

Issue Paper: ESTABLISHMENT OF A VAPOR CONTAMINATION, MITIGATION, and STEWARDSHIP CLEANUP-FUND

RR EAG Funding Sustainability Subgroup
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TYPE OF RECOMMENDATION

This issue paper includes recommendations for revising DNR administrative rules, pursuing legislative changes to statutes affecting the RR program, creating or revising RR program guidance, and instituting changes to internal DNR processes.

BACKGROUND

The vapor intrusion pathway has become widely recognized as a potentially significant cause of exposure to toxic substances in indoor spaces. Numerous studies have indicated that the air in buildings overlying soil or groundwater contaminated with toxic vapor-forming substances may contain potentially harmful concentrations of these contaminants due to vapor intrusion.¹

Vapor Intrusion Health Risks

Vapor Intrusion refers to subsurface contamination that can volatilize and the vapors enter the breathing space of buildings. Vapor intrusion may also occur when contaminated groundwater infiltrates buildings, and contaminants directly volatilize into the indoor air. Vapors can migrate through air space in permeable soils, fractures in bedrock or clay till, utilities, sumps, or cracks in the building foundation.

Chlorinated solvents like tetrachloroethene (PCE) and trichloroethene (TCE) do not degrade in the vadose zone when volatilized and can migrate long distances from the source of contamination via groundwater in a dissolved phase. Additionally, PCE and TCE are known to be toxic at low concentrations that cannot be detected by their odor.

There is a significant risk to human health associated with volatile organic vapors, specifically from chlorinated solvents PCE and TCE migrating from contaminated soil and groundwater into buildings. Vulnerable groups for PCE and TCE exposure include children, the elderly and especially persons who can be or are pregnant and unborn children. With exposure to PCE or TCE the following pregnancy and fetal development health effects have been found: chonal atresia^{1,2}, eye defects^{1,2}, low birth weight^{3,4}, fetal death^{1,3,5}, major malformations^{6,7}, miscarriage^{8,9}, neural tube defects^{1,2,3}, oral cleft defects^{1,2,3}, and small for gestational age¹. Additionally, breast¹⁰, cervical¹¹, and ovarian¹¹ cancer were found in women exposed to PCE or TCE. Lastly, esophageal cancer^{12,13,14}, lung cancer¹⁵, Hodgkins disease¹¹, prostate¹¹, rectal¹⁴, impaired immune systems function¹⁶, neurological effects⁹, neurobehavioral performance deficits^{16,17}, and serve generalized hypersensitivity disorder¹⁸ were all found from elevated PCE or TCE exposure.

The nature and extent of the health risks associated with acute and long-term exposure to volatile organic vapors (especially PCE and TCE) have also been presented to the DNR in a series of interdepartmental letters

¹ EPA's Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings. EPA Publication EPA 530-R-10-002 (March 2012).

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from the Wisconsin Department of Health Services (DHS). These letters are attached as reference confirming the risks associated with acute and chronic exposure to chlorinated solvent vapors, particularly TCE.

Current State (Information Provided by the DNR)

Responsible parties (RPs) are required by s. 292.11 and NR 700 to address vapor intrusion both on the source property, in rights-of-way (ROWs) and any affected off-site properties. As a result, many sites are investigated, remediated and mitigated for VI effectively by the RP. Also, some brownfield properties that are cleaned up and redeveloped by local governments and the private sector include VI concerns that are addressed as part of the site cleanup and redevelopment. However, many sites with significant health concerns are not of interest for redevelopment and there are a large number of sites that do not have a financially viable RP to address VI.

The DNR has federal funds from its EPA Brownfields Assessment Grant to conduct a limited amount of vapor investigation work at sites without a viable RP. This funding is only available for a limited time and not sufficient to address all sites with health concerns. These brownfields grant funds are only able to address historical dry cleaner sites in Milwaukee, with the initial effort looking at only three of a couple hundred historical dry cleaner locations in the city.

The DNR also has a limited amount of environmental repair fund dollars that are used statewide for vapor assessment and mitigation at open sites with significant health concerns and no viable RPs. The environmental repair funds are used only in ROWs to sample soil gas and sanitary sewers in an effort to understand the extent of the vapor issues and at residential properties potentially impacted by VI. In FY 2023, four sites were investigated and in FY 2024, five sites are being investigated. DNR is aware of more than 100 open sites with known or potential VI impacting residential properties that are not being adequately addressed.

Long Term Stewardship

One concern regarding VI sites is making sure that there is someone who can maintain and monitor a vapor mitigation system long term if one is needed. This is an issue for sites with viable RPs and those without. Currently, there are no funding mechanisms available for long term operation, monitoring and maintenance of vapor mitigation systems. The need to ensure protection of public health after an interim action to install the vapor mitigation system or beyond closure is very important. The current system of assigning continuing obligations that the property owner must follow is generally not effective with regards to successfully maintaining vapor mitigation systems.

PROPOSAL

We propose the establishment of a stand-alone Vapor Contamination, Mitigation, and Stewardship cleanup fund. The cleanup fund will be all-inclusive and will support:

- Source identification (soil, groundwater, and vapor investigations);
- Protection of building occupants (design, installation, and commissioning of vapor mitigation systems);
- Vapor mitigation operation, monitoring and maintenance costs (pre- and post-case closure);
- Long-term stewardship of vapor mitigation systems; and
- Source cleanup/reduction to reduce or eliminate need for vapor mitigation.

To accomplish the objectives listed above, we also propose the following funding mechanisms for consideration.

These draft issue papers and recommendations were developed by the Remediation and Redevelopment External Advisory Group and members of the public, and do not necessarily represent the opinions or the position of the Wisconsin Department of Natural Resources or other state agencies.

Potential options for funding sources:

- Revitalize Wisconsin (as drafted)
- Stand-alone program funded through legislative/statutory process
- Bad-player tax (chronic polluters)
- Acquisition, cleanup, and resale of old-dog sites
- Movement of fees for environmental programs (matching funds, cost-recovery, fines) from general fund back to DNR
- Vapor Mitigation System Inspection Fees
- Capture gas tax revenue used on former PECFA program
- Create Environmental Bonding Authority exclusively for Environmental Repair Sites
- Environmental surcharges for development at non-brownfield sites
- Prime Real Estate development fees

On February 2, 2024, eighteen state Representatives and five state Senators introduced 2023 Assembly Bill 1055 proposing the elimination of the existing drycleaner environmental response program fund and establishing a Revitalize Wisconsin Program that would provide aid to “address the discharge of a hazardous substance or the existence of environmental pollution...” This group of state representatives and senators may be advocates for environmental repair and restoration.

The provisions outlined in Assembly Bill 1055 indicate an interest in providing solutions to the lack of funding mechanisms for remediation and maintaining Continuing Obligations (COs) at sites that may have previously been closed but require continual operation, monitoring and maintenance for the protection of human health and the environment. The risk of interruption in protection is highest with active vapor mitigation systems that rely on a mechanical fan known to have a limited lifespan, averaging from four to ten years. This is especially true for vapor mitigation systems that have been forgotten in property ownership transfers, intentionally or inadvertently shut down, or are no longer operational due to mechanical failure or other equipment-related event.

It is the opinion of this subgroup that legislative support is needed to establish the cleanup fund as a solution to the VI issues as well as that of other site remediation needs.

As such, this committee requests direction from the DNR on the procedures/protocols for reaching out to the members of the legislature that drafted and submitted Assembly Bill 1055.

RESOURCES NEEDED

For discussion.

ENVIRONMENTAL JUSTICE

The establishment of a cleanup fund would support site remediation and CO system operation and maintenance at all sites not just those that are desirable for redevelopment. Most VI sites where an RP is not addressing the vapor concerns are in underserved communities. In addition, the fees collected as part of a Prime Real Estate Development surcharge would be a direct benefit to underserved communities.

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SOURCES

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