



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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March 3, 2003

Municipal Permittees
Paper Mill Permittees

Subject: Voluntary Approach to PCBs in Biosolids

Dear Permittee:

The Department of Natural Resources (DNR) has been engaged in an effort to establish risk based cumulative soil concentrations for PCBs which would minimize adverse health or environmental effects.

The approach the DNR has decided to take is a risk management approach to govern the land application of biosolids and paper mill sludge, which may contain low levels of PCBs. The overall strategy includes seeking your voluntary cooperation initially as outlined in the attached guidance document. The DNR does not believe this approach will significantly affect land application programs, but will require more analysis using better techniques. Your cooperation is sought to better quantify PCB concentrations in biosolids and paper mill sludge, limit the annual application rate as appropriate, and if PCB concentrations are confirmed at greater than 1 mg/kg then to pursue source identification and reduction possibilities. Since better analytical procedures are specified, the DNR, with the State Lab of Hygiene, will be offering a training session for certified laboratories on May 20, in Madison. They will be invited to participate in that training through a separate letter.

The DNR is planning to pursue placing the substance of this guidance into regulations and will be seeking authority to hold public hearings on such a proposal in the near future. The hearings, if authority to hold them is granted, will likely be held in early summer. Your participation in that process is invited and welcomed.

Please feel free to contact Greg Kester of my staff with any questions at 608-267-7611 or via email at Greg.Kester@dnr.state.wi.us.

Sincerely,

Al Shea, Director
Bureau of Watershed Management

DATE: February 25, 2003

TO: Regional Water Leaders
Watershed Basin Leaders and
Regional Watershed Experts

FROM: Al Shea, Director
Bureau of Watershed Management

SUBJECT: PCB Guidance for Land Application of Industrial Wastewater Sludge and Municipal Biosolids

Legal Disclaimer: *This document is intended solely as guidance and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.*

Applicability: The following guidance is applicable to DNR approved or permitted activities for land application of waste materials including, in the Watershed Management program, the land application of industrial wastewater sludge and municipal biosolids. This guidance supplements the provisions of administrative rules including Chapters NR 204 and NR 214, Wis. Adm. Code.

The Waste Management program has developed similar guidance that will apply to the landspreading of dredged sediment and all other waste materials not regulated by the Watershed Management program.

This guidance is not applicable to remediation or site clean-up. However, if waste materials containing PCBs are generated during a remediation and are land spread on a different site than where generated, then they are subject to the applicable solid waste or wastewater requirements including this guidance.

Implementation and Duration: The Department's Waste Management and Watershed Management programs have each developed these provisions as internal program guidance to be considered on a case-by-case basis. Internal program guidance can be considered in making case-by-case decisions, but it cannot be used to impose mandatory requirements on external parties.

It is the desire of the Department that this guidance be implemented on a voluntary basis as soon as possible.

The Department is proceeding to propose and adopt administrative rules to enact these provisions as requirements. The intent is that this guidance will remain in effect until replaced by revised guidance and/or administrative rules.

These provisions are intended as an interim risk management approach pending the federal government's further action on dioxin and dioxin-like substances in municipal sewage sludge. It is intended that the rules would be re-opened within 12 months following the publication in the Federal Register of revisions to EPA's Part 503 regulations for dioxin and dioxin-like compounds and will be amended or replaced as appropriate.

Guidance:

1. Maximum average annual application rate guidelines: The maximum amount of PCBs that may be applied to land through a permitted land application activity regulated under the WPDES (NR 200 Series) program is:

- A.** 1200 mg total PCBs/acre/year for lands currently used for direct grazing or for food crops used for human food production; and
- B.** 2500 mg total PCBs/acre/year for all other lands (including those which are not directly grazed or not used to grow food crops used for human food in the same year or the year following the application).

2. Two-year average application rate: Calculation of the application rate under (1) for any particular parcel of land should be determined based upon the annual average of the amount of PCBs applied during the current year and the previous year. That is, the total amount of PCBs applied per acre during the current year and the previous year divided by two is the number that should be compared to the mass loading guidelines in (1). For example, if 3000 mg PCB were applied per acre to a field corn site in year #1, then in the next year an additional 2000 mg/acre could be applied to the same site. $(3000+2000) \div 2 = 2500$ mg/acre/year). For the first year during which PCB monitoring has been conducted, the application rates specified in (1) above apply without regard to averaging since there is no previous data.

3. Monitoring and Calculating PCB Concentrations: The PCB concentration of the sludge or biosolids for purposes of comparison to the values in this guidance should be determined as follows. In all cases, the intent is to utilize the PCB analytical results from the sludge or biosolids that are the most representative of what is being applied to a particular site.

A. Analytical methods: Either congener-specific analysis or Aroclor analysis may be used to determine the total PCB concentration.

- EPA Method 1668 may be used to test for all PCB congeners. This method of analysis is acceptable at the discretion of the permittee. If this method is employed, all PCB congeners should be delineated. It is recognized that a number of the congeners will co-elute with others, so there will not be 209 results to sum. However, all results should be added together to enable the reporting of a total PCB dry weight result. Non-detects should be treated as zero. Values between the LOD and the LOQ should be summed using the result.
- EPA Method 8082 should be used for PCB-Aroclor analysis and may be used for congener specific analysis as well. It is up to the discretion of the permittee to have Aroclor or congener specific analysis performed. If congener specific analysis is performed using Method 8082, the list of congeners tested should include, but should not necessarily be limited to # s 5, 18, 31, 44, 52, 66, 87, 101, 110, 138, 141, 151, 153, 170, 180, 183, 187, and 206. For either method, the sample should be extracted using the Soxhlet extraction Method 3540C. In order to remove interference, clean up steps of the extract are required as

necessary to achieve the lowest detection limit possible. Experience with these methods shows that an LOD of 0.11 mg/kg should be anticipated for Aroclor analysis in most cases. If congener specific analysis is done using method 8082, an LOD of 0.003 mg/kg for each congener should be anticipated in most cases. If the anticipated LOD cannot be achieved after using the following clean up techniques, a reporting limit that is achievable for the sample should be determined. This reporting limit should be reported and qualified indicating the presence of an interference. One or more of the following clean-up steps may be necessary.

- 3620B – Florisil
- 3640A – Gel permeation
- 3630C – Silica gel
- 3611B - Alumina
- 3660B - Sulfur Clean Up
- 3660A - Sulfuric Acid Clean Up

B. Monitoring frequency: All municipal biosolids and those industrial sludges that are land applied and may contain PCBs should be monitored for PCBs. Monitoring frequency should be dependent on the amount of material that is land applied on an annual basis. For municipal biosolids, the monitoring frequency should be determined as follows:

Dry tons of municipal biosolids land applied per 365 day period	Monitoring frequency
Less than 320	Once per year
$320 < X < 1654$	Once per quarter
$1654 < X < 16540$	Once per 60 days
16540 or greater	Once per month

For industrial sludge, PCB monitoring requirements should be determined in accordance with s. NR 214.18(5), Wis. Adm. Code. For paper mill sludge, the monitoring frequency should be quarterly, however, that frequency may be modified based upon:

- Input stream for fiber including consideration of whether waste paper is used; and
- The concentrations in and variability of past analytical results

If the reported value for a regularly scheduled sample exceeds 1.0 mg/kg, a repeat sample should be taken as soon as is reasonably possible within 30 days from the date of receipt of the initial sample results.

C. Calculating the PCB concentration: The PCB concentration used for comparison with the values in (1) should be the sample or samples that are most representative of the material being land applied at a particular time. Usually the concentration will be based upon the most recent sample. However, if more than one sample is collected in a year and if the results of multiple samples are most representative, then the multiple results should be used to calculate the PCB concentration. This same method should be used to determine whether or not materials contain more than 1.0 mg/kg total PCBs under (4) and (5).

4. Pollution prevention and source reduction: Facilities which land apply sludge or biosolids materials containing 1.0 mg/kg or more will be required to develop a pollution prevention and source reduction strategy.

A. A facility with two or more samples in any two year period having a PCB concentration greater than 1.0 mg/kg by dry weight should work with the Department to identify potential significant PCB dischargers or sources to their system based upon investigation by industrial class. For municipalities, the facility should then meet with these dischargers and obtain additional information on waste streams. (Note: The investigation by industrial class is intended to be a desk top evaluation-it is not anticipated that facilities will conduct additional monitoring as part of actions taken under this step.)

B. If waste streams are identified that can be reasonably expected to contain significant quantities of PCBs, the facility should work with the discharger with the goal of minimizing or eliminating PCB contributions to the waste stream.

C. If sources or dischargers of PCBs cannot be identified based on the investigations in (A) and (B), the facility should work with the Department to develop a monitoring plan to attempt to identify any other potential dischargers. If sources or waste streams are identified that contain significant quantities of PCBs, the facility should work with the discharger(s) with the goal of minimizing or eliminating PCB contributions to the waste stream. For municipalities, the following considerations should be reflected when developing a monitoring and/or a pollutant minimization approach:

1. The characteristics of the community
2. The level of PCBs in the biosolids
3. The costs of potential source reduction measures.
4. The environmental costs and benefits of the pollutant minimization program elements.
5. Any other relevant information.

5. Public Distribution: If a sludge or biosolids material contains 1.0 mg/kg by dry weight of total PCBs or more, then the material should not be distributed to the public. For this purpose, public distribution means providing the sludge or the biosolids to a landowner or a member of the public where the permittee does not control the rate of application.