

4.6.1 Organization

As described in Section 4.1.2, the Radioactive Materials Program will reside within the Environmental Health Division of the Vermont Department of Health. The staff responsible for the Agreement State Program work in the Radiological Sciences Program which is shown in the organization chart for the Environmental Health Division below. The staff devoting the most time to the Radioactive Materials Program are the Radiological Sciences Chief, the Senior Radiological Health Specialist, and the Radiological and Toxicological Scientist. The Program will also have support from the Division Business Administrator, the Environmental Health Information Director, the Environmental Compliance & Enforcement Advisor and additional legal support from the Office of the Attorney General. For emergency preparedness, the Radiological & Toxicological Analyst and State Radiological & Toxicological Risk Assessor support prevention, response and recovery efforts.

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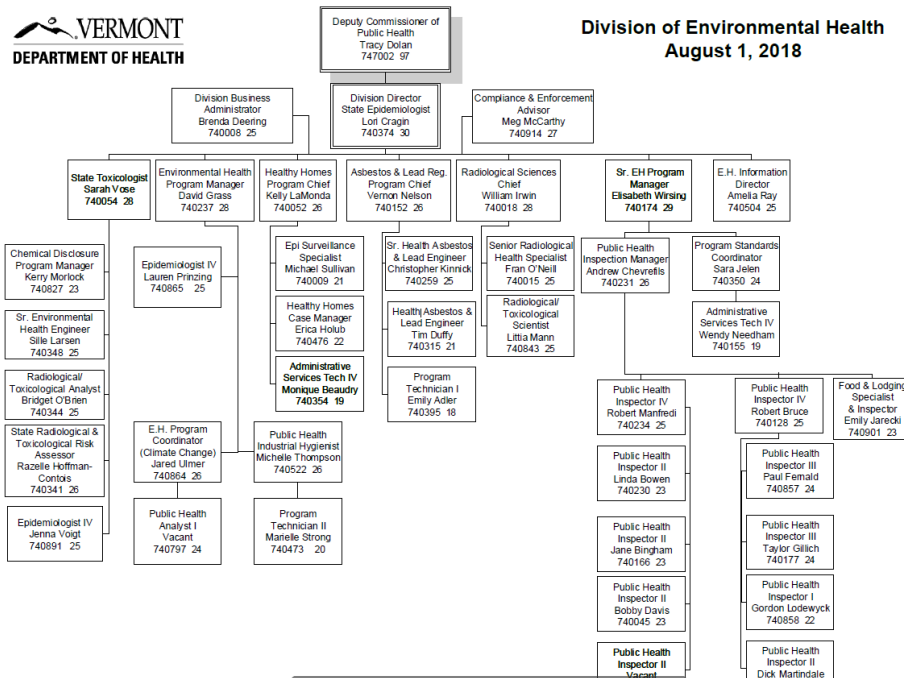


Figure 7: Division of Environmental Health

The primary document describing the qualifications and training of radioactive Materials Program staff is RMPP 5.1 *Qualifications and Training*. In this procedure, various roles are described. The Radiological Sciences Chief serves the role of Radiation Control Program Director, who manages the training and qualification program. The Director joins the Senior Radiological Health Specialist and the Radiological and Toxicological Scientist to make up the Radioactive Materials Program. These staff will become qualified Inspectors and License Reviewers following the guidance of RMPP 5.1. *Qualification and Training* and are tracked in RMPP 5.1 Attachment 5.1-1 *Radiological Health Specialist Qualification Journal*. The RMPP and Qualification Journal are below.

Staff Needs Analysis

An analysis was performed using the forms from the Handbook for Processing an Agreement. The first form is the Staff Needs Analysis Table 3. The values in the table are based on the types and numbers of licensees at the time of this application. The second form is the Staff Resource Analysis, Table 4. This indicates the time in days available for each of the three individuals who may conduct inspections and license review activities. The final form, Table 5, shows the difference between the amount of staff time needed and available. It indicates that for the radioactive material licensees in Vermont, there is more than a sufficient amount of staff time available. Each of the categories of inspections in the tables include security inspections.

To estimate the time necessary to complete licensing and inspection activities, a review of all Vermont license activity over the prior ten years was conducted. Currently there are thirty-three specific radioactive materials licenses in the state of Vermont; twelve medical; twelve for measuring the properties of materials (portable gauges), four academic broad scope, two service providers, one nuclear pharmacy, one veterinary hospital, and one public health laboratory. The time allotted for individual licensing actions is based on an assumption that a typical licensing effort will encompass sixteen hours to complete, including email, telephone, and letter correspondence between the Radioactive Materials Program staff member and the applicant/licensee. This estimate includes program management and administrative functions.

Inspection program estimates also include time for inspection preparation, travel, inspection report generation and supervisory accompaniments. The VDH Radioactive Materials Program Staff will follow the NRC's materials program inspection frequencies as indicated in Enclosure 1 of NRC Inspection Manual 2800. This enclosure is used to describe the inspection priority codes assigned to program codes in the Vermont Radioactive Materials Program in RMPP 1.1 *Review of an Initial Application for a License or an Amendment Request* Attachment 1.1-6.

Based on conservative assumptions, Vermont's licensing and inspection activities will require 68 staff days for inspection and 177 staff days for licensing each year (the totals in the fifth and eighth columns in Table 3). Mr. Fran O'Neill can devote a minimum of 78 days to inspection and 128 days per year to licensing, while Ms. Littia Mann can devote 21 days to inspections and 25 days per year to licensing activities. Dr. Bill Irwin can devote 11 days to inspection activities and 24 days per year to licensing activities. The total days per year for inspection and licensing from the Radioactive Materials Program staff comes to 110 for inspections and 177 for licensing.

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These allocations of time are considered reasonable. Allowing for weekends, holidays, and vacations, there are 240 work days per year. Mr. O'Neill will be 100 percent devoted to the Radioactive Materials Program, while Ms. Mann and Dr. Irwin are each 25 percent devoted to it. Using these percentages of a 240 work-day year, the three may provide as many as 360 work days to a program requiring 192 work days. These calculations are estimates, but indicate a sufficient margin exists with the Vermont staffing levels.

A guide for the suggested number of technical staff members is also provided in the Handbook for Processing an Agreement: "Agreement States typically employ 1 to 1.5 technical staff members per 100 active licenses." The number of licenses varies from year-to-year, especially with reciprocity, but has historically numbered less than 50. The Vermont Radioactive Materials Program with three staff members qualifying as Inspectors and License Reviewers meets this guidance. The Handbook also states that "the staff must consist of at least two technical staff." The Vermont Department of Health will always strive to maintain at least two qualified inspectors and license reviews but is currently working to have three.

Table 3
Staff Needs Analysis

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License Category	No. of Licenses	Licensing actions/yr	Staff days/action	Licensing staff days	Inspections per year	Staff days/inspection	Inspection staff days
Academic Broad Scope	4	10	2	20	1	5	5
Nuclear Med Imaging and diagnostic	10	30	2	60	2	5	10
Nuclear Med – therapy	2	3	2	6	1	5	5
Bone Mineral	0	0	0	0	0	0	0
Brachytherapy	1	2	2	4	1	5	5
Teletherapy	0	0	0	0	0	0	0
Medical – Broad Scope	1	2	2	4	1	5	5
Nuclear Pharmacy	1	4	2	8	1	5	5
Fixed Gauge	7	2	1	2	1	3	3
Portable Gauge (+ reciprocity)	12	4	2	8	2	5	10
Industrial-other includes service providers	1	2	2	4	1	5	5
Broad Scope Industrial	0	0	0	0	0	0	0
Industrial Radiography (reciprocity)	0	8	1	8	3	5	15
Well Logging	0	0	0	0	0	0	0
LLRW broker	0	0	0	0	0	0	0
TOTAL				124			68

Table 4
Staff Resource Analysis (in Days)

Staff Member	O'Neill		Mann		Irwin		Total	
License Category	Insp	Lic	Insp	Lic	Insp	Lic	Insp	Lic
Academic Broad Scope	6	20	2	2	1	2	9	24
Nuclear Med – Imaging and Diagnostic	12	50	2	10	1	10	15	70
Nuclear Med - therapy	6	10	2	2	1	2	9	14
Bone Mineral	0	0	0	0	0	0	0	0
Brachytherapy	6	5	2	2	1	1	9	8
Teletherapy	0	0	0	0	0	0	0	0
Medical - Broad Scope	6	5	2	1	1	1	9	7
Nuclear Pharmacy	6	10	2	2	1	2	9	14
Fixed Gauge	3	2	1	1	1	1	5	4
Portable Gauge	12	10	2	2	1	2	15	14
Industrial – other includes service providers	6	6	2	1	1	1	9	8
Broad Scope Industrial	0	0	0	0	0	0	0	0
Industrial Radiography	15	10	4	2	2	2	21	14
LLRW Broker	0	0	0	0	0	0	0	0
Well Logging	0	0	0	0	0	0	0	0
Total	78	128	21	25	11	24	110	177

Table 5
Staff Balance Analysis

License Category	Inspection staff days		Licensing staff days	
	Needed	Available	Needed	Available
Academic Broad Scope	5	9	20	24
Nuclear Med – Imaging and Diagnostic	10	15	60	70
Nuclear Med - Therapy	5	9	6	14
Bone Mineral Analysis	0	0	0	0
Brachytherapy	5	9	4	8
Teletherapy	0	0	0	0
Medical - Broad Scope	5	9	4	7
Nuclear Pharmacy	5	9	8	14
Fixed Gauge	3	5	2	4
Portable Gauge	10	15	8	14
Industrial – other; includes irradiators	5	9	4	8
Broad Scope Industrial	0	0	0	0
Industrial Radiography	15	21	8	14
Well Logging	0	0	0	0
LLRW broker	0	0	0	0
Total	68	110	124	177

4.6.2 *Qualification Program*

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4.6.2 Qualification Program

The qualification program is described in RMPP 5.1. Individual accomplishment of the qualification process is documented in that person's Qualification Journal. In general, individuals are trained to conduct inspections and to do license review activities through training classes and on-the-job training. Individuals maintain proficiency through on-going training that enhances licensing and inspection professional abilities. These are described in the RMPP in Section 4.6.1 of this application. Individual completion of the qualification components are documented in that person's Qualification Journal. This, too, is in Section 4.6.1 of this application.

The processes described in RMPP 5.1 are for future staff. The qualifications of current technical staff are described in Section 4.6.3 of this application. The Vermont Radioactive Materials Program will be an on-going concern, so planning for staff replacement is essential. The Radiation Control Program Director will take all steps available to plan for his succession and the succession of all other staff within the Agreement State Program. One element of this is technical training and qualification of other Radiological and Toxicological Sciences Program staff. This will be undertaken after the three current staff members assigned to the Radioactive Materials Program are fully qualified.

Vermont is a statutory member of the New England Radiological Health Conference which maintains the New England Compact on Radiological Health Protection. By statute in each of the six States in the Compact, assistance is to be provided when a Compact State requests it. Assistance from a Compact State can be, and has been in the past, provided to augment a requesting Compact State's staff when there is a temporary vacancy. This could be used by Vermont should such a vacancy occur and strain Vermont's radioactive materials program licensing and inspection work completion capabilities. A copy of the Compact is found in Appendix H. The enabling legislation in Vermont, which is identical to that in the other five New England States, is statutory and found in 18 VSA §§ 1601 – 1622, New England Compact on Radiological Health Protection. This is attached as Appendix K.

4.6.3 *Current Staff Qualification Program*

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4.6.3 Current Staff Qualification Program

With the formal establishment of the Agreement State Program, qualification of the current staff will be established in a manner based on RMPP 5.1 but modified to account for the fact that Radioactive Materials Program work may begin soon, even immediately, after the Agreement is established. In particular, the Senior Radiological Health Specialist and the Radiological and Toxicological Scientist will be deemed fully qualified as documented in writing by the Radiation Control Program Director. This qualification is substantiated by significant evidence which includes their completion of all of the core training courses identified in RMPP 5.1, their accompaniment of NRC inspectors on inspections of most of Vermont's licensees, and their spending one to two weeks studying NRC staff license review activities conducted at the NRC Region 1 King of Prussia, Pennsylvania office.

The Senior Radiological Health Specialist, Fran O'Neill, will serve the Radioactive Materials Program as its Manager. Littia Mann is our Radiological and Toxicological Scientist. Both will be documented fully qualified at the time of the Agreement taking effect. This is documented in a letter from the Radiation Control Program Director in Appendix M. Both have documentation for their training and experience in their individual Qualification Journals. These Qualification Journals are also in Appendix M. Vermont is planning for Mr. O'Neill and Ms. Mann to accompany the NRC on their inspections of Vermont licensees many times before completion of the Agreement. Like Mr. O'Neill, Littia will also spend at least one week studying license review work by the NRC at Region 1 before completion of the Agreement.

Dr. William Irwin, the Radiation Control Program Director, will not be required to, but is planning to, become fully qualified as an inspector and license reviewer. He has extensive work experience and training in radiation protection and licensed radioactive materials activities. He has also completed some of the NRC Agreement State training core courses. A table of course completion is below. Ms. Mann, a chemist by experience and advanced training completed the Fundamental Health Physics and Advanced Health Physics courses as she had only limited prior training in health physics. Mr. O'Neill and Dr. Irwin are exempt from both health physics courses on the basis of their extensive health physics experience and previous advanced health physics training. Mr. O'Neill took Safety Aspects of Well Logging in case a license is sought in Vermont for such, though none exist at this time. Other staff may take this course as specialized training in the future. Specialized training will be used by all as refresher training, and to be prepared for other and new license types in Vermont.

Table 6
Current Staff Training Course Completion

Radioactive Materials Program Core Training Courses	Req'd For Licensing	Req'd For Inspection	License Reviewer/Inspector		
			Irwin	Mann	O'Neill
G-109: Licensing Practices & Procedures	Yes			3/13/2017	4/11/2016
H-304: Diagnostic & Therapeutic Medicine	Yes	Yes		5/23/2016	8/1/2016
H-305: Safety Aspects of Industrial Radiography	Yes	Yes		11/2/2015	10/17/2016
H-308: Transportation of Radioactive Materials	Yes	Yes		11/16/2015	7/11/2016
H-313: Brachytherapy, Gamma Knife & Emerging Technologies	Yes	Yes		3/14/2016	5/16/2016
S-201: NRC Materials Control & Security Systems & Principles	Yes	Yes	8/15/2016	8/14/2017	5/23/2016
H-201: Advanced Health Physics	Yes	Yes	Exempt	8/8/2016	Exempt
G-108: Inspection Procedures		Yes		10/24/2016	3/7/2016
G-205: Root Cause/Incident Investigation Workshop		Yes	4/25/2016	2/29/2016	4/25/2016
H-122: Fundamental Health Physics (Blended 8 weeks)			Exempt	4/25/2016	Exempt
Specialized and Enhancement Training Courses					
H-312: Internal Dosimetry					
H-500 Visual Sampling Plan					
H-117: Introductory Health Physics			Exempt	Exempt	Exempt
H-121: MARSSIM					
H-410: RESRAD Training Workshop					
H-119: Air Sampling for Radioactive Materials					
H-111: Environmental Monitoring					
H-413: MILDOS-Area Training Workshop					
H-120: MARSAME					
H-123: Intermediate Health Physics			Exempt	6/27/2016	Exempt
H-411 RESRAD Offsite			-		
H-115: Characterization & Planning for Decommissioning			-		
H-412: Advanced RESRAD Training Workshop					
H-314: Safety Aspects of Well Logging			N/A	N/A	9/19/2016
F-104: Health Physics for Uranium Recovery					
H-315: Irradiator Technology					