

## **ISSUE: Evaluation of residual contaminant level for carcinogenic polycyclic aromatic hydrocarbons (except for naphthalene) and modifications to NR 720**

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**Rule Subgroup:** Soil Standards

### **BACKGROUND**

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Polycyclic aromatic hydrocarbons (PAHs) are often considered to be ubiquitous soil contaminants and are commonly found at all types of properties, even those without a known or suspected discharge of a hazardous substance or source of environmental pollution. PAH concentrations in soil samples collected from properties across the state are often above current Wis. Admin. Code ch. NR 720 residual contaminant levels (RCLs). Wisconsin's current RCLs for these compounds are relatively low/conservative when compared to standards in other states and to background concentrations of PAHs as determined by various studies. Overly conservative RCLs may result in more costly site investigations, more interim and/or remedial actions, and more Department approvals being required to ensure that this type of environmental contamination will not pose a risk to human health, safety, welfare or the environment.

### **PROPOSED CHANGES**

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The Department would like to discuss the following proposal for modifying how Wisconsin establishes protective direct contact RCLs for PAHs.

Proposal: Modify the method for calculating RCLs for the protection of direct contact (DC) exposure for carcinogenic PAHs (with the exception of naphthalene) using information that the Department received from the Wis. Department of Health Services (DHS) and other states.

The excess cancer risk used to calculate the RCL for these compounds could be increased from  $1 \times 10^{-6}$  to  $1 \times 10^{-5}$ , effectively increasing the current RCL by a factor of 10. In addition, the RCL calculator will no longer calculate RCLs for the protection of groundwater for PAH compounds (except for naphthalene); this will be noted within NR 720. This proposal is based on a 5-year "reassessment" of PAHs conducted by DNR and DHS. Moving forward with this proposal will result in an increase to the DC RCLs in Wisconsin for these compounds. For more information on this reassessment, please consult DNR publication "Calculating Soil RCLs for PAHs Wis. Admin. Code § NR 722.11 (1)" (RR-087)

Also, the current Wis. administrative code lists a specific threshold value of  $1 \times 10^{-5}$  that represents an unacceptable level of cumulative risk. The rule will be revised to require that cumulative risk be assessed, however a specific target value will no longer be listed.

These changes are in consultation with and based on recommendation from Wisconsin DHS.

Note: The changes that the Department can propose regarding the way RCLs are calculated are limited by the RR-10-17 Statement of Scope. Wis. Admin. chs NR 720 and NR 722 may also be modified to include background considerations for PAH contaminants. Changes to the way other contaminants are assessed were not included in the Statement of Scope and are therefore not being proposed.

### **AFFECTED RULE CHAPTERS**

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Wis. Admin. Code chs. NR 720.10 and NR 720.12 would need to be modified to enact these proposed changes.

### **OTHER RELATED RULE REVISIONS**

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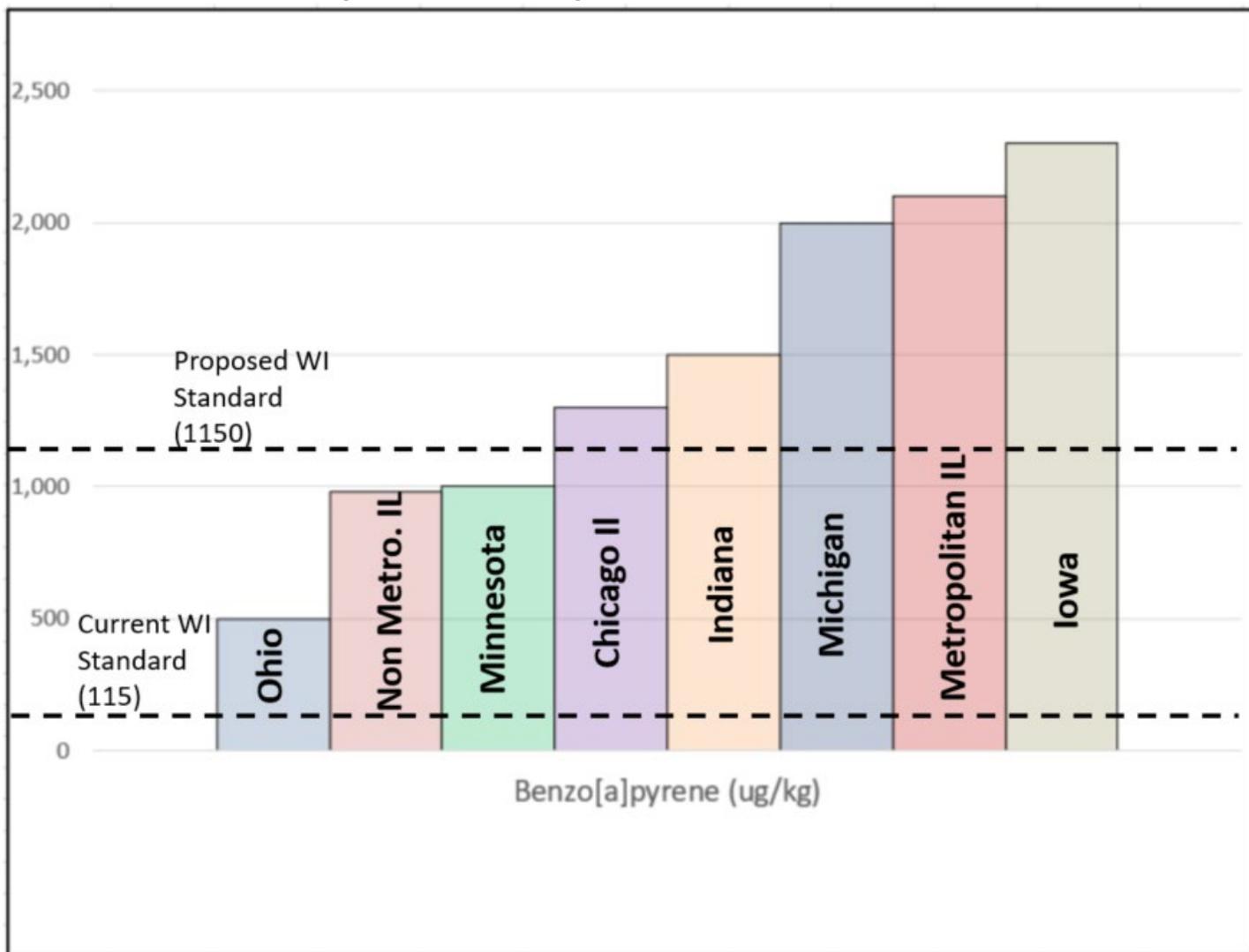
NA

### **COMPARABLE STATE OR FEDERAL POLICIES**

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Surrounding states have also established soil standards for PAH compounds. Currently, Wisconsin DC RCLs are the most conservative of all these states. The standard imposed by the surrounding states for one compound, benzo(a)pyrene, are displayed on the following chart. The current Wisconsin RCL and the proposed new RCL are shown separately for

comparison purposes. The proposed new Wisconsin RCL will be less conservative than the current Wisconsin standard, but would still fall within the range of what surrounding states have established.



Note: The surrounding states’ soil standards compared on this chart are calculated using a variety of methods. For example, Illinois’ standards are directly based on a background assessment made for PAHs in that state, while Ohio and Minnesota assess risk posed by PAHs on a cumulative basis. The values depicted for these states are estimated for comparison purposes and represent what the average concentration of the 18 PAH compounds typically analyzed for in Wisconsin soil samples would have to be to indicate a risk. Other states that use a compound specific standard may calculate them based in different target risk values and other variables. In all cases, it is assumed that goal of each agency that establishes state standard is to set a value that is practicable to obtain at cleanup sites and is protective of human health.

**DISCUSSION OF POTENTIAL ECONOMIC IMPACTS**

It is expected that an increase in the RCL for these compounds will likely reduce the number of sites that will require a site investigation under ch. NR 716 and active remedial action by the department. The amount of soil that contains PAHs that could be managed as exempt soil without department review and approval is also expected to increase. This should result in cost savings for property owners, developers, municipalities, and utilities who cleanup and redevelop properties with PAH-impacted soil. This change will likely reduce the workload of the RR program as certain sites will not require site investigations and cleanups or the scope of the response actions will be smaller in size, but the number of sites regulated by the DNR is not expected to change. The proposed DC RCLs for PAHs will not be a de facto

reportable quantity; if a discharge of a hazardous substance has occurred, a focused site investigation may be necessary to determine that no action is required.

## COMMENTS

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- PAH compounds present a relatively low health risk considering the properties of these compounds and the pathways of exposure. PAH compounds are always found in a mixture and have similar health effects.
- An increase in RCLs is being proposed, in part, as obtaining the current standards in urban areas of the state is not practicable. Higher standards will apply to rural areas as well, even though average PAH concentrations in these areas is lower. However, this change may have little effect on how rural sites are assessed if PAH concentrations are generally under existing standards anyway.
- When PAHs are present in the environment at concentrations near the newly proposed RCLs these compounds will mainly pose a risk through ingestion, not dermal contact or through other exposure pathways. The ingestion pathway is easily interrupted by surface cover usually present at contaminated properties such as soil cover, turf, or pavement. Actual exposure to soil contamination is likely less than what is assumed to occur by the default exposure assumptions used by the RCL calculator. The new RCLs would still be a conservative measure of risk.
- Consumption of PAHs within soil is a relatively minor component of the total PAHs that are ingested. PAHs are also present in food and beverages that are cooked or roasted, so some exposure to PAHs will be inevitable regardless of RCLs.
- The proposed RCLs are similar to background concentrations in some areas of the state, and are meant to be attainable, as well as protective, cleanup goals.
- This is a consistent, and logical next step in the “reassessment” of PAHs done in collaboration between DNR and DHS.
- RCLs for only 7 cPAHs commonly found in environment will be affected by this proposed change. The RCL for naphthalene, a relatively volatile PAH compound more commonly associated with hazardous substance discharges and not ‘background levels’ will not change. Naphthalene is also analyzed as a volatile organic compound – a class of compounds whose RCLs will not change.