historical, scientific or archaeological areas within the vicinity of the proposed landfill, in accordance with s. 44.40, Stats.
4. A map depicting existing conditions within one mile of the proposed boundaries of the proposed landfill.
5. A preliminary identification of all potential conflicts with the locational criteria and performance standards specified in s. NR 504.04, Wis. Adm. Code, for landfills, except for s. NR 504.04(4)(d) to (f).

Note: An initial site inspection is also required for all noncommercial soil borrow sources designated to be used in the construction, operation, or closure of a specific landfill. A written request for an inspection of a soil borrow source must include the information listed in items 1. through 4. above, and a preliminary identification of all potential effects on wetlands, critical habitat areas or surface waters.

During the inspection, WDNR staff evaluate whether or not the proposed landfill would be within a floodplain or within an area that would have an adverse impact on critical habitat, historical/archeological features, and wetlands. The WDNR staff also check to see if the anticipated landfill footprint would be within required setback distances to navigable waters, state and federal highways, public parks, airports, and water supply wells. After the inspection the applicant is notified in writing which locational criteria and performance standards the proposed property complies with and does not comply with and if further evaluations or additional studies are necessary. The initial site inspection letter from the WDNR can be used by an applicant to decide if the proposed property merits further investigation. If no follow up evaluations or studies are necessary to determine navigability of nearby surface waters, the presence of critical habitat, or to define wetland boundaries etc., the completion of this step by the WDNR generally should not take more than a couple of weeks.

LANDFILL LICENSING PROCESS

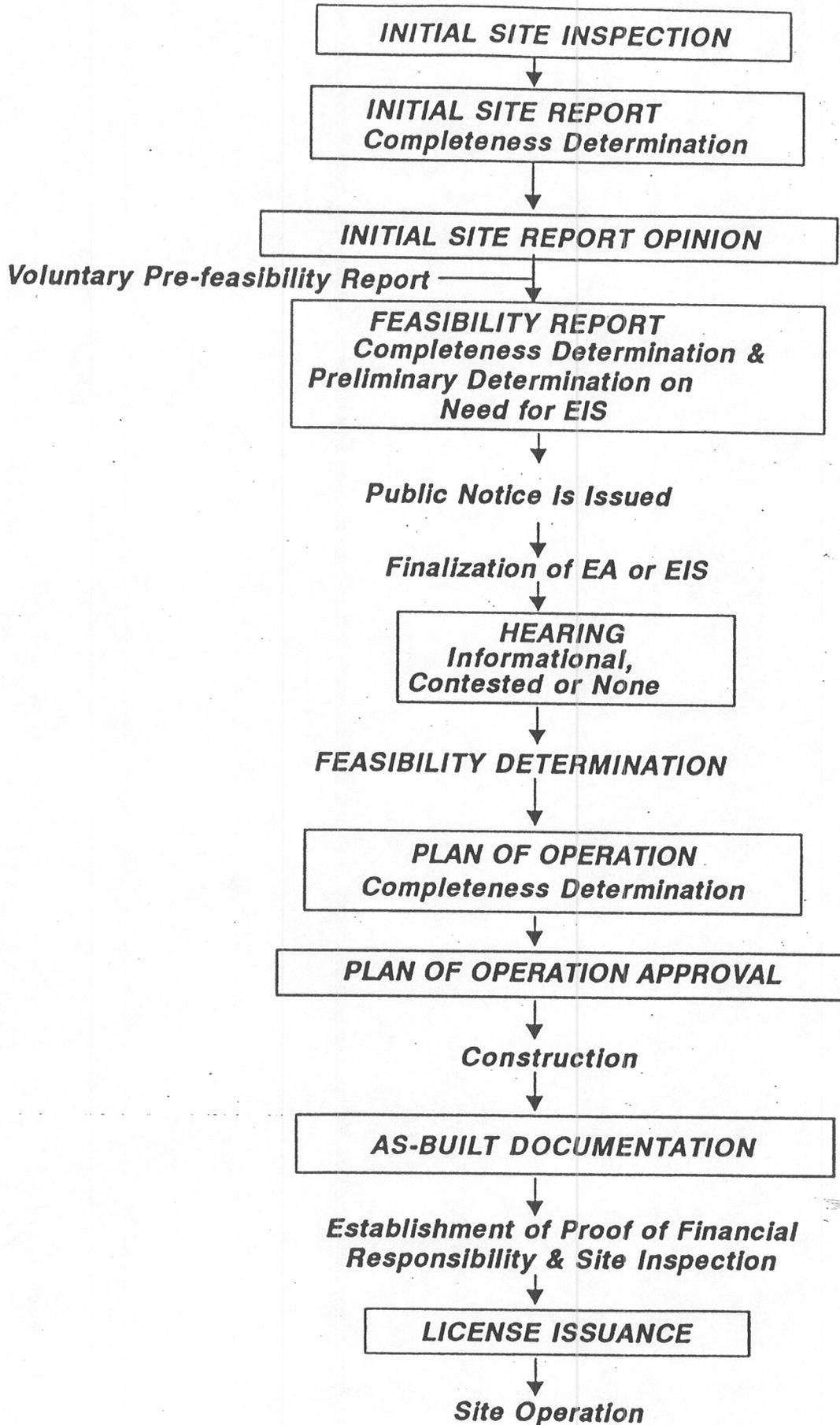


Figure 1. Landfill Licensing Process

INITIAL SITE REPORT

The next step in the landfill licensing process is for the applicant to submit an Initial Site Report (ISR). The ISR was originally developed as a voluntary screening tool to allow an applicant to receive an opinion from the WDNR on whether a proposed property had potential for development as a landfill before committing to the time and cost of preparing a feasibility report. In 1990, the state's comprehensive recycling law became effective and it mandated that all applicant's proposing to site a new landfill or to expand an existing landfill shall submit an ISR to the WDNR. Over the years, some of the requirements originally specified for a feasibility report were moved to or added to the minimum ISR submittal requirements reducing the effectiveness of the report as an inexpensive screening tool. The new rule revisions returned this report back to its original purpose by significantly streamlining the minimum requirements for an ISR.

The minimum requirements for an ISR are found in ch. NR 509, Wis. Adm. Code. An ISR must include the information submitted for the initial site inspection and the WDNR's initial site inspection response letter; the proposed project's title; identification of the owner and proposed operator of the landfill and any consultant; a description of the proposed property and the anticipated limits of filling; proposed landfill life and disposal capacity; municipalities and industries to be served; anticipated waste types, characteristics and amount of waste to be handled; anticipated cover frequency; mode of operation; and the anticipated subbase, base and final grades. An ISR must also contain a thorough discussion of the land uses which may have an impact on the suitability of the property for waste disposal or on groundwater quality, and include a summary of the available published information concerning the regional geotechnical characteristics of the proposed location. No site-specific geotechnical investigation is required.

An ISR is evaluated by a WDNR plan review team consisting of a hydrogeologist and an environmental engineer. The hydrogeologist has the lead review responsibility and receives comments on the report from a waste management investigator in the applicable local WDNR field office. After completing a review of the ISR, the WDNR renders an opinion on the proposed property's potential for development as a landfill and notifies the applicant in writing. The ISR opinion letter is also used by the plan review team to identify any known constraints to feasibility. In a favorable ISR response, the WDNR specifies site-specific additional or unique information needed to be included in a feasibility report which is the next mandatory step in the siting process. An unfavorable opinion letter is used to discourage an applicant before an irrevocable financial or political commitment to an unsuitable property is made. The completion of this step by the WDNR generally should not take more than a couple of months.

Pre-feasibility report

In those cases where the regional geotechnical or any available site-specific geotechnical information indicates the proposed property may have poor geology or unusual hydrogeological conditions, the WDNR will suggest that a pre-feasibility report be submitted. Submitting a pre-feasibility report, however, is not a required step in the siting process. The level of site-specific geotechnical information specified for a pre-feasibility report is

found in ch. NR 510, Wis. Adm. Code, and it is similar to the information formerly required for ISR's. The advantage of the voluntary pre-feasibility report option is that it allows a landfill applicant to obtain a revised opinion from the WDNR based on site-specific geotechnical information which should reduce the risk of proceeding directly from the reduced scope ISR to doing major feasibility studies on a property which may have little or no potential of being approved.

FEASIBILITY REPORT

Obtaining a favorable feasibility determination from the WDNR virtually assures the applicant the proposed landfill can be developed from a technical standpoint. Chapter NR 512, Wis. Adm. Code, specifies the minimum information that must be included in a feasibility report. Required items already addressed in an ISR or a pre-feasibility report can be cross referenced rather than included in the feasibility report. Along with information requested in the WDNR's ISR opinion letter and any revised pre-feasibility opinion letter, a feasibility report must contain a comprehensive and detailed site-specific geologic and hydrogeologic investigation that includes baseline groundwater quality data; a preliminary engineering design that includes a description of the proposed environmental monitoring for groundwater, leachate, surface water, gas, air quality, and soil moisture (if applicable); an environmental assessment; documentation of the need for the proposed landfill; and an analysis of the alternatives to landfilling such as waste reduction, reuse, recycling, composting, and energy recovery initiatives and services. Initial site inspection response letter(s) and soil test results for any proposed noncommercial soil borrow source(s) designated to be used in the construction, operation, or closure of the first phase of the proposed landfill also must be included in a feasibility report.

For a feasibility report, the hydrogeologist of the WDNR plan review team is once again the lead reviewer and receives comments from a waste management investigator and several other program specialists in the applicable local WDNR field office. The hydrogeologist fills out a feasibility completeness checklist to determine if all of the minimum information required by ch. NR 512, Wis. Adm. Code, has been submitted. If required information is found to be missing, the WDNR notifies the applicant in writing that the report is incomplete and lists the information needed to make the report complete. The incompleteness letter may also include a request for additional or unique information the plan review team believes is necessary before a feasibility determination can be made.

Environmental analysis

When a feasibility report is found to be complete, the hydrogeologist prepares an analysis of the significance of any impacts the proposed project would have on the public's health, welfare and the environment. After completing a draft of the analysis, the hydrogeologist recommends whether or not an Environmental Impact Statement (EIS) should be completed on the proposed project. If the WDNR decides that an EIS must be written, the feasibility determination is delayed until the EIS is completed. The completion of an EIS, and an associated mandatory public hearing on the completeness of the study, can take up to a year or more to complete.

Public hearings

If an EIS is not required or after an EIS is completed, the hydrogeologist prepares a short summary of the proposal and a public notice stating that the WDNR has received a complete feasibility report. The public notice is published in the local newspaper to invite public comment and provide information on how six citizens or an official of the host municipality or any municipality located within 1,200 feet of the proposed landfill can request that an informational public hearing or a contested case hearing be held on the technical feasibility of the proposal.

If no hearing is requested, the plan review team considers the public comments received before writing the feasibility determination. If an informational public hearing is held the feasibility determination is written within 60 days after the hearing. When a contested case hearing is held, it is conducted before a hearing examiner in much the same way as a court trial. The WDNR plan review team and the other parties to the hearing testify under oath and are subject to cross examination. After a contested case hearing, the feasibility determination is made by the Secretary of the WDNR or the WDNR Secretary's designee based only upon a review of the hearing record. A contested case hearing is intended to address technical issues of site feasibility including the need for the landfill and the ability of the proposal to meet design and performance standards and to protect the public's health, welfare and the environment.

Submittal of incomplete/inadequate information, public controversy, locational problems such as potential impacts to wetlands or the potential of creating a bird hazard to aircraft, and poor geology and unusual hydrogeologic conditions significantly impact the review time for some feasibility reports. Depending on the completeness of a feasibility report, any locational problems, and whether or not an EIS must be prepared or a public hearing must be held, the WDNR's completion of the feasibility step in the siting process can take six months to more than three years.

PLAN OF OPERATION REPORT

A plan of operation report includes the final engineering design, design calculations, details on the phases of construction, proposed construction documentation, sequencing of operations, daily operations, monitoring, closure design, long-term care of the proposed landfill after closure and a detailed estimate of the costs for construction, operation, closure and long-term care of the landfill. Chapter NR 514, Wis. Adm. Code, and the conditions in a feasibility determination specify the minimum information a plan of operation must contain. After the applicant receives a feasibility determination there is usually at least one meeting between the applicant and the WDNR to discuss the feasibility conditions of approval, prior to the submittal of the plan of operation report.

The WDNR plan review team is responsible for ensuring that all design, construction, operation, closure and financial responsibility details required by ch. NR 514, Wis. Adm. Code, and all of the conditions of feasibility are addressed in the plan of operation. The environmental engineer is the lead reviewer and makes sure that good engineering practices are being proposed. The hydrogeologist reviews the environmental monitoring proposal, any

alternative concentration limits proposed for exemptions to the groundwater standards which were granted in the feasibility determination and preventative action limits proposed for the groundwater quality indicator parameters for each well at the site. The WDNR typically completes its review of a plan of operation in four to six months.

LANDFILL CONSTRUCTION DOCUMENTATION REPORT

Following WDNR approval of a plan of operation for the proposed landfill and after obtaining any required local approvals, the owner can begin construction of the facility. Landfills are constructed one phase or unit at a time. During major construction steps of the landfill, WDNR staff conduct inspections. Documentation (as-built) plans are prepared by the applicant's engineering consultant documenting the construction process such as the compaction of the clay liner and installation of the geomembrane liner (composite liners consisting of a 60-mil HDPE geomembrane and 4 foot thick clay liner are now required for municipal solid waste landfills) and leachate collection pipes.

After construction, the owner must submit a comprehensive report containing a detailed narrative describing the construction of the landfill phase or unit in chronological fashion with particular emphasis given to any deviations from the approved plan of operation. The report must also include detailed documentation of all aspects of construction. This includes surveys of various grades, field and laboratory soil test results, engineering plan sheets documenting the constructed grades, the precise location of all leachate collection storage and removal structures, the specifications of materials, and photo documentation.

Chapter NR 516, Wis. Adm. Code, describes what elements must be included in a landfill construction documentation report. After the as-built documentation has been reviewed and approved by the assigned WDNR engineer and the proofs of financial responsibility have been implemented, a final inspection of the constructed phase or unit is made before a license is issued. The landfill owner can only begin to accept waste after receipt of the license from the WDNR. The review of a landfill construction documentation report is usually concluded by the WDNR in a month.

Local Approval Process - Simultaneous to the WDNR technical decision-making process, the applicant must seek and obtain any applicable local approvals (see Figure 2). These would include any permits or approvals required by pre-existing local ordinances to construct or operate a landfill such as zoning variances, building permits, etc. Although local approvals need only be obtained prior to construction of a landfill, as a practical matter, many applicants do not proceed to develop a feasibility report until the issue of local approvals is resolved. The local approval process has two major components: negotiation and state arbitration if a negotiated agreement cannot be reached.

NEGOTIATION

A person proposing a new landfill or expansion of an existing landfill must apply for all local approvals at least 120 days before submitting a

LOCAL APPROVAL PROCESS

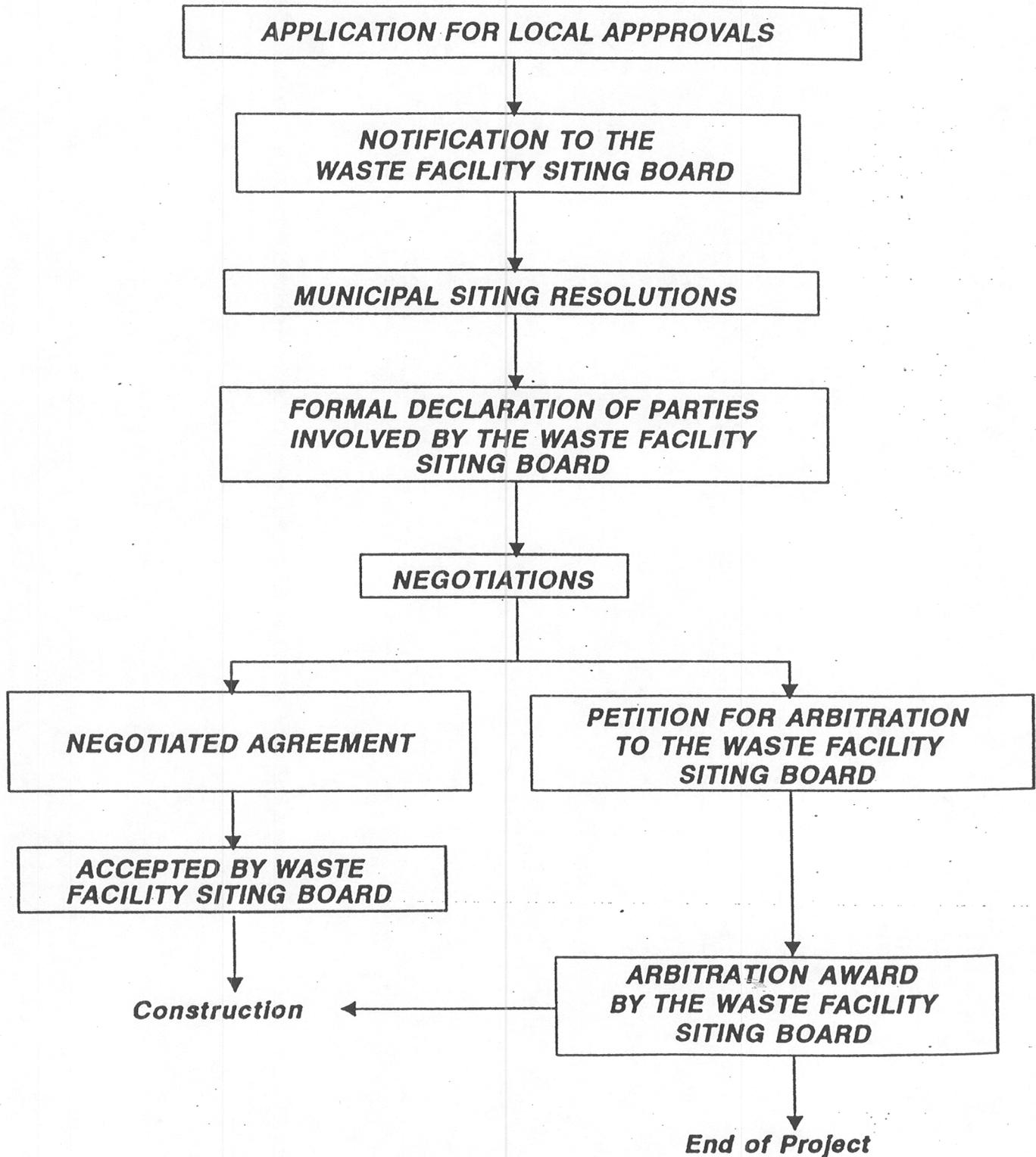


Figure 2. Local Approval Process

feasibility report to the WDNR. At that time, any affected municipality (county, township, village, or city within 1,200 feet of the proposed landfill's limits of filling) may choose to enter into negotiations with the applicant. Any municipality choosing not to negotiate waives its rights to enforce any local approval requirements. In general, the site owner will offer design, financial and operational incentives to the municipality in exchange for a negotiated agreement and to gain waiver or approval of local permits. Virtually any issue is negotiable except the need for the proposed landfill and agreements which would make the owner's responsibilities under the WDNR approved feasibility report less stringent. Commonly negotiated concessions on the part of the owner include: operational issues such as hours of operation, waste materials accepted, nuisance control, lighting, vehicle routes and access, aesthetic screening and fencing; recycling efforts to be implemented; private well monitoring and replacement if necessary; post-closure site use; payments to local governments for local costs of regulation, fire control, road maintenance, payments in lieu of taxes; economic protection of neighboring property owners for loss of property value; and establishment of a local advisory committee.

ARBITRATION

If the parties are unable to reach a negotiated settlement, they may petition the Wisconsin Waste Facility Siting Board (WWFSB) to issue an arbitration award. Each party must submit its final offer for a negotiated settlement to the WWFSB. After a hearing on the final offers, the WWFSB must select, without modification, the final offer of either the applicant or the local committee.

As described above, Wisconsin's landfill siting process is complex, comprehensive and time consuming. It can take three to five years or more to plan, design and construct a new facility.

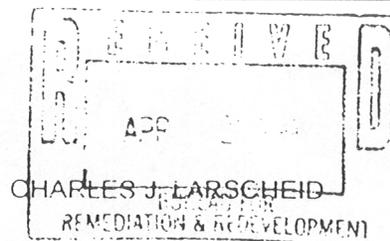
If you should have questions on the WDNR technical decision-making process please contact Paul Huebner at (608) 267-7573. If you should have questions on the local approval process please contact Patti Cronin, Executive Director of the WWFSB at (608) 267-7854.

References

1. Schuff, R.G. 1986. Solid Waste Landfill Siting in Wisconsin an Effective Process. 12 pp.
2. Huebner, P.M. 1991. Wisconsin's Landfill Siting Process. 8 pp.
3. Sections 144.43 - 144.447, Stats.
4. Chapters NR 500 - 520, Wis. Adm. Code, Revisions Effective July 1, 1996.

Brown County

2561 SOUTH BROADWAY
GREEN BAY, WI 54304



PHONE (920) 492-4950 FAX (920)492-4957

DIRECTOR OF PORT AND SOLID WASTE DEPARTMENT

April 9, 1999

Lower Fox River Cleanup, RR/3
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
101 South Webster Street
P.O. Box 7921
Green Bay, WI 53707

RE: Draft RI/FS/RA Studies, Lower Fox River, Wisconsin Comments

Dear Sirs:

Brown County would like to bring up an issue that was not addressed in the Risk Assessment of the Draft RI/FS/RA Studies of the Lower Fox River. The study defines the Lower Fox River as the 39 miles stretch beginning at the outlet of Lake Winnebago and terminating at the mouth of the river. It is our contention that the problem of PCB impacted sediments does not end at the mouth of the river.

Brown County has an agreement with the US Army Corps of Engineers (USACE) to provide a disposal site for sediments removed during maintenance of the navigation channel. This channel, which must be dredged annually, starts approximately 8 miles north of the mouth of the river. Because the sediment is impacted with PCB's, the Wisconsin Department of Natural Resources, (WDNR) requires that all of the sediment must be deposited in a confined disposal facility (CDF). Over the last 25 years, the USACE has dredged millions of cubic yards of sediment and deposited it at the Bay Port upland CDF and the Renard Island in-water CDF.

Renard Island consists of a stone rubble dike with a steel sheet-pile cut-off wall. The total area enclosed by the cut-off wall is approximately 60 acres. The last load of sediment was deposited in the CDDF in 1997. Currently, there are discussions going on between the USACE and Brown County regarding the closure and long-term care of the CDF. The WDNR has identified minimum standards that must be met for the closure because PCB impacted sediment was disposed of in the CDF.

The 400 plus acre Bay Port CDF has restrictions on its use because PCB impacted sediments have and continue to be deposited there. Recently, 110 acres of Bay Port were reconstructed to facilitate dewatering sediment for eventual beneficial reuse. Off-site beneficial reuse projects can not take place yet because of the low levels of PCB's in the sediments. Without beneficial reuse projects, Bay Port will fill within 40 years, and the County will be required to locate another CDF for the disposal of sediment from maintenance dredging.

The County is of the opinion that the RI/RA/FS is incomplete because it fails to address the need to remediate the two CDF's. The County will be required to spend a significant amount of money to cap the Renard Island CDF and may have to spend additional money to eventually close the Bay Port CDF. These dollars would not have to be spent if the sediments were not impacted with PCB's.

The Brown County Port and Solid Waste Department encourages the SDNR to consider not only future transport of PCB's to the bay of Green Bay, but also the PCB's already located in the two CDF's. Of the eight alternatives evaluated in the Risk Assessment, our department prefers those alternatives that remove the greatest volume of PCB's. Since the Port of Green Bay is the recipient of the majority of sediment that moves down river, we (Brown County and the USACE) bear the additional cost of handling the PCB impacted sediment. Our costs for dredging will decrease significantly when the sediments are no longer impacted. Therefore, we encourage the quick remediation of the impacted sediments.

Brown County requests that the RI/RA/FS be corrected to reflect the costs associated with the closure of the Renard Island and Bay Port CDF's. The specific requirements for closure of Renard Island have not been finalized yet, but the WDNR has directed the County to follow the closure plan requirements of NR 514.08. Furthermore, the department indicated that as much as 3 feet of topsoil might have to be used to cover the complete CDF. Preliminary estimates place the cost to perform such work at \$4-6 million.

Bay Port has cost over \$2 million to construct and will cost \$2-4 million in 1999 dollars to close, depending upon final requirements. Brown County does not believe that it is responsible for any past or future incremental costs associated with handling sediments impacted with PCB's. In conclusion, each of the eight alternatives identified in the RA must include the cost to close the two CDF's.

The Brown County Port and Solid Waste Department thanks you for the opportunity to comment on the draft report. Please call if you have any questions or comments.

Sincerely,



Charles J. Latscheid
Director

CJL:nl

Cc: Fox River RI/FS U.S. EPA
Len Polczinski, WDNR NER
Paul Vornholt, Assistant to County Executive
Dnr499.ltr

Mark Reimer
Senior Counsel
Environmental

Ed
For the FS-
Greg

FORT JAMES



Fort James Corporation
1630 Lake Cook Road, 237
Deerfield, IL 60015

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Mark.Reimer@fortjamesmail.com

PLEASE DELIVER THE FOLLOWING PAGES TO:

Date: 11/22/99
Name: Greg Hill
Fax No.: 608/267-2800

FROM:

Name: Mark Reimer
Fax No.: 847-317-5456

COMMENT:

Number of pages including this sheet:

If you do not receive all the pages or if they are not clear, please call Karen Weber (847) 317-6441.

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this message in error, please notify us immediately by telephone and return the original message to us at the above address via the U.S. Postal Service. Thank you.

Mark Reimer
Senior Counsel Environmental

FORT JAMES



November 22, 1999

Greg Hill
Wisconsin DNR
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Madison, WI., 53707-7921

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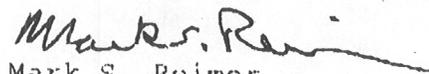
RE: Preliminary PCB Sediment Cell 12A Budget and Costs

Dear Greg:

Per your request, enclosed please find a preliminary budget and costs incurred as of October 31, 1999 for the design, permitting, construction, operation, closure and post closure of Cell 12A located at Fort James Operating Company's Green Bay-West landfill. Included in the spreadsheet is an estimate of transportation costs as well. Please note that the enclosed spreadsheet does not include the value of all of the services provided by Fort James on the SMU 56/57 sediment restoration demonstration project as provided in paragraph F of the agreement between Fort James and WDNR effective July 22, 1999 entitled "Agreement Between the State of Wisconsin and Fort James Corporation". For example, the value of services such as management time spent on Cell 12A, use of the Shell Property for a dewatering facility, or any imputed tipping fees, are not included. The value of those and other services will be valued at a later date.

If you have any questions, please feel free to contact me at 847/317-5326.

Sincerely,
Fort James Corporation


Mark S. Reimer
Senior Counsel

c. Richard Jones -- Fort James

Mark Travers -- domaximis, inc.
103 North Eleventh Street, Suite 210
St. Charles, Ill., 60174

John Hanson -- Beveridge & Diamond
1350 I Street NW
Suite 700
Washington DC, 20005-3311

**Preliminary PCB Sed. Cell 12A Costs and Budget
As of 10/31/99**

BUDGETS

ACTUAL AND FORECASTED PROJECT COSTS

	Original Budget	Adjusted Budget	Paid to Date	Total Committed	Est. to Complete	Final Forecast
01 040 Excavation/Berm Constr.	155,000	155,000	144,117	146,938	3,062	150,000
01 140 Roads	34,000	75,000	56,678	56,678	18,322	75,000
01 200 Transportation/Landfill ¹	544,000	544,000	-0-	-0-	544,000	544,000
01 400 Lysimeter	211,334	211,334	208,025	208,025	3,309	211,334
01 401 Primary Liner/Leachate	472,841	499,347	479,347	479,347	20,000	499,347
01-402 Final Cover System ²	348,000	332,861	348,000	-0-	332,861	332,861
01 403 Miscellaneous	25,000	25,000	2,684	3,496	21,504	25,000
01 650 Power Dist. (Electrical)	15,000	15,000	12,483	13,594	1,406	15,000
01 800 Permitting Fees	10,000	10,000	3,500	3,500	6,500	10,000
01 801 Waste Disposal Permit Fee	20,400	20,400	-0-	-0-	20,400	20,400
01-820 Engineering (Fort James) ³	96,700	96,700	45,535	45,535	51,165	96,700
01 821 Engineering (SIS Consult)	230,000	230,000	109,956	142,200	87,800	230,000
01-900 Contingency	174,000	106,494	-0-	-0-	106,494	106,494
01 940 Port Closure Cost ⁴	121,000	48,170	121,000	-0-	48,170	48,170
TOTAL	2,423,275	2,369,306	1,531,325	1,099,313	1,264,993	2,364,306

¹ Transportation costs assumes removal of 80,000 cubic yards of sediment from SMU 56/57

² \$348,000 estimate was used to establish escrow account for financial assurance purposes.

³ Does not include time spent on project by other internal Fort James personnel. That cost will be compiled at a later date.

⁴ \$121,000 estimate was used to establish escrow account for financial assurance purposes.

The landfill has a planned area of 3.1 acres and an approximate disposal volume of 70,000 cubic yards.

ITEM	QUANTITY	UNITS	COST/UNIT	COST
PRELIMINARY WORK				
Mobilization	1	ea.	\$50,000.00	\$50,000.00
EXCAVATION and BERM CONSTRUCTION				
Structural Fill (onsite or borrow)	85,000	cy	\$2.85	\$242,250.00
Anchor Trench (excavation and backfilling)	1,500	lf	\$7.60	\$11,400.00
LYSIMETER				
60 mil HDPE Textured (sideslopes)	140,000	sf	\$0.56	\$78,400.00
GCL (base and sideslopes)	141,500	sf	\$0.40	\$56,600.00
Geocomposite	140,000	sf	\$0.48	\$67,200.00
18-inch dia. HDPE (SDR 17) riser pipe	140	lf	\$15.50	\$2,170.00
Pump and Controls	1	ea	\$7,750.00	\$7,750.00
PRIMARY LINER and LEACHATE SYSTEM				
5-foot-thick Compacted Clay Layer	25,000	cy	\$10.00	\$250,000.00
60 mil HDPE Textured	120,000	sf	\$0.56	\$67,200.00
Cushion Geotextile 12 oz. / sq. yd.	120,000	sf	\$0.15	\$18,000.00
1-18 inch HDPE (SDR 17) Risers Pipe	120	lf	\$15.50	\$1,860.00
6-inch dia. SDR 17 HDPE - Perforated	750	lf	\$2.60	\$1,950.00
6-inch dia. SDR 17 HDPE - solid	300	lf	\$2.20	\$660.00
Leachate Gravel	825	cy	\$13.00	\$10,725.00
12-inch Sand Drainage Blanket	4,600	cy	\$14.00	\$64,400.00
Pump and Controls	1	ea	\$7,750.00	\$7,750.00
LEACHATE CONVEYANCE AND STORAGE				
Leachate Storage Tank (20,000 gallon tank)	365	ea	\$40.00	\$14,600.00
Leachate Storage Tank Mobilization & Setup	1	ea	\$1,430.00	\$1,430.00
Tank Containment Area	1	ea	\$5,000.00	\$5,000.00
LANDFILL OPERATION				
Daily Operation - (2 dozers and operators, 6 days/week, 12 weeks)	72	days	\$2,000.00	\$144,000.00
Transportation (80,000 river yds = 48,000 stabilized tons)	48,000	tons	\$3.00	\$144,000.00
FINAL COVER SYSTEM				
12-inch Gas Venting/Drainage Layer	4,700	cy	\$5.00	\$23,500.00
24-inch Clay Cover	9,400	cy	\$10.00	\$94,000.00
40 mil VFPE Geomembrane	140,000	sq	\$0.47	\$65,800.00
36 inch Rooting Zone	15,000	cy	\$2.50	\$37,500.00
6 inch Topsoil Layer	2,500	cy	\$6.50	\$16,250.00
Seed, Fertilizer and Mulch	3.6	ac	\$1,250.00	\$4,500.00
4 inch Perforated Gas Vent Pipe	2,540	lf	\$0.45	\$1,143.00
Gas Vent Trench Backfill	100	cy	\$13.00	\$1,300.00
Gas Vent Trench Geotextile (8oz)	9,000	sf	\$0.14	\$1,260.00
Gas Vent Risers	5	ea	\$350.00	\$1,750.00
4 inch Perforated Cover Slope Drain Pipe w/sock	1,400	lf	\$0.57	\$798.00
8 inch Rip Rap	25	cy	\$14.00	\$350.00
MISCELLANEOUS ITEMS				
Power distribution	1	ea	\$15,000.00	\$15,000.00
Post Closure Cost (present worth at a 6% interest rate)	1	ea	\$48,170.63	\$48,170.63
Bidding and Construction Administration	1	ea	\$100,000.00	\$100,000.00
CQA Documentation	1	ea	\$139,000.00	\$139,000.00
Subtotal				\$1,797,667
Contingency 15%				\$269,650
TOTAL COST ESTIMATE				<u>\$2,067,317</u>