Remediation and Redevelopment External Advisory Group

ISSUE PAPER

ESTABLISHMENT OF A MITIGATION CONTRACTOR CERTIFICATION PROGRAM

Vapor Intrusion Subgroup

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This proposal 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.

TYPE OF RECOMMENDATION - LEGISLATIVE

This issue paper is to document the business need for mitigation contractor certification in Wisconsin and related issues for consideration. Discussions have been led by an ad hoc committee consisting of volunteers from the DNR's Remediation and Redevelopment External Advisory Group's (RR EAG) Vapor Intrusion Subgroup. A mitigation certification program is being considered to address issues with contractor qualifications and accountability identified in Wisconsin with both radon and vapor intrusion mitigation systems. The National Radon Proficiency Program (NRPP), which is administered by the Indoor Environments Association (IEA), also known as AARST, is working to develop and finalize credentials for vapor intrusion mitigation on a national level. The goal of mitigation contractor certification is to ensure soil gas mitigation systems, designed and installed by qualified personnel according to established industry consensus standards, are protective of the health of occupants and limit potentially harmful exposures. Recommendations by the RR EAG will not be developed until the NRPP vapor intrusion mitigation credential program has been finalized and subsequently reviewed by Wisconsin stakeholders. Information memorialized in this issue paper will be further considered at that time.

BACKGROUND

Need for a Mitigation Certification Program in Wisconsin

While harmful soil gases such as radon present long-term health concerns, exposure to certain chemical vapors may present acute health concerns. Petroleum volatile organic compounds (VOCs) such as benzene can cause acute respiratory, gastrointestinal, and neurological impacts, while chlorinated VOCs like trichloroethylene (TCE) can cause both acute central nervous system impacts and developmental harm in as little as an 8-24 hour exposure period.

The most effective long-term method to interrupt vapor exposures is the installation and maintenance of an effective vapor mitigation system. However, there are no regulations providing consumer protection or accountability with respect to mitigation services in Wisconsin. A collective body of regulatory and public sector evidence is growing to show that mitigation needs to be performed by qualified personnel. The work should be compliant with established national standards and in a system where the qualified personnel will be held accountable for their work. Since Wisconsin is primarily surrounded by states that license radon mitigators (MN, IA, IL & IN), it is important both within Wisconsin and regionally to ensure this gap in oversight coalesces under national standards.

Regulation through Certification. The simplest path forward is to leverage the regulation through certification (RtC) approach established for radon mitigation as a result of various efforts by the US Environmental Protection Agency (EPA), other states, and national industry-led non-profit organizations. Radon policies in 10 of the 20 states that presently regulate radon services use the RtC model. This approach relies on certification by existing EPA-recognized national proficiency programs to qualify personnel for eligibility to have a state license. Licensing supplements the proficiency qualification process to enable in-state compliance

and enforcement activities, and supports any customization needed to match local conditions. States that enact new regulatory policies can leverage established proficiency systems rather than create new mechanisms for job definitions and task analyses, qualifications, examination item development, exam delivery and proctoring, training approvals, renewal eligibility requirements, and other components of credentialing.

Current Standards. There is no current mitigation standard in Wisconsin. Nationally, the ten RtC states and four other regulated states require compliance with EPA-recommended American National Standards Institute (ANSI)/AARST[1] standards for radon measurement and soil gas mitigation, while the other six regulated states continue to use legacy standards that were created by the state or EPA, or a combination of ANSI/AARST and legacy standards. The only relevant consensus standards that cover both radon and vapor mitigation are:

1. The ANSI/AARST soil gas mitigation standards:
    a. Soil Gas Mitigation Standards for Existing Homes, (SGM-SF-2023) and
    b. Soil Gas Mitigation Standards for Existing Multifamily, School, Commercial and Mixed-Use Buildings (SGM-MFLB-2023)
2. The ANSI/AARST Operation, Monitoring and Maintenance (SG-OMM) standard under development.
3. The ANSI/AARST new construction standard: Soil Gas Control Systems in New Construction of Multifamily, School, Commercial and Mixed-Use Buildings (CC-1000-2018 Rev. 5/23)

The AARST Consortium on National Standards is an ANSI-accredited standards development organization.

Current Proficiency Programs. The two proficiency programs currently recognized by EPA are the NRPP (administered by the IEA) and the National Radon Safety Board (NRSB). In March 2023, the EPA released Proposed Radon Credentialing Criteria which will help align and encourage consistency across radon credentialing programs operated by certification bodies and states. The criteria are designed to support establishment and maintenance of a base level of organizational and program-specific competencies, grounded in third-party accreditation to International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 17024:2012. Finalization of EPA's approval criteria may change future recognized credentialing programs.

Oversight Board. The IEA (AARST) model RtC legislation relies on an oversight licensure board, such as a plumbing board, medical examining board, or geologist board that involves volunteer industry members and empowers them to insist on oversight and impose penalties for non-performance. A possible approach in Wisconsin would be to establish a board within Wisconsin Department of Safety and Professional Services (DSPS) to oversee all mitigation professionals. From a national perspective, Kentucky enacted this approach in its radon law. Advocates in Maryland, Missouri and North Carolina include a board in their proposed radon laws. IEA's Virginia Chapter is seeking to move regulatory oversight from the Health Department to the Asbestos and Lead Board in the state's Department of Professional and Occupational Regulation.

Additionally, Chapter 15 of the Wisconsin Statute, Structure of the Executive Branch, grants the creation of DSPS and its authority to host examining boards and councils for various professional services. DSPS leads administrative activities that help each board and council achieve its goals, including managing the issuance and denial of licenses and license applications. While DSPS does not currently have a soil gas-related board, current infrastructure exists that could support development of such a board at DSPS.

State Agency Roles and Interrelationships

The Department of Health Services (DHS) and Department of Natural Resources (DNR) overlap extensively in their respective duties to ensure public protection from harmful naturally occurring and chemical soil gas exposures. The DHS has long-standing federally funded programs that support prevention of exposure to radon and vapor intrusion through human health risk assessment, expert consultation, and statewide health education and outreach efforts. The DNR, through the Remediation and Redevelopment Program, regulates chemical vapors from spills under the authority of the "spill law" (Wis. Stat. § 292.11). The DHS and DNR

collaborate to ensure Wisconsin citizens are sufficiently protected from chemical vapors resulting from hazardous spills.

In 2023, the Department of Children and Families (DCF) enacted new rules to protect children enrolled in licensed childcare from exposure to high levels of radon gas. Together, the DHS, DNR, and DCF work to promote the safety of children enrolled in licensed childcare and their caretakers and prevent harmful soil gas exposures at and near contaminated sites. In the absence of state regulation ensuring that mitigation service providers who perform work in childcare facilities are qualified and adhering to industry consensus standards, the DCF relies on the DHS's radon expertise to provide on-going radon-related guidance to child care providers and child care licensing staff.

The design and installation of vapor intrusion mitigation systems are administered through Wisconsin Administrative (Wis. Admin.) Code chs. NR 700-799. The DNR guidance document "Addressing Vapor Intrusion at Remediation and Redevelopment Sites in Wisconsin" (RR-800) also provides information on vapor intrusion mitigation systems. However, there is not a uniform standard for design and installation of vapor intrusion mitigation systems. As discussed above, regulation of radon in Wisconsin is currently limited to testing and mitigation associated with licensed family and group childcare providers, as established by DCF. DHS provides information with respect to radon but does not regulate radon measurement or mitigation. The State of Wisconsin does not require contractors performing radon mitigation work to hold a national certification of any sort.

There are no regulations providing consumer protection or accountability with respect to mitigation services in Wisconsin. Collaboration between DNR and DHS is efficient and necessary considering the significant overlap in regulation over radon and vapor intrusion mitigation. Because all state agencies with roles and responsibilities related to radon and vapor intrusion routinely interact with each other on these issues, an umbrella law requiring oversight and credentialing of radon and vapor intrusion mitigation contractors would integrate well among the agencies' independent and shared responsibilities and interests.

Current Status and Challenges of Mitigation

The absence of a license requirement for radon or vapor intrusion mitigation systems has contributed to several challenges:

Inadequate Design. While standards for soil gas mitigation systems have been developed by ANSI/AARST, the standards are applied unevenly by designers and installers. With respect to vapor intrusion mitigation, the lack of required use of national standards or proof of qualification to perform the work has led to project delays when DNR must request revisions to designs or already installed mitigation systems. Inadequate mitigation systems do not accomplish the required protection of human health from exposure to chemical vapors (See Health Implications for Certification).

Challenges in Regulated Child Care. In March of 2023, DCF enacted new rules which require licensed child care centers to test for radon and mitigate when levels exceed the EPA Action Level of 4 picocuries per liter (pCi/L). Centers must conduct one radon test in the lowest level used by children at least seven hours per week and for a minimum of 48 hours with the center's windows being closed. The DCF rules do not specify which types of tests are acceptable or which people are sufficiently qualified for testing and mitigation depending on the building type. These rules are further outlined in Wis. Admin. Code, DCF § 250.06 for family childcare centers (typically in-home based) and Wis. Admin. Code, DCF § 251.06 for group child care centers (typically based in larger, commercial spaces).

Without a license requirement for radon service providers in Wisconsin, childcare centers are unable to verify whether contractors are qualified for testing or mitigation to meet childcare licensing requirements. This can lead to problems where industry consensus standards are not followed. These problems include but are not limited to the inappropriate number and placement of test kits in the facility, use of less accurate or poor

performing radon measurement devices, inadequate mitigation system installations, and lack of quality assurance and quality control checks. These issues may lead to unintended radon exposures, undermining the State's goal to eliminate harmful exposures among children enrolled in licensed care, and their staff.

Consumer Protection. Consumers do not have the appropriate expertise to properly vet mitigation system installers. They are unlikely to be aware of the potential dangers posed by inadequate construction practices or faulty installation of soil gas mitigation systems or understand if a mitigation system fails due to poor or improper installation. Early failure of mitigation systems is unlikely to be detected by the average consumer, as many soil gases have negative health effects without a detectable presence. While harmful soil gases such as radon present long-term health concerns, exposure to certain chemical vapors may present acute health concerns. See *Health Implications*. A certification process protects consumer health by ensuring knowledge of and adherence to an established set of guidelines during the evaluation, installation, assessment, and maintenance phases and serves to minimize the costs associated with this work when qualified contractors are assured.

Worker Health. Conditions before a mitigation system is installed may be hazardous to health. Certification of contractors ensure they are equipped with knowledge to protect their health during the installation process. This includes a need to have adequate knowledge of health protection for vapor intrusion sites. This is typically achieved by the US Occupational Health and Safety Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) training and certification courses. In addition to potential exposure to environmental contamination, modifications to mitigate existing buildings may include the need for asbestos and/or lead-based paint assessments in advance.

Summary of Challenges. The net result of the common issues listed above is a high presence of unqualified contractors, inadequate installations, no or insufficient performance monitoring, ineffective mitigation systems, etc., resulting in:

- uncontrolled and increased potential for exposure to contaminated vapors and other hazards to building occupants and contractors, and
- additional costs associated with diagnosing/repairing sub-standard mitigation systems.

Health Rationale for Certification

Exposures to chemical vapors can pose both an acute and chronic health risk. Petroleum VOCs such as benzene can cause acute respiratory, gastrointestinal, and neurological impacts, while chlorinated VOCs like TCE can cause both acute central nervous system impacts and developmental harm, as has been outlined in a series of memos from DHS to DNR[2]. Specifically, for TCE, in the June 6, 2022 memo from DHS to DNR, DHS states that an 8-hour period of exposure for occupational settings and a 24-hour period for residential settings constitutes a single exposure, since the potential developmental harms of cardiac malformations may occur early on in pregnancy, potentially before the person may have confirmation that they are pregnant. As such, reliable continuous and effective mitigation is necessary.

The most effective long-term method to interrupt vapor exposures is the installation and maintenance of an effective vapor mitigation system. While short-term measures may need to be taken to immediately interrupt exposures to chemicals such as TCE when there are acute risks, such as temporary relocation or using air purifying units, these rapid response actions are intrusive to residents and unsustainable.

Across Wisconsin, there are sites where there have been acute health risks exacerbated by inadequate mitigation installations by unqualified mitigators. At one highly complex industrial-to-residential conversion with extensive TCE contamination, 150 residents were ordered to evacuate after the developer occupied the building before it was adequately mitigated; an active system was in place, but it was insufficient for protection from the significant levels of subsurface contamination and had not been properly commissioned (i.e., verified effective in protecting against hazardous vapors). In another example, a home with two short-term rental units

was improperly mitigated, such that re-entrainment of TCE into living spaces was likely through balconies and the bedroom windows. In each of these cases, a certified mitigator with the appropriate training and knowledge, working with environmental professionals, could have installed controls to prevent these human exposures.

Continuing education is essential as a component of a mitigation certification requirement. As the science continues to develop, new mitigation techniques and potential health risks become available, all of which may modify the best practices for mitigation over time. Continued education ensures that any consumer that needs mitigation will have access to services from mitigators equipped with the best available information.

NRPP Certification Development

The NRPP, which is administered by the IEA (also known as AARST), is developing a vapor intrusion mitigation credential separate from the existing radon mitigation credential. The vapor intrusion mitigation credential would add to the current array of NRPP certifications:[3]

- Radon Measurement Professional,
- Radon Mitigation Specialist,
- Radon Measurement Field Technician,
- Radon Mitigation Installer, and
- Soil Gas Mitigation Compliance Inspector.

Additional certifications are under development for commercial radon professionals.

It is anticipated that a vapor intrusion mitigator certification will be available to personnel who are both qualified to perform mitigation and knowledgeable about HAZWOPER but have not necessarily been trained or certified in radon mitigation (or measurement).

NRPP follows a rigorous process to develop a certification to fully fulfill its accreditation by the ANSI National Accreditation Board under ISO/IEC 17024:2012 (See Current Proficiency Programs). The definition of the role and related job tasks, eligibility pathways, assessment/certification process, exam format, recertification interval and requirement are among the steps in certification creation. Current practitioners are surveyed to learn the extent to which tasks within the Job Task Analysis are necessary and important. Exam content is developed through volunteer committees of exam item writers and item reviewers. Once the exam is delivered in pilot format, the effectiveness of the items is evaluated to ensure that the items are technically correct and assess knowledge important to the job, and the passing score is established. It is anticipated that pilot testing for the VI Mitigation Specialist will occur by the end of 2025.

Preventing Conflicts with Existing Regulations

Initial discussions with IEA included certification provisions that may be applicable to mitigation system designers and performance verification. While limited regulations exist in Wisconsin with respect to radon, the Wis. Admin. Code NR 700 rule series include several areas that guide and define site investigation, interim/immediate action, and regulatory closure at sites where a hazardous substance discharge to the environment has occurred. For example, Wis. Admin. Code ch. NR 712 establishes personnel qualifications for conducting environmental response actions. The scope of mitigation licensure based on private certifications must not conflict with these or other existing regulations. Previous discussions expressly deferred to the Wis. Admin. Code NR 700 rule series for vapor intrusion investigation.

NRPP certifications may also include provisions for system commissioning, which would likely include air monitoring. Laboratory accreditation is regulated by the DNR under Wis. Admin. Code ch. NR 149. However, the DNR does not currently regulate the analysis of air samples in Wisconsin by laboratories. Adoption of

certification programs must recognize the absence of such accreditation. NRPP is not currently pursuing an ANSI/AARST vapor intrusion sampling credential since there is not yet a related national consensus standard.

Applicability of Certifications to Subcontractors

It is common to engage various trades, such as plumbers and electricians, during the installation of mitigation systems. If the adoption of mitigation certification programs is pursued in Wisconsin, work by these subcontractors should either be supervised by certified mitigators or be certified mitigators themselves. Construction managers (e.g., general contractors, owners' representatives) not performing hands-on work should not be required to be certified mitigators but to engage certified mitigators to verify installation of mitigation systems are in accordance with the design specifications. It may be appropriate to create a series of certifications similar to the DHS Lead Certification program where certification requirements range from a minimum 8-hour course and fee to a 40-hour course, experience, fee and exam. Lead and asbestos abatement-related rules in Wisconsin also have safety requirements during work to prevent exposure to the hazard that may serve as an example for development of mitigation certification in Wisconsin.

Additional Considerations

The US Department of Housing and Urban Development (HUD) Multifamily Accelerated Processing (MAP) Guide (https://www.hud.gov/sites/dfiles/OCHCO/documents/4430GHSGG.pdf) includes a requirement to perform a vapor encroachment screening to determine if a there is a vapor concern. All programs within HUD require radon to be considered in the environmental review. While HUD requires properties to be free of these hazardous or radioactive substances, or for administrative controls to be in place for protection, HUD defers to state (or local) jurisdiction for regulation, including testing and mitigation. Without a requirement for mitigators to be certified, there is a notable gap in regulatory oversight in Wisconsin of this important work and no assurance HUD requirements are met.

Development of a mitigation certification program in Wisconsin also needs to address potential for loopholes to regulation by marketing for services that are intended to address radon or vapor intrusion mitigation but are advertised differently to avoid regulation, such as "radon resistant", "moisture reduction", "off-gas" systems, etc. Focusing regulation on the *performance* rather than the product name may address these concerns. Performance-based language may include "protection from or reduction of soil gas" (includes both radon and vapor intrusion), "any form of depressurization for protection from soil gas," etc.

PROPOSAL

This issue paper recommends continued evaluation of a certification program for mitigation in Wisconsin. Discussions by the RR EAG, including local and national industry stakeholders, will continue following NRPP's completion of credentials for vapor intrusion mitigation.

RESOURCES NEEDED

Future evaluation by the RR EAG may include engaging additional related professionals from a variety of perspectives for a holistic evaluation, such as Realtors, home inspectors, home builders, healthy homes advocates, mitigation installers, etc. Alternatively, these professionals may be included as stakeholders during a future phase of mitigation certification development beyond the RR EAG.

COMMENTS

It is essential that mitigation systems are installed properly the first time, and a certification/licensure process will ensure a minimum standard for this process that protects human health throughout Wisconsin. Implementing this process will ensure the protection of all communities during the development, installation, assessment, and maintenance of mitigation systems. By establishing clear standards and accountability measures, a certification/licensure framework can ensure that environmental practices are transparent and accessible to all communities.

REFERENCES

[1] https://standards.aarst.org/

[2] https://www.atsdr.cdc.gov/toxprofiles/tp3.pdf, https://www.atsdr.cdc.gov/toxprofiles/tp19.pdf, https://dnr.wisconsin.gov/sites/default/files/topic/Brownfields/vapor/vi-tce-dhs-letter.pdf, https://dnr.wisconsin.gov/sites/default/files/topic/Brownfields/training/20210325_DNR_VI_Immed.Response_Inquiry_DHS_Reply-Combined.pdf, https://dnr.wisconsin.gov/sites/default/files/topic/Brownfields/training/20220606_DHS%20response%20to%20DNR%20request%20-%20TCE%20Single%20Expsore%20Clarification.pdf

[3] https://nrpp.info/certification/types-of-certification/