

## **DRAFT STAFF ASSESSMENT OF THE PROPOSED VERMONT PROGRAM FOR THE REGULATION OF AGREEMENT MATERIALS AS DESCRIBED IN THE REQUEST FOR AN AGREEMENT**

This assessment examines the proposed State of Vermont Program to enter into an agreement with the U.S. Nuclear Regulatory Commission (NRC) to regulate the possession, use, and disposal of radioactive materials subject to the Atomic Energy Act of 1954 (Act), as amended.<sup>1</sup> This assessment was performed using the criteria in the Commission's policy statement "Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement" (referred to below as the "criterion or criteria")<sup>2</sup> using the Office of Nuclear Material Safety and Safeguards (NMSS) Procedure SA-700, "Processing an Agreement." Each criterion, and the staff assessment related thereto, is addressed separately below.

### OBJECTIVES

**1. Protection. A State regulatory program shall be designed to protect the health and safety of the people against radiation hazards.**

The State of Vermont's proposed Agreement State Program for the regulation of radioactive materials would be located within the Radiological and Toxicological Sciences Program, which is an organizational unit in the Vermont Department of Health (the Department). The Department is designated as the radiation control agency.

The Department has the statutory authority to establish the Vermont Agreement State Program in the Vermont Statutes Annotated (VSA) Title 18 Health, Chapter 32: Ionizing and Nonionizing Radiation Control (VSA §§ 1651 through 1657). The authorities to issue, amend, suspend, or revoke licenses; place conditions and to issue orders; and assess administrative penalties is vested by the Vermont Statutes, 18 VSA §§ 1653, 1655 and 1656. The authorities for the Department to adopt regulations is provided in the Vermont Statute 18 VSA §§ 1652(c) and 1653(b)(1).

The NRC staff verified that the design of the State of Vermont's Agreement State Program with respect to the distribution of regulatory responsibilities among the program staff assigns responsibility for each program element to a unit of the Department and is similar to designs used successfully in other Agreement States.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (Agencywide Documents Access and Management System (ADAMS) Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes:

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<sup>1</sup> According to paragraph (a) of Section 274, the radioactive materials subject to the Act are byproduct, source and special nuclear material. These are also referred to as agreement materials.

<sup>2</sup> NRC Statement of Policy was published in the *Federal Register*, on January 23, 1981 (46 FR 7540-7546), a correction was published on July 16, 1981 (46 FR 36969), and a revision of Criterion 9 was published in the *Federal Register*, on July 21, 1983 (48 FR 33376).

18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

## RADIATION PROTECTION STANDARDS

- 2. Standards. The State regulatory program shall adopt a set of standards for protection against radiation which shall apply to byproduct, source, and special nuclear materials in quantities not sufficient to form a critical mass.**

In conjunction with the rulemaking authority vested in the Department on radiation protection by Vermont Statute §§ 1652(c) and 1653(b)(1), the Department has the requisite authority to promulgate rules for protection against radiation.

The NRC staff verified that the State of Vermont adopted by reference the relevant NRC regulations in Title 10 of the Code of Federal Regulations (10 CFR) Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 61, 70, 71, 150, 170, and 171 into State Regulations in Vermont Radioactive Materials Rule – Chapter 6, Environmental Health, Subchapter 5, Radiological Health Rule. However, it should be noted that NRC staff identified a few sections of the final Vermont Radioactive Materials Regulations that were either not compatible or needed additional editorial changes. By letter dated May 10, 2019, the NRC staff described these compatibility and editorial issues, and requested that the Vermont Department of Health commit within 60 days to make the described regulatory changes as soon as practicable (ADAMS Accession No. ML19102A160). The resolution of these comments does not interfere with NRC staff's processing of Vermont's Agreement State Application. Therefore, the Department will have committed to adopting an adequate and compatible set of radiation protection regulations that apply to byproduct material as defined in Section 11e.(1), 11e.(3), and 11e.(4) of the Act, source material, and special nuclear material in quantities not sufficient to form a critical mass.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 3. Uniformity of Radiation Standards. It is important to strive for uniformity in technical definitions and terminology, particularly as related to such things as units of measurement and radiation dose. There shall be uniformity on maximum permissible doses and levels of radiation and concentrations of radioactivity, as fixed by 10 CFR Part 20 of the NRC regulations based on officially approved radiation protection guides.**

The State of Vermont, by statute, must promulgate and enforce rules for the regulation of byproduct, source, and special nuclear material that are in accordance with Section 274 of the Act. As discussed in Criterion 2 above, on May 10, 2019, the NRC staff described these compatibility and editorial issues, and requested that the Vermont Department of Health commit within 60 days to make the described regulatory changes

as soon as practicable. Pending Vermont's commitment letter, the NRC staff verified that the State of Vermont adopted regulations in Vermont Radioactive Materials Rule described in Chapter 6, Subchapter 5 that are compatible with 10 CFR Part 20.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

**4. Total Occupational Radiation Exposure. The regulatory authority shall consider the total occupational radiation exposure of individuals, including that from sources which are not regulated by it.**

The NRC staff review verified that the State has adopted regulations by reference that are compatible with the NRC regulations in 10 CFR Part 20, including Subpart C, the occupational dose limits and Subpart D, the dose limits to individual members of the public. The State of Vermont licensees are required to consider the radiation doses to individuals from all sources of radiation, except background radiation and radiation from medical procedures. Like NRC licensees, the State of Vermont licensees are required to consider the radiation dose whether the sources are licensed or unlicensed.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

**5. Surveys, Monitoring. Appropriate surveys and personnel monitoring under the close supervision of technically competent people are essential in achieving radiological protection and shall be made in determining compliance with safety regulations.**

The NRC requires surveys and monitoring pursuant to 10 CFR Part 20 Subpart F. The NRC staff review verified that the State of Vermont has adopted regulations by reference that are compatible with 10 CFR Part 20 Subpart F. Therefore, the State of Vermont licensees are required to conduct surveys and personnel monitoring to the same standards required of the NRC licensees.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and

ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

6. **Labels, Signs, Symbols. It is desirable to achieve uniformity in labels, signs and symbols, and the posting thereof. However, it is essential that there be uniformity in labels, signs, and symbols affixed to radioactive products which are transferred from person to person.**

The NRC staff review verified that the State of Vermont has adopted regulations by reference that are compatible with the NRC regulations in 10 CFR Part 20 Subpart J, Precautionary Procedures. Therefore, the radiation labels, signs, symbols, and the posting and labeling requirements in the State of Vermont regulations are compatible with those contained in the NRC regulations.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

7. **Instruction. Persons working in or frequenting restricted areas shall be instructed with respect to the health risks associated with exposure to radioactive materials and in precautions to minimize exposure. Workers shall have the right to request regulatory authority inspections as per 10 CFR 19, Section 19.16 and to be represented during inspections as specified in Section 19.14 of 10 CFR 19.**

The NRC staff review verified that the State of Vermont has adopted regulations by reference that are compatible with the NRC regulations in 10 CFR Part 19.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

8. **Storage. Licensed radioactive material in storage shall be secured against unauthorized removal.**

The NRC staff review verified that the State of Vermont has adopted regulations by reference that are compatible with the NRC regulations in 10 CFR Part 20 Subpart I, Storage and Control of Licensed Material.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019 from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 9. Radioactive Waste Disposal. (a) Waste disposal by material users. The standards for the disposal of radioactive materials into the air, water and sewer, and burial in the soil shall be in accordance with 10 CFR Part 20. Holders of radioactive material desiring to release or dispose of quantities or concentrations of radioactive materials in excess of prescribed limits shall be required to obtain special permission from the appropriate regulatory authority. Requirements for transfer of waste for the purpose of ultimate disposal at a land disposal facility (waste transfer and manifest system) shall be in accordance with 10 CFR Part 20. The waste disposal standards shall include a waste classification scheme and provisions for waste form, applicable to waste generators, that is equivalent to that contained in 10 CFR Part 61.**

The NRC staff verified that the State of Vermont has adopted by reference, the relevant NRC regulations that are compatible with the NRC regulations in Subpart K of 10 CFR Part 20 and the provisions for waste classification and form in 10 CFR Part 61. These regulations deal with general requirements for waste disposal and are applicable to all Vermont licensees.

The staff concluded that Criterion 9(a) is satisfied.

**(b) Land Disposal of waste received from other persons. The State shall promulgate regulations containing licensing requirements for land disposal of radioactive waste received from other persons, which are compatible with the applicable technical definitions, performance objectives, technical requirements and applicable supporting sections set forth in 10 CFR Part 61. Adequate financial arrangements (under terms established by regulation) shall be required of each waste disposal site licensee to ensure sufficient funds for decontamination, closure, and stabilization of a disposal site. In addition, Agreement State financial arrangements for long-term monitoring and maintenance of a specific site must be reviewed and approved by the Commission prior to relieving the site operator of licensed responsibility (Section 151(a)(2), Pub. L. 97-425).**

The State of Vermont has not requested regulatory authority to license a low-level radioactive waste land disposal site. As such, there were no regulations or procedures in the State's application for the evaluation of a proposed license for a low-level waste disposal site.

The staff concluded that Criterion 9(b) does not apply to the State of Vermont.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and

ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 10. Regulations Governing Shipment of Radioactive Materials. The State shall, to the extent of its jurisdiction, promulgate regulations applicable to the shipment of radioactive materials, such regulations to be compatible with those established by the U. S. Department of Transportation and other agencies of the United States whose jurisdiction over interstate shipment of such materials necessarily continues. State regulations regarding transportation of radioactive materials must be compatible with 10 CFR Part 71.**

The NRC staff verified that the State of Vermont has adopted by reference, the relevant regulations compatible with the NRC regulations in 10 CFR Part 71. The State of Vermont will not attempt to enforce portions of the regulations related to activities, such as approving packaging designs, which are reserved to NRC.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 11. Records and Reports. The State regulatory program shall require that holders and users of radioactive materials (a) maintain records covering personnel radiation exposures, radiation surveys, and disposals of materials; (b) keep records of the receipt and transfer of the materials; (c) report significant incidents involving the materials, as prescribed by the regulatory authority; (d) make available upon request of a former employee a report of the employee's exposure to radiation; (e) at request of an employee advise the employee of his or her annual radiation exposure; and (f) inform each employee in writing when the employee has received radiation exposure in excess of the prescribed limits.**

The NRC staff verified that the State of Vermont has adopted by reference, regulations compatible with the NRC in 10 CFR Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 39, 40, 61, 70, 71 and 150. The records and reports referenced in Criterion 11 are regulatory requirements in these parts. The State of Vermont has adopted the necessary record and reporting requirements.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 12. Additional Requirements and Exemptions. Consistent with the overall criteria**

**here enumerated and to accommodate special cases and circumstances, the State regulatory authority shall be authorized in individual cases to impose additional requirements to protect health and safety, or to grant necessary exemptions which will not jeopardize health and safety.**

The NRC staff has verified that the State of Vermont has adopted by reference, regulations compatible with 10 CFR 30.34, 10 CFR 40.41 and 10 CFR 70.22, "Terms and conditions of licenses." The State regulations adopted by reference provide the radiation control agency the authority to impose, by order or license condition, additional health and safety requirements beyond the requirements specified in law and in the rules. The State also has legal authority to grant reasonable and necessary exceptions to the regulatory requirements, either by order or by license condition.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

#### PRIOR EVALUATION OF USES OF RADIOACTIVE MATERIALS

- 13. Prior Evaluation of Hazards and Uses, Exceptions. In the present state of knowledge, it is necessary in regulating the possession and use of byproduct and source nuclear materials that the State regulatory authority require the submission of information on, and evaluation of, the potential hazards, and the capability of the user or possessor prior to his receipt of materials. This criterion is subject to certain exceptions and to continuing reappraisal as knowledge and experience in the atomic energy field increase. Frequently there are, and increasingly in the future there may be, categories of materials and uses as to which there is sufficient knowledge to permit possession and use without prior evaluation of the hazards and the capability of the processor and user. These categories fall into two groups: those materials and uses which may be completely exempt from regulatory controls, and those materials and uses in which sanctions for misuse are maintained without pre-evaluation of the individual possession or use. In authorizing research and development or other activities involving multiple uses of radioactive materials, where an institution has people with extensive training and experience, the State regulatory authority may wish to provide a means for authorizing broad use of materials without evaluating specific use.**

The State of Vermont has adopted by reference regulations containing regulatory requirements for applying for and issuing licenses that are compatible with NRC's regulations.

NRC staff confirmed that the State's regulations provide that only NRC may issue a license authorizing the distribution of Agreement materials that will subsequently be exempt from regulatory control.

Since criterion 13 was adopted, the Commission has determined that the regulatory authority to conduct safety evaluations of sealed sources and devices may be retained by the NRC, unless the State of Vermont requests assumption of the authority and has in place an adequate and compatible program to implement the authority. The State of Vermont has decided not to seek authority for evaluation of sealed sources and devices.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 14. Evaluation Criteria. In evaluating a proposal to use radioactive materials, the regulatory authority shall determine the adequacy of the applicant's facilities and safety equipment, his training and experience in the use of the materials for the purpose requested, and his proposed administrative controls. States should develop guidance documents for use by license applicants. This guidance should be consistent with NRC licensing regulatory guides for various categories of licensed activities.**

The NRC staff review determined that the State of Vermont has established a series of procedures, checklists, and forms to be used in evaluating proposals for radioactive materials use. These will be used in addition to the licensing guidance in the NRC's NUREG-1556 series, entitled "Consolidated Guidance About Materials Licenses." In addition, the State of Vermont developed administrative licensing procedures that define the review process for a new license application, amendment, renewal, and license termination. The State of Vermont licensing procedures are similar to NRC procedures.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 15. Human Use. The use of radioactive materials and radiation on or in humans shall not be permitted except by properly qualified persons (normally licensed physicians) possessing prescribed minimum experience in the use of radioisotopes or radiation.**

NRC staff verified that the State has adopted by reference, compatible regulations to the NRC regulations in 10 CFR Part 35, "Medical Use of Byproduct Material;"

therefore, the State's regulations include training and experience requirements for use of radioactive material that are equivalent to the NRC requirements.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

## INSPECTION

- 16. Purpose, Frequency. The possession and use of radioactive materials shall be subject to inspection by the regulatory authority and shall be subject to the performance of tests, as required by the regulatory authority. Inspection and testing is conducted to determine and to assist in obtaining compliance with regulatory requirements. Frequency of inspection shall be related directly to the amount and kind of material and type of operation licensed, and it shall be adequate to insure compliance.**

The NRC staff confirmed that the State of Vermont has statutory authority to conduct inspections of licensees. The authority to enter premises and inspect licensees is provided in the Vermont Statute, 18 VSA § 1654. The NRC staff also verified that the State of Vermont has adopted NRC regulations by reference that contain provisions relating to inspections and tests.

The State of Vermont has adopted the NRC inspection schedule as outlined in the NRC Inspection Manual Chapter 2800. The State of Vermont's staff has developed internal procedures and accompanying forms for the inspection areas which cover scheduling, preparation, performance basis, tracking, and documentation of inspection results. The State has also adopted NRC inspection procedures by reference.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 17. Inspections Compulsory. Licensees shall be under obligation by law to provide access to inspectors.**

The NRC staff review confirmed that the Vermont Statute, 18 VSA § 1654 provides authority for radiation control program inspectors to enter public or private property at all reasonable times for the purpose of investigating conditions related to radiation use.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

**18. Notification of Results of Inspection. Licensees are entitled to be advised of the results of inspections and to notice as to whether or not they are in compliance.**

The NRC staff review determined that the State of Vermont has adopted procedures to convey a copy of the formal inspection report to the licensees, both when violations are found, and when no violations are found. The procedures identify the staff responsible and specify the time limit for preparing the inspection report, the process for management review and approval, and provide instructions for distribution of the report to the licensee and to the State of Vermont's official files.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

## ENFORCEMENT

**19. Enforcement. Possession and use of radioactive materials should be amenable to enforcement through legal sanctions, and the regulatory authority shall be equipped or assisted by law with the necessary powers for prompt enforcement. This may include, as appropriate, administrative remedies looking toward issuance of orders requiring affirmative action or suspension or revocation of the right to possess and use materials, and the impounding of materials; the obtaining of injunctive relief; and the imposing of civil or criminal penalties.**

The NRC staff review confirmed that the State of Vermont is authorized in the Vermont Statutes 18 VSA §§ 1653(b)(1), (b)(7)(B), 1655 (b), and 1656 and the State of Vermont's regulations to use a variety of sanctions and other enforcement tools, including the imposition of administrative penalties, the issuance of orders to suspend, modify or revoke licenses, and any other action deemed appropriate by the Department. The Vermont Agreement State Program may seek civil penalties in accordance with State of Vermont law and regulations.

The State of Vermont has adopted policies and procedures to implement the enforcement authority. The State of Vermont's enforcement procedures are similar to the NRC procedures with regard to the use of escalated enforcement for violations.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

## PERSONNEL

- 20. Qualifications of Regulatory and Inspection Personnel.** The regulatory agency shall be staffed with sufficient trained personnel. Prior evaluation of applications for licenses or authorizations and inspections of licensees must be conducted by persons possessing the training and experience relevant to the type and level of radioactivity in the proposed use to be evaluated and inspected. This requires competency to evaluate various potential radiological hazards associated with the many uses of radioactive material and includes concentrations of radioactive materials in air and water, conditions of shielding, the making of radiation measurements, knowledge of radiation instruments (their selection, use and calibration), laboratory design, contamination control, other general principles and practices of radiation protection, and use of management controls in assuring adherence to safety procedures. In order to evaluate some complex cases, the State regulatory staff may need to be supplemented by consultants of other State agencies with expertise in geology, hydrology, water quality, radiobiology and engineering disciplines.

To perform the functions involved in evaluation and inspection, it is desirable that there be personnel educated and trained in the physical and/or life science, including biology, chemistry, physics and engineering, and that the personnel have had training and experience in radiation protection. For example, the person who will be responsible for the actual performance of evaluation and inspection of all of the various uses of byproduct and source nuclear material which might come to the regulatory body should have substantial training and extensive experience in the field of radiation protection. It is desirable that such a person have a bachelor's degree or equivalent in the physical or life sciences, and specific training - radiation protection.

It is recognized that there will also be persons in the program performing a more limited function in evaluation and inspection. These persons will perform the day-to-day work of the regulatory program and deal with both routine situations as well as some which are out of the ordinary. These people should have a bachelor's degree or equivalent in the physical or life sciences, training in health physics, and approximately two years of actual work experience in the field of radiation protection.

The foregoing are considered desirable qualifications for the staff who will be responsible for the actual performance of evaluation and inspection. In addition, there will probably be trainees associated with the regulatory program who will have an academic background in the physical or life sciences as well as varying amounts of specific training in radiation protection but little or no actual work

**experience in the field. The background and specific training of these persons will indicate to some extent their potential role in the regulatory program. These trainees, of course, could be used initially to evaluate and inspect those applications of radioactive materials which are considered routine or more standardized from the radiation safety standpoint, for example, inspection of industrial gauges, small research programs, and diagnostic medical programs. As they gain experience and competence in the field, the trainees could be used progressively to deal with the more complex or difficult types of radioactive material applications. It is desirable that such trainees have a bachelor's degree or equivalent in the physical or life sciences and specific training in radiation protection. In determining the requirement for academic training of individuals in all of the foregoing categories, proper consideration should be given to equivalent competency which has been gained by appropriate technical and radiation protection experience.**

**It is recognized that radioactive materials and their uses are so varied that the evaluation and inspection functions will require skills and experience in the different disciplines which will not always reside in one person. The regulatory authority should have the composite of such skills either in its employ or at its command, not only for routine functions, but also for emergency cases.**

Based on the review of the organizational charts and position descriptions for the State of Vermont Agreement State training and qualification plan, and the curricula vitae for the current staff members, the NRC staff concludes that the State of Vermont has a staffing plan that provides a sufficient number of adequately trained and qualified technical staff.

**a. Assessment of the Agreement Materials Staffing**

There are 36 NRC specific licensees in the State of Vermont. The Agreement State Program will reside within the Environmental Health Division of the Vermont Department of Health. Within the Environmental Health Division, the staff responsible for the Agreement State Program work in the Radiological Sciences Program. This staff will be responsible for implementing all aspects of the Agreement State program including supervision, licensing, inspection, event response and enforcement.

The Department conducted an analysis of the expected workload to establish an appropriate staffing plan for the 36 specific licenses. The Department determined that 0.8 full time equivalent (FTE) technical staff is adequate for operating the Agreement State Program. This projection is based on data from the NRC, Agreement States, and the Department's own internal information. The Radiological Sciences Program has two staff individuals who will contribute at least 1.25 FTE to the Agreement Program.

The NRC staff concludes that the Department has an adequate number of staff to transition to and meet the anticipated needs of the Agreement State program.

The staff concludes that criterion 20(a) is satisfied.

## **b. Assessment of Staff Qualifications**

The NRC staff review considered the qualifications of the individuals currently on the Department staff that would be involved in the materials program and the procedures for training and qualifying new staff members.

Under the proposed Agreement, the Department's Radiological Sciences Program staff will be responsible for implementing the Agreement State Program. The technical staff devoting the most time to the Agreement State Program are the Senior Radiological Health Specialist and the Radiological and Toxicological Scientist. The Chief of the Radiological Sciences Program will provide the day-to-day supervision. The Senior Radiological Health Specialist has a Bachelor of Science in Radiologic Technology and a Master of Science in Radiologic and Imaging Sciences. This individual has 37 years of experience in radiation protection. At the time of the Agreement, he will have 3 years of experience in all aspects of the Agreement State materials program – establishment and management of the Agreement State Program, development of the licensing and inspection program that ensures compliance to State and Federal regulations. Additionally, he has 15 years' experience as a radiological engineer and 23 years' experience as a radiation therapist.

The other staff member has a Master's degree in Environmental Science with four years in establishing the Agreement State program and 12 years as laboratory manager and analyst.

The technical staff has completed the NRC recommended core training courses for materials inspectors and license reviewers or has received waivers from the Agreement State Program based on prior training and experience. Over the last three years, the technical staff have also accompanied NRC Region I inspectors during inspections at Vermont radioactive materials licensees and received on-the-job training on licensing at the NRC Region I offices.

The NRC staff concludes that the Vermont Agreement State Program technical staff identified by the State of Vermont to work in the Agreement State Program are trained in accordance with the Agreement State Program Formal Qualification Plan, as outlined in Subsection 4.6.3 of the Vermont Agreement Application, and have sufficient knowledge and experience in radiation protection, the use of radioactive materials, the standards for the evaluation of applications for licensing, and techniques of inspecting licensed users of radioactive materials.

The NRC staff concludes that the proposed Agreement State Program has a sufficient number of adequately trained staff to meet program needs.

The staff concludes that criterion 20(b) is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

21. **Conditions Applicable to Special Nuclear Material, Source Material and Tritium. Nothing in the State’s regulatory program shall interfere with the duties imposed on the holder of the materials by the NRC, for example, the duty to report to the NRC, on NRC prescribed forms, (1) transfers of special nuclear material, source material and tritium, and (2) periodic inventory data.**

The NRC staff review did not note any aspects of the State of Vermont’s Agreement State Program that could potentially interfere with duties imposed on a holder of materials by the NRC. In addition, the State of Vermont’s regulations specifically exempt areas of exclusive NRC or other Federal jurisdiction from State of Vermont regulation. The staff is therefore satisfied that the State of Vermont will not interfere with duties imposed on the holder of materials by the NRC.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

22. **Special Nuclear Material Defined. Special nuclear material, in quantities not sufficient to form a critical mass, for present purposes means uranium enriched in the isotope U-235 in quantities not exceeding 350 grams of contained U-235; uranium 233 in quantities not exceeding 200 grams; plutonium in quantities not exceeding 200 grams; or any combination of them in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material. The sum of such ratios for all kinds of special nuclear material in combination should not exceed “1” (i.e., unity). For example, the following quantities in combination would not exceed the limitation and are within the formula, as follows:**

$$175 \text{ (grams contained U-235)/350} + 50 \text{ (grams U-233)/200} + 50 \text{ (grams PU)/200} = 1$$

The NRC staff determined that the State of Vermont adopted NRC regulations by reference with regard to the definition of special nuclear material in quantities not sufficient to form a critical mass in the Vermont Radioactive Materials Rule, Chapter 6, Subchapter 5.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations:

ADMINISTRATION

**23. Fair and Impartial Administration. State practices for assuring the fair and impartial administration of regulatory law, including provision for public participation where appropriate, should be incorporated in procedures for:**

- a. **Formulation of rules of general applicability;**
- b. **Approving or denying applications for licenses or authorization to process and use radioactive materials; and**
- c. **Taking disciplinary actions against licensees.**

The NRC staff review confirmed that the State of Vermont is bound by general statutory provisions in 3 VSA § 840, 18 VSA § 1655, 18 § 1653(b)(7)(B) and 18 VSA § 1652(d) with respect to providing the opportunity for public participation in rulemaking, licensing actions, and disciplinary actions. The general statutory provisions also apply to the protection of personnel radiation exposure records from public disclosure, maintaining the confidentiality of allegers, and administrative and judicial requirements for requesting and holding hearings on enforcement matters.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 3 VSA § 840, 18 VSA § 1652, 1653 and 1655.

**24. State Agency Designation. The State of Vermont should indicate which agency or agencies will have authority for carrying out the program and should provide the NRC with a summary of that legal authority. There should be assurances against duplicate, regulation and licensing by State and local authorities, and it may be desirable that there be a single or central regulatory authority.**

The NRC staff determined that the Vermont Department of Health is designated by Vermont Statutes Title 18 Health, Chapter 32: Ionizing and Nonionizing Radiation Control (cited as 18 VSA §§ 1651-1657) to be the lead agency for carrying out the terms of the proposed Agreement, which will provide assurance against duplicate regulations or licensing by State and local authorities. The staff determined that the State of Vermont regulations specifically exclude any areas in which the jurisdiction of the NRC or another Federal agency is exclusive, and gives sufficient assurance against duplicate regulation between the State of Vermont and the NRC in the regulation of radioactive materials under the Agreement.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and

ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 25. Existing NRC Licenses and Pending Applications. In effecting the discontinuance of jurisdiction, appropriate arrangements will be made by NRC and the State of Vermont to ensure that there will be no interference with or interruption of licensed activities or the processing of license applications by reason of the transfer. For example, one approach might be that the State of Vermont, in assuming jurisdiction, could recognize and continue in effect, for an appropriate period of time under Vermont State Law, existing NRC licenses, including licenses for which timely applications for renewal have been filed, except where good cause warrants the earlier reexamination or termination of the license.**

The NRC staff review confirmed that the Vermont Statute, 18 VSA § 1653(b)(5) and Vermont Radioactive Materials Rule, Chapter 6, Subchapter 5, Section 12.1, provides for the recognition of existing NRC and Agreement State licenses. In addition, 18 VSA § 1653(b)(2)(B) provides for reciprocity in the recognition of specific licenses issued by the NRC or another state that has reached agreement with the NRC pursuant to 42 U.S.C. § 2021(b) (agreement state). Section 4.3.1. “Procedures for the Technical Evaluation of Proposed Uses of Radioactive Materials” of the State’s application provides a process for recognition of other Agreement State licenses.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA § 1653 through 1657. Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 26. Relations with Federal Government and Other States. There should be an interchange of Federal and State information and assistance in connection with the issuance of regulations and licenses or authorizations, inspection of licensees, reporting of incidents and violations, and training and education problems.**

The NRC staff review verified the proposed Agreement commits the State of Vermont to cooperate with the NRC and the other Agreement States in the formulation of standards and regulatory programs to ensure health and safety of the public against hazards of radiation and to assure that the State of Vermont will continue to be compatible with the NRC’s program for the regulation of agreement materials.

The Commission has determined that providing reports to the NRC of Agreement State licensee incidents, accidents and other significant events is a matter of compatibility. The State of Vermont has adopted procedures to provide such reports to the NRC.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

**27. Coverage, Amendments, Reciprocity. An amendment providing for discontinuance of NRC regulatory authority and the assumption of regulatory authority by the State may relate to any one or more of the following categories of materials within the State, as contemplated by State of Vermont Statute 18 VSA § 125, State of Board of Health:**

- a. **Byproduct material as defined in Section 11e.(1) of the Act,**
- b. **Byproduct material as defined in Section 11e.(3) of the Act,**
- c. **Byproduct material as defined in Section 11e.(4) of the Act,**
- d. **Source material, and**
- e. **Special nuclear material in quantities not sufficient to form a critical mass;**

**but must relate to the whole of such category or categories and not to a part of any category. If less than the five categories are included in any discontinuance of jurisdiction, discontinuance of NRC regulatory authority and the assumption of regulatory authority by the State of the others may be accomplished subsequently by an amendment or by a later Agreement. Arrangements should be made for the reciprocal recognition of State licenses and NRC licenses in connection with out-of-jurisdiction operations by a State or NRC licensee.**

The NRC staff verified the proposed Agreement provides for the Commission to relinquish, and the State of Vermont to assume, regulatory authority over the types of material defined in categories a, b, c, d, and e above.

Since this criterion was adopted, the Commission has determined that the Agreement States may assume the authority to evaluate the safety of sealed sources and devices to be distributed in interstate commerce as a separate portion of the Agreement, or to allow NRC to retain that authority. The State of Vermont has chosen not to assume that authority.

The proposed Agreement stipulates the reciprocal recognition of the NRC and other Agreement State licenses, and commits the Commission and the State of Vermont to cooperate and accord such reciprocity. The State of Vermont would be able to recognize the licenses of other jurisdictions by order or specific license.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

- 28. NRC and Department of Energy Contractors. The State should provide exemptions for NRC and Department of Energy contractors which are substantially equivalent to the following exemptions:**
- a. Prime contractors performing work for the Department of Energy at U.S. Government-owned or controlled site;**
  - b. Prime contractors performing research in, or development, manufacture, storage, testing, or transportation of, atomic weapons or components thereof;**
  - c. Prime contractors using or operating nuclear reactors or other nuclear devices in a U.S. Government-owned vehicle or vessel; and**
  - d. Any other prime contractor or subcontractor of Department of Energy or NRC when the State and the NRC jointly determine (i) that, under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to the public health and safety; and (ii) that the exemption of such contractor or subcontractor is authorized by law.**

The NRC staff has verified that the State of Vermont has adopted compatible regulations to the NRC regulations in 10 CFR Parts 30, 40, and 70, including 30.12, 40.11, and 70.11, wherein the specified exemptions are contained. The NRC staff concludes that the State of Vermont regulations do provide for exemptions from the State of Vermont's requirements for licensing of sources of radiation for the NRC and Department of Energy contractors or subcontractors in accordance with the criterion.

The staff concludes that this criterion is satisfied.

References: Letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, request for an Agreement, Section on Statutory Authority and Program Organization, and additional related correspondence between the NRC and the State (ADAMS Accession Nos.: ML19116A227; ML19107A432; ML19114A092; ML19102A130, and ML19113A279). State Statutes: 18 VSA §§ 1651 through 1657. State Regulations: Vermont Radioactive Materials Rule – Chapter 6, Subchapter 5.

## STAFF CONCLUSION

The NRC staff has reviewed the proposed Agreement, the certification by the State of Vermont in the application for an Agreement in letter dated April 11, 2019, from Governor Scott to Chairman Svinicki, and the supporting information provided by the staff of the Vermont Department of Health.

Section 274d. of the Atomic Energy Act of 1954, as amended, provides that the Commission shall enter into an Agreement under Section 274b. with any State if:

- (a) The Governor of the State certifies that the State has a program for the control of radiation hazards adequate to protect public health and safety with respect to the agreement materials within the State, and that the State desires to assume regulatory responsibility for the agreement materials; and
- (b) The Commission finds that the State program is in accordance with the requirements of Section 274o. and in all other respects compatible with the NRC's program for the regulation of materials, and that the State program is adequate to protect public health and safety with respect to the materials covered by the proposed Agreement.

The staff concludes that:

On the basis of this Assessment, the State of Vermont meets the requirements of the Act. However, it should be noted that NRC staff identified a few sections of the final Vermont Radioactive Materials Regulations that were either not compatible or needed additional editorial changes. By letter dated May 10, 2019, the NRC staff described these compatibility and editorial issues, and requested that the Vermont Department of Health commit within 60 days to make the described regulatory changes as soon as practicable. The resolution of these comments does not interfere with NRC staff's processing of Vermont's Agreement State Application. Therefore, on the proposed effective date of the Agreement, the State of Vermont will have committed to adopting an adequate and compatible set of radiation protection regulations that apply to byproduct, source, and special nuclear materials in quantities not sufficient to form a critical mass. The Agreement State Program, as defined by the State statutes, regulations, personnel, licensing, inspection, and administrative procedures, is compatible with the NRC's program adequate to protect public health and safety with respect to the radioactive materials covered by the requested Agreement.