May 29, 2018

Legislative Reference Library
645 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd.
St. Paul, Minnesota 55155

Re: In The Matter of the Proposed Rules of the Department of Health Governing Radon Professional Licensing; Revisor's ID Number 4353

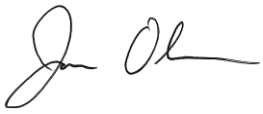
Dear Librarian:

The Minnesota Department of Health intends to adopt rules governing Radon Professional Licensing. We plan to publish a Dual Notice of Intent to Adopt Rules without a Public Hearing in the June 4, 2018 State Register.

The Department has prepared a Statement of Need and Reasonableness. As required by Minnesota Statutes, sections 14.131 and 14.23, the Department is sending the Library an electronic copy of the Statement of Need and Reasonableness at the same time we are mailing our Notice of Intent to Adopt Rules.

If you have questions, please contact me at (651)201-4614.

Yours very truly,



John Olson
Agency Policy Specialist
Environmental Health Division
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Enclosure: Statement of Need and Reasonableness

State of Minnesota
Minnesota Department of Health
Environmental Health Division

In the Matter of the Proposed Rules of the Minnesota Department of Health
Relating to Radon Licensing, *Minnesota Rules*, Chapter 4620.

Statement of Need and Reasonableness

May 2018

MINNESOTA DEPARTMENT OF HEALTH

STATEMENT OF NEED AND REASONABLENESS

PROPOSED MINNESOTA RULES, CHAPTER 4620

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I. INTRODUCTION

The Minnesota Department of Health proposes rules under Minnesota Statutes, section 144.4961, that will license businesses and professionals who either measure radon levels or install radon mitigation systems in buildings. Licensing will protect building occupants' health by making sure these professionals are qualified to perform their work effectively. Properly done work also protects the public in other ways: it protects owners from physical damage to their property, and also protects the owners from financial damage.

On May 17, 2015, the Minnesota Legislature passed "The Minnesota Radon Licensing Act," Minnesota Statutes, section 144.4961, which Governor Mark Dayton signed into law on May 22, 2015. Subdivision 3 of the Act requires the commissioner of health to "adopt rules for licensure and enforcement of applicable laws and rules relating to indoor radon in dwellings and other buildings, with the exception of newly constructed Minnesota homes…."

The legislature amended the Minnesota Radon Licensing Act (the Act) in the 2016 legislative session to reduce some licensing fees and clarify who will need to be licensed. In addition, the agency's rulemaking authority was modified slightly to state: The commissioner of health shall adopt rules establishing licensure requirements and work practices relating to indoor radon in dwellings and other buildings, with the exception of newly constructed Minnesota homes…." In 2017, the legislature further amended the Act to delay implementation for agency rules, licensing requirements, and system tag requirements until January 1, 2019.

Radon is a colorless, odorless radioactive gas that seeps into buildings from the earth. When inhaled, it gives off radioactive particles that can damage the cells that line the lung. Radon is the number one cause of lung cancer in non-smokers and the second leading cause of lung cancer in smokers.[1] In Minnesota, 2 in 5 homes have radon levels that pose a significant health risk (above the US Environmental Protection Agency action level of 4 picocuries per liter (pCi/L)), and nearly 80% of counties have average levels over the action level.[2] Homes can have elevated radon levels whether they are old or new, well-sealed or drafty, and with or without a basement. Schools and other buildings can also have high levels of radon. There is no known safe level and the greatest risk for exposure is where radon gas can concentrate—within buildings. To prevent lung cancer from radon, it is necessary to have qualified contractors accurately test and install quality radon reduction (i.e., "mitigation") systems in buildings with high radon levels. A quality radon mitigation system reduces radon, is durable, and doesn't create unintended health and safety hazards.

A separate law related to radon, the Minnesota Radon Awareness Act, enacted in 2013, requires that home buyers receive disclosure and notices about radon risks during most real estate transactions.[3] It has been successful, playing a large role in more than doubling radon mitigations to over 4,900 homes in 2017 alone. Most of this increase comes from additional mitigation that has occurred during real estate transactions. However, the Radon Awareness Act will only be effective in reducing the harmful effects of radon exposure if the public receives

[1] US Environmental Protection Agency. Health Risks of Radon. https://www.epa.gov/radon/health-risk-radon
[2] Minnesota Department of Health. Radon Data Portal. https://apps.health.state.mn.us/mndata/radon
[3] Minnesota Statutes, section 144.496

accurate radon test results, and if installed mitigation systems work properly to reduce radon levels.

Raising the public's awareness of this colorless, odorless, cancer-causing radioactive gas has generated demand for professionals to test for and remedy affected buildings. These radon-related contractors perform two functions: testing for radon presence (radon measurement professionals) and installing systems that reduce it (radon mitigation professionals). Carrying out both functions properly is highly technical work. At present, professionals can voluntarily acquire private-sector certification through trade associations that set industry standards. We have found, however, that Minnesota's industry as a whole has a wide range of professional abilities that leaves consumers with hit-or miss quality outcomes, jeopardizing public health.

The Radon Licensing Act requires contractors to become licensed to address the problem of citizens being adversely affected by unqualified contractors. Unqualified radon measurement professionals have used incorrect radon testing procedures, unapproved testing equipment, and uncalibrated measurement devices. Some have placed test devices in the wrong places. This has led to collecting inaccurate data. On the mitigation side, unqualified radon mitigation professionals have produced adverse consequences. Mitigation professionals have installed systems with a reduced life-span by using poor quality materials. Customers have been charged for contracted work that did not reduce the radon level in their homes. Mitigation professionals have improperly installed flashing that penetrates through walls or roofs, damaging them. They have disconnected sump pumps, leading to leaks or floods. Fire hazards have been created by failure to use fire-rated materials and improperly done electrical work. Occasionally, incorrect mitigation-system installation has increased radon levels rather than reducing them; improper air flows led to accumulations of carbon monoxide in living spaces.

Regulating the radon industry will ensure radon-related work meets standards, is of high quality, and effectively reduces lung-cancer risk by minimizing radon exposure. To ensure the public of such results, we need to have qualified contractors perform the tests and install mitigation systems. Testing properties and accurately evaluating the hazard takes highly skilled measurement professionals. It also takes highly skilled mitigation professionals to fix radon problems without damaging property or jeopardizing residents.

Seventeen other states regulate radon contractors. States have seen increased radon testing and mitigation after implementing their rules.

The department published two formal Requests for Comments in the State Register; one on August 17, 2015 and the second on July 18, 2016. The department also appointed an advisory committee to assist the department in developing the rules. The committee met seven times from October 2015 to July 2016. This committee of ten individuals represented different sectors of the radon industry: radon measurement professionals, radon mitigation professionals, educators, and building-code experts. The members voiced a variety of perspectives on the statute and rules. The committee evaluated draft rules line by line, and had opportunity to make recommendations. Committee members ultimately provided 20 recommendations for which there was consensus committee support. MDH rule writers fully incorporated sixteen recommendations into proposed rules and partially incorporated another three.

In addition, MDH held five open-to-the-public stakeholders meetings. The department announced these meetings through our GovDelivery email list for radon (which has about 1,800 subscribers), our email list of local partners, and the MDH Indoor Air Unit website. About 250 individuals attended the meetings—mostly radon professionals, but also government officials, public health professionals, and other stakeholders. MDH held the first public meeting in June 2015, followed by three more in August and September of 2016, with one more in January 2018. Three meetings took place in the Twin Cities metropolitan area and two in Greater Minnesota. The draft rules were presented in depth with ample opportunity for questions and comments. The department also conducted eight meetings (open-to-the public) with our radon partners, in November of 2016 and 2017. These meetings were held statewide and attended by about 120 individuals, mostly local health department staff but also some radon professionals. MDH reviewed comments and made some changes to the proposed rules based on some of the comments.

II. ALTERNATIVE FORMAT

Upon request, the department can make this information available in an alternative format, such as large print, braille, or audio. To make a request, contact Joshua Kerber at Minnesota Department of Health, P.O. Box 64975 Saint Paul, MN 55164-0975; (651) 201-5613; Joshua.kerber@state.mn.us.

III. STATUTORY AUTHORITY

Minnesota Department of Health received authority to adopt proposed rules 4620.7000 to 4620.7950 in Minnesota Statutes, section 144.4961, subdivision 3, which provides: "The commissioner of health shall adopt rules establishing licensure requirements and work standards relating to indoor radon in dwellings and other buildings, with the exception of newly constructed Minnesota homes according to section 326B.106, subdivision 6." Under this statute, rules adopted by the commissioner under this subdivision are effective beginning January 1, 2019. The department has the necessary statutory authority to adopt the proposed rules.

IV. REGULATORY ANALYSIS

Minnesota Statutes, section 14.131, sets out eight factors for a regulatory analysis that must be included in the SONAR. Paragraphs (1) through (8) below quote these factors and then give the agency's response.

"(1) a description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule"

Those who probably will be affected by the proposed Radon Licensing Rules are the following classes of persons that will be licensed and regulated:

- Individuals that conduct radon testing;
- Individuals and companies that perform work to reduce radon concentrations in buildings; and

- Laboratories that analyze radon test devices.

We expect customers of radon professionals, primarily homeowners, will be the principal beneficiaries of the rules. For context, MDH's data indicates that over 4,900 properties had radon mitigation systems installed in 2017; their property owners benefited from this work. Licensing and regulating work practices will result in higher quality radon-related measurement and mitigation work in homes. Real estate professionals, government officials, and builders may also benefit indirectly, because the radon-licensed professionals they work with, or refer their clients to, will have to follow specific work practices that will provide more reliable results for their respective constituents.

A 2016 Governor's Analysis showed that the number of radon-industry professionals and companies who would be regulated under the proposed licensing provisions would be approximately:

- 200 certified radon measurement providers (individuals);
- 30 certified radon mitigation companies;
- 160 certified radon mitigators (individuals); and
- 10 certified radon testing labs.

The agency knows of at least 25 radon educators that operate in Minnesota. There are also measurement providers and mitigation providers (plumbers, remodelers, HVAC contractors) that MDH believes are operating unbeknownst to MDH. The department estimates that many of those providers will pursue licenses, increasing the ranks of those licensed by 2020, in the Governor's Analysis, by approximately:

- 50 measurement professionals;
- 40 mitigation professionals; and
- 10 mitigation companies.

"(2) the probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues"

The statute set fees for radon professionals. The department expects those fees to fully fund the Department of Health's radon inspection and enforcement program. Minnesota Statutes, section 144.4961, subdivision 3 states: "The commissioner shall coordinate, oversee, and implement all state functions in matters concerning the presence, effects, measurement, and mitigation of risks of radon in dwellings and other buildings." No other agency has been granted statutory authority to implement or enforce radon rules.

Any impact to state revenues resulting from the rules will be minimal. The 2016 Governor's Analysis forecasted a 10% increase in radon mitigations in 2019, with no further increase in subsequent years. This projection was based on data from four other states with similar licensing regulations that saw an increase in radon-related business.[4] If Minnesota experiences this same level of growth, it could realize thousands of dollars per year of additional business- and sales-tax revenue.

[4] Personal correspondence with radon program managers in Illinois, Ohio, Kansas, and Pennsylvania

"(3) a determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule"

The rule's purpose is to "ensure radon measurement and radon mitigation is performed in a manner to minimize the public's exposure to radon gas."[5] Our proposed rules use measurement methods with approved devices and active soil depressurization (ASD) that the industry recognizes as the state-of-the-art practices for measuring and reducing indoor radon levels, respectively. These methods were described in a succession of three national and industry standards published over the past three decades, from the US Environmental Protection Agency (USEPA), American Society for Testing and Materials (ASTM) and American Association of Radon Scientists and Technologists (AARST). The agency chose to incorporate the standards developed by AARST, because it is: the most current standard; periodically revised; a consensus standard; approved by the American National Standards Institute (ANSI); developed by the U.S. radon industry; commonly used by Minnesota radon professionals; and considered the "current radon standards of practice"[6] by the USEPA. The advisory committee did not propose alternative mitigation methods. The agency knows of no other model of radon measurement or reduction that is less costly or less intrusive and sufficiently protective to achieve the rule's stated purpose.

"(4) a description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule"

The Minnesota Department of Health has maintained a federally-granted radon outreach, research and education program since 1989. MDH Indoor Air Unit (IAU) is fully informed about any developments in radon risk reduction and standards of practice. IAU staff have served on several national standard-writing and policy committees. As previously stated, measurement methods with approved devices and mitigation methods using active soil depressurization are the only accurate, reliable, and effective methods for identifying radon hazards and achieving indoor radon concentration reduction.

The agency convened an advisory committee to assist in developing these rules. The committee was charged with providing advice regarding alternative methods of meeting the objectives of the statute and proposed rules. The proposed rules were also presented at five stakeholder meetings. There were no committee members, commenters, or stakeholder-meeting attendees who presented an alternative method for achieving the purpose of the rules. No one challenged the requirement to use approved devices for measurement and active soil depressurization (ASD) for mitigation methods.

There are no existing alternatives to the ANSI/AARST standards referenced in rule that achieve the rule's purpose. The agency lacks the resources to develop and routinely update these rules to reflect changes to the national standards, so the agency rejected this option out of hand. For specific rule details, the agency considered many options, which are discussed in the rule-by-rule

[5] Proposed Minn. R. 4620.7000
[6] Under "Current Radon Standards," the USEPA lists the ANSI-AARST standards, at www.epa.gov/radon/publications-about-radon

analysis. As previously noted, the advisory committee members proposed and supported 20 changes to the first rule draft. Of those, 16 were fully accepted and three were partially accepted and incorporated by the department. The advisory committee supported use of the ANSI/AARST standards by reference and there was no opposition expressed at our stakeholder and partner meetings.

"(5) the probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals"

The proposed rules regulate four classes:

- radon measurement professionals (individuals);
- radon mitigation professionals (individuals);
- radon mitigation companies (businesses); and,
- radon analysis laboratories (businesses and government entities).

The statute establishes radon professional license fees and system tag costs. The agency recognizes that those regulated will incur some additional education and administrative costs. Education expenses are fees for required initial training and exams for those professionals who have not previously completed them, as well as continuing-education course fees. Costs may also include lost business revenue (i.e., opportunity cost) and travel for training. Regulated parties may also incur administrative costs for filling out applications, developing quality assurance or quality control plans, recordkeeping, and submitting reports to the department. The expected compliance costs of for each class of regulated party during the first year of being licensed are described below by category.

Radon Measurement Professional—Individual Costs

Individual radon measurement professionals' costs will depend on their administrative costs for filling out license applications and complying with work practice requirements. Other factors are whether they:

- are currently certified;
- choose to travel for courses (compared to taking them online);
- lose business revenue from the time necessary for taking the course (opportunity cost); and
- must purchase additional radon-testing devices (to replace unapproved devices or need additional devices to comply with the testing required under part 4620.7500, item A, sub-item (2)).

The department has detailed these costs in Tables 1 and 2, by calculating low and high end estimates of potential costs for individuals. For currently uncertified individuals, the first-year costs range from $510 to $4,269. For currently certified individuals, the estimated cost will be less and ranges from $150 to $1,810. Costs for subsequent years are expected to decline, since only the potential continuing education (CE) costs, lost revenue due to CE, and administrative costs apply until year two and onward.

Table 1 Currently Uncertified Measurement Professional

Type	*Low*	*High*

Course Fee[7]	250	450
Exam Fee[8]	110	175
Travel (online vs classroom)[9]	0	634
Business Revenue Lost to Initial Training[10]	0	1,200
Continuing Ed - 8 hours (free vs paid) [11]	0	110
Business Revenue Lost to CE[12]	0	400
Testing Equipment[13] (monitor purchase?)	0	700
Administrative Costs[14]	150	600
TOTAL	**$510**	**$4,269**

Table 2. Currently Certified Measurement Professional

Cost	*Low*	*High*
Course Fees	0	0
Exam Fees	0	0
Travel	0	0
Business Revenue Lost to Initial Training	0	0
Continuing Ed (free vs paid)	0	110
Business Revenue Lost to CE	0	400
Testing equipment (monitor purchase?)	0	700
Administrative Costs	150	600
TOTAL	**$150**	**$1,810**

Radon Mitigation Professional——Individual Costs

The cost to individual radon mitigation professionals will depend on the same factors described above for measurement providers. The costs are detailed in Tables 3 and 4. The department has calculated low and high end estimates of potential costs for individuals. For those who are currently uncertified, the first year cost ranges from $1,090 to $6,826. For certified individuals,

[7] Courses found online through AARST-NRPP on 2/3/17 (http://aarst-nrpp.com/wp/entry-level-courses/). The following are course providers and their costs: Spruce Web-based ($249), KSU Web-based ($400), CERTI Home Study ($325), MURC Classroom ($450)

[8] Exam fees found online through AARST-NRPP on 2/3/17 (http://aarst-nrpp.com/wp/entry-level-courses/). The following are how course providers' exam fee was determined: Spruce Web-based, KSU Web-based, CERTI Home Study, MURC Classroom. Exams taken at a national exam center cost $110, compared to $175 as part of a course.

[9] On the low end, the department is using online courses which require no travel, while on the high end the department assumes various travel costs. For a two-day class, we assume 3 nights hotel ($100 per night), 3 days of meals ($40/day) and up to a 300 mile roundtrip driving at IRS rate of $0.535 per mile. No travel expenses if individual chooses online course.

[10] On the low end, the department assumes courses are completed outside business hours, while on the high end the department assumes courses completed during business hours and that three days spent training means foregoing three home inspection jobs. According to the US Housing Urban Development Agency, the average home inspection is $300–$500 (portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/insp/inspfaq).

[11] While there are likely some free CE courses available, online or in-person, professionals may not be able to attend these and forced to take a courses with a fee. The 8-hr CE course "RRNC Practices: An Industry Discussion" had a fee of $110 (aarst-nrpp.com/wp/continuing-education/)

[12] The business lost may be $0 if the course is completed outside business hours, while on the high end the cost could be equivalent to a missed day of work, meaning equivalent to one home inspection job.

[13] Cost to purchase a continuous radon monitor, to replace an unapproved device and/or order to comply with footprint testing requirement (4620.7500 A. (2)). On the low end, professionals may have sufficient numbers devices and won't need to purchase a CRM

[14] Ranges from 5 to 20 hours per year at a rate of $30 per hour, for time spent submitting application, creating QAQC Plan, reporting data quarterly, recordkeeping and being audited or inspected

the cost is less and ranges from $150 to $2,025. Costs for subsequent years decline since only the potential CE costs, lost revenue due to CE, and administrative costs apply in year two and onward.

Table 3. Currently Uncertified Mitigation Professional

Type	*Low*	*High*
Course Fee[15]	700	1,050
Exam Fee[16]	220	350
Travel (online vs classroom)[17]	0	1,001
Business Revenue Lost to Initial Training[18]	0	2,400
Continuing Ed - 12 hours (free vs paid) [19]	0	125
Business Revenue Lost to CE[20]	0	600
Testing Equipment[21] (monitor purchase?)	0	700
Administrative Costs[22]	150	600
TOTAL	**$1070**	**$6,826**

Table 4. Currently Certified Mitigation Professional

Cost	*Low*	*High*
Course Fees	0	0
Exam Fees	0	0
Travel	0	0
Business Revenue Lost to Initial Training	0	0
Continuing Ed – 12 hours (free vs paid)	0	125
Business Revenue Lost to CE	0	600
Testing equipment (monitor purchase?)	0	700
Administrative Costs	150	600
TOTAL	**$150**	**$2,025**

[15] Courses found online through AARST-NRPP on 2/3/17 (http://aarst-nrpp.com/wp/entry-level-courses/). The following are course providers and their costs for mitigation only: Spruce Web-based ($499), CERTI Home Study ($475), MURC Classroom ($600). These are costs added to the course costs for measurement licensure under Table 1. A KSU Web-based combination course for measurement and mitigation ($700).

[16] Exam fees found online through AARST-NRPP on 2/3/17 (http://aarst-nrpp.com/wp/entry-level-courses/). The following are course providers' exam fee was determined: Spruce Web-based, KSU Web-based, CERTI Home Study, MURC Classroom. Two exams are taken. Exams taken at a national exam center cost $110 compared to $175 as part of a course.

[17] On the low end, the department is using online courses which require no travel, while on the high end the department assumes various travel costs if the individual chooses a classroom course. For a 5 day class (measurement + mitigation), we assume 6 nights hotel ($100 per night), 6 days of meals ($40/day) and up to a 300 mile roundtrip driving at IRS rate of $0.535 per mile.

[18] On the low end, the department assumes courses are completed outside business hours, with no lost revenue. On the high end the department assumes courses are completed during business hours and at rate of $400 of net revenue (minus expenses not incurred) lost per day for 6 days.

[19] While there are likely some free CE courses available, online or in person, professionals may be unable to attend these and be forced to take a courses with a fee. The 12-hr CE course "Continuing Education for the Radon Professional" (RADTEST-403) had a fee of $125 (aarst-nrpp.com/wp/continuing-education/)

[20] The business cost may be $0 if the course is completed outside business hour, while the high-end cost could be equivalent to a 1 ½ day of work, meaning equivalent to about $600 revenue.

[21] Cost to purchase a radon monitor, to replace an unapproved device and/or order to comply with footprint testing requirement (4620.7500 A. (2)). On the low end, professionals may have sufficient devices and won't need to purchase a CRM, on the high end an additional device may need to be tested to meet demand.

[22] Ranges from 5 to 20 hours per year at a rate of $30 per hour, for time spent submitting application, reporting data quarterly, recordkeeping and being audited or inspected

Radon Mitigation Company—Individual Company Costs

The costs for radon mitigation company licenses do not include initial courses, exams or continuing education (these are required of individual professionals, not companies). There are, however, requirements for training unlicensed individual employees, potential business revenue lost, and administrative costs. Unlicensed individuals conducting radon mitigation work must complete 8 hours per year of training, (which a licensed mitigation professional working for the company may conduct) or by attending formal classes in person. The department has calculated low and high end estimates of potential costs for company licensure. Company costs are shown in Table 5. The costs range from $150 to $2,050 in the first year. Costs for subsequent years will stay constant.

Table 5. Radon Mitigation Company Costs

Cost	*Low*	*High)*
Annual Training Fee[23]	$0	$250
Business Revenue Lost to Training[24]	$0	$1200
Administrative Costs[25]	$150	$600
Total	**$150**	**$2,050**

Radon Analysis Laboratory Costs—Individual Laboratory Costs

The cost for a radon analysis laboratory license will be minimal since the proposed rules do not require the initial courses, exams, continuing education, or other education that individual professionals must acquire. MDH has identified ten laboratories that will need a license, and all currently comply with the quality assurance program or the third-party accreditation requirements that are described under 4620.7350. They all have quality assurance and quality control plans, but might need to make some minor edits. The department has only identified administrative costs, such as time spent submitting applications, editing their quality assurance plans, reporting data annually, and recordkeeping. These estimates are similar to the other three categories, with a range of $150 to $600.

"(6) the probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals"

[23] Some radon mitigation companies may have no technicians employed or subcontracted, for example a sole proprietor radon mitigation company that has one professional and no techs. The largest radon mitigation company that MDH is aware of has seven employees (five certified and two uncertified 'technicians'). The department assumes this company would license five staff and continue to have two staff serve as technicians. It is possible the company would choose to send these technicians to an 8 course; for example a CE course that could cost $125, as stated previously.

[24] Some companies have no technicians to train or they conduct training outside work hours. On the other hand, a large company could have up to two technicians, whom could be trained outside a project or 'hands-on; as part of a mitigation job. Assuming an opportunity cost of $400 (8-hour work day lost) and factoring in both the technicians' and a professional's time as part of this 'training day': $400 x (2 technicians + 1 professionals)

[25] Ranges from 5 to 20 hours per year at a rate of $30 per hour, for time spent submitting application, ordering mitigation tags, reporting data quarterly, recordkeeping and being audited or inspected

The agency is statutorily obligated to adopt these rules. Without adopted rules, the agency will not be able to carry out the legislature's mandate to protect the public from inadequate radon measurement and mitigation work with all of their adverse consequences. Home and other building owners who seek relief from radon would suffer incalculable costs from increased health risks and false reassurance from improper work.

"(7) an assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference"

The department knows about only one federal regulation that may relate to the proposed rule's specific purpose. Under the National Environmental Policy Act, the US Housing and Urban Development (HUD) Agency has requirements for identifying and mitigating radon in new FHA Multifamily Insured mortgage applications.[26] The requirements include preparing a radon report, using state-licensed-professionals, following testing protocols, giving residents notices, and following mitigation standards. These requirements apply only to a very specific sub-category of radon measurement and mitigation projects in Minnesota. This regulation is consistent with these proposed rules. Therefore, there is no difference that would warrant analysis.

"(8) an assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule . . . '[C]umulative effect' means the impact that results from incremental impact of the proposed rule in addition to other rules, regardless of what state or federal agency has adopted the other rules. Cumulative effects can result from individually minor but collectively significant rules adopted over a period of time."

The department knows about only two federal and state regulations that may relate to the specific purpose of the rule.[27] These two regulations would not result in a cumulative effect on the regulated parties. As stated under part 4620.7000, the rules' purpose is "to protect public health

[26] Under 42 U.S.C. 4321 et seq., "Protection and Enhancement of Environmental Quality" (24 CFR Part 50, §50.3(i)(1))

[27] There are other radon regulations that do not relate to the licensure or work practices of radon professionals, companies or labs.

- The Indoor Radon Abatement Act (15 U.S. Code Subchapter III § 2661-2671). The US EPA must develop a citizen's guide, model standards and techniques, provide technical and grant assistance to states, study radon in schools, support radon training centers, study radon in federal buildings and issue "regulations as may be necessary to carry out the provisions of this subchapter." The EPA has not issued other regulations.
- Radon Awareness Act (Minn. Stat. § 144.496). Sellers of most residential real property must disclose radon testing and mitigation, provide a "Radon Warning Statement," and provide the MDH "Radon in Real Estate" publication to buyers. There are no requirements for testing, mitigation, or devices under this statute.
- Radon Building Code (Minn. Stat. § 362B.106). Builders must construct new residential buildings with radon-control methods according to rules that incorporate the International Residential Code Appendix and other Minnesota construction codes. New construction under § 362B.106 is exempt from the Radon Licensing Act, according to subd.11 of the Radon Licensing Act.
- Sustainable Building Guidelines (§ 16B.325). New construction and major renovations of state buildings funded from bond proceeds must follow the state's building design guidelines, currently including radon control requirements. Construction work would be regulated under the Radon Building Code (§ 362B.106).

by establishing licensing requirements and work practices that ensure radon measurement and radon mitigation are performed in a manner that minimizes the public's exposure to radon gas." License and tag fees, which are set by statute, do not apply to this analysis.

Under the National Environmental Policy Act, the US Housing and Urban Development (HUD) Agency has requirements for identifying and mitigating radon in new FHA Multifamily Insured mortgage applications.[28] The requirements include issuing a radon report, using state-licensed professionals, following testing protocols, notifying residents, and following mitigation standards. Only a very specific sub-category of Minnesota's radon measurement and mitigation projects fall under these rules. Further, since these HUD requirements are equal to or less stringent than the proposed rules, these regulations do not cause a cumulative effect on entities in Minnesota

Under Minnesota law, public schools that are eligible for Long Term Facility Maintenance revenue that have also chosen to test for radon must follow the state's radon testing plan and report results.[29] School staff that own or lease their buildings are not considered professionals and are thus exempted from these rules, according subdivisions 5 and 8 of the Radon Licensing Act. As such, there are no cumulative costs of these rules and this statute. If a school chooses to hire a consultant to conduct testing, that individual or company bears the costs discussed under section (5) of this Regulatory Analysis.

V. ADDITIONAL STATUTORY REQUIREMENTS

A. Performance Based Rules

In developing these rules, MDH formed and consulted with an advisory committee and held stakeholder meetings. Participants did not come up with alternative measurement or mitigation methods to the ANSI /AARST standards presented in the draft rules. There are over 200 currently certified radon professionals in Minnesota who must use these work practices under the terms of their certification. MDH proposes making the ANSI /AARST work-practices requirements by incorporating them by reference. These standards are generally prescriptive to ensure systems are durable, reduce radon, and do not create safety problems.

The standards, however, are also flexible and thus meet the statutory objective of being performance-based by allowing different methods of achieving the rules' goals. For radon measurement, these standards permit three different testing methods: sequential, simultaneous, or continuous monitors. The standards also allow options for testing location and building conditions, as well as several different approved devices. For mitigation methods, several types of active soil depressurization are authorized (sub-slab, drain tile, sump basket, sub-membrane, etc.) and ventilation and pressurization are allowable reduction methods under certain circumstances.

[28] Under 42 U.S.C. 4321 et seq., "Protection and Enhancement of Environmental Quality" (24 CFR Part 50, §50.3(i)(1))
[29] Minn. Stat. § 123B.571, School Radon Testing

Hence, the department has chosen a generally prescriptive approach that is comparable to building code requirements. One could argue requiring that radon be reduced to below a specific level, such as the EPA recommended action level of 4 pCi/L, as an obvious performance standard for mitigation. The department instead rejected this as a blunt performance standard. A professional might reduce radon down to a level slightly higher than 4.0 pCi/L, where further reduction to below 4.0 pCi/L could be very costly with very little additional risk reduction. If compelled to achieve a reduction to below 4 pC/L, a radon mitigation system could create various problems:

- safety hazards (e.g., carbon monoxide from a back-drafting water heater),
- aesthetic objections (e.g., multiple suction points and pipes),
- noise problems (e.g., due to many large fans or too much airflow), and
- significantly increased energy costs (e.g., due to loss of conditioned basement air, large fans, or multiple fans).

If such a performance standard were required, radon mitigation bid costs by companies could increase, thereby discouraging property owners from installing a system in the first place. In addition, if additional work had to be done after a system was installed, building owners could balk at undertaking such marginal radon reduction if significant costs and problems arose, risking the health of the occupants and defeating the purpose of the regulations.

Where possible, the agency incorporated performance-based elements into the rules. Measurement and mitigation professional must pass exams to demonstrate competence—for initial licensure—and as part of continuing education courses to renew licenses. Also, licensing will require professionals to present a quality assurance plan and demonstrate (as part of this plan) that their equipment is accurate and precise when following manufacturer recommendations. Also, the department chose to require that when measurement and mitigation professionals allow their license to lapse for more than 30 days, they need only pass an exam to restore it. Initially, the department considered requiring, as do other states, that these licensees re-take an initial course and pass an exam.

B. Additional Notice

Minnesota Statutes, sections 14.131 and 14.23, require that the SONAR describe the department's efforts to provide additional notice to persons who might be affected by the proposed rules or explain why these efforts were not made. To that end, MDH has done or will do the following:

1) We emailed the Request for Comments and rule drafts to the more than 2,500 Listserve subscribers for the MDH radon and school environmental health GovDelivery systems.
2) We formed an advisory committee of industry professionals, educators and encouraged them to engage in discussions with their constituents.
3) We emailed the following various professional groups:
    a. Two radon industry professional associations:
        i. American Association of Radon Scientists and Technologists,
        ii. American Association of Radon Scientists and Technologists, North Star Chapter, and

iii. Minnesota Association of Radon Professionals.
b. Minnesota Association of Home Inspectors
c. Minnesota Association of Educational Facilities Professionals
d. Minnesota Association of Realtors
e. Two builders' associations:
i. Builders' Association of Minnesota, and
ii. Builders' Association of the Twin Cities

4) We posted the Request for Comments and rule drafts on the MDH Indoor Air Unit Website. We will post this SONAR and all future procedural documents as they are available.
5) We mailed and will continue to mail the required notices to everyone who has registered to be on the department's rulemaking mailing list under Minnesota Statutes, section 14.14, subdivision 1a.
6) We have given notice to the Legislature, per Minnesota Statutes, section 14.116.

The department created a website dedicated to the Radon Licensing Rules and sent electronic notices to its list of affected and interested parties stating the site was available to keep them informed of rulemaking developments. It includes a link for viewers to sign up for automatic electronic notification when the pages are updated. In addition, the website provides directions and electronic links for individuals to submit comments on proposed rule revisions.

The department's website has links to the State Register so the Request for Comments and subsequent published documents can be viewed electronically. The department has also made the drafts of the proposed rules available on its website for print upon request. In addition, it will post this Statement of Need and Reasonableness and offer print copies.

MDH will provide all further notices required by statute. The proposed rules and Notice of Intent to Adopt will be sent to everyone who has registered to be on MDH rulemaking mailing list under Minnesota Statutes, section 14.14, subdivision 1a. We will also give notice to the Legislature per Minnesota Statutes, section 14.116. At the time the Notice of Intent to Adopt in the State Register, the department will provide a copy of the Notice to those who have been identified as interested or affected parties in the Additional notice plan. All referenced communication will be made by electronic mail if the department has the recipient's email address, or by US Mail.

Our Notice Plan did not include notifying the Commissioner of Agriculture because the rules do not affect farming operations per Minnesota Statutes, section 14.111.

The department's plan is designed to provide affected and interested parties with ample opportunity to be informed of the department's rulemaking plans, and submit their responses in person and in writing.

C. Consultation with Minnesota Management and Budget on Local Government Impact

As required by Minnesota Statutes, section 14.131, the department will consult with Minnesota Management and Budget (MMB). We will do this by sending MMB copies of the

documents delivered to the Governor's Office for review and approval on the same day we send them to the Governor's office. We will do this before the department publishes the Notice of Intent to Adopt. The documents will include: the Governor's Office Proposed Rule and SONAR Form; the proposed rules; and the SONAR. The department will submit a copy of the cover correspondence and any response received from Minnesota Management and Budget to the Office of Administrative Hearings (OAH) at the hearing or with the documents it submits for Administrative Law Judge (ALJ) review.

D. Determination about Rules Requiring Local Implementation

As required by Minnesota Statutes, section 14.128, subdivision 1, the agency has considered whether these proposed rules will require a local government to adopt or amend any ordinance or other regulation to comply with these rules. The agency has determined that they do not because the Minnesota Radon Licensing Act authorizes only the commissioner of health to regulate radon; the Act does not preclude local permitting and it exempts new construction.

Subdivision 3 of section 14.128 states that the "commissioner shall coordinate, oversee and implement all state functions concerning the presence, effects, measurement and mitigation of risks or radon…" The statute provides no role for local government. The department has not proposed any regulatory authority in rule for local units of government, nor do any rule parts direct or instruct local governments to participate in licensure or work practices enforcement.

Subdivision 10 of Minnesota Statutes, section 144.4961 provides: "This section does not preclude local units of government from requiring additional permits and does not supersede any local inspection or permit requirements." Therefore, local building officials can continue to require building permits for certain types of work. The rules would not affect these radon permitting processes or requirements.

Minnesota Statutes, section 144.4961 states under subdivision 11: "This section does not apply to newly constructed Minnesota homes according to section 326.106, subdivision 6, prior to issuance of a certificate of occupancy…" This ensures that local governments' existing certification and enforcement work under building codes are separated from the department's authorized licensure and enforcement activities.

E. Cost of Complying for Small Business or City

Agency Determination of Cost

As required by Minnesota Statutes, section 14.127, the department has considered whether the cost of complying with the proposed rules in the first year after the rules take effect will exceed $25,000 for any small business or small city. The department has determined that the cost of complying with the proposed rules in the first year after the rules take effect will not exceed $25,000 for any small business or small city.

The department has made this determination based on the probable costs of complying with the proposed rule, as described in the Regulatory Analysis section of this SONAR on pages 4–18. The department asked the advisory committee members (listed in Exhibit A) whether these

costs would exceed $25,000 during the first year for any small business or city. The advisory committee members, which included several representatives from affected small businesses, only provided estimates of costs resulting from the statute (license fees and tag costs).

Cost to Radon Measurement Businesses

Since there is no radon measurement company license, the department is focusing this calculation on the costs for licensing individuals in the first year of rule implementation. On the low end, the agency calculated a cost of $150 (for one certified professional in a sole proprietor business). On the high end, the agency calculated a cost of $20,054.[30] These costs are described in Table 6.

While most home-inspection businesses are operated by sole proprietors that might have one to five employees or contractors, there are also some larger businesses. To calculate the high end for cost, the department looked to Minnesota's largest home inspection company, which has 14 home inspectors. This company conducts radon tests in conjunction with about 50% of its home inspections.[31] According to National Radon Proficiency Program records, this company currently has one certified individual. The department assumes that the company would license half its inspectors to continue to meet their clients' demand for radon testing services (since about 50% of home inspections reportedly included a radon test). Since this company and its employees are all located in and near the Twin Cities, travel costs for training are considered minimal even on the high end, with possibly one person incurring travel costs.[32] The department also assumes the company has several continuous monitors, and usually has a few extra monitors at any given moment. We also estimate that they would reasonably need to purchase one new radon monitor at most, to meet any additional testing needs.

Table 6 Total Measurement Business Costs: Low and High End Estimates

Type	*Low*[33] *(sole proprietor, certified)*	*High (largest business)*		
		Unit Cost	*Units*	*Total*
Course Fee[34]	0	450	6	2,700
Exam Fee[35]	0	175	6	1,050

[30] At the high end, the department assumes businesses will incur various costs of licensure, including lost revenue due to time spent completing trainings, exams, and continuing education during business hours (i.e., the opportunity cost). It is uncertain whether employees' costs of licensure and lost revenue cost needs to be factored in this regulatory analysis. In some sectors, businesses do not pay for their employees' licensing costs, thus requiring that individuals bear this burden. Another possibility is that employers will pay for the courses and exams, but require that employees complete these classes and exams on their own time (outside work hours) or that these are completed during down times when there is no work scheduled (thereby eliminating the lost revenue cost).

[30]According to testimony provided at the 2/16/17 Minnesota Senate Committee on Health and Human Services Finance Policy.

[32] The information on their site suggests they primarily operate in Twin Cities metro area – website available upon request.

[33] See Table 2 for low end costs for a certified measurement professional.

[34] High end: six uncertified individuals take courses. Courses found online through AARST-NRPP on 2/3/17 (http://aarst-nrpp.com/wp/entry-level-courses/). The most expensive course is used: Midwest Universities Radon Consortium (MURC)—Classroom $450.

[35] High end: six uncertified individuals take exam. Exam fees found online through AARST-NRPP on 2/3/17 (http://aarst-nrpp.com/wp/entry-level-courses/). The most expensive exam is used: $175 as part of a classroom

Travel (online vs classroom)[36]	0	634	1	634
Business Revenue Lost to Initial Training[37]	0	1200	6	7,200
Continuing Ed - 8 hours (free vs paid) [38]	0	110	7	770
Business Revenue Lost to CE[39]	0	400	7	2,800
Testing Equipment[40] (monitor purchase?)	0	700	1	700
Administrative Costs[41]	150	600	7	4,200
TOTAL	**$150**	-	-	**$20,054**

Cost to Radon Mitigation Businesses

The department has calculated a range of estimated costs to radon mitigation businesses in the first year of implementing the rule, including the costs for individual licensed professionals and the mitigation company licensing costs.[42]

Most radon mitigation companies employ one or a few professionals to install 30 to 100 systems per year (data based on voluntary quarterly reporting submitted to MDH). One company (Healthy Homes LLC) installs significantly more systems in Minnesota than any other. For example, in quarter one of 2017, they installed 142 systems, with the next most productive companies installing less than 100 systems. This suggests they are the largest radon mitigation business in the state. The department contacted this company and learned that they employ seven people that conduct radon work (three certified mitigation professionals, two certified

course.

[36] High end: one uncertified person presumed to need travel costs. This business' employees appear to be in metro area and online is an option. For a two-day class, we assume 3 nights hotel ($100 per night), 3 days of meals ($40/day) and up to a 300-mile roundtrip driving at IRS rate of $0.535 per mile.

[37] High end: six individuals' lost business is calculated. The department assumes courses completed during business hours and that three days spent training means three home inspection jobs are lost ($400 per day). According to the US Housing Urban Development Agency (HUD), the average home inspection is $300–$500. Courses can be completed outside business hours with no business revenue lost. (portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/insp/inspfaq).

[38] High end: seven individuals' costs for Continuing Education (CE) course. While there are likely some free CE courses available, for the high end calculation, the department used the 8-hr CE course, "RRNC Practices: An Industry Discussion," had a fee of $110 (aarst-nrpp.com/wp/continuing-education/). There may be free CE courses available.

[39] High end: seven individuals' costs for completing CE during business hours could be equivalent to a missed day of work, meaning equivalent to one home inspection job. Courses can be completed outside business hours with no business revenue lost.

[40] Cost to purchase a continuous radon monitor to replace an unapproved device and/or order to comply with footprint testing requirement (Minn. R. 4620.7500 A(2)). While a business may have sufficient devices and will not need to purchase a Continuous Radon Monitor (CRM), on the high end a business may purchase an additional device to meet the demand

[41] High end: seven individuals administrative costs, meaning 20 hours per year at a rate of $30 per hour, for time spent submitting applications, creating QAQC Plan, reporting data quarterly, recordkeeping and being audited or inspected

[42] At the high end, the department assumes businesses will incur various costs of licensure, including lost revenue due to time spent completing trainings, exams and continuing education during business hours (i.e., the 'opportunity cost'). It is uncertain whether employees' costs of licensure and lost revenue cost needs to be factored in this regulatory analysis. In some sectors, businesses do not pay for their employees' licensing costs, thus requiring that individuals bear this burden. Another possibility is that employers will pay for the courses and exams, but require that employees complete these classes and exams on their own time (outside work hours) or that these are completed during 'down times' when there is no work scheduled (thereby eliminating the lost revenue cost).

measurement professionals, and two mitigation technicians). Under the requirements of the Radon Licensing Act and the proposed rules, they could continue to operate with one licensed radon mitigation professional, but it is likely the company will maintain the current employee structure. It is likely that they may choose to license three individuals as mitigation professionals and license two as measurement professionals, leaving two to work under the supervision of licensed professionals.

On the low end, the department estimates a $300 first year cost (for one certified professional in a sole proprietor business, adding the low end estimates shown Tables 4 and 5). On the high end (using Healthy Homes LLC as the example), the department estimates a first year cost of $11,745, using the high end estimates shown in Table 7.

Table 7. Radon Mitigation Business Cost: High End

Type	Cost	Number	Total
Licensing three certified mitigation professionals[43]	2,025	3	6,075
Licensing two certified measurement professionals[44]	1,810	2	3,620
Licensing company[45]	2,050	1	2,050
Total	**-**	**-**	**11,745**

F. LIST OF WITNESSES

If these rules go to a public hearing, the department anticipates having the following witnesses testify in support of the need for and reasonableness of the rules.

1. Bill Angel (President of AARST-Northstar Chapter and Director of Midwest Universities Radon Consortium): education, licensing, work practices, and alignment with national standards;
2. Greg Olson (Home Inspector, All American Home Inspections, LLC): initial education, continuing education, and work practices for measurement professionals;
3. Andy Kelley (Radon Mitigation Professional, Radon Solutions LLC and Instructor at Midwest Universities Radon Consortium): radon licensing and work practices;
4. Bill Carlson (Radon Mitigation Professional, Healthy Homes LLC): licensing and work practices for mitigation professionals.

[43] See Table 4 for detailed cost per professional
[44] See Table 2 for detailed cost per professional
[45] See Table 5 for detailed cost per company (includes technician costs)

VI. RULE-BY-RULE ANALYSIS

4620.7000 PURPOSE

The given purpose statement of the rules aligns with the rulemaking authority provided in statute. The statute states: "The commissioner of health shall adopt rules establishing licensure requirements and work standards relating to indoor radon…The commissioner shall coordinate, oversee, and implement all state functions in matters concerning the presence, effects, measurement and mitigation of risks of radon in dwelling and other buildings" (Minnesota Statutes, section 144.4961, subdivision 3).

As described in the Regulatory Analysis, the legislature has chosen to remedy the deficiencies found in radon testing and mitigation methods currently practiced by Minnesota's professionals. It enacted the Minnesota Radon Licensing Act, which requires all radon professionals be licensed. This statement reiterates that purpose here as an introduction to the department's responsibility to protect public health by ensuring professionals, companies, and laboratories have the necessary training and other credentials that qualifies them to work in Minnesota and that their work is done in accordance with industry and other standards. This in turn will result in accurate radon measurement and analysis services and lead to effective radon-reduction services.

4620.7050 APPLICABILITY

The applicability statement combines two statutory requirements and also cites the parts for the tagging requirements for radon systems. Minnesota Statutes, section 144.4961, subdivision 5, states "Effective January 1, 2019, a license is required for every person, firm, or corporation that performs a service for compensation to detect the presence of radon the indoor atmosphere, performs laboratory analysis or performs a service to mitigate radon in the indoor atmosphere." The term "person" means a "person, firm or corporation." The statute also states, in subdivision 4, "All radon mitigation systems installed on or after January 1, 2019 must have a radon mitigation system tag…" Combining these elements succinctly defines the scope of these licensing requirements and emphasizes the critical activity of tagging radon mitigation systems.

4620.7100 DEFINITIONS

Minnesota Rules, part 4620.7100 defines the terms used throughout parts 4620.7000–4620.7950. Defining words used in this rule ensures that regulated and affected parties share a common vocabulary for this regulated work. Definitions provide consistency, clarity and understanding when reading and interpreting the proposed rules.

Subpart 1. Scope.

The department proposes the following terms to clarify language used throughout the rules.

Subpart 2. Commissioner

Commissioner is defined as short-hand for the commissioner of health or his or her designee. Other department rules employ this self-explanatory term.

Subpart 3. Continuous monitors.

Continuous monitors are one of two general categories of devices used to measure radon, along with 'passive devices' which are defined in subpart 12. Industry professionals generally know about both types of devices since they use one or both types in their daily work. The department drew this from US Environmental Protection Agency's "Radon Measurement in Schools."[46] The department prefers this simple and non-technical definition to readily identify the distinctive features of a continuous radon monitor for regulated parties, affected parties, and the general public. Radon measurement and mitigation professionals are required to provide information about the continuous and passive devices they use as part of their license applications and renewals, making a clear and simple definition important (4620.7200, subpart 3, item F). Working level monitors are included under this broader category of continuous monitors, which is also the approach the USEPA took in its definition. Furthermore, there are very few working level monitors used in Minnesota, so it is not necessary to separately identify and define these devices.

Subpart 4. Foundation type.

Foundation type must be defined for clarity about the testing requirements for each foundation type under 4620.7500, subpart A, item 2. While many radon professionals have a background or experience in construction and related trades, clearly explaining what a "foundation type" means will assist newcomers to the field, affected stakeholders, and the general public to understand where testing must be done. Three common types of foundations are listed in this definition (basement, crawlspace, slab-on-grade). These three foundation types are consistent with the foundation types listed for radon gas vents under the building code requirements for new construction.[47] In older buildings or unusual circumstances, there may be other unique types of foundations, which is why the department has also included in the definition "…and any other construction technique approved by local building code." Radon levels can differ in indoor areas of the same building in contact with different foundation types, which is why building code requires separate radon vent pipes for each foundation type present.

Subpart 5. Measurement professional.

This definition references Minnesota Statutes, section 144.4961, subdivision 8(1), which defines "radon measurement professional" to mean "any person who performs a test to determine the presence and concentration of radon in a building the person does not own or lease." In addition, the department proposes to clarify that the term "testing" encompasses the "act of an individual placing and retrieving a radon test device" when done by a measurement professional.

[46] EPA 402-R-92-014, 1993.
[47] Minn. R. 1303.2402, subp.5 F

Some advisory committee members and stakeholders questioned whether radon testing includes both placing and retrieving these test devices. In other words, do all persons involved in these activities need to be licensed?

The department's answer is yes, testing includes all activities in deploying the test devices from start to finish. The department bases its determination on several reasons, which are detailed in Appendix A and summarized here.

1. Inferring from statute that testing includes the whole process from start to finish, is reasonable because the legislature provided no exemption to portions of measurement work (unlike it did with mitigation work).
2. Radon measurement work is complex work involving multiple tasks for the worker when both placing and retrieving the devices.
3. Other Minnesota rules and statutes concerning environmental assessment and testing require a licensed or certified individual do the regulated work, and do not permit work to be started or completed by anyone who is not credentialed.
4. In the 17 states that regulate the radon industry, 15 states require individuals that place or retrieve devices to be state-credentialed or mandate that radon measurement work be done by individuals certified by the radon industry associations. The two remaining states allowing uncertified individuals to test include other specific restrictions that have proven difficult to enforce, and those states also require training.
5. Certification applications and measurement standards through radon industry associations state that certified individuals must conduct device placement and retrieval.
6. The US Housing and Urban Development Agency's policy requires certified or licensed individuals to place and retrieve devices.
7. Allowing larger companies to operate without licensing all their measurement professionals would provide them an unfair competitive advantage over small companies with only one or two employees.
8. The advisory committee did not reach consensus on permitting unlicensed individuals to retrieve devices. The department has decided not to allow the practice.

Subpart 6. Mitigation professional

This subpart refers to the definition in Minnesota Statutes, section 144.4961, subdivision 2(b), for the reader's convenience. The department is not proposing to clarify this definition further.

Subpart 7. Mitigation company

This subpart refers to the definition in Minnesota Statutes, section 144.4961, subdivision 8(3), for the reader's convenience. The department is not proposing to clarify this definition further.

Subpart 8. Mitigation professional

This subpart refers to the definition in Minnesota Statutes, section 144.4961, subdivision 8(2), for the reader's convenience. The department is not proposing to clarify this definition further.

Subpart 9. Mitigation system tag or system tag

This subpart refers to the definition in Minnesota Statutes, section 144.4961, subdivision 8(5) for the reader's convenience. The department is not proposing to clarify this definition further. The term 'system tag' is used as short-hand for "mitigation system tag;" this statute and rules do not use any other form of tags.

Subpart 10. Mitigation technician.

The department drew the "mitigation technician" definition from statute, and added some modification. "Employees or sub-contractors who are supervised by a licensed radon mitigation professional are not required to be licensed," according to Minnesota Statutes, section 144.4961, subdivision 8, part 2. To simplify and clarify, the department proposes the term mitigation technician to describe these "employees or sub-contractors." In addition, using the term mitigation technician emphasizes the relationship to mitigation professional, which are two inter-related types of workers. This emphasis is especially important since a mitigation technician is someone who is not only supervised by, but also assists the mitigation professional, to ensure that the mitigation professional always takes the lead when installing or designing radon mitigation systems.

Subpart 11. National radon proficiency program.

Historically, the department has relied on two national radon proficiency programs (NRPPs) for their expertise for initial training, examination, and continuing education. Since these two NRPPs could change their names or organizational structure, the department is proposing a generic definition for these rules, describing their key features. The department references these NRPPs throughout the rules. Hence, defining these programs is necessary. A more detailed description of the NRPPs' historical importance follows:

Throughout the history of the U.S. radon-mitigation industry,[48] there have been organizations that list, accredit, and certify radon professionals, laboratories, measurement devices and radon chambers (radon chambers are used to check the accuracy and precision of radon measurement devices). These organizations have administered initial training, examinations and continuing education courses for radon professionals. In the 1980s, the US Environmental Protection Agency (USEPA) housed this proficiency program. In 1998, USEPA privatized their proficiency programs and identified two organizations with the same or greater standards and criteria. Currently, two non-governmental non-profit organizations are recognized by USEPA to run proficiency programs: 1) the American Association of Radon Scientists and Technologists National Radon Proficiency Program (AARST); and 2) the National Radon Safety Board

[48] For more information, see https://www.epa.gov/radon/find-radon-test-kit-or-measurement-and-mitigation-professional

(NRSB). The USEPA has recognized these programs as equivalent to the program that the USEPA had administered.

Subpart 12. On-site supervision

This subpart refers to the definition in Minnesota Statutes section 144.4961, subdivision 8 for the reader's convenience. The department is not proposing to clarify this definition further.

Subpart 13. Passive devices

Passive devices are one of two general categories of devices used to measure radon, along with "continuous monitors," which are defined in subpart 2. Industry professionals know about both types of devices, because they use one or both types in their daily work. Defining this term assures continuity for the industry and other affected parties. This definition comes from US Environmental Protection Agency's 'Radon Measurement in Schools' (EPA 402-R-92-014, 1993). The department prefers this simple and non-technical definition because it includes the distinctive features of passive devices. Radon measurement and mitigation professional must provide information about the continuous monitors and passive devices they use, in their license applications and renewals (4620.7200, subpart 3, items F and G, and 4620.7300, subpart 3, items F & G). Passive devices include a variety of devices that must be sent to a laboratory for analysis, such as activated charcoal adsorption devices, charcoal liquid scintillation devices, electret-ion chambers, and alpha track detectors.

Subpart 14. Quality assurance

Because quality assurance activities are critical to ensure radon measurement and mitigation work is precise and accurate, the phrase "quality assurance" is used as a term of art in these rules. The AARST-NRPP and the NRSB administer the radon industry's professional standards. They require quality assurance and quality control activities for voluntary certification. Likewise, states that establish their own licensing or certification program require such plans. Quality assurance and quality control plans will be required for measurement licensure (4620.7200, subpart 3 item E), company licensure (4620.7250 subpart 2 item F) and mitigation licensure (7300, subpart 3 item E). This definition thus provides a broad conceptual framework. The definition comes from the American Society of Testing and Materials (ASTM) and is referenced in the USEPA's 'National Radon Proficiency Program Guidance on Quality Assurance'[49]. This USEPA guidance is referenced in specific rule parts under licensure. It provides specific defining criteria that the department will use in evaluating licensees' proposed quality assurance and quality control plans.

Subpart 15. Quality control

As with the definition of quality assurance above, quality control activities are also critical to ensure the performance of work done meets standards and for the department to act where they do not meet standards. Thus "quality control" too is a term of art. The radon industry's professional standards (AARST-NRPP and NRSB) require quality assurance and quality control activities for voluntary certification. Likewise, states that establish their own licensing or

[49] Available here: www.nrsb.org/images/file/QualityAssurranceProgram.pdf

certification program require such plans. Quality assurance and quality control plans will be required for measurement licensure (4620.7200, subpart 3 item E), company licensure (4620.7250 subpart 2 item F) and mitigation licensure (7300, subpart 3 item E). This definition comes from the American Society of Testing and Materials (ASTM) and is referenced in the USEPA's "National Radon Proficiency Program Guidance on Quality Assurance"[50]. This USEPA guidance is referenced in specific rule parts under licensure. It provides specific defining criteria the department will use in evaluating licensees' proposed quality assurance and quality control plans. Quality control refers to the measurement and associated activities to ensure accuracy and precision of radon devices, while quality assurance refers to the broader program of activities involving planning, assessment, reporting and improvement to ensure the service meets defined standards.

Subpart 16. Radon

This subpart refers to the definition in Minnesota Statutes section 144.4961, subdivision 2(C) for the reader's convenience. The department is not proposing to clarify this definition further.

Subpart 17. Radon analysis laboratory

This subpart refers to the definition in Minnesota Statutes, section 144.4961, subdivision 8 (4) for the reader's convenience. The department is not proposing to clarify this definition further.

Subpart 18. Radon measurement

The radon measurement definition takes a portion of the statutory definition for radon measurement professional, which is "any person who performs a test to determine the presence and concentration of radon in a building…" (Minnesota Statutes, section 144.4961, subdivision 8 (1)). The term radon measurement is used throughout the rules. It is defined here for the reader's convenience. Measurement is conducted using passive devices and continuous monitors.

Subpart 19. Radon sample analysis

Radon sample analysis is conducted by radon analysis laboratories to determine the presence and concentration of radon in passive devices. This definition identifies the analysis work that an entity conducting it must possess a radon analysis laboratory license for operating in Minnesota. Defining this term also distinguishes this work from the use or analysis of continuous monitors, which does not require a laboratory license (a measurement or mitigation license is required for those using a continuous monitor).

Subpart 20. Responsible individual

The responsible individual represents licensed radon mitigation companies. The company license is issued to the company, not an individual. The responsible individual must hold a radon mitigation professional license. The department will interact with these individuals in various regulatory matters, such as reviewing license applications, performing inspections, and

[50] Available here: www.nrsb.org/images/file/QualityAssurranceProgram.pdf

conducting enforcement. It is therefore important that this individual is clearly identified and updates made if the individual no longer serves in this capacity.

4620.7200 RADON MEASUREMENT PROFESSIONAL LICENSE.

Subpart 1. General Requirements. An individual who performs radon measurement work must be licensed by the commissioner as a radon measurement professional under this part. A radon measurement professional license is not transferable.

The department will license radon measurement professionals because Minnesota Statutes, section 144.4961, subdivision 5, requires annual licenses "effective January 1, 2018 for every person, firm or corporation that performs a service for compensation to detect the presence of radon in the indoor atmosphere…" The department proposes that the license be not transferable, meaning the license is unique to an individual and cannot be passed to another, such as between business partners or to family members. This provision is consistent with other licenses issued by the State of Minnesota. It ensures all individuals conducting measurement meet the requirements that qualifies an individual for a license, including training, examination, equipment, quality assurance, and quality control planning.

Subp. 2. Training requirements; initial license

A. complete an initial radon measurement training course approved by the commissioner under part 4620.7700; and,

This proposed provision requires that individuals seeking radon measurement professional licensure complete an initial radon-measurement training course approved by a national radon proficiency program (NRPP), as discussed under part 4620.7700. An initial radon-measurement course must be a minimum of 16 hours. There are classroom based, web based and home study courses, which are described on the NRPP website. [51]. Costs are reasonable, ranging from $250 to $450. The department knows of 236 radon professionals in Minnesota that have previously taken these courses for voluntary industry certification. They will not be required to retake the course to meet their initial application requirements and can simply submit documentation showing they have previously completed a course. Some individuals will have to take the course before 2019, as well as new individuals entering this profession in future years. The department does not know how many there will be. The department strongly maintains that taking this initial course is necessary to ensure that professionals fully understand the various aspects of radon-related work, including health risks, entry, mitigation and, most importantly, testing methods that are accepted consensus standards. Without required training, the safeguards for the public, which regulating radon professionals is supposed to provide, would be tenuous at best.

B. pass a radon measurement examination approved by the commissioner under part 4620.7700.

[51] Courses found online through AARST-NRPP on 2/3/17 (http://aarst-nrpp.com/wp/entry-level-courses/). The following are course providers and their costs: Spruce Web-based ($249), KSU Web-based ($400), CERTI Home Study ($325), MURC Classroom ($450)

Demonstrating that the trained professional has obtained basic knowledge of radon, described in item A above requires passing a comprehensive exam to work safely with the public. The department knows of no other way to make sure the professionals have mastered the material. Prospective licensee can take exams immediately after completing the classroom-style course or at a national examination center for those that complete online courses. Examination centers are located at 11 sites across the state. NRPPs craft the exams. The 236 certified radon professionals in Minnesota at present have previously passed these exams. The exam takes 2 hours and the cost is $175.[52] All states that issue radon professional licenses require either passing these NRPP exams or their own state-written exams. MDH has chosen to use existing programs for training and exams, which will reduce costs. Moreover, many of the state's radon professionals in have already passed these approved exams. They will not be required to retake the course and can simply submit documentation of passing a previous exam to MDH with their initial application. An estimated few individuals will have to pass the exam before 2019 as well as new individuals entering this profession in the future.

Subp.3. Initial license application.

A. a completed application on a form provided by the commissioner;

Applicants will be required to complete a form with the usual basic questions about themselves, including: name, address, phone, email, social security number, company name, business ID number, website, fax number, service area, and type of services offered. The department needs to collect social security and business ID numbers to prevent fraudulent applications. Under Minnesota Statutes, section 270C.72, subdivision 4, "all licensing authorities must require the applicant to provide the applicant's Social Security number and Minnesota business identification number on all license applications." With this necessary information the department can accurately issue a license, conduct inspections, investigate complaints, and conduct enforcement actions. In addition, the department needs this information to provide the public with lists of licensed radon professionals. These lists will help the customers connect with qualified service providers.

B. a nonrefundable annual fee according to Minnesota Statutes, section 144.4961, subdivision 8 payable to the Minnesota Department of Health;

The statutory application fee is referenced in rule for clarity so the regulated parties can read all the requirements for applications in one place. The department proposes that the fee be nonrefundable since it incurs costs for processing the application.

C. documentation that the applicant completed initial radon measurement training required under subpart 2;

The department needs to verify that the applicant has completed the training required under 4620.7200 subpart 2(A). The initial training course providers issue a written record to the

[52] Exam fees found online through AARST-NRPP on 2/3/17 (http://aarst-nrpp.com/wp/entry-level-courses/). The following are course providers' exam fee was determined: Spruce Web-based, KSU Web-based, CERTI Home Study, MURC Classroom

individual who completed the course, such as a certificate of completion. The applicant can submit this record. The department will also accept documentation of current NRPP certification as evidence of course completion. The NRPP has cross-referenced information in its database.

D. documentation that the applicant passed a radon measurement training course exam as described in subpart 2;

The department needs to verify that the applicant has passed the radon measurement training course exam required under 4620.7200 subpart 2(B). The NRPPs provide a written record to the individual who passed the exam. The applicant can submit this record as proof of passing the exam. Documentation of current NRPP certification will also be accepted since certification requires exam passage that the NRPP has cross-referenced in its database.

E. a quality control and quality assurance plan for radon measurement based on the U.S. Environmental Protection Agency National Radon Proficiency Program Guidance on Quality Assurance;

MDH will require radon measurement professionals to ensure their measurements are accurate and reliable. Towards this end, the radon measurement professional must complete specific activities, which are described in their quality assurance and quality control (QAQC) plans. QAQC plans are described under the definitions of quality assurance and quality control (4620.7100, subparts 13 and 14), This requirement is reasonable because the radon industry's professional standards (AARST-NRPP and NRSB) require quality assurance and quality control plans for voluntary certification. Radon professionals in Minnesota that are currently voluntarily certified are required to have QAQC Plans as a condition of their certification. The department has reviewed licensing or certification programs in other states, and found that they all require such plans. The USEPA's "National Radon Proficiency Program Guidance on Quality Assurance"[53] will serve as a guide for defining the criteria the department will use in evaluating licensees' proposed quality assurance and quality control plans. This has been used as a guiding document for the NRPP QAQC Plans. Most professionals are very familiar with these criteria.

The criteria for a QAQC Plan for measurement, as stated in the USEPA Guide, are as follows:

1. Description of operations;
2. Organization and responsibilities;
3. Quality assurance objectives, including precision error and relative bias;
4. Measurement procedures;
5. Detector custody, including field operations and laboratory operations;
6. Calibration procedures and frequency (if applicable);
7. Analytical procedures (if applicable);
8. Data reduction, validation, and reporting;
9. Internal quality control checks;

[53] Available here: www.nrsb.org/images/file/QualityAssurranceProgram.pdf

10. Quality assurance audits;
11. Preventive maintenance;
12. Procedures to estimate data precision, relative bias, and lower limit of detection;
13. Corrective action; and
14. Quality assurance reports to management.

The department recognizes that some professionals' current QAQC Plans may be deficient and currently uncertified individuals may not have a plan. They will have opportunities to remedy their missing qualifications. The University of Minnesota and other training providers currently offer training on developing QAQC Plans. The department will also offer training and provide templates and written guidance through its website to assist applicants in a developing their QAQC Plans. Applicants that submit unacceptable plans will have an opportunity, with MDH assistance, to resubmit their QAQC Plans, as specified under 4620.7200, subpart 6.

F. the type, manufacturer, and model of all continuous monitors that the applicant intends to use to measure radon

A variety of continuous radon monitors are available on the market. The NRPPs have a process for reviewing and approving devices to meet their standards.[54] Under 4620.7400 subpart 1, item B, the department proposes requiring radon measurement and mitigation professionals to use a monitor or device approved by a NRPP. Not all the devices on the market are NRPP approved. In the department's experience, certified radon professionals use approved devices. The department, however, has received reports and directly observed uncertified individuals using unapproved devices.[55] The department needs to identify the continuous monitor that an applicant will use and deny applications when the applicant proposes to use unapproved devices. The department will also use this information in evaluating applicant QAQC Plans. Further information about continuous monitors appears in its definition, under 4620.7100, subpart 2.

G. the type and manufacturer of all passive radon test devices that the applicant intends to use to measure radon.

In addition to continuous monitors, there are passive radon test devices available on the market. The department also proposes collecting information about passive devices that applicants intend to use for the same reasons discussed in the preceding 4200.7200, subpart 2, item F. Further information about passive devices is in its definition, under 4620.7100, subpart 2.

Subp. 4 Expiration; renewal; continuing education

A. A radon measurement professional license is valid for one year from the date of issuance.

[54] For more information on the AARST devices and approval process, see: http://aarst-nrpp.com/wp/approved-devices/
[55] For example, see: http://www.startribune.com/radon-testing-clowns/288376151/

The Minnesota Radon Licensing Act states that "a license is required annually for every person, firm or corporation that performs a service for compensation to detect the presence of radon in the indoor atmosphere…" (Minnesota Statute, section 144.4961, subdivision 5). The department interprets this to mean that the license is valid for 1 year (365 days) after issuance, after which it is considered expired. This is a reasonable interpretation and consistent with other types of licenses issued by the State of Minnesota.

B. A radon measurement professional may apply to renew a license after completing 8 hours of continuing education approved by the commissioner under part 4620.7700

Continuing education is necessary to ensure measurement professionals know about new developments in the field and to refresh their knowledge of radon basics. The radon field is evolving, with ongoing scientific research, policy development, and protocol changes. Developing expertise is critical for an effective radon measurement professional, just as it is with other licensed industries that require continuing education. The NRPPs' voluntary certification requires 16 hours of continuing education every two years to maintain certification. Certified Minnesota radon professionals currently complete the continuing education for their certification. The radon industry is already accustomed to this 8-hour-per-year continuing education practice, which makes this an easy and reasonable level of continuing education for the professionals Since the Minnesota Radon Licensing Act requires annual license renewal, the department proposes an 8-hour annual requirement consistent with the NRPPs' continuing education. This consistency with NRPPs' schedule will minimize confusion for radon measurement professionals.

A wide variety of pre-approved continuing education options are available through the NRPPs. For example, through the AARST-NRPP, on 11/18/16, there were 33 classroom, 23 web-based and 55 home study courses available for measurement continuing education[56]. These courses are reasonably priced—for example, the 8-hour CE course "RRNC Practices: An Industry Discussion" cost $110.[57] The department will continue to offer free radon stakeholder meetings, as long as resources remain available. Licensees have earned 6 hours of credit at previous meetings. The department will also recognize other types of continuing education requested by licensees, as described under 4620.7700.

C. A radon measurement professional must complete 8 hours of continuing education, approved by the commissioner under part 4620.7700, within 12 months after the date on the last-issued radon measurement professional license.

Continuing education is justified and reasonable, as stated in the preceding section (46200.7200, subpart 4, item B). Since the license has an annual term, the continuing education must be completed within that time period. There are many continuing education options, reasonably priced, as required under part 4620.7700.

D. An individual who fails to complete eight hours of approved continuing education 30 days after a license expires may not renew the license. The individual must complete

[56] http://aarst-nrpp.com/wp/continuing-education/
[57] https://www.greentrainingusa.com/rrnc-practices-an-industry-discussion.html

the continuing education required under item C; and pass an examination as specified in subpart 2 to qualify for a license.

Licensees have ample opportunities for continuing education that will allow them to complete 8 hours of coursework over a year. In the unlikely event that they fail to complete their continuing education within a year, the department proposes a 30-day grace period to complete the required continuing education. The radon rulemaking advisory committee broadly supported providing a 30-day grace period to allow licensees to catch up on continuing education. There are dozens of online courses individuals can choose from during this grace period, if they cannot find a classroom-style course.

During this grace period, MDH will deem the license expired. When the individual completes the continuing education and submits documentation, the license will be back-dated, meaning the license will expire one year after the original expiration date. The department will do this to prevent licenses from effectively being 13 month licenses, since the statute sets annual licenses.

For those applicants that have allowed their license to lapse more than 30 days, the applicants must demonstrate their knowledge is current before the department is willing to consider granting another license. Catching up on one year of continuing education and passing an exam is a performance-based approach consistent with the state's emphasis on performance where possible.

Subp. 5. Renewal application

A. an individual choosing to renew a radon measurement professional license must submit to the commissioner, at least 30 days before the license expires

The department will likely receive a few hundred license applications at about the same time of the year (late fall to early winter) since the first applications will be due before 2019. Department staff will need time to review the information submitted, including information about testing devices, course completion, training completion, and the QAQC plans. This may take a few weeks to complete, making a 30-day period appropriate. This should ensure renewed applications are issued before the current license expires.

(1) a completed renewal application on a form provided by the commissioner;

As described under 4620.7200, subpart 3, item A, the department needs to collect specific information about the applicant, including business contact information, for inspecting the licensee, enforcing the regulations, and overseeing the licensee's education, and to provide lists of licensees to the public.

(2) a nonrefundable annual fee according to Minnesota Statutes, section 144.4961, subdivision 8, payable to the Department of Health;

The application fee is included in rule for clarity so the regulated parties can read all the requirements for applications in one place.

(3) documentation of completed continuing education required under subpart 3;

and

The department has proposed requiring continuing education for license renewal. It is necessary for the agency to verify that continuing education has been completed and meets the requirements of 4620.7700. The course must either be a pre-approved course through a NRPP or have received approval from the department before or after the course completion. For NRPP courses, the course providers already issue a course completion certificate with course information for use in states with licensing requirement and for the voluntary NRPP certification. For other courses, the department will have issued a record that approves the course, and the applicant can submit this record or make reference to the approval made by the department.

(4) documentation required under subpart 3, items E, F, G.

Renewal applications will be similar to initial applications, with a few key differences. This item is proposed to clearly state the requirements of initial compared to renewal applications. Renewal applications will not require demonstrating initial training course completion and initial exam passage (except where licenses are more than 30 days expired), but do require continuing education completion. Both types of applications will need to include information concerning their QAQC Plans, passive devices and continuous monitors for the department's review. If the QAQC Plan, monitors and devices have not changed when applying for a renewal license, then the applicant will simply indicate continued usage of the plan and equipment.

B. If a license expires while a renewal application is pending approval, the radon measurement professional may continue to perform regulated radon measurement activities under the expired license until the commissioner issues a new license or denies the renewal application.

In the unlikely event that the department fails to review and make a determination on a license application in a timely manner, the regulated parties should be allowed to continue to operate without interruption. It is the department's goal to complete the review of applications in a matter of days to a few weeks. The licensee should not have to suffer loss of business opportunity due to unexpected delays at the department.

Subp. 6. Denial of license application.

A. The commissioner shall deny an application for a radon measurement professional license:

(1) if the applicant fails to comply with the requirements of subpart 2,3,4, or 5; or

The department specifically added item 1 to cite the subparts that contain critical license elements to focus applicants' attention on their importance. These requirements are for initial training, information submitted with initial applications, continuing education, renewal, and information submitted with renewal applications. This explicit statement underscores the department's authority to deny a license if the applicant does not provide proof of these elements.

(2) according to Minnesota Statutes, section 144.99, subdivision 8.

Minnesota Statutes, section 144.99, subdivision 8, describes the conditions for which the commissioner of health may deny licenses. These concern the license application (failing to meet or maintaining minimum qualifications and submitting false material information) and enforcement matters (unresolved violations and a persistent pattern of violations). Under this statute, the commissioner may grant an initial license or renewal when the applicant demonstrates action to ensure compliance and may place conditions on the license. It is useful to have these remedies available to the commissioner stated in rule for the department to point to when communicating with the regulated parties, and to strengthen enforcement actions.

B. If the commissioner denies an application, the commissioner must:
(1) notify the applicant in writing and provide the reasons for the denial

Providing an applicant a written denial notice with an explanation of deficiencies is an appropriate measure in any type of government application process to give the applicant an opportunity to submit new or updated information for the department to consider.

(2) not require the applicant to pay an additional fee if the applicant submits a second application according to this part, within 30 days of the receipt of a notice that the license application has been denied. An applicant must apply for an initial license under subpart 3 for subsequent applications.

The department intends to facilitate successful applications. Some applicants are likely to submit incomplete or insufficient information. MDH is committed to helping these applicants submit a complete application. Requiring an additional fee at this point would be unreasonable. Thirty days is a sufficient amount of time for individuals to submit an updated application, which may involve collecting information about their work practices (such as information about passive devices and continuous monitors), completing continuing education, and revising their QAQC Plan. This 30-day timeframe is also consistent with other rule parts (such as the continuing education grace period described part 4620.7200, subpart 5), which helps to minimize confusion.

If the applicants fail to submit the necessary information as a second application within 30 days, they will need to pay the license application fees for subsequent applications. The public and the department both benefit from having applications completed in a timely manner. Requiring a fee if the applicant fails to submit necessary information within 30 days creates an incentive for applicants to comply with deadlines. MDH incurs expense in reviewing, tracking, and reminding applicants about required actions to renew their application.

4620.7250 RADON MITIGATION COMPANY LICENSE

Subpart 1. General Requirements

A. A business or government entity that employs individuals to perform regulated radon mitigation work must be licensed by the commissioner as a radon mitigation company.

The department will license radon mitigation companies because Minnesota Statutes, section 144.4961, subdivision 5, requires a license annually "for every person, firm or corporation that performs …a service to mitigate radon in the indoor atmosphere…" Under subdivision 8, the licensing requirement is extended to "…any business or government entity that performs or authorizes employees to perform radon mitigation." The department is combining these two portions of the statute to clearly identify to regulated parties, affected parties and stakeholders those who must have a license.

B. A radon mitigation company must employ or contract with responsible individual who is licensed as a radon mitigation professional.

The department proposes that each company must identify a responsible person. This person would typically be the company owner, president, or some other manager. In the department's experience, Minnesota radon mitigation companies are usually small businesses with one or a few employees. MDH will interact with these responsible individuals in various regulatory matters such as license applications, inspections, and enforcement. It is important that this person is clearly identified to the department.

MDH further proposes requiring this responsible person be a licensed radon mitigation professional. The responsible individual oversees the company's radon-related regulatory compliance activities. These activities include: 1) submitting application information; 2) basic training for technicians, maintaining training records, using licensed professionals, ensuring on-site supervision of work, record keeping (4620.7400 subpart 2); and 3) reporting of mitigation projects (4620.7800). Thus these functions require someone with substantial expertise in radon, mitigation work practices, and related topics. An unlicensed company employee or contractor would likely struggle to adequately fulfill these responsibilities. Setting a mitigation license requirement as a minimum qualification is necessary and reasonable to assure that companies have proper oversight.

C. A radon mitigation company license is not transferrable.

As we propose for the radon measurement professional license (4620.7200, subpart 1), we propose that the radon mitigation company license is not transferable. The license is unique to the company and could not be passed to another company to retain department oversight of the licensees. For example, if two companies were to merge and the original licensed radon mitigation company no longer exists, the license would no longer match the original licensee. Other MDH-issued licenses have this same requirement, including asbestos contractors (Minnesota Rules, part 4620.3200) and food establishments (part 4626.1780). This requirement ensures the configuration of each company conducting mitigation meets license-qualifying requirements, including: information about the company (e.g., MN Tax ID, company name, contact information), evidence of workers' compensation, responsible-person identification, and other licensed professionals' identification. Since new or merged companies would alter one or more of these requirements, a new company having to apply for a unique license is necessary and reasonable.

Subp. 2. License application. An Applicant for a radon mitigation company license must submit to commissioner:

A. a completed application on a form provided by the commissioner

MDH proposes to develop a similar application form for all four categories of licensure. Mitigation company license applicants will be required to complete a form with basic questions about the company, including the company name, address, phone, email, the business ID number, company name, website, fax number, service area, and type of service offerings. Business ID numbers are needed to prevent fraudulent applications. Under Minnesota Statutes, section 270C.72, subdivision 4: "all licensing authorities must require the applicant to provide the applicant's Social Security number and Minnesota business identification number on all license applications." Companies will also be asked to provide documentation concerning subsequent items in this subpart. Thus, Minnesota law requires that the department collect this information to ensure licenses are issued correctly, send reminders and other correspondence, conduct inspections, investigate complaints, and conduct enforcement actions. In addition, the department uses company information to provide the public lists of radon mitigation companies. These lists assist customers to connect with the licensed service providers.

B. *a nonrefundable annual fee according to Minnesota Statutes, section 144.4961, subdivision 8 payable to the Minnesota Department of Health;*

The application fee is included in rule for clarity and convenience so the regulated parties can read all the application requirements in one place. The department proposes a nonrefundable fee as there are costs associated with processing the application.

C. evidence of workers' compensation insurance as required by Minnesota Statutes, section 176.182, unless the applicant is exempt from the requirements under Minnesota Statutes, chapter 176. If the applicant is exempt from the requirements under Minnesota Statutes, chapter 176, the applicant must submit a letter that is signed and dated, stating why the applicant is exempt.

The department needs to comply with Minnesota statutes concerning verification of workers' compensation or exemption. Minnesota Statutes, section 176.182 states, "Every state or local licensing agency shall withhold the issuance or renewal of a license or permit to operate a business in Minnesota until the applicant presents acceptable evidence of compliance with the workers' compensation insurance coverage requirement of section 176.181, subdivision 2, by providing the name of the insurance company, the policy number, and dates of coverage or the permit to self-insure." Under 176.181, subdivision 2, employers can "…obtain a written order from the commissioner of commerce exempting the employer from insuring liability for compensation and permitting self-insurance of the liability." To meet these requirements, the department therefore proposes to collect information about the radon mitigation company license applicant's worker's compensation or a copy of the order exempting the company with the license application.

D. the name and license number of the responsible individual

The department must verify that the company has a licensed mitigation professional serving as the responsible person for the company. As described under part 7250, subpart 1, item B, the company must employ or contract with a responsible individual who is a licensed mitigation professional. The department proposes to collect the name and license number make sure our records are complete and verify the individual holds a current and valid license. For initial company applications, the company and mitigation professional license applications will need to be submitted simultaneously and MDH will review these together before issuing both licenses.

E. the names and license numbers of all licensed mitigation professionals employed or subcontracted by the radon mitigation company

The department needs to know, on an annual basis, which mitigation professionals work for each company. Some mitigation professionals will change their affiliation with companies over time, moving employment or becoming subcontractors. Knowing their affiliation will help the department in advising the public, conducting routine inspections, providing compliance assistance to the industry, investigating complaints, and issuing enforcement. The department will list the company and professional on the radon mitigation system tags, as described under 4620.7600. Collecting this information will allow the department to trace work back to both the company and the individual that completed or supervised the work.

Subp. 3. License expiration and renewal.

A. A license issued under this part is valid for one year from the date of issuance.

As discussed under 4620.7200, the department interprets the statute to mean that the license is valid for 1 year (365 days) after issuance, when it expires.

B. A licensed radon mitigation company may renew its license annually by submitting the information and fee required under subpart 2.

For radon mitigation companies, the same information and fee will be collected annually. There may be no changes to the application, meaning the company information, worker's compensation, list of professionals and responsible person may be the same from one year to the next. The company would simply re-submit this information. There are no continuing education requirements for companies; only for licensed radon measurement and mitigation professionals. The application fee is included in rule for clarity and convenience so the regulated parties can read all the application requirements in one place.

C. The renewal application must be received by the commissioner at least 30 days before the expiration date on the current license.

As discussed under 4620.7200 subpart 5 (A), the department needs up to 30 days to review applications, to make a determination to approve, deny, or request further information.

D. If a license expires while a renewal application is pending approval, the radon mitigation company may continue to employ individuals to perform regulated radon mitigation activities under the expired license until the commissioner issues a new license or denies the renewal application.

As discussed under 4620.7200 subpart 5 (B), permitting the company to operate under its expired license is reasonable if the company has submitted its application to the department and the status is pending, meaning awaiting the department's review.

Subp. 4. Denial of license application.

A. The commissioner shall deny an application for a radon mitigation company license:
(1) if the applicant fails to comply with the requirements of subpart 2 or 3; or,

The department specifically added item 1 to cite the subparts that contain critical license elements to focus applicants' attention on their importance. These critical requirements are the information submitted with license applications and renewal applications. This explicit statement underscores the department's authority to deny a license if the applicant does not provide proof of these elements.

(2) according to Minnesota Statutes, section 144.99, subdivision 8.

As discussed under 4620.7200, subpart 6, item A, sub-item (2), the department proposes referencing the statute that provides conditions under which the commissioner may deny applications, for clarity and convenience for the regulated parties and to emphasize the department's enforcement authority.

B. If the commissioner denies an application, the commissioner must:

(1) notify the applicant in writing and provide the reasons for the denial; and

As discussed under 4620.7200 subpart 6, item B, sub-item (1), the department will provide a written denial notice that states the reasons for the denial and an opportunity to submit further information.

(2) not require the applicant to pay an additional fee-if the applicant submits a second application according to this part, within 30 days of the receipt of a notice that the license application has been denied.

As discussed under 4620.7200, subpart 6, item B, sub-item (2), the department determined that a 30-day period is a reasonable timeframe to submit a second application with additional information. This is consistent with other rule parts allowing 30 days to submit information. If this second application is not submitted or is also rejected, then a new application with a fee would be required. This creates an incentive for the applicant to act quickly and helps to cover the department's costs.

Subp. 5. Change in responsible individual. If the responsible individual no longer serves in that capacity, the company, within 30 days of a change in the responsible individual, must provide a written notice to the commissioner that:

A. identifies the new responsible individual;

The department simply must have up-to-date information that identifies the responsible person assigned to the company license. This person must be a licensed radon mitigation professional, which the department will need to verify (according to 4620.7250 subpart 1, B.). The responsible person must ensure mitigation work complies with these rules and associated standards. Radon mitigation system tags will be issued to companies. These have a significant monetary value and will be sent "in care of" the responsible individual. The department will inspect mitigation work and may take enforcement action, as communicated through the responsible individual. A variety of compliance assistance and education efforts will also be sent directly to this person. License application renewal notices and reminders will be sent to the responsible person. Having the correct person's identity is essential for facilitating these activities. For all these reasons, the department requests that information concerning the responsible individual be updated in an expeditious manner and that the company notify the department no more than 30 days after the new responsible individual assumes this responsibility. The department initially considered requiring the commissioner's approval before changes to the company license, including its responsible individual. The advisory committee strongly opposed this approval requirement and preferred this notification requirement instead, since it would allow work to continue uninterrupted. As such, the department determined that this requirement does not present a significant burden to the regulated parties.

B. is signed by the new responsible individual; and

Clear documentation that shows the new responsible individual has assumed responsibilities is also essential. The new person's signature is needed to ensure that the company has definitely designated who is responsible for fulfilling the tasks of the responsible individual. The department's various rules routinely require a signature for acknowledgment. For example, for documenting training completion.

C. provides the date when the new responsible individual assumed the duties of the position.

The department proposes to require that the mitigation company include the responsible individual's start date in its notice to the department. This will provide evidence that the company has complied with the 30-day notification period. It will also assist the department in investigations and compliance matters, if there is an ongoing case. Moreover, it will help the department to determine whether it needs to send repeat reminders for renewal and other correspondence to the new responsible person.

4620.7300 RADON MITIGATION PROFESSIONAL LICENSE.

Subpart 1. General requirements. An individual who performs radon mitigation work must be licensed by the commissioner as a radon mitigation professional under this part. A radon mitigation professional license is not transferrable.

The department will license radon mitigation professionals because under Minnesota Statutes, section 144.4961, subdivision 5, licenses are required annually "effective January 1, 2018 for every person, firm or corporation that performs …a service to mitigate radon in the indoor atmosphere…" This definition is further elaborated under section 144.4961, subdivision 8(2) which states, "mitigation professional means an individual who installs or designs a radon mitigation system in a building the individual does not own or lease; or provides on-site supervision of radon mitigation and mitigation technicians." Consistent with the radon measurement professional license (4620.7200, subpart 1), we propose that the radon mitigation professional license not be transferable between individuals. This will ensure all individuals conducting mitigation work meet the requirements for licensure.

Subp. 2. Training requirements; initial license. To be eligible for an initial license as a radon mitigation professional, an applicant must:

A. complete an initial radon measurement course approved by the commissioner under part 4620.7700;

The department proposes that radon mitigation professionals also be qualified as radon measurement professionals. Individuals seeking radon mitigation professional licenses will be required to apply for an initial license. As part of their application, applicants will need to produce evidence that they have completed an initial radon measurement training course offered by a NRPP. Details of these initial courses are discussed under 4620.7200, subpart 2, item A.

The mitigation professional license is a combination license for both measurement and mitigation work. The department supports this approach for several reasons. Minnesota Statutes, section 144.4961, subdivision 8 (2), states that the mitigation professional license "also permits the licensee to perform the activities of a measurement professional described in clause (1)." Since the mitigation professionals are permitted to conduct measurement work, then they must possess the required qualifications for licensure. In addition, the NRPPs require that an individual complete an initial radon measurement course and pass the measurement exam to become certified as a radon mitigation professional. Industry standards expect mitigation professionals to conduct testing, or at least thoroughly understand testing. As of March 2017, there were 162 certified radon mitigation professionals in Minnesota. All certified radon mitigation professionals have already completed this initial measurement course. Moreover, in the department's experience, the certified radon mitigation professionals in Minnesota also conduct radon measurement, to evaluate mitigation effectiveness, trouble shoot radon systems, or assist with clients' initial testing. They must also understand the testing protocols and interpretation of test results since the results directly lead to the mitigation work. Those few

professionals that do not conduct any routine measurement should nonetheless be capable of testing or able to interpret their clients' results before proceeding with mitigation.

B. pass a radon measurement examination approved by the commissioner under part 4620.7700;

As discussed in the preceding section, individuals seeking the mitigation professional license must also meet the measurement professional licensure requirements. Applicants must pass an approved exam to prove that they understand radon, health risks, and testing, as discussed under 4620.7200, subpart 2, item B.

C. complete an initial radon mitigation course approved by the commissioner under part 4620.7700; and

Individuals seeking radon mitigation professional licensure must prove that they have completed an initial radon mitigation training course offered by a NRPP. The initial radon mitigation course is a 24-hour course, which can be taken classroom style or on-line. Costs are reasonable, ranging from $475 to $600.[58] Further details concerning initial courses can be found under 4620.7700, subpart 1, item A. Many radon mitigation professionals in Minnesota have already completed these courses voluntarily. They will not be required to retake the course for their initial application and can simply submit documentation showing completion of a previous course. A handful of individuals will have to take the course before 2018, as well as new individuals entering this profession in future years. The department has determined that requiring applicants to take this initial course is necessary to ensure applicants understand radon, including various mitigation techniques, radon-resistant new construction, troubleshooting mitigation systems, and the consensus standards for different building types. Without required training, the safeguards for the public, which regulating radon professionals is supposed to provide, would be tenuous at best.

D. pass a radon mitigation examination approved by the commissioner under part 4620.7700.

In addition to training, individuals applying for a radon mitigation professional license must pass a radon mitigation exam through a NRPP. Information and justification for these exams are discussed under 4620.7200, subpart 2, item B. The fee for the mitigation exam is reasonable at a cost of $175.

Subp. 3. Initial license application. An applicant for an initial radon mitigation professional license must submit to the commissioner:

A. a completed application on a form provided by the commissioner;

Applicants must complete a form with basic questions about themselves, including name, address, phone, email, social security number, company name, business ID number, website, fax number, service area, and type of service offerings. This is discussed under 4620.7200, subpart 3, item A.

[58] Courses found online through AARST-NRPP on 2/3/17 (http://aarst-nrpp.com/wp/entry-level-courses/). The following are course providers and their costs: Spruce Web-based ($499), CERTI Home Study ($475), MURC Classroom ($600). Also KSU Web-based for measurement and mitigation ($700).

B. *a nonrefundable annual fee according to Minnesota Statutes, section 144.4961 subdivision 8, payable to the Minnesota Department of Health*;

The application fee is repeated in rule here for convenience and clarity so the regulated parties can read all the application requirements in one place. The department proposes a nonrefundable fee to defray the costs for processing the application.

C. documentation that the applicant completed a radon training courses under subpart 2;
The department needs to verify that the applicant has completed the required measurement and mitigation trainings, as discussed under 4620.7300, subpart 2, items A and C.

D. documentation that the applicant passed radon training course examinations under subpart 2;
The department needs to verify that the applicant has passed the radon measurement and mitigation training course exam, as discussed under 4620.7300, subpart 2, items B and D.

E. a quality control and quality assurance plan for radon measurement based on the U.S. Environmental Protection Agency National Radon Proficiency Program Guidance on Quality Assurance;
Radon mitigation professionals must be proficient in radon measurement, as discussed under 4620.7300, subpart 2, items A and B. A quality assurance and quality (QAQC) management plan demonstrates their measurements are precise and accurate. These QAQC Plans are discussed under 4620.7200, subpart 3, items E.

F. the type, manufacturer, and model of all continuous monitors that the applicant intends to use to measure radon; and
The department needs to know the types of continuous monitors that mitigation professionals may use to conduct radon measurement, to verify it is an NRPP-approved device, which will help the department to evaluate their QAQC Plans, and notify the professionals about any problems with the devices. These continuous monitors are discussed under 4620.7200, subpart 3, item F.

G. the type and manufacturer of all passive devices that the applicant intends to use to measure radon.
The department needs to know the types of passive devices that mitigation professionals may use to conduct radon measurement, to verify it is an NRPP approved device, which will help the department to evaluate their QAQC Plans, and notify the professionals about any problems with the devices. These passive devices are discussed under 4620.7200, subpart 3, G.

Subp. 4. Expiration; renewal; continuing education.

A. A radon mitigation professional license is valid for one year from the date of issuance.
The Minnesota Radon Licensing Act states that "a license is required annually for every person, firm or corporation that…performs a service to mitigate radon in the indoor atmosphere." (Minnesota Statutes, section 144.4961. subdivision 5). The department interprets this to mean

that the license is valid for 1 year (365 days) after issuance, when it expires. This is a reasonable interpretation and consistent with other types of licenses issued by the State of Minnesota.

B. A licensed radon mitigation professional may apply to renew a license after completing 12 hours of continuing education approved by the commissioner under part 4620.7700

Continuing education is necessary to ensure mitigation professionals know about new developments in the field, and to refresh their knowledge of radon basics. The justification parallels that for radon measurement professional licensure, discussed under 4620.7200, subpart 4, B, except that the NRPPs voluntary certification requires 24 hours of continuing education every two years to maintain certification (It is 16 hours for measurement professionals). Since the Minnesota Radon Licensing Act requires annual license renewal, the department proposes a 12-hour annual requirement consistent with the NRPPs' continuing education standard. This consistency with NRPP's schedule will minimize confusion for radon professionals.

C. An individual who fails to complete 12 hours of approved continuing education within 30 days after a license expires must complete the continuing education under item B; and pass the examinations specified under subpart 2

The department proposes a 30-day grace period to catch up on continuing education, as discussed for measurement professionals under 4620.7200, subpart 4, item D. This should be sufficient time to complete 12 hours of online or in-person classes. There are ample reasonably priced courses for continuing education. If the individual fails to complete the continuing education within the additional 30-day period, the individual will need to complete the continuing education and pass the initial training exams to demonstrate sufficient knowledge. This is a performance-based approach to ensure professional is competent to obtain a license. It also creates an incentive to complete the required education in a timely fashion.

Subp. 5. License Renewal application.

A. An individual choosing to renew a radon mitigation professional license must submit to the commissioner, at least 30 days before the license expires:

As discussed under 4620.7200, subpart 5, item A, the department proposes that the application be submitted at least 30 days before the current license expires.

(1) a completed renewal application on a form provided by the commissioner;

As described under 4620.7300, subpart 3, A, the department needs specific information about the applicant, including business contact information, for inspecting the licensee, enforcing the regulations, and overseeing the licensee's education, and to provide lists of licensees to the public.

(2) a nonrefundable fee according to Minnesota Statutes, section 144.4961, subdivision 8, payable to the Minnesota Department of Health;

The application fee is cited in rule for convenience and clarity so the regulated parties can read all the application requirements in one place.

(3) documentation of continuing education credits required under subpart 4; and

The department must verify that the licensee has completed the continuing education and meets the requirements of 4620.7700, as discussed under 4620.7200, subpart 5, item A, subitem3.

(4) documentation required under subpart 3, items E, F, G.

Renewal applications will be similar to initial applications, with a few key differences. This item clearly delineates the requirements of initial as compared to renewal applications, which is discussed under 4620.7200, subpart 5, item A, sub-item 4.

B. If a license expires while a renewal application is pending approval, the radon mitigation professional may continue to perform regulated radon mitigation activities under the expired license until the commissioner issues a new license or denies the renewal application.

In the unlikely event that the department fails to review a license application and make a determination in a timely manner, the regulated parties should be allowed to continue to operate without interruption, as discussed under 4620.7200, subpart 5, item B.

Subp. 6. Denial of license application.

A. The commissioner shall deny an application for a radon mitigation professional license:

(1) if the applicant fails to comply with the requirements of subpart 2, 3, 4, or 5; or

The department proposes explicitly citing the subparts that are critical license elements for licensure. This will focus applicants' attention to their importance. Failure to comply with these subparts will lead to application denial.

(2) *according to Minnesota Statutes, section 144.99, subdivision 8.*

For convenience and clarity to the regulated parties and to strengthen enforcement actions, the department proposes including the license denial authority available to the commissioner under Minnesota Statutes, section 144.99, subdivision 8. This is discussed under 4620.7200, subpart 6, item A, subunit 2.

B. If the commissioner denies an application, the commissioner:

(1) must notify the applicant in writing and provide the reasons for the denial; and

The commissioner will provide the license applicant with a written denial notice that explains the applicant's deficiencies. This is an appropriate measure in any government application process. The applicant is also given an opportunity to submit new or updated information for the department to consider.

(2) must not require the applicant to pay an additional fee if the applicant submits a second application according to this part, within 30 days of the receipt of a notice that the license application has been denied. An applicant must apply for an initial license under subpart 3 for subsequent applications.

The department proposes allowing a 30-day period to submit additional information as part of a second application, with no associated fee, which we consider a reasonable amount of time. If this second application is denied or 30 days pass, the applicant must submit a new license application, including the fee to cover the department's costs and serve as an incentive for timeliness. This is discussed under 4620.7200, subpart 6, item B, subunit 2.

4620.7350. RADON ANALYSIS LABORATORY LICENSE.

Subpart 1. General requirements. A business or government entity that performs radon sample analysis must be licensed by the commissioner as a radon analysis laboratory under this part. A radon analysis laboratory license is not transferable.

Under Minnesota Statutes, section 144.4961, subdivision 5, licenses are required annually "for every person, firm or corporation that…performs laboratory analysis…" Subdivision 8, paragraph (a), clause (4) provides: "Radon analysis laboratory means a business entity or government entity that analyzes passive radon detection devices to determine the presence and concentration of radon in the devices." Consistent with the radon mitigation company license (Minnesota Rules, part 4620.7250, subpart 1, item C), the radon analysis laboratory license will not be transferable, to ensure all laboratories conducting radon analysis work meet the licensure requirements. Other rules administered by the department also limit license transfers, for example, the rules for asbestos contractor licensing has a similar provision (parts 4620.3000 to 4620.3724).

Subp. 2. Application for license. An applicant for a radon analysis laboratory license must submit to the commissioner:

A. a completed application on a form provided by the commissioner;

The agency proposes to use an application form similar to the four radon license categories, as discussed under 4620.7250, subpart 2, item A.

B. a nonrefundable annual fee according to Minnesota Statutes, section 144.4961, subdivision 8, payable to the Minnesota Department of Health;

The application fee is cited in rule here for clarity and convenience so the regulated parties can read all the application requirements in one place. The department proposes that the fee be nonrefundable to defray its application processing costs.

C. evidence of workers' compensation insurance as required by Minnesota Statutes, section 176.182, or if the applicant is exempt from the requirements under Minnesota Statutes, chapter 176, the applicant must submit a letter that is signed and dated stating why the applicant is exempt;

The department must comply with Minnesota statutes concerning verification of workers' compensation or exemption. This is discussed under 4620.7250, subpart 2, item C.

D. the applicant's current national radon proficiency program approval number(s) and expirations date(s);

NRPPs provide an overall approval of laboratories through certification or accreditation. The department has determined that these voluntary accreditations demonstrate a basic level of quality and reliability in radon measurement devices used by professionals and the public. Therefore, verifying that laboratories operating in the state have these credentials ensures that public health is protected.

The American Association of Radon Scientists and Technologists National Radon Proficiency Program (AAARST-NRPP) certifies analytic laboratories through its "Analytical Laboratory Certification."[59] This certification is for firms that analyze radon and radon-decay measurement devices on behalf of residential measurement providers or the public. A laboratory must designate an individual as the party who is responsible for quality assurance and quality control aspects of laboratory operation. The responsible party must be AARST-NRPP certified as a residential measurement provider.

The National Radon Safety Board (NRSB) approves laboratories as "Accredited Radon Laboratories."[60] To be accredited by the NRSB, laboratories must demonstrate that they have thorough quality assurance programs (QAPs) and clearly defined standard operating procedures (SOPs). Applicants must specify what devices the laboratory uses in performing radon analysis and list the NRSB device code for each on the application. A laboratory must submit current proficiency test results for all devices used to perform radon analysis. An NRSB Radon Measurement Specialist (RMS) must be affiliated with the laboratory.

E. the name, model number and NRPP approval number of all passive devices analyzed;

Radon analysis laboratories analyze passive devices and, in some cases, data from continuous radon monitors (see the discussion of Minnesota Rules, part 4620.7100, subparts 2 and 13, for more information). The department has seen, heard, and read about unapproved devices used in the state.[61] Having laboratory license applicants provide a list of devices and monitors that they are approved to analyze, and the associated approval information, as an explicit condition of laboratory licensure is important. Public health protection depends on these monitors being effective. Related to this provision, the department proposes to require that radon professionals only *use* approved device in Minnesota Rules, part 46200.7400, subpart 1, item B.

In addition to the overall recognition of laboratory functions (described in preceding discussion of subpart 2, item D), the NRPPs administer a voluntary program to approve individual devices.[62] This Device Evaluation Program (DEP) evaluates new or modified measurement devices before an individual or laboratory submits them for a performance test.[63]

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[59] For more information about the AARST-NRPP certification: http://aarst-nrpp.com/wp/certification/

[60] For more information on the NRSB accreditation: http://www.nrsb.org/professionals.asp

[61] Reuben Saltzman, 'Radon testing Clowns', 1/13/15, available 3/1/17: http://www.startribune.com/radon-testing-clowns/288376151/

[62] A listing of the currently approved devices can be found on their site: http://aarst-nrpp.com/wp/approved-devices/

[63] For further details of the Device Evaluation Program: http://aarst-nrpp.com/wp/device-evaluation-application/ . The DEP serves as a point of entry by assessing an instrument's suitability in various NRPP participation categories and providing information to manufacturers concerning adequate laboratory testing and documentation. Participants in the DEP are classified by the AARST-NRPP as device manufacturers (organizations that build or assemble radon measurement devices).This evaluation includes performance criteria (error, precision, interfering factors), documentation (technical, general, specific devices), and an exposure protocol (testing design, by type of device,

F. all analysis data from the previous year related to radon measurement samples taken from buildings located in Minnesota; and,

To understand the public health risks of radon, it is critical for the department to study the concentrations of radon across the state and research factors that affect radon in buildings. This activity carries out the duty assigned to the agency in subdivision 3 of the Minnesota Radon Licensing Act: "The commissioner shall coordinate, oversee, and implement all state functions concerning the presence, effects, measurement and mitigation of risks of radon in dwellings and other buildings." The department has been requesting radon data from laboratories since the late 1980s, and has used the data for various education, policy, and research activities.[64] To date, laboratory participation has been voluntary. Some laboratories have not submitted the requested data, and some have submitted partial information. Portions of the data are protected under Minnesota Statutes, section 13.3805, subdivision 5, which states: "Data maintained by the Department of Health that identify the address of a radon testing or mitigation site, and the name address, email address and telephone number of residents and residential property owners of a radon testing or mitigation site, are private data on individuals or nonpublic data." This classification protects the data's privacy and should alleviate privacy concerns.

The department proposes requiring laboratories to submit radon data annually. The agency has contacted all the radon laboratories in the United States; all labs have been submitting some to all of their Minnesota data to the department and to some other regulated states. So this request does not significantly change their existing procedures. Having a more complete dataset and ensuring its continuity in the future will improve and sustain the MDH's education, policy, and research work, and will ultimately lead to increased radon awareness, testing, and mitigation. In addition, the department will be able to evaluate these datasets during radon-measurement investigations to collect evidence for enforcement actions.

G. a radon sample analysis quality assurance and quality control plan; and

Laboratories, like measurement professionals, must conduct quality assurance and control activities to verify their test devices are accurate and reliable. Consequently, they must complete specific activities which are described in their quality assurance and quality control (QAQC) Plans. The radon industry's professional lab accreditation bodies (AARST-NRPP and NRSB) require quality assurance and quality control activities for laboratories they certify. These QAQC Plans pertain specifically to the production, handling, and processing of radon test devices and radon data. All the radon laboratories that the department is familiar with are NRPP certified and have QAQC Plans.

H. proof of:

(1) a quality assurance program that meets ISO/IEC 17025, General Requirements for the Competence of Testing and Calibration Laboratories

reporting).

[64] MDH's Radon Data Portal is one such use of radon data: https://apps.health.state.mn.us/mndata/radon

Compliance Published June 29,2005, and subsequent amendments or editions; or

(2) enrollment in an independent third party accreditation/certification program that meets national laboratory accreditation and certification standards, or an equivalent program approved by the commissioner, for the devices listed in item E.

The department will require that laboratories either meet the criteria for a quality assurance program or are enrolled in a third-party accreditation program. This provides the regulated parties and the department with flexibility without being overly burdensome. Recognizing existing programs saves resources and is preferable to the department creating its own separate accreditation or quality assurance program.

Radon analysis laboratories may voluntarily choose to be accredited through the National Environmental Laboratory Accreditation Conference. These programs conduct time and labor-intensive site audits at laboratories across the country. Creating a state-level audit process for accreditation would be redundant. The work and associated costs to create such an approval system would be significant, including trips across the country to conduct laboratory audits. The department would have to pass these costs on to the laboratory, which would be unnecessary in light of existing national accreditation.

The department does not expect this requirement will burden the labs. The department does not know of any current national radon laboratories that do not have an accreditation or certification described in this rule part. One laboratory in Minnesota currently meets the quality assurance program requirements.

Subp. 3. License expiration and renewal.

A. *A license issued under this part is valid for one year from the date of issuance.*

As discussed under 4620.7200, the department interprets the statute to mean that the license is valid for 1 year (365 days) after issuance, when it expires.

B. A licensed radon analysis laboratory may renew its license annually by submitting the information required under subpart 2.

MDH will collect the same information and fee annually as part of the license application. In many cases the application information, like worker's compensation evidence, NRPP approval and list of devices, will remain the same from year to year. If so, MDH will simply have the laboratory affirm that this information remains current. The agency would expect new analysis data to be submitted yearly. The department proposes no continuing education requirement for laboratories.

C. The renewal application must be received by the commissioner at least 30 days before the expiration date on the existing license.

As discussed under 4620.7200, subpart 5, item A, the department asserts the need for 30 days to review applications, to make a determination to approve, deny, or request further information.

D. If a license expires while a renewal application is pending approval, the radon analysis laboratory may continue to perform regulated radon sample analysis

activities under the expired license until the commissioner issues a new license or denies the renewal application.

In the unlikely event that the department fails to review and make a determination on a license application in a timely manner, the regulated parties would be allowed to continue to operate without interruption, as discussed under 4620.7200, subpart 5, item B.

Subp. 4. Denial of license application.

A. The commissioner shall deny an application for a radon analysis laboratory license:

(1) if the applicant fails to comply with the requirements of subpart 2; or,

The department proposes explicitly citing the subparts that are critical license elements for licensure. This will focus applicants' attention to their importance.

(2) according to Minnesota Statutes, section 144.99, subdivision 8.

As discussed under Minn. Rules 4620.7200, subpart 6, item A, sub-item (2), the department is citing the statute that provides the conditions under which the commissioner may deny applications, for convenience and clarity to the regulated parties and to strengthen enforcement actions.

B. If the commissioner denies an application, the commissioner must:

(1) notify the applicant in writing and provide the reasons for the denial; and

As discussed under 4620.7200 subpart 6, item B, sub-item (1), the department proposes to provide a written denial notice that states the reasons for denial and an opportunity to submit further information.

(2) not require the applicant to pay an additional fee if the applicant submits a second application according to this part, within 30 days of the receipt of a notice that the license application has been denied. An applicant must apply for an initial license under subpart 2.

The department proposes allowing a 30-day period to submit additional information as part of a second application, with no associated fee, which is a reasonable amount of time. If the department denies the second application or 30 days pass without receiving additional information, the applicant must submit a new license application and fee to cover the department's costs and serve as an incentive for timeliness. This is discussed under part 4620.7200 subpart 6, item B, sub-item (2).

Subp. 5. Quality assurance manager.

A. A licensed radon analysis laboratory must at all times employ or contract with a quality assurance manager who represents the radon analysis laboratory.

The department will require each licensed laboratory to identify a quality assurance manager. Because the NRPPs require a designated quality assurance manager for their approval, radon analysis laboratories are familiar with this designation and role. The quality assurance managers'

responsibilities include: 1) applying for the license, including the various laboratory information and fee payment; 2) proving workers' compensation or exemption; 3) maintaining and demonstrating NRPP approval; 4) providing device approval under an NRPP; 5) submitting radon testing data; and 6) submitting and maintaining a quality assurance program or enrollment in a laboratory accreditation program (as described under 4620.7350, subpart 2). The department will interact with quality assurance managers in various regulatory matters, such as reviewing license applications, reviewing data submission, updating licenses, and possibly conducting enforcement.

B. If the quality assurance manager identified on the current radon analysis laboratory license no longer serves in that capacity, the laboratory, within 30 days of the change in the quality assurance manager, must provide a written notice to the commissioner that:

(1) identifies the new quality assurance manager;

The department must have up-to-date information about the quality assurance manager assigned to the company license. As described in the previous paragraph, MDH expects this individual to be responsible for many license-related activities. The agency initially considered requiring the commissioner's approval before changes to the radon analysis laboratory license, including its responsible individual. All members of the advisory committee opposed this approval requirement and preferred notifications instead, since this would allow work to continue uninterrupted.

(2) is signed by the new quality assurance manager; and

The new individual's signature is needed to ensure that the company has definitely designated who is responsible for fulfilling the tasks of the quality assurance manager. The department's various rules routinely require a signature for acknowledgment. For example, for documenting training completion.

(3) provides the date when the new individual assumed the duties of the position.

The department proposes to require that the laboratory include the quality assurance manager's start date in its notice to the department. This will provide evidence that the company has complied with the 30-day notification period. It will also assist the department in investigations and compliance matters, if there is an ongoing case. Moreover, it will help to determine whether it needs to send reminders for renewal and other correspondence to the new responsible individual.

4620.7400. STANDARDS OF CONDUCT.

Subpart 1. Radon measurement and radon mitigation professional standards. A radon measurement professional and a radon mitigation professional must:

A. operate according to a quality assurance and quality control plan submitted to the commissioner under parts 4620.7200 and 4620.7300;

Requiring the regulated parties to *develop* quality assurance and quality control (QAQC) plans is not sufficient. To ensure that radon measurement and mitigation professionals *follow* their policies and procedures to protect the public, the department deems it necessary *to require* that they do so. The department also proposes this requirement to facilitate compliance assistance and enforcement actions when measurement or mitigation professionals fail to follow their QAQC Plans. As discussed under part 4620.7200, subpart 3, item E, and 4620.7300, subpart 3, item E, the license applicants will have to submit their quality assurance and quality control plans as part of their license applications. Key components of QAQC Plans include:

- following manufacturers' passive device and continuous monitor instructions for deployment;
- calibrating continuous monitors (typically yearly);
- checking passive device precision by using second devices to check for consistency (duplicates);
- checking passive device accuracy by exposing the devices to no radon (blanks); and
- exposing devices to specific known levels of radon (spikes) under varying conditions (such as temperature and humidity).

B. use a continuous monitor or passive device approved by a National Radon Proficiency Program;

The department also proposes requiring that radon professionals use NRPP-approved devices. As discussed under parts 4620.7200, subpart 3, items F and G, and 4620.7300, subpart 3, items F and G, license applicants will have to submit a list of devices and monitors they intend to use. But these subparts don't require approved devices and monitors. Therefore, stating explicitly that licensees may use only approved devices is necessary. MDH proposes this requirement to facilitate compliance assistance and enforcement activities where the use of unapproved devices is identified; such as: during application reviews, complaint investigations, and routine testing-equipment inspections.

C. notify the commissioner in writing within thirty days of any change to a license application information provided under parts 4620.7200 and 4620.7300;

The department needs up-to-date information about licensed radon measurement and mitigation professionals to verify that updated information will not invalidate the license. For example, a change to an unapproved device or an inadequate QAQC Plan would be unacceptable. MDH will inspect and investigate mitigation and measurement work and take enforcement actions as needed. The agency must have accurate contact information to carry out these activities. In addition, MDH will send a variety of compliance-assistance efforts to licensees, such as license renewal application notices and required-submission reminders. Finally, the agency will maintain a public website listing of licensed radon professionals; this site will serve the public only if kept current. For these reasons, the department proposes requiring licensees to update application information quickly by notifying the department within 30 days of changes.

Initially, the department considered requiring the commissioner's approval before changes to a license. All members of the advisory committee opposed this approval requirement and preferred a notification instead, since this would allow work to continue uninterrupted. As such, the department infers this notification requirement does not present a significant burden. The 30-day timeframe is a reasonable amount of time for the licensee to submit information: it fairly easy to remember (1 month) and consistent with various other submission requirements in these rules, such as the grace period to complete continuing education completion after license expiration and the timeframe to submit follow-up information for pending license applications.

D. maintain proof of valid license issued under this chapter at all times while at a project site;

The public is entitled to know that individuals who perform radon measurement or mitigation services are licensed, as required by law. This provision ensures that property owners and occupants will be able to verify license status by asking professional to verify their credentials. In addition, the department may conduct inspections as work is on-going or being completed to verify licensed individuals are conducting the work. This is consistent with other Minnesota rules and statutes, such as asbestos[65] and lead licensure.[66] The department intends to provide licensees with both electronic (through a secure website) and printable versions of their licenses to present as proof.

E. use the services of a radon laboratory approved by the commissioner under 4620.7350 to analyze radon samples;

MDH will ensure quality test-device analysis by requiring radon professionals to use licensed laboratories. As described in the discussion of proposed rule part 4620.7350, MDH has proposed various requirements for licensed laboratories whose purpose is to ensure that test results are accurate and reliable.

F. maintain records of each radon test performed for three years;

MDH proposes a three-year records retention schedule for test results—sufficient time to investigate potential violations. According to the proposed rule for inspections (4620.7900), the agency may request that regulated parties make original test records, such as test reports, available to the department. While summary data are required to be submitted quarterly (under 4620.7800), more detailed information may be needed for an investigation. It is unlikely that the department will receive a complaint concerning work that is more than three years old. MDH initially considered a five-year record retention schedule but the advisory committee expressed some opposition. Ultimately, department rulemakers decided to reduce the requirement to three years. This requirement is consistent with other rules, such as the enclosed sports arena rules (Minnesota Rules, part 4620.4650).

G. maintain radon measurement device calibration records for three years. Device calibration records include:

(1) manufacturer of calibrated device;

[65] Minn. Stat. § 326.73
[66] Minn. Stat. § 144.9505

(2) model number of calibrated device;

(3) serial number of calibrated device;

(4) date of instrument calibration; and

(5) name of calibration facility;

Device calibration is critical for ensuring that continuous radon monitors are accurate and reliable. The department considered requiring copies of calibration be submitted annually as part of the license application. The radon advisory committee expressed some concern about the volume of material that would entail. To alleviate unease about the volume of submitted application material, the agency now proposes requiring yearly submission of QAQC plans, including a description of CRM maintenance and service protocols. The department included a requirement that regulated parties submit specific calibration-related records to evaluate device performance. This requirement is also consistent with other rules, such as the medical use of radioactive materials (4731.4502), radiation survey or measurement instruments (732.0710), and indoor ice arena (4620.4650) rules.

H. not interfere with the commissioner's inspection or audit of any radon measurement or mitigation project.

While the department trusts the majority of its inspections and audits will be free of regulated-party interference, we added this provision to deter measurement or mitigation providers from taking action that undermines agency investigation. Examples of undermining actions are a radon professional contacting a homeowner to discourage the homeowner from allowing MDH access or discouraging customers from answering inspector's questions; altering or destroying records; falsifying reports; or failing to submit requested records.

Subp. 2. Radon mitigation company standards. A radon mitigation company must:

A. verify that employees directly involved in radon mitigation complete a NRPP-approved training course or a minimum of eight hours of basic mitigation training provided by a licensed radon mitigation professional. The training must be:

(1) provided before working on a mitigation project;

(2) performed annually; and

(3) documented by having trainees acknowledge, with their written signature, that they have received training meeting the requirements of this part;

According to the Minnesota Radon Licensing Act (Minnesota Statutes, section 144.4961, subdivision 8, paragraph (a), clause (2), "Employees or subcontractors who are supervised by a licensed mitigation professional are not required to be licensed…" Supervision is defined as "…a review at the property of mitigation work upon completion of the work and attachment of a system tag." The department interprets this to mean individuals can work on portions of mitigation projects without a licensed radon mitigation professional being present. Because it is important for these mitigation workers to understand basic radon mitigation work practices, the agency will require they are provided eight hours of documented training before working on a mitigation project and annually thereafter. This training may include hands-on, classroom, online, or other training that can be conducted by the company's responsible person, another

licensed professional at the company, or some other licensed radon mitigation professional. Formal classes such as those offered by the NRPPs will also meet this requirement. The department determined that eight hours of training per year is not unduly burdensome. MDH proposes an annual training cycle since licenses are issued annually. Consistent with other training requirements, the agency will require documentation and a signature to provide assurance that the training has been completed.

B. maintain a record of training required under item A for three years;

The department intends to request and review training records as part of inspections and audits. The justification for the three-year timeframe and making records available is the same as the requirements for mitigation and measurement professionals, under 4620.7400, subpart 1, items F and G.

C. verify that all of its mitigation professionals, employees and subcontractors comply with this chapter;

Companies are by definition responsible for the work of individuals they employ or contract. The department included this explicit requirement to make it clear that it can take enforcement action against individual mitigation and measurement professionals. The department may need to take enforcement action against companies that have a persistent pattern of employing or contracting with mitigation workers that violate the rules or statute.

D. verify that radon mitigation is performed with on-site supervision of a licensed mitigation professional:

As discussed under item A., the statute requires a licensed mitigation professional to review mitigation work "at the property." This provision simply requires the company to prove that they have complied with this requirement. MDH will companies responsible for ensuring that it supervises the work it performs.

E. maintain records for three years of each radon mitigation performed including records required under part 4620.7500 and 4620.7600, subpart 2; and

The justification for this provision is provided in the discussion of proposed part 4620.7400, subpart 1, items F and G.

F. Notify the commissioner in writing with thirty days of any change to the license application information provided under part 4620.7250; and

The department must have up-to-date information about licensed radon mitigation companies. The justification is the same as it for professionals discussed under 4620.7400, subpart 1, item C.

G. obtain a permit from the local unit of government when the installation of a radon mitigation system alters any structural component of the building framing system. A permit is not required when only the rim joist area is penetrated.

Some advisory committee members and radon professionals have expressed concern that local units of government are requiring permits for radon mitigation. The department discussed this issue with the MN Department of Labor and Industry (DLI). The DLI proposed this language to clarify when mitigation work would have to have a permit and when a permit would not be

required. This should prevent building officials from requiring unnecessary local permits and associated costs from radon mitigation companies.

Subp. 3. Radon analysis laboratory standards. An approved radon analysis laboratory must:

A. maintain current documentation required under part 4620.7350;

As part of their license application under part 4620.7350, radon analysis laboratories must provide evidence of workers' compensation; information about their devices, analysis data, NRPP certification; and a quality assurance plan or national accreditation. The department will collect summary information about these items as part of the license application (such as workers' compensation insurance policy numbers, certification and accreditation) to minimize the burden to laboratory applicants. The agency, however, may need to review all relevant records when evaluating the applications or investigating complaints. Therefore, the laboratories must keep this documentation.

B. maintain the certification status of a national radon proficiency program; and

Radon analysis laboratories must provide their national radon proficiency program number and expiration date as part of their license application to demonstrate current certification, as discussed under part 4620.7350, subpart 2, item D. The department proposes collecting this summary information to minimize the burden to laboratory applicants. The lab's certification, however, must remain in good standing at all times, not just annually when it applies for a license. Their NRPP certification status might expire or be suspended or revoked between applications.

C. notify the commissioner in writing within thirty days of any changes to the license application information provided under part 4620.7350.

The department must have up-to-date information about licensed radon analysis laboratories to verify that the updated information does not invalidate the license. For example, a change to a device, certification, quality assurance and quality control plan, or accreditation may be considered unacceptable. Having the correct contact information is necessary for auditing and taking enforcement action. The agency will send questions, regulatory updates, license application renewal notices, and reminders to the laboratories' quality assurance managers and make listings of licensed laboratories available to the public. For these reasons, the department needs licenses to provide it with updated licensee information in an expeditious manner. MDH chose a notification rather than approval process for the reasons discussed under 4620.7400, subpart 1, item C.

D. maintain the status requirement of part 4620.7350, subpart 2, item H. If status is no longer current, the commissioner shall suspend the radon laboratory's license under Minnesota Statutes, section 144.99, subdivision 9.

Radon analysis laboratories must provide proof of having a QAQC plan that meets International Standards Organization (ISO) requirements or enrollment in a national accreditation program or a quality assurance program as part of their license applications, as discussed under part 4620.7350, subpart 2, item H. The department proposes collecting this summary information to minimize laboratory applicants' burden. The department will, however, verify that labs' accreditation or their quality assurance programs are in good standing at all times, not just

annually when they apply for licenses. NRPP accreditation status may expire, be suspended or revoked between applications. If their accreditation is no longer approved or their quality assurance programs no longer meet criteria, the department will suspend the licenses and require the laboratories to demonstrate compliance to reinstate their licenses to avoid license revocation.

4620.7500. REQUIRED WORK PRACTICES FOR RADON MEASUREMENT AND MITIGATION AND MEASUREMENT DEVICES.

This part indicates documents, specifications, methods, and standards that are incorporated by reference in parts 4620.7000 to 4620.7900. This material is amended from time to time and is available from the source listed and for loan or inspection from the Minnesota department of Health. The requirements of the following standards, or the successor requirements of these standards, must be followed for all radon-related work conducted in Minnesota:

A. Radon measurement professionals and radon mitigation professionals measuring radon in single-family residences must:

(1) comply with ANSI/AARST Protocol for Conducting Measurements of Radon and Radon Decay Products in Homes (ANSI/AARST MAH-2014), or successor AARST standards; and

The department proposes that radon measurement providers and radon mitigation professionals comply with the radon measurement work practices prescribed in the referenced ANSI/AARST standards. The radon industry has used three similar sets of standards, published by: the US Environmental Protection Agency (USEPA), the American Association of Radon Scientists and Technologists (AARST), and the American Society for Testing and Materials (ASTM). MDH chose, however, to incorporate the ANSI/AARST standards because they are:

- the most recent standards;
- revised periodically;
- carry credibility due to the American National Standards Institute (ANSI) approval;
- consensus-based; and,
- commonly used by Minnesota radon professionals.

The USEPA has recognized the ANSI/AARST standards as the "current radon standards of practice,"[67] while describing the EPA and ASTM standards as "older radon standards of practice."[68] The federal government has a policy to use consensus-based standards[69], and the department also supports this approach.

[67] https://www.epa.gov/radon/publications-about-radon

[68] In July 2017, the ASTM 1465 standard was withdrawn in accordance with Section 10.6.3 of the Regulations Governing ASTM Technical Committees, which requires that standards shall be updated by the end of the eighth year since the last approval date (www.astm.org/Standards/E1465.htm)

[69] Under the National Technology Transfer and Advancement Act and OMB Circular A-119. For more information, visit the US Department of Commerce (www.nist.gov/standardsgov/what-we-do)

AARST provides the following overview of its standards development:

> AARST has played a role in the creation of national radon standards since the early 2000s. Since then AARST leaders and countless Stakeholder volunteers participated in numerous committees in the standards creation process. The AARST Consortium was formed in the early 2000s, has its own board of directors and bylaws and is run as an independent consortium, where the standard-building process is only achieved through stakeholder consensus, public review and ANSI approval. It is with these ardent processes that American National Radon Standards are created, and thus recognized by various states and governmental agencies as approved standards of practice for radon detection, measurement, mitigation, radon resistant new construction and more. [70]

AARST uses a consensus process to develop its standards. According to the standard:

> [The] consensus process developed for the AARST Consortium on National Radon Standards and as accredited to meet essential requirements for American National Standards by the American National Standards Institute (ANSI) has been applied throughout the process of approving this document."[71]

Consensus standards are favored because they use a transparent and deliberate process involving a variety of stakeholders.

An advantage of referencing a standard, rather than specifying all the requirements in rule, is that it allows work-practice requirements to evolve to keep up with new techniques, technologies, and research. According to AARST:

> This standard is under continuous maintenance by the AARST Consortium on National Radon Standards for which the Executive Stakeholder Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard."[72]

By referencing these standards, the department will be able to stay current with accepted standards of practice without having to update rules frequently. .

ANSI/AARST standards are copyrighted and available for purchase for $50 each. The department will obtain a duplication license through ANSI/AARST to distribute and lend copies, by request, through its library. There are six standards broken out into three types of buildings (1-3 unit housing, multi-family housing, and school and large buildings). Because these ANSI/AARST standards specify "procedures, minimum requirements and general guidance" [73]

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[70] http://aarst-nrpp.com/wp/standards-policy/
[71] *ANSI/AARST Protocol for Conducting Measurements of Radon and Radon Decay Products in Homes,* available for purchase https://aarst-nrpp.com/wp/home/aarst-standards/, introduction
[72] ibid
[73] ibid

for measuring or mitigating radon, MDH has referenced them separately in this rule part. The seventh standard specifies minimum performance criteria and testing procedures for instruments or systems designed to quantify radon concentration. The department accepts these standards in their entirety, with one exception, item A sub-item 2, for the reasons discussed below.

(2) test each unique foundation type.

The agency proposes this single deviation from the referenced standards because of a compelling public health interest—to avoid incorrectly assessing the radon hazard in the 20% of homes that have multiple foundation types. The ANSI/AARST standards committee may require testing for each foundation in the future, but we cannot assume this will happen.

Radon gas enters through the foundation of a structure. Homes are built with a variety of foundation types, such as basement, crawl space and slab-on-grade. Some homes have more than one foundation type. Radon levels may differ in spaces above each foundation type because there can be differences in pathways (openings, cracks and gaps) and air pressures associated with each type. As such, the department deems it to be crucial that radon testing be performed in spaces above each foundation type, to ensure radon levels are properly characterized and problems are not overlooked from testing only one foundation type—generally the basement.

The ANSI/AARST standard for measurement in homes recommends that each foundation be tested in homes with multiple foundations (section 4.1). The difference in radon levels in buildings with multiple foundation types is reflected in Minnesota's state building code for new construction. According to Requirements for Passive Radon Control Systems, Minnesota Rules 1303.2402, subpart 5, item F: "Combination basement/crawl space or slab-on grade/crawl space foundations shall have separate radon gas vent pipes installed in each type of foundation area."

Illinois' Regulations for Radon Service Providers (Section 422.130 Measurement Protocol A1) requires:

> "Short-term or long-term measurements shall be made, at the same time, in each lowest structural area suitable for occupancy. For example, a split-level building with a basement, a slab-on-grade room and a room over crawlspace shall have measurements made in each of the foundation types: the basement, a slab-on-grade room and a room over the crawlspace."[74]

A recent Illinois large-scale study found that radon levels vary across the footprint of buildings, which provided support for maintaining Illinois' current requirement to test each foundation.[75] Researchers found that about 20% of elevated radon levels above crawlspaces and slab-on-grade spaces would have been missed if the basement test result alone was relied on for determining whether radon was elevated in the building. The researchers concluded that testing basements alone would provide home owners with multiple foundations a false sense of safety, while they

[74] Title 32: Energy Chapter II: Illinois Emergency Management Agency Subchapter b: Radiation Protection Part 422 Regulations for Radon Service Providers, https://www.illinois.gov/iema/laws/Documents/Regs/32_422.pdf

[75] The study was presented at the 2016 International Radon Symposium September 19, 2006 and has been submitted for publication in a peer-reviewed journal the American Journal of Environmental Health

continue to dwell in an unsafe environment. They also concluded there was a lost opportunity for radon risk reduction.

MDH suspects that some radon measurement professionals might purchase additional radon measurement equipment to conduct simultaneous testing above each foundation type in the buildings they serve with multiple foundations. The agency also assumes that some radon mitigation professional will gain additional work (and associated revenue) from the increased numbers of homes identified in need of radon mitigation.

4620.7600. RADON SYSTEM TAG REQUIREMENTS.

Subpart 1. ***Purchasing tags.*** *A radon mitigation company must purchase radon system tags by:*

A. completing and submitting an application on a form provided by the commissioner; and

The Minnesota Radon Licensing Act states: "All radon mitigation systems installed in Minnesota on or after January 1, 2018, must have a radon mitigation system tag provided by the commissioner." (Minnesota Statutes, section 144.4961, subdivision 4). To ensure tags are connected to companies rather than individuals who might change their company association, the department proposes to permit only licensed radon mitigation companies to purchase tags. Doing so will help MDH track and manage the tags. The agency will direct mitigation companies to purchase tags through an online application by selecting the number of tags and the company to which the tags are issued. The department will provide tags to companies after the order is approved and completed.

B. submitting the nonrefundable fees according to Minnesota Statutes, section 144.4967, subdivision 8(5) for the number of tags to be purchased, payable to the Minnesota Department of Health.

The application fee is included in rule for clarity and convenience so the regulated parties can read application requirements in one place. MDH proposes a nonrefundable fee to defray costs for processing the application.

Subp. 2. Post-mitigation checklist. A radon mitigation professional must complete a post-mitigation checklist, on a form provided by the commissioner, before attaching a radon system tag.

According to Minnesota Statutes, section 144.4961. subdivision 8, paragraph (a), clause (2), an unlicensed individual is permitted to conduct much of the radon mitigation work under "on-site supervision", which is defined as "…a review at the property of mitigation work upon completion of the work and attachment of a system tag" by a licensed radon mitigation professional. To ensure the system meets the standards specified in these rules, the department proposes requiring the radon mitigation professional to inspect the radon mitigation system using a "post-mitigation checklist" as documentation. This checklist ensures that the professional documents the system information for the professional's future reference and the agency's examination. Having specific requirements checked by the licensed radon mitigation professional also helps to ensure that the professional installs a quality system. Certified Minnesota radon professionals already perform this type of inspection under the terms of their voluntary certification standards. The department will base this checklist on the inspection

portion of the three radon mitigation standards incorporated under part 7620.7500. For example, for single family homes, the standards for all systems require checking:

1. Radon Vent pipe installation;
2. Vent stack discharge requirements;
3. Radon fan selection and location requirements;
4. Sump pit, soil gas retarder, and other sealing requirements;
5. Electrical requirements, including local permits;
6. Monitors and labelling, including final system documentation;
7. Compliance with other elements of ANSI/AARST standards, design criteria, and local statutes and codes; and
8. MDH system-tag information.

Subp. 3. Attaching tags. A radon mitigation professional must attach a radon system tag to a radon system:

Under the Minnesota Radon Licensing Act, "A radon mitigation professional must attach the tag to the radon mitigation system in a visible location." This provision is restated in rule for clarity and convenience to allow regulated parties to read all requirements in one place. In addition, the agency will emphasize the requirement that a licensed mitigation professional conduct an on-site review of the completed mitigation work. The tags will include the radon professional's contact information and directions for contacting MDH with questions or complaints.

A. in a location:

(1) in the interior of the building that is being mitigated;

Radon mitigation system piping can be routed almost entirely through interior building spaces such as closets and chases to the attic or garage, and finally out the roof. Alternatively, mitigators sometimes route system piping from the building interior to the exterior and attach it to the side of the building. To avoid wear and tear, and ensure the tag remains affixed for a longer period of time, the department will require that the tag be attached to the interior portion of the pipe run. This will help MDH inspectors find and read the tag. Finally, this placement makes it more apparent to property owners, contractors, and others that the home is equipped with a system, who installed it, and that MDH regulates this work. Conspicuous labeling also limits the likelihood the pipe will be damaged or used for unintended purposes (such as plumbing).

(2) next to the system pressure gauge;

Radon mitigation systems are required, under the standards referenced in 4720.7500, to have a monitor (usually a pressure gauge) for the property owner to verify the system is functioning, Mitigation professionals must attach the monitor in a visible location under those same standards. Requiring the mitigation professional to affix the tag by this gauge assists property owners, contractors, agency inspectors, and others see the tag and identify radon system

components. The department could not determine a simpler or more universal location for tags to be attached.

(3) that is visible without having to move or remove items, furnishings or building materials; and

In addition to the proposed tag placement requirements discussed under the previous two sub-items, the department determined that further specifying that the tag remain visible without obstruction is necessary. This requirement means that a portion of pipe with the pressure gauge and tag must be exposed if that system's components are enclosed.

B. on the date of project completion.

The department specified "on the date of project completion" to make sure the licensed radon mitigation professional attaches the tag only when the project is complete. Radon mitigation professionals usually complete projects in four to eight hours of a single work day. However, in some instances a project takes more than one day to complete. Then, to avoid another trip to the site, some licensed radon mitigation professionals might be tempted to complete the required review (including post-mitigation checklist) and attach the tag, leaving an unlicensed employee to finish the project on another day. The department considers such a practice to be a violation of subdivision 8 of the Radon Licensing Act, which states: "On-site supervision means a review at the property of mitigation work upon completion of the work and attachment of a system tag." MDH interprets this to mean the licensed mitigation professional may attach the tag can only after the work is complete. If necessary, a licensed mitigation professional must return to review and complete the post-mitigation checklist and ultimately attach the system tag. The tag is the radon mitigation company's stamp of approval on the project, and it is in the company's interest to attach the tag after ensuring that the work has been finished. This requirement is necessary and reasonable.

4620.7700. APPROVAL OF INITIAL TRAINING AND CONTINUING EDUCATION COURSES.

Subpart 1. Initial Training. The commissioner shall approve an initial radon:

A. measurement training course approved by a national radon proficiency program.

The department plans to accept courses approved by a national radon proficiency program (NRPP) for initial measurement training. MDH argues that using an existing and effective training program is appropriate and cost-effective. There are currently two NRPPs, one administered by the American Association of Radon Scientists and Technologists (AARST) and another by the National Radon Safety Board (NRSB). The USEPA administered the NRPP from the 1980s through the late 1990s when it transferred its oversight to the two non-government organizations. The two programs are currently known as AARST-NRPP and NRSB. Various training providers across the nation developed and modified courses. One of these training providers is the Midwest Universities Radon Consortium (based in Minnesota), which offers a classroom-style course. NRPP administrators use a rigorous process to review and approve

course content.[76] Course providers must submit a variety of information to the NRPP, including: course information, course provider's experience, instructor information, course agenda, instruction materials, course evaluation by students, and evaluation of proficiency. NRPP also has policies concerning course listing, advertising, teaching, auditing, and complaint follow-up. Further details of the initial courses can be found in the discussion of rule part 4620.7200, subpart 2, item A.

B. measurement course exam approved by a national radon proficiency program.

The agency proposes accepting NRPP-approved exams for meeting the license eligibility requirements of parts 4620.7200, subpart 2, and 4620.7300, subpart 2. In addition to the advantages discussed under item A, the department will save resources that would be required to write and administer its own exam. NRPP-approved exams are completed at the end of classroom style courses or, for those taking courses online, at national examination centers across the state. Current AARST examinations were developed from 2006 to 2008 to reflect the most recent radon standards and U.S. Environmental Protection Agency (EPA) guidance documents.[77] According to AARST:

> [Examinations] were structured to meet EPA criteria: 1) defined required areas of competency; 2) role delineation; and 3) examination rubric classifications. Based upon this foundation, eighteen (18) radon professionals participated in one or more consensus-based phases of the development of the radon professional examinations. The exams were developed through a seven step process, then calibrated and pass points determined.

The department considers these exams to be an effective measure of initial competency.

C. mitigation training course approved by a national radon proficiency program.

The department proposes accepting NRPP-approved courses for initial mitigation training, as justified in the discussion of item A.

D. mitigation course exam approved by a national radon proficiency program.

MDH proposes accepting NRPP-approved exams for meeting the license eligibility requirements of parts 4620.7200, subpart 2 and 4620.7300, subpart 2, as justified in the discussion of item B.

Subp. 2. Pre-approved continuing education courses.

A. Any continuing education course currently approved by a national radon proficiency program meets the continuing education requirements of parts 4620.7200 and 4620.7300.

The agency has justified requiring continuing education (CE) requirements in its discussion of parts 4620.7200 and 4620.7300. The NRPPs have approved a large number and variety of CE courses. MDH will allow course providers to apply for course approval via the process described

[76] http://aarst-nrpp.com/wp/getting-a-course-approved/

[77] Information provided by Johnna McNamara, AARST-NRPP Exam Director, on 12/2/16 via email

under subpart 1, item A. An application is available online.[78] CE courses are reviewed and approved by the NRPP which have policies for course listing, advertising, teaching, auditing, and complaint follow-up. The department contends that accepting this set of existing and effective CE is efficient and preserves scarce administrative resources. It simply makes good sense. As a bonus to regulated parties, completing these courses meets requirements for both Minnesota licensure and national voluntary certification.

B. A licensed measurement professional or mitigation professional shall receive continuing education credit for the number of hours that he or she attends an initial training course approved by the commissioner.

The agency proposes awarding continuing education credit for completing initial training courses. Offering a variety of options for CE is important. Some radon professionals may want to re-take the initial courses as a refresher, or because course content may change over time. Although measurement professionals are not required to take the mitigation initial course, they may want to take it for professional development. The department recognizes the value to professionals in re-taking comprehensive initial courses and seeks to encourage this activity by granting CE credit for their completion.

Subp. 3. Other continuing education credit. To receive continuing education credit for a course, seminar, or professional organization meeting that is not an approved training course under this part, the person requesting credit must complete and submit a request on a form provided by the commissioner.

There are a variety of courses, seminars and meetings available to construction, real estate and environmental professionals that may be relevant to radon measurement, radon mitigation, or other aspects of the work that radon professionals do. To expand opportunity to complete requirements, the agency will consider recognizing these events for continuing education credit on a case-by-case basis. Topics MDH considers relevant to radon and radon professionals' work include health, safety, data analysis, disclosure laws, building codes, and remodeling techniques. The department will provide a form for licensees to request CE credit for these types of activities. The agency will follow up by collecting information about these educational events, presenters, and content to evaluate relevancy to radon and related work practices.

A. A person requesting credit must submit a request for credit according to this subpart within thirty days after a course, seminar, or meeting ends.

To facilitate a timely credit eligibility review, MDH proposes requiring that radon professionals submit information shortly after completing the course, while course details are readily available. A one-month time frame is consistent with the one-month time frames offered for other submission requirement in these rules. Should the department reject a request for credit, a one-month time frame provides opportunity for the licensee to complete a different before license expiration.

[78] AARST-NRPP Handbook and Application Form for getting a course approved: http://aarst-nrpp.com/wp/getting-a-course-approved/

B. To obtain advance approval of continuing education credit for a course, seminar, or meeting of a professional organization, a person requesting credit must submit a request under this subpart at least thirty days before the course, seminar, or meeting begins.

Rather than developing a new course, a training provider may prefer to market an existing radon-relevant course to radon professionals. Several training course providers currently offer courses to building contractors, including courses on lead, remodeling, codes, and real-estate-disclosure requirements. CE course providers will likely request advance course approval to market the classes as "approved" for radon CE credit. To give MDH staff time to review course materials and assign an appropriate number of CE hours, the agency will require an approval request be submitted at least 30 days before the course. The 30-day time frame is consistent with other requirements and presented as a minimum requirement since the department expects companies will want to maximize class marketing time. There may be more impromptu events, however, that would still gain advance approval with a one-month window.

C. *The commissioner shall grant continuing education credit to an instructor of a course approved by the commissioner under this part if the instructor requesting credit submits to the commissioner a request on a form provided by the commissioner within 30 days after a course seminar, or meeting ends*

This provision will allow course instructors to obtain continuing education credit for teaching an approved course. Developing and teaching a course requires mastery of subject matter that underlies a measurement or mitigation license. Therefore, the agency deems it appropriate to consider these activities to be part of that licensee's professional development. This is also consistent with the NRPPs' policy to award continuing education credit to course instructors for their radon professional certification. Other executive-branch agency licensure programs, such as Commerce and Labor and Industry also award credit to instructors of approved CE courses.

D. The commissioner shall determine the number of continuing education credit hours that are approved to meet the requirements of this part based on the course, seminar, or meeting's relevance to the activities of a measurement professional or mitigation professional.

Allowing the department discretion to determine the number of hours in a course or event that are relevant to the work of a radon professional is important. Courses and meetings may not be relevant in their entirety. MDH needs to determine the portion of the event that is relevant to radon measurement or mitigation work, and award credit accordingly. For example, a four-hour course on real estate disclosure may only have one hour covering radon disclosure. An eight-hour course on workplace health and safety may only be partially pertinent to the specific health and safety hazards in a radon professional's work.

4620.7800. REPORTING REQUIREMENTS.

Subpart 1. Radon test reports. A radon measurement professional or a radon mitigation professional must submit an electronic report, in the form and manner provided by the commissioner, listing all of the radon tests completed and provide the following information for each project:

Tracking radon measurement work is critically important for the department to carry out its enforcement, training, outreach, and research responsibilities. The department needs these data to determine whether regulated parties are following proposed radon measurement requirements of parts 4620.7200 to 4620.7600. The Minnesota Radon Licensing Act directs the commissioner to "coordinate, oversee, and implement all state functions concerning the presence, effects, measurement and mitigation of risks of radon in dwellings and other buildings." The department must collect a range of data to accomplish this mandate.

Collecting measurement data will support the agency's compliance assurance activities. MDH will review submitted data for possible statute or rule violations. Moreover, the department expects to receive complaints and questions from the public about radon measurement services. Having the data on hand will allow the Radon program to check records to evaluate whether measurements were performed by a licensed individual and assess various details of the measurement work completed, as described below. In addition to complaint-initiated inspections, MDH will routinely inspect the work of measurement professionals. Routine inspection activities will include: interviewing property owners (clients) and auditing measurement provider's records. Having relevant measurement records on hand will greatly aid the agency accomplish these investigative activities efficiently.

Collecting data about radon work will also help the department develop educational materials to assist professionals to comply with these regulations. The MDH Radon Program intends to continue to offer stakeholder meetings and create various fact sheets and guidance documents using collected data.

Finally, the department will use the test data for various public health initiatives. The agency currently maintains a radon data portal, but it only contains data from tests conducted by property owners.[79] Including radon professionals' testing data will greatly bolster the Radon Program's understanding of factors affecting radon levels, such as geographic differences, mitigation systems' impact, types of systems, seasonal variables, building characteristics, and real estate transactions. These analyses can aid the department in ongoing public education and outreach initiatives to increase awareness, testing, and mitigation.[80]

Historically, the department has not collected data from radon measurement professionals, but has requested mitigation professionals to voluntarily submit mitigation and measurement data on a quarterly basis. Most mitigation professionals have complied. Since ANSI /AARST standards require measurement reports be kept.[81] MDH assumes that currently certified measurement professionals are already maintaining the data MDH proposes to collect. To comply with requirements of this part, measurement professionals can modify their existing electronic tracking system or keep their tracking system and modify data files for submission purposes. The department is creating an online data submission system for professionals to submit their testing

[79] MDH Radon Data Portal https://apps.health.state.mn.us/mndata/radon
[80] The MDH radon site has information concerning many of our outreach and education initiatives: health.state.mn.us/radon
[81] *ANSI/AARST Protocol for Conducting Measurements of Radon and Radon Decay Products in Homes,* available for purchase https://aarst-nrpp.com/wp/home/aarst-standards/,

data. These measurement data requests are simple and use date already collected and therefore do not pose a significant burden.

According to Minnesota Statutes, section 13.3805, subdivision 5: "Data maintained by the Department of Health that identify the address of a radon testing or mitigation site, and the name address, email address and telephone number of residents and residential property owners of a radon testing or mitigation site, are private data on individuals or nonpublic data." The department will secure these data in compliance with state laws on private and nonpublic data.

A. street address, city, county, and zip code where work was performed;

Test site location is critically important for MDH to respond to inquiries, investigate complaints, inspect records of professionals, and use in research, and outreach concerning radon, as discussed above.

B. test start date and completion date;

Test start and completion dates are also important to enforcement, research, and outreach efforts. For example, improper testing duration might be a violation of radon measurement standards incorporated under part 4620.7700. Comparing the professional's reported time frame to information from a complainant may also yield information that merits education or enforcement. In addition, the testing time frame may also reveal a failure to follow the quality assurance plan, such as additional measurements that verify accuracy and reliability.

C. test device used;

Knowing the test device can help the department verify that approved devices were used, as required under the standards of conduct proposed under part 4620.7400. MDH can also compare these data to the test duration and the professional's quality assurance and quality control (QAQC) plan, to determine compliance with testing protocols and QAQC requirements. This information is also useful in research and outreach on radon.

D. identification of test as initial, follow-up, or post mitigation test;

Radon tests can be done for various purposes, including a first (initial) test, subsequent (follow-up) tests for confirmation, or after mitigation (post-mitigation). Understanding the reason for the test will help the department answer public inquiries and investigate complaints concerning the guidance and instructions provided to clients. Collecting these data can also help the agency evaluate mitigation professional's compliance with standards proposed for incorporation under part 4620.7700. These data are also important to MDH for research purposes to provide accurate information about radon levels in Minnesota, as discussed above.

E. if the test was done for a real estate transaction;

Testing protocols are somewhat different for real estate transactions. By knowing if the test was done for real estate, the agency can determine whether the professional complied with the real estate testing requirements in the ANSI/AARST standards incorporated by reference in 4620.7500. It is also useful to the department to understand the trends in real estate testing, to determine changes to policy and outreach efforts.

F. reported radon concentration;

Radon concentration values are the most fundamental pieces of data the agency proposes to collect. These data will be used for education and research activities, for the reason described above. In addition, inspectors might identify violations of the standards described under 4620.7500. For example, a professional might provide inaccurate recommendations to the client concerning the radon concentrations.

G. age of the building tested;

The relationship of building age to radon is an important research question. A common misconception is that the age of a building has a significant effect on radon levels and can eliminate the need for radon testing. The department has some data on radon levels in homes built since 2009, but data on prior decades is limited. MDH needs ongoing data for homes of different time periods for policy initiatives (such as building code requirements for radon-resistant new construction) as well as general education and outreach to real estate professionals, builders, and other stakeholders. These data can also be shared with the department of Labor Industry's building codes division to inform the radon building code and also be used to revise these rules.

H. type of building tested;

Radon tests are conducted in a variety of buildings, such as single family homes, duplexes, triplexes, multi-family buildings, schools and commercial buildings. The department would benefit from more data that distinguishes between building types. Knowing how radon data varies between these building types may influence policy, research, and outreach activities. In addition, since separate radon measurement standards exist for single family, multi-family, and schools and commercial buildings, as the agency proposes for incorporation under part 4620.7500, knowing the type of building may affect enforcement.

I. if there is a radon mitigation system present; and

Knowing whether a radon mitigation system is present can be useful in understanding problems associated with radon mitigation systems over time, especially if levels are elevated. Access to such information may lead the agency to direct education or enforcement activities toward particular radon mitigation professionals or companies. This information can also be useful in education and outreach efforts that remind people to retest their homes periodically after installing radon mitigation systems. Collecting this information also helps the measurement professional to advise the property owner.

J. system tag number, if present.

One purpose of system tag requirements MDH proposes under part 4620.7600 is to allow the department to use the system tag number information to evaluate persistent problems with particular professionals or companies, and further investigate potential deficiencies. Collecting these data may also help identify fraudulent tags if a nonexistent tag number is submitted to MDH.

Subp. 2. Mitigation project reports. A mitigation company must submit an electronic report, in the form and manner provided by the commissioner, listing all mitigation projects completed and provide the following information for each project:

Much of the same justification for collecting data from measurement professionals, discussed under part 4620.7800, subpart 1, applies also to mitigation professionals.

The department needs to know where mitigation tags were used to contact property owners for requesting access to inspect installed radon mitigation systems. Moreover, the department may use these data in studies evaluating radon mitigation and factors influencing their installation (such as geographic variations).

The agency has requested radon mitigation data from radon professionals every quarter since 2008. Most have voluntarily complied. This proposed data submission requirement is similar to the existing data submission process, except that the department is creating an online system for mitigation professionals to submit requested data. Mitigation professionals will be instructed to upload data using a spreadsheet template with data fields similar to the spreadsheet currently being used.

A. name and contact information of property owner or occupant (if available);
As stated above, the department needs to contact property owners.

B. street address, city, county, and zip code where work was performed;
The agency's justification for the proposal to request the information of this item is similar to that of subpart 1, item A. Information collected under this proposed item could also be used to research radon mitigation trends with the findings used in training programs for professionals and public outreach campaigns.

C. start date and completion dates:
Collecting mitigation timeframe information, as proposed, will assist the department in investigating complaints and evaluating compliance. For example, the department may use these data to investigate whether a radon mitigation professional failed to conduct or supervise a radon mitigation project as required by part 4620.7400, subpart 2. It can also inform research on radon mitigation trends over time.

D. type of radon mitigation system installed;
There are various types of radon mitigation systems that can be installed, which are described in the discussion of radon mitigation standards proposed incorporated under part 4620.7500, items D–F. Collecting this information will allow the department to verify whether an acceptable system was installed. Such information can also benefit the agency in researching trends in the industry that may be used in training programs and guidance developed for the radon mitigation professionals.

E. type of building mitigated;
The department's rationale for proposing to collect building type information for radon mitigation projects, mirrors that discussed for collecting type of building information measurement data under subpart 1, item H.

F. pre- and post-mitigation concentrations, if available; and
Radon mitigation projects should only be initiated following radon testing. In addition, the radon mitigation standards (proposed part 4620.7500, items D–F) require that the mitigation

professional conduct a post-mitigation test or ensure that one is conducted. In some cases, the mitigation professional will not have the pre- and or post-mitigation test result (if the homeowner chooses not to conduct a test, cooperate with the testing, or disclose the results to the professional). The agency proposes the "if available" caveat for this reason.

Under this part, MDH may use collected information to investigate persistent trends for particular radon mitigation professionals that consistently fail to submit test results. This can be used to educate or take enforcement action against these professional to ensure they are taking appropriate actions and that testing is done both before and after mitigation. In addition, these data can be used for research purposes (e.g., to evaluate the average efficacy of radon mitigation, by different types of systems, by building characteristics, etc.), which can then be used for professional development, general public outreach, and policy purposes.

G. MDH mitigation system tag identification number.

Because the agency needs to track when and where tags are used, MDH needs tag identification numbers to be submitted. Submitted tag information is essential for ensuring that each tag is used on one system only and to help to identify fraudulent tag use. The department will also use the tag number in inspections to cross-reference and confirm the accuracy of information submitted and observed. Moreover, the department can assist the public with their questions about a system in their building by looking up the tag number.

Subp. 3. Reporting deadlines. The reports required by this part must be submitted quarterly, by:

A. April 30th for the time period of January 1 through March 31

B. July 30th for the time period of April 1 through June 30;

C. October 30th for the time period of July 1 through September 30; and

D. January 30th for the time period of October 1 through December 31 of the previous year.

Since 2008, MDH has requested that mitigation companies voluntarily submit information about radon mitigations within one month of the end of each quarter. Most mitigation companies have submitted this information within this time frame. Some mitigation companies report only a handful of jobs, some close to about 100, while most report about 10-50 mitigations per quarter. The Agency expects similar numbers of radon measurement records reported by each measurement professional. More frequent reporting (e.g., weekly, monthly) may be burdensome and unnecessary. Infrequent reporting (e.g., yearly) could compromise the accuracy and completeness of records submitted (when companies let their licenses lapse or lose information), and result in routine inspections and investigations being conducted many months (up to 1 year) after work is completed. Reporting within one month after a quarter ends is a timeframe consistent with other requirements throughout these rules. The department's experience is that consistent reporting requirements result in better compliance.

Requesting these data on an as-needed basis would be inefficient and cumbersome to both the department and regulated parties. Collecting these data routinely will allow the agency to have

the information at its disposal to promptly identify problems, quickly respond to complaints and inquiries, and plan inspection trips around the state.

4620.7900. INSPECTIONS AND ENFORCEMENT.

Subpart 1. Compliance inspections.

A. Upon request, a measurement professional, mitigation professional, mitigation company, or operator of a radon laboratory must make available to the commissioner:

The department proposes this item to establish its inherent authority to collect certain types of information from regulated parties to carry out the responsibilities assigned it by Minnesota Statutes, section 144.4961, subdivision 9. While the agency has proposed requiring certain critical information be submitted annually in the license applications (parts 4620.7200–4620.7350), and measurement and mitigation data submitted quarterly (part 4620.7800), much of this information is general or summary in nature. The radon advisory committee recommended limiting the amount of routinely submitted materials. MDH may need additional records and information to perform routine compliance inspections and investigate complaints. Inspections and investigations could take place through US Mail or email communication, meetings with regulated parties, and examining radon work in the field.

(1) records or equipment of activities regulated under this chapter;

Radon professionals and companies typically keep various records to meet voluntary certification requirements and as standard business practices. Examples include original test reports, equipment calibration certificates, operational manuals, client correspondence, accreditation documentation, and quality assurance information. Also, professionals and companies use various equipment. Examples are continuous radon monitors, passive devices, radon mitigation fans, performance indicators, mitigation materials, and radon test device analytic equipment. The department will need to inspect these records and equipment to determine licensees are complying with parts 4620.7200 to 4620.7800.

(2) the addresses of properties or buildings where radon is being tested or mitigation work is scheduled, in progress, or completed; and

As discussed above, MDH will inspect licensees through a variety of means. For most routine inspections, radon program staff will likely examine installed mitigation systems directly. In some cases the agency may need to contact the professional, company, or labs to identify very-recently completed work performed by measurement and mitigation professionals. Under the proposed quarterly data collection requirements of 4620.7800, data from measurement and mitigation professionals could be up to four months old, while proposed rules require laboratories to submit their data annually as part of their license application. The department will also need to identify ongoing or upcoming measurement and mitigation work, so inspectors can directly observe work as it is being done. This ability to observe licensees in the field is important to evaluate compliance directly. While most features of completed radon mitigation work are visible, certain components can be hidden behind or under building materials at the end of the project. Many aspects of radon measurement work, such as device placement and

ascertaining closed-house conditions, are only apparent during the testing process. In some cases, the agency may need to request information from laboratories to investigate particular measurement or mitigation professionals.

(3) the names of the owners and residents of properties or buildings where radon is being or has been tested or mitigation work is scheduled, in progress, or completed.

In addition to its business need to identify where radon work is done described under item 2, the department proposes this provision to obtain names of building owners and residents. This allows MDH to contact them directly to complete a site inspection. In addition, the agency may request information about the project, such as records associated with radon work, correspondence between the individual and the professional, and testimony concerning work completed.

B. After providing identification, an agent of the commissioner may:

(1) examine any equipment used for radon testing or mitigation;

Consistent with department policy, staff will identify themselves as the commissioner's agents (inspectors) when they inspect measurement or mitigation equipment. This interaction could occur at a property where measurement or mitigation work is being done or at the offices of the regulated party. The agency anticipates a regulated party might reject the request to examine the equipment in some instances. The department proposes this provision to make its authority explicit and cite it in enforcement actions if the individual persists in denying access to equipment.

(2) sketch or photograph any portion of a site or building where radon is being measured or mitigated; and

Sketches and photographs can serve as crucial pieces of evidence demonstrating compliance or violation of these rules. Visual documentation may identify: incorrect test device placement, unapproved-device use, closed-house conditions not maintained during testing, incorrect radon-system layout, improper mitigation materials and fans use, and incorrect tag or system-indicator placement. The department must obtain the property owners' consent to collect this information under the Tennessen warning requirements.[82]

(3) interview employees or representatives of a licensee or a license applicant under this chapter.

During inspections and investigations, the department will likely interview a licensee or license applicant's employees or subcontractors. The department anticipates that these individuals' supervisors, co-workers, or associates will tell them not to answer questions in some instances. This proposed rule will facilitate the interviews and allow MDH to cite it in enforcement action.

Subp. 2. Enforcement. Violations of the requirements of parts 4620.7050 to 4620.7900 shall constitute grounds for the commissioner to take one or more of the enforcement actions under

[82] Minnesota Statutes, section 13.04, subdivision 2

Minnesota Statutes, sections 144.989 to 144.993, subject to the notice and appeal provisions set forth in applicable law.

The cited statutes are the Health Enforcement Consolidation Act, the department of Health's uniform enforcement measures. The department proposes this part because tying its specific authority to enforce the Minnesota Radon Licensing Rules to its enforcement authority is important. This provision explicitly states the ultimate consequences if the regulated party fails to comply with the rules. The cited act also states that enforcement action will follow the Administrative Procedure Act, Minnesota Statutes, chapter 14. If the department must suspend or revoke licenses, the department will follow the procedures under this cited chapter for both enforcement action and reinstating the licensees' suspended or revoked licenses.

4620.7950 VARIANCE TO RADON LICENSING RULES. *The commissioner may grant a variance to parts 4620.7000 to 4620.7900, according to the procedures and criteria specified in parts 4717.7000 to 4717.7050.*

The department typically includes a part related to variances in its rules. This provision cross-references the other rules already in place for this purpose. It informs regulated parties of the specific established procedure to request variance from the rules: namely, reasons why the regulated party cannot meet specific rules and alternative measures it will take instead that are equivalent or superior to the rule part.

LIST OF EXHIBITS

To support the need for and reasonableness of the proposed rules, the department anticipates entering:

- "Appendix A. Measurement Professional Definition" (attached.)
- "Appendix B. List of Acronyms" (attached).

CONCLUSION

Based on the foregoing, the proposed rules are both needed and reasonable.

Date: May 21, 2018

Jan Malcolm
Commissioner of Health

Appendix A. Measurement Professional Definition

The Minnesota Radon Licensing Act defines a measurement professional as 'any person who performs a test to determine the presence and concentration of radon in a building the person does not own or lease.' The department, in rule, is proposing to further clarify the term 'test' under the definition of a radon measurement professional, to include 'the act of an individual placing and retrieving a radon test device'. This requirement is justified for several reasons.

Radon measurement work conducted by professionals involves the placement of radon testing devices, usually a continuous monitor. When placing the device, the professional needs to: know how to properly initiate the device(s); place the device in the correct location; observe and note house operational conditions; track environmental conditions; and provide instructions to the property owner. When retrieving the device, the professional needs to correctly terminate and process the testing results; verify device placement is correct; review the housing operational conditions; check environmental conditions; and evaluate the potential for tampering. These are fairly complex tasks that require a qualified person to conduct this work. A variety of errors can be introduced to the test result if the protocols are not followed, which could yield an inaccurate result[1]. An inaccurate result could lead a property owner to mitigate radon where it's not necessary, at a cost of approximately $1,500 -$2,000, or fail to mitigate radon where there is a significant health risk.

It's reasonable to infer from statute that testing includes the whole process from start to finish. Anyone involved in any part of the measurement process must be licensed. For mitigation, the statute provides a specific exemption that allows for radon mitigation work to be conducted by employees or subcontractors who are supervised on-site. No such provision is stated in statute for measurement work. Furthermore, the statute requires a radon mitigation company license, but no radon measurement company license. As such, the statute is interpreted to mean that the whole process of testing, from start to finish, must be done by a licensed individual.

Other Minnesota rules and statutes concerning environmental assessment and testing require regulated work be done by a licensed or certified individual, and don't permit work to be started or completed by an uncredentialed person. The Asbestos Rules are a comparable set of regulations to these proposed Radon Rules. These Asbestos Rules require that asbestos air monitoring sampling--which is typically conducted for 2 to 3 hours—must be conducted with a state credentialed ('certified') individual present, including when the sampling is started and ended. Similarly, the department is proposing that radon measurements are started and ended by a state credentialed ('licensed') individual. The asbestos rules (4620.3596) require this asbestos air monitoring sampling are conducted by an asbestos worker or asbestos site supervisor who must be annually certified, which includes an initial approved asbestos air sampling course that is 2-days in length and passing an exam. These requirements are very similar to the radon measurement professional licensure requirements.

The radon industry association (American Association of Radon Scientists and Technologists, aka AARST) has a voluntary certification standard (National Radon Proficiency Program, aka

[1] For examples of testing errors, see: http://www.startribune.com/radon-testing-clowns/288376151/

NRPP) that requires certified professionals place and retrieve devices. In the 'AARST-NRPP Initial Application for Certification'[2] it states:

- As a condition of certification, the individual must acknowledge and accept that they will not misrepresent their credential status, including stating or implying that the individual certification covers the company (p.4)
- Residential Measurement Standard Service Provider "…is authorized to place and retrieve measurement devices…" (p.6).

There AARST-NRPP has published national standards concerning radon measurement work practices[3]. These have been researched and published by committees organized by professionals in the radon industry. The standards are ANSI approved consensus standards and defined qualified professionals and the minimum work practices that certified individuals must follow.

- According to the 'AARST-ANSI Protocols for Conducting Measurements of Radon and Radon Decay Products in Homes' (p.11)
    - "7.4.3 a "Qualified Measurement Professional" is defined as:
      An individual that has demonstrated a minimum degree of appropriate technical knowledge and skills specific to radon measurement in homes:
        a) as established in certification requirements of the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB); and/or
        b) as required by statute, state licensure or certification program, where applicable."
    - Under 7.3.2.1, measurement professionals are required to verify test conditions at the initiation and during retrieval of the detector.
- According to the 'AARST-ANSI Protocols for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings' (p.1)
    - "2.1.1.2. A Qualified Measurement Professional shall be physically present during all onsite activities for placement and retrieval of radon detectors and shall be immediately available to direct, instruct, oversee and control activities of any other individuals placing and retrieving detectors."
- According to the 'AARST-ANSI Protocols for Conducting Measurements of Radon and Radon Decay Products in Multi-Family Buildings' (p.2)
    - "2.1.5.1. A "Qualified Measurement Professional" shall be physically present onsite during activities for placement and retrieval of radon detectors and shall be immediately available to direct, instruct, oversee and control activities any other individuals placing or retrieving detectors."

In October 2017, the department sent letters to the AARST, NRPP, and the National Radon Safety Board (NRSB), to request a position statement in response to a comment received from a

[2] NRPP Initial Application for Certification, Under Radon Measurement: Standard Services: http://aarst-nrpp.com/wp/certification/how-to-become-certified/

[3] The standards can be purchased online, or available from MDH

radon mitigation company. The MDH letter asked the three organizations for their position on two questions:

1. Should a professional that retrieves a radon measurement device be credentialed, either by a governmental agency licensure or voluntarily through NRPP or NRSB?
2. Is it acceptable for an individual that meets the following criteria to place or retrieve devices?
    a. received 4 hours of training (from a licensed professional or other means);
    b. an employee or subcontractor of a licensed measurement professional; and
    c. works under the professional's QA plan or certification, but with no direct on-site supervision of measurement work by the licensed professional.

The three organizations' responses added further credence to the department's position concerning the proposed rule definition for radon measurement professionals. These letters can be found in Exhibits 1 through 5, at the end of this Appendix.

In addition, the US Housing and Urban Development Multifamily Policy requires radon testing for HUD mortgages. As part of this policy a credentialed radon professional must conduct the testing and the radon professional must provide direct (onsite) supervision for all radon testing and mitigation.[4]

The Radon Rulemaking Advisory committee weighed in on this topic. A committee member proposed that an unlicensed person be permitted to place and retrieve test devices, under general supervision of a licensed person. Of the 8 committee members present, 4 expressed opposition and 4 expressed support for this proposal.

There are radon measurement licensing or certification requirements in seventeen states. Most explicitly or implicitly require certified people to place or retrieve test devices. The tables below provide specific details.

- Six states require state level credentialing (certification or licensure) and have regulations (statutes, rules, codes) that indicate that credentialed people must do all testing activities including placing and retrieving test devices (Illinois, Ohio, Florida, Kansas, Nebraska, Rhode Island).
- Five states require state level credentialing (certification or licensure). These states do not permit non-credentialed persons to place or retrieve devices, and these regulation can be generally be interpreted as prohibiting this practice (Indiana, Iowa, Maine, New Jersey, West Virginia).
- Four states require NRSB or NRPP certification and do not explicitly discuss the issue of who can place and retrieve devices. NRPP does, however, require certified people place and retrieve devices, as discussed in the above section (California, Connecticut, Massachusetts, Montana)

[4] Hoylman, Kyle. 2016 'Revisions and Updates HUD's Multifamily Housing Policy', *The Radon Reporter*, p.14 -16

- Two states allow for uncertified people to test under specific circumstances (Kentucky Pennsylvania).

Table 1. States that Require State Credential and Don't Permit Uncredentialed Testing Work

The following states require state level credentialing (certification or licensure by state) and have regulations (statutes, rules, codes) that indicate that credentialed people must do all testing activities including placing and retrieving test devices.

State & Regulation	Website	Measurement Provider Language
Illinois Illinois Compiled Statutes Ch. 420 SS44/1--90 Regulations for Radon Service Providers Title 32: Energy Chapter II Illinois Emergency Management Agency Subchapter b: radiation Protection Part 422 (Section 422.70 C, p.18)	www.illinois.gov/iema/laws/Documents/Regs/32_422.pdf	"No unlicensed individual shall perform radon measurement or mitigation activities without the direct on-site supervision of a licensed individual."
Ohio Radon Licensing Rule Measurement Reports, p.14, Ohio Administrative Code, Chapter 3701-69, 'Appendix A. Ohio Radon Measurement Protocol' (Section O.1.e, p.14)	www.odh.ohio.gov/en/rules/final/3701-60-69/f3701-69	Licensee must return a measurement report to specific parties. The regulations state: "as a minimum, the measurement report shall contain the name and Ohio radon license numbers of the licensees placing and retrieving the devices"
Florida Statutes 404.056 Environmental radiation standards and projects; certification of persons performing measurement or mitigation services; mandatory testing;	http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=0400-0499/0404/Sections/0404.056.html	"a person may not participate in performing radon gas or radon progeny measurements, including sample collection, analysis, or interpretation of such measurements, or perform mitigation of buildings for radon gas or radon progeny, and charge a fee or obtain other remuneration as benefit for such services or devices, unless that person is certified by the department."

notification on real estate documents; rules Florida Administrative Code 64E-5 Parts X and XII 64E-5.1206 Certification Requirements for Radon Measurement Business. (3), p.9	http://www.floridahealth.gov/environmental-health/radon/_documents/rnrule98.pdf	"All radon or radon progeny measurements will be performed only by certified radon measurement specialists or certified radon measurement technicians. This shall include the initial placement and final retrieval of all measurement devices."
Kansas Kansas Statutes 48-16a01 Kansas Admin Regs 28-35-600, p.476	http://www.ksrevisor.org/statutes/chapters/ch48/048_016a_0007.html http://www.sos.ks.gov/pubs/kar/2015/028_28-Department%20of%20Health%20and%20Environment,%202015%20KAR%20Supp.pdf	" 48-16a07. Same; radon measurement business, conditions required to perform radon testing. All radon testing, including the initial placement and final retrieval of all measurement devices and post mitigation testing, shall be performed by a certified radon measurement technician." "28-35-606. Radon measurement business. (b) A radon measurement technician shall be present on-site to directly supervise all measurement activities performed by each radon measurement business."
Nebraska Nebraska Revised Statutes 71-3501 180 Neb Rev. Admin Code, ch.11, p.5	http://dhhs.ne.gov/publichealth/Documents/RADACT.pdf http://www.sos.ne.gov/rules-and-regs/regsearch/Rules/Health_and_Human_Services_System/Title-180/Chapter-11.pdf	"11-004.01 Operating Requirements for a Licensed Individual: 5. Additional responsibilities specific to the radon measurement specialist must include: a. Conducting all radon testing, including post-mitigation testing. This includes the initial placement and final retrieval of all measurement devices."
Rhode Island Rhode Island General Law 23-61-1 Rhode Island Rules and Regulations for Radon Control Chapter 23-61 B.3.2, p.16	http://sos.ri.gov/documents/archives/regdocs/released/pdf/DOH/7047.pdf	"Performance Requirements. In addition to the general requirements for all applicants, as listed in section B.1, the owners of a radon measurement business must:…Ensure that all radon and radon progeny testing, including the placement and retrieval of all measurement devices, is performed by certified radon measurement consultants."

Table 2. States that Require State Credential and Don't Seem to Permit Uncredentialed Testing Work

The following states require state level credentialing (certification or licensure). These states do not explicitly allow for non-credentialed persons to place or retrieve devices, and these laws can generally be interpreted as prohibiting this practice. Indiana's regulation states explicitly that one of two types of radon testers must be certified who place and/or retrieve devices. In Iowa's regulations, one could infer that device placement and retrieval work must be done by credentialed persons only, since they must describe these procedures in their license application. In Maine's regulations, it could be inferred that registered radon service providers must provide direct onsite supervision at all times for supervised employees (who need to be registered but not formally trained). In New Jersey, testing and analysis can only be conducted by licensed persons, and it can be inferred that test device retrieval would be a part of the testing and/or analysis. In West Virginia, each employee of the radon tester needs to demonstrate passing course and exam, which is comparable to the MDH proposed rules.

State & Regulation	Website	Measurement Provider Language
Indiana Indiana Code SS 32-21-5-1-10 410 Indiana Admin. Code 5.1-1-1	http://www.in.gov/legislative/iac/T04100/A00051.PDF	Statute requires state certification for persons engaged in radon testing. Rule defines "primary radon tester means an individual who measures radon-222 concentrations utilizing detection instruments other than passive monitors" and a "secondary radon tester means an individual who places passive monitors in, and/or retrieves passive monitors from, buildings for radon-222 testing"
Iowa Iowa Code 136b.1--.5 Iowa Admin Code 641-43,44 641-43.4(136B) Application for certification 43.4(1)a.(5), p.3	https://coolice.legis.iowa.gov/cool-ice/default.asp?category=billinfo&service=iowacode&ga=83&input=136B https://idph.iowa.gov/Portals/1/Files/Radon/641.43.pdf	"An application for a radon measurement specialist must include…standard operating procedures (SOPs). Procedures must include information concerning the placement and pickup of devices used, who performs the tests, and what measures will be used to ensure all tests are in conformance with EPA protocols and procedures."
Maine Maine Radon Registration Act section 771 - 784 Department of Human Service 10-144 Chapter 224 Air and water radon service provider registration rules.	http://legislature.maine.gov/statutes/22/title22ch165sec0.html	"Radon Service Providers means persons or companies providing radon testing services, evaluation of radon detection devices, radon mitigation consultation and/or radon mitigation services." "Supervised employee" means an untrained employee (not sub-contractor) that operates under supervision in a client's building, has no decision making authority, does not assist in planning the activities to take place at the

	www.**maine**.gov/sos/cec/rules/10/144/144c224.doc	work site, and operates from a "cookbook" list of instructions that they are not permitted to deviate from in any way. See "Untrained employee". Supervised employees have no training requirements but pay an annual fee, and need supervision in a client's building, suggesting continuous onsite supervision.
New Jersey New Jersey Statutes 26:2D-59--62 Certification of Radon Testers and Mitigators, Admin Code 7:28-27.1 27.5(b), p.8 27.31 (a).Iv, p.43	http://www.nj.gov/dep/rpp/RPRP_Rules/njsa.pdf http://www.nj.gov/dep/rpp/RPRP_Rules/sub27.pdf	"Radon or radon progeny testing may only be performed by certified radon measurement specialists or certified radon measurement technicians" "Those persons who sell or offer for sale at a retail outlet radon measurement devices, such as charcoal canisters, provided that…Measurement devices are not being placed in buildings to be analyzed by uncertified persons"
West Virginia West Virginia Admin. Code 64-78-1 5.1.c.1, 5.2	https://apps.sos.wv.gov/adlaw/csr/readfile.aspx?DocId=8953&Format=PDF	"To apply for a license as a radon tester the applicant shall… provide documentation that each applicant or employee has successfully completed the training approved by the director…passed the examination. "

Table 3. States that Require National Certification

The following states require NRSB or NRPP certification and do not explicitly discuss the issue of who can place and retrieve devices. The NRPP credentialing, as discussed above, does require an acknowledgement in the certificate application that certified individuals place and retrieve devices, their standards reference certified persons deploy and retrieve devices, and the code of conduct states that the certification is for the individual not the company.

State & Regulation	Website	Measurement Provider Language
California California Health & Safety Code 106750 - 106795	http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=106001-107000&file=106750-106795	"No person may provide radon services" unless they are NRPP or NRPP certified. Radon service includes the "performance of radon or radon progeny measurements in buildings…". Exemptions are listed, but no exemption provided to individuals deploying or retrieving devices.

Connecticut General Statutes 19a-14b Radon mitigators, diagnosticians, and test companies regulations	https://www.cga.ct.gov/current/pub/chap_368a.htm	The Department of Public Health maintains a list of companies or individuals that are included in NRPP lists and defines "Residential measurement service providers" to mean individuals that offer services that include, but are not limited to, detector placement and home inspection and consultation but do not have their own analysis capability and utilize the services of an analytical measurement service provider for their detector analysis.
Maryland Maryland Environment Code 8-305	http://law.justia.com/codes/maryland/2014/environment/title-8/subtitle-3/section-8-305	A person who engages in the business of testing shall complete EPA-NRPP, presumably now AARST-NRPP
Montana Montana Code 75-3-601--607	https://www.lawserver.com/law/state/montana/mt-code/montana_code_75-3-603	"In order to be publicly listed as proficient by the department in a radon-related occupation, a person shall pass a United States environmental protection agency proficiency examination approved by the department"

Notes: 1) New Hampshire and Utah require NRPP or NRSB certification for radon mitigation providers only (not measurement providers); 2) New York requires reporting of results by radon testing firms, but not no credentials required (10 N.Y. Code Rules & Regs 16.310)

Table 4. States that Permit Uncredentialed Testing Work Under Specific Conditions

The state of Kentucky provides a limited exception for apprentices to conduct radon measurement under intermittent onsite supervision by a certified person. But intermittent supervision is not defined, nor is how long can the person remain as an apprentice. This makes adoption of such an exemption difficult to enforce under the department's proposed rules. Pennsylvania is the only state that allows for an uncertified person working for a certified firm that has a certified tester, to conduct testing, although fees and requirements still exist for this uncertified person, effectively making the person regulated with some similarity to a licensed individual in MN. Moreover, Pennsylvania requires firms to be certified, while Minnesota does not, allowing for firms to be held accountable in Pennsylvania for employees' work.

State & Regulation	**Website**	**Measurement Provider Language**
Kentucky	http://www.lrc.ky.gov/Statutes/chapter.aspx?id=38167	KR211.9107. No person or business entity shall conduct radon measurement….without certification…but shall not apply to:

Kentucky Revised Statues 211.9101 – 211.9135 Department of Public Health Chapter 95 Radon 902 KAR95:040 Radon Contractor Certification Program	http://www.lrc.ky.gov/kar/902/095/040.htm	3) An apprentice in the process of learning radon measurement, mitigation, or laboratory analysis who assists and is under the general supervision of a measurement or mitigation contractor; KRS 211.9101. Definitions (13) "General supervision" means intermittent onsite supervision by a certified person who accepts responsibility for ensuring compliance by his or her employees or subcontractors with all applicable requirements
Pennsylvania Pennsylvania Statute title 63 2001 25 Pa. Admin Code 240 240.101 240.102	http://www.pacode.com/secure/data/025/chapter240/chap240toc.html	"For a firm to perform radon testing it shall employ at least one person certified to test, and the firm shall submit an application for certification. Not everyone within the firm is required to be certified to test. An individual performing testing and not working for a certified radon testing firm shall obtain radon testing certification prior to performing testing." "Firm certification for radon testing. If the applicant for testing certification is a firm, it shall employ at least one individual who is certified to test and who is in responsible charge of the firm's testing activities…Each testing firm employee, after the first initial testing firm employee, will be charged a fee as set forth in Appendix A (relating to radon certification fee schedule)."

Exhibit 1. Comment from Radon Mitigation Company

HSS
Home Safety Solutions
An Indoor Air Quality Company
Ph: 763-434-3263 Fax: 763-434-3483

Date: September 26, 2017

To: Minnesota Department of Health

To Whom it may concern;

This is a proposed modification to Proposed Permanent Rules Relating to Radon Licensing. 4620.7200 Radon Measurement Professional License.

1 A A Radon Measurement Professional may have Radon technicians working under their license.

Radon Measurement Professionals shall be responsible for all QA/QC and all reporting of test results to interested parties.
Subd.6.Licensing Fees
1 (a) Radon Testing Technician $50

An employee or subcontractor of a Measurement Professional, for placement or retrieval of Radon Gas detection devices.

1 (a1) Measurement professional shall ensure that technicians have at least 4 hours of basic training prior to placement or retrieval of Radon gas testing devices. License shall expire 5 years from activation.

Rationale:
This modification to the current proposed permanent rules is allowed under ANSI/AARST MAH 2014 protocols for conducting measurement of Radon and Radon decay products ibn Homes 7.4.3 "see attached"

The addition of Radon testing technicians would allow for the greatest number of qualified and trained testing individuals while still maintaining as QA/QC umbrella. This would help keep costs down for testing and allow the greatest number of tests to be performed and provide the best value and protection to the Minnesota consumers.

Greg Comer
Walt Donnay

19312 Jackson St. NE, East Bethel, MN 55011 Lic.# BC630387
www.homesafetysolutionsinc.com
info@homesafetysolutionsinc.com

Continued…attachment from HSS

7.4.3 "Qualified Measurement Professionals." For the Purpose of this document, a "Qualified Measurement Professional is defined as:

"An individual that has demonstrated a minimum degree of appropriate technical knowledge and skills specific in radon measurement in homes:

a) as established in certification requirements of the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB); and/or

b) as required by statute, state licensure to certification program, where applicable.

Exhibit 2: MDH Letter to Radon Industry Association and National Radon Proficiency Programs

Note that the same letter was sent to AARST, NRPP, and NRSB.

DEPARTMENT OF HEALTH

PROTECTING, MAINTAINING & IMPROVING THE HEALTH OF ALL MINNESOTANS

October 17, 2017

Dallas Jones
Executive Director
American Association of Radon Scientists and Technologists
475 South Church Street – Suite 600
Hendersonville, NC 28792

Dear Dallas Jones:

The Minnesota Department of Health (MDH) requests a statement of your organization's position concerning radon measurement professional qualifications. MDH is in the process of rulemaking, and is considering requiring that any radon measurement professional that places or retrieves a radon measurement device be licensed by the state of Minnesota. The proposed licensure requirements are:

1. successfully completing an NRPP or NRSB initial measurement course;
2. passing the associated exam;
3. approval of devices used;
4. approval of the applicant's quality assurance plan;
5. 8 hours of continuing education per year; and
6. payment of annual fee.

MDH respectfully requests a written statement of your organization's position concerning the following two items.

1. Should a professional that retrieves a radon measurement device be credentialed, either by a governmental agency licensure or voluntarily through NRPP or NRSB?
2. Is it acceptable for an individual that meets the following criteria to place or retrieve devices?
    a. received 4 hours of training (from a licensed professional or other means);
    b. an employee or subcontractor of a licensed measurement professional; and
    c. works under the professional's QA plan or certification, but with no direct on-site supervision of measurement work by the licensed professional.

Please contact me directly at (651) 201-5613 if you have any questions or need clarification. We hope you can respond in the next few weeks. Thank you in advance for your input.

Regards,

Joshua Kerber, M.S.
Research Scientist
Division of Environmental Health
P.O. Box 64975
St. Paul, MN 55164-0975

An equal opportunity employer

Exhibit 3. American Association of Radon Scientists and Technologists' (AARST) Response to MDH Letter

November 7, 2017
Josh Kerber
MN Department of Health
Division of Environmental Health
P.O. Box 64975
St. Paul, MN 55164-0975

Re: Request for AARST's position concerning radon measurement professional qualifications

Dear Mr. Kerber,

The American Association of Radon Scientists and Technologists (AARST) offers this response to the question: *"Is it acceptable for an individual that meets the following criteria to place or retrieve radon test devices? a. received 4 hours of training (from a licensed professional or other means); b. an employee or subcontractor of a licensed measurement professional; and c. works under the professional's QA plan or certification, but with no direct on-site supervision of measurement work by a licensed professional."*

For over 30 years, our organization has strived to promote the existence and maintenance of a national credentialing program for radon measurement and mitigation professionals. Performing measurements of airborne radioactive materials is not a trivial matter; people's lives are at stake. Radon has long been established as the leading cause of lung cancer in nonsmokers, and data reveal that 40% of Minnesota homes have elevated radon levels. Accordingly, AARST is vehemently opposed to any effort to make certification requirements for radon professionals less stringent than those originally established by the US EPA.

By definition, the individual who is placing and retrieving radon test devices IS the radon measurement professional, and the time needed to learn the essential knowledge-set for performing reliable, verifiable and defensible radon tests in homes is considerably more than four hours. In fact, one can make a convincing argument that a two-day course is too short for one to fully comprehend the complexities of performing measurements, and the associated quality control procedures for verifying consistent accuracy and precision, without the continuing education required by certification programs.

Furthermore, AARST strongly advises against allowing poorly trained individuals, working under the company's lone certified professional, to be turned loose on an unsuspecting public without ever verifying their capabilities with a competency exam. We urge the State to be genuinely concerned about protecting Minnesotans from the risk of lung cancer by insisting that radon testers be properly trained and certified by the National Radon Proficiency Program.

Finally, from a business perspective, large home inspection companies would have a considerable competitive advantage over smaller companies striving for quality if such a scheme were to be implemented. By allowing them to have only one certified radon professional on staff, they would be free to hire lower paid, unqualified "testers" and forego the expense of training, certification and recertification. The citizens of Minnesota deserve confidence that the technicians who show up to test their homes have a meaningful credential.

Sincerely,

Phillip H. Jenkins, PhD, CHP
President, American Association of Radon Scientists and Technologists, Inc.

475 S Church Street #600, Hendersonville, NC 28792

Exhibit 4. National Radon Proficiency Program (NRPP) Response to MDH Letter

October 31, 2017

Josh Kerber
MN Department of Health
Division of Environmental Health
P.O. Box 64975
St. Paul, MN 55164-0975

Re: Your request for a statement of the National Radon Proficiency Program (NRPP) position concerning radon measurement professional qualifications

Dear Mr. Kerber,

Thank you for the opportunity to provide an answer to the questions: "*Should a professional that retrieves a radon measurement device be credentialed, either by a governmental agency licensure or voluntarily through NRPP or NRSB?*" and *"Is it acceptable for an individual that meets the following criteria to place or retrieve radon test devices? a. received 4 hours of training (from a licensed professional or other means); b. an employee or subcontractor of a licensed measurement professional; and c. works under the professional's QA plan or certification, but with no direct on-site supervision of measurement work by a licensed professional."*

To begin, the second question seems to imply that placing and retrieving radon test devices is something less complicated than performing a radon test. To the contrary, being at the property while placing and retrieving the detector(s) is arguably the most important task of an NRPP Certified Radon Professional; here's why:

- According to the ANSI-AARST Standard titled, Protocol for Conducting Measurements of Radon and Radon Decay Products in Homes, a Qualified Measurement Professional is defined as "An individual that has demonstrated a minimum degree of appropriate technical knowledge and skills specific to conducting radon measurement in homes." The individual who is placing and retrieving radon test devices IS the measurement professional and the necessary skills and knowledge set cannot be learned in an afternoon.
- Most professional radon tests are performed within the context of a real estate transaction. In this situation, not only does the tester need to know all the requirements for obtaining a reliable and accurate test result, he/she must understand the complexities of testing a home on behalf of a buyer while the property is still in control of the seller or seller's agent. In fact, according to the Standard, the test must include methods to prevent and detect interference with testing conditions or the testing detector. Furthermore, according to the Standard and NRPP requirements, the radon measurement professional must be able to verify or provide documentation asserting that the required testing conditions were not violated during the test.
- If, at the initiation of the test, the radon measurement professional discovers or observes that pre-test closed-building conditions have not been maintained, the tester must know the acceptable options regarding how to proceed.
- Radon measurement professionals must establish and maintain a quality assurance program reflective of guidance found in the "*EPA Guidance on Quality Assurance*" (402- R-95-012). A QA program includes written procedures for meeting quality objectives and a system for recording and monitoring the results of specific quality control (QC) measurements. These include the performance of field duplicate measurements, field blank measurements, routine instrument performance checks and semi-annual crosschecks with a recently calibrated monitor, not to mention device performance tests within a known radon concentration. One doesn't learn how to properly perform and document these tasks in a 4-hour course provided by the boss.

- For the test report, the professional setting and picking up devices must provide a description of observed building conditions or other factors that are temporary in nature and may affect the measurement results. They must also document for the client that the test may not reflect the client's risk from radon if the required test conditions are altered while the test period.
- Obviously, the tester must understand just what conditions could alter the results. Temporary conditions can include:
  - ✓ unusually severe storms or periods of unusually high winds;
  - ✓ if the property tested was vacant during the test period;
  - ✓ the condition of any permanent vents (i.e., open/closed) such as crawlspace vents;
  - ✓ the condition of active or passive air supplies to the building or to combustion appliances;
  - ✓ when a permanently installed ventilation system, such as a heat recovery ventilator or air-to-air heat exchanger, is active during the test but ready access exists for deactivation or it functions intermittently.

In summary, the person placing and retrieving test devices cannot be different from the certified measurement professional; obtaining a valid measurement is all about the person at the property, for both placement and pick-up, thoroughly understanding the complexities of the process.

To emphasize my point, consider this: Certification programs in intravenous (IV) therapy are typically designed for licensed nurses. Candidates must demonstrate competency about topics such as fluid balance, safe fluid administration, and allergic responses. Suppose the hospital had only one Certified IV Therapist on staff whose job was to provide a 4-hour course to people off the street on how to insert and remove intravenous catheters for all their patients. Sounds ridiculous, right? Just as ridiculous as a certified radon measurement professional providing employees a 4-hour course on how to "place and retrieve" radon measurements and turning them loose with no direct supervision.

Cordially,

Dallas L. Jones

Executive Director

AARST National Radon Proficiency Program
director@aarst.org 678-983-9312

Exhibit 5. NRSB Response to MDH Letter

Wed 11/22/2017 11:20 AM

Michelle Wunderlich <michelle@nrsb.org>

NRSB-MN Department of Health Request for Policy Response

To Kerber, Joshua (MDH)

You forwarded this message on 11/27/2017 9:07 AM.

The National Radon Safety Board (NRSB) is responding to the two requested items in your letter dated October 17, 2017.

1. A professional that deploys or retrieves a radon measurement device should be credentialed, either by a governmental agency licensure or voluntarily through the NRSB or NRPP.
2. The NRSB credential "Radon Measurement Technician" was established specifically for radon professionals that only place and retrieves approved devices. The NRSB criteria for this credential are listed below.

Radon Measurement Technician (RMT)
Radon Measurement Technicians are people who have been trained and certified in the fundamentals of radon testing. This requires a basic understanding of radon and the health risks associated with it, as well as a thorough knowledge of measurement techniques and testing protocols.
National Radon Safety Board Certification as a Radon Measurement Technician requires:

- Eight hours of classroom training on the nature of radon, radon entry in buildings, fundamental radon health risks, occupational health and safety, measurement devices and techniques, and current radon protocols;
- Successful passing of examination based upon this knowledge;
- Eight hours of continuing education biennially (i.e., four hours per year);
- Adherence to the National Radon Safety Board code of ethics.

Measurement Technicians are qualified to place and retrieve measurement devices for the purpose of collecting radon data. This must be done in accordance with an active quality assurance program under the supervision of a certified Radon Measurement Specialist (RMS) or Accredited Radon Laboratory (ARL).
Should you have any questions or require clarification, please feel free to contact me directly.

Michelle Wunderlich
Certification Coordinator
National Radon Safety Board (NRSB)
Phone: 866-329-3474
Fax: 914-345-1169
www.nrsb.org

Appendix B. List of Acronyms

AARST – American Association of Radon Scientists and Technologists
AARST-NRPP – American Association of Radon Scientists and Technologists' National Radon Proficiency Program
ALJ – Administrative Law Judge
ANSI – American National Standards Units
ASD – active soil depressurization
ASTM – American Society for Testing and Materials
CE – Continuing Education
CERTI – Center for Environmental Research and Technology, Inc.
CRM – continuous radon monitor
DEP – device evaluation program
DLI – Minnesota Department of Labor and Industry
EPA – United States Environmental Protection Agency
FHA – Federal Housing Administration
HUD – United States Department of Housing and Urban Development
HVAC – heating ventilation and air conditioning
IAU – Minnesota Department of Health Indoor Air Unit
ISO – International Standards Organization
KSU – Kansas State University
MDH – Minnesota Department of Health
MMB – Minnesota Management and Budget
MURC – Midwest Universities Radon Consortium
NRPP – national radon proficiency program
NRSB – National Radon Safety Board
OAH – State of Minnesota Office of Administrative Hearings
pCi/L – picocuries per liter of air
QAP – quality assurance program
QAQC – Quality Assurance and Quality Control
RMS – radon measurement specialist
SONAR – Statement of Need and Reasonableness
SOP – standard operating procedures