

INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM  
QUESTIONNAIRE

**Massachusetts Agreement State Program**  
**Reporting Period: August 2, 2014 to June 15, 2018**

**AS OF MAY 11, 2018**

Note: If there has been no change in the response to a specific question since the last IMPEP questionnaire, the State or Region may copy the previous answer, if appropriate.

**A. GENERAL**

1. Please prepare a summary of the status of the State's or Region's actions taken in response to each of the open recommendations from previous IMPEP reviews.

Recommendation: The review team recommends that the Commonwealth strengthen its incident response program and take measures to ensure that the Program's evaluation of events is thorough, complete, properly documented to facilitate future follow-up, and undergoes appropriate management review prior to closeout.

Status: The Program uses a wipe board to track receipt of incidents that are assigned to a reviewer and then entered into the Program's Materials Database. This provides an easily accessible method to determine the status of each event. Major events have a specific procedure that is used to ensure follow up actions are appropriate for the type and scope of each event including performance of onsite inspections. All events are reviewed at biweekly meetings and an incident/event evaluation report for each event is completed by the reviewer and reviewed by a Supervisor and the Program Director. The reviewer assigned to an event will work with a Supervisor to ensure follow up actions are complete, thorough, and properly documented. Challenge boards are used when appropriate. The Program Director continues to review the event documentation and event closeout quality checklist for each event to ensure completeness.

**COMMON PERFORMANCE INDICATORS**

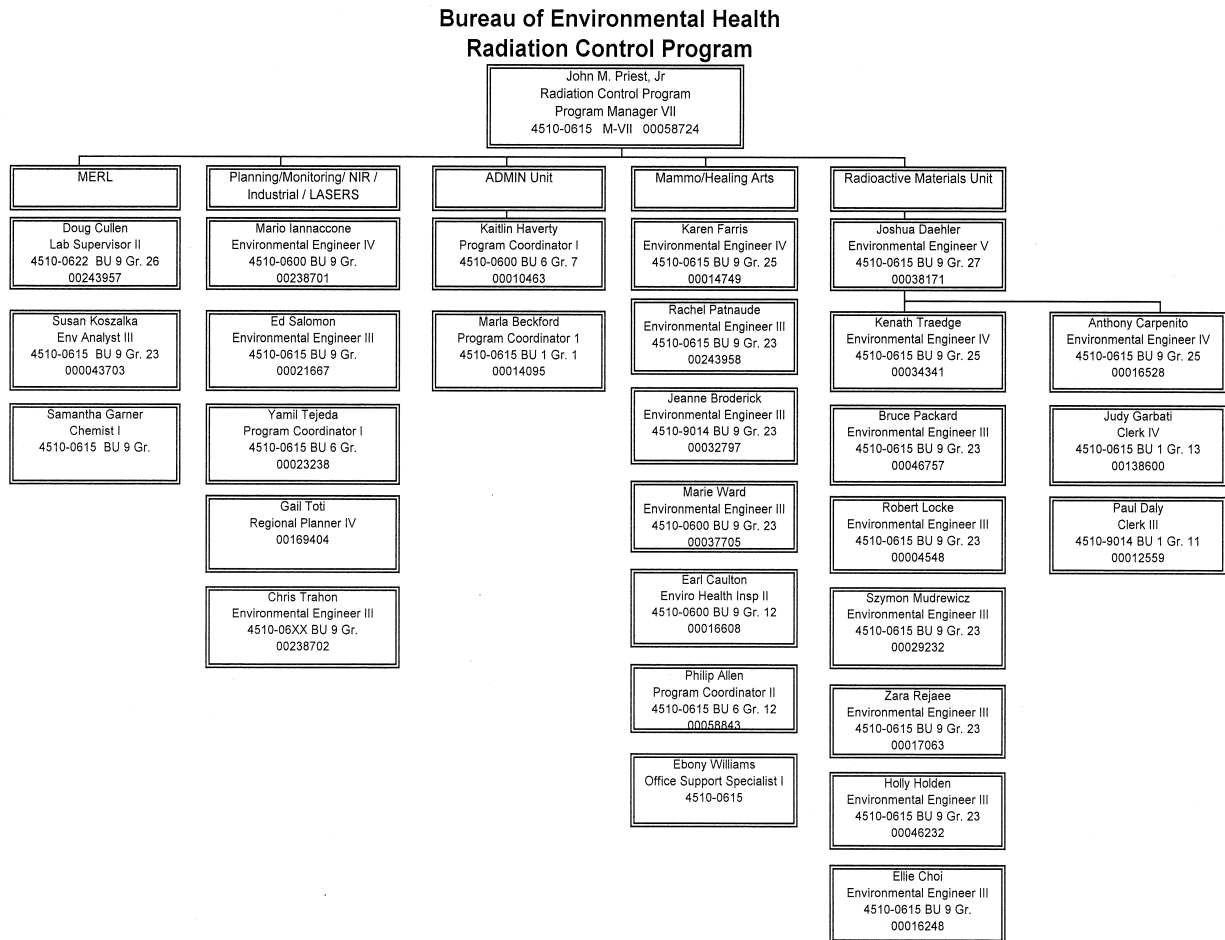
- I. Technical Staffing and Training
  2. Please provide the following organization charts, including names and positions:
    - (a) A chart showing positions from the Governor down to the Radiation Control Program Director;

Governor ► Secretary, Executive Office of Health and Human Services ► Commissioner, Department of Public Health ► Bureau Director, Bureau of Environmental Health (BEH) ► Deputy Director, Regulatory, BEH (Vacant) ► Director, Radiation Control Program

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<sup>1</sup>Estimated burden per response to comply with this voluntary collection request: 53 hours. Forward comments regarding burden estimate to the Records Management Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0183), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

- (b) A chart showing positions of the radiation control program, including management; and



- (c) Equivalent charts for sealed source and device evaluation, low-level radioactive waste and uranium recovery programs, if applicable.

Sealed source and device evaluations are performed by Bob Locke, Szymon Mudrewicz, Kenath Traegde, and Joshua Daehler, their positions shown in the chart of the Radiation Control Program. Low-level radioactive waste fee and survey collection activities are performed by Yamil Tejeda, her position shown in the chart of the Radiation Control Program. Uranium recovery is not applicable.

3. Please provide a staffing plan, or complete a listing using the suggested format below, of the professional (technical) full-time equivalents (FTE) applied to the radioactive materials program by individual. Include the name, position, and, for Agreement States, the fraction of time spent in the following areas: administration, materials licensing & compliance, emergency response, low-level radioactive waste, uranium recovery, other. If these regulatory responsibilities are divided between offices, the table should be consolidated to include all personnel contributing to the radioactive materials program. If consultants were used to carry out the program's radioactive materials responsibilities, include their efforts. The table heading should be:

<u>Name</u>	<u>Position</u>	<u>Area of Effort</u>	<u>FTE%</u>
John (Jack) M. Priest, Jr.	Director	Administration Emergency response	45 5
Joshua Daehler	Radioactive Materials Unit Supervisor	Administration Materials licensing & compliance Emergency response Other (SS&D) Other (Regulations)	25 40 5 15 15
Kenath Traegde	Licensing Supervisor	Materials licensing & compliance Emergency response Other (SS&D)	70 5 25
Anthony (Tony) Carpenito	Inspection Supervisor (Promotion effective June 16, 2014)	Materials licensing & compliance Emergency response	95 5
Zara Rejaee	Radiation Control Officer	Materials licensing & compliance Emergency response	95 5
Holly Holden	Radiation Control Officer	Materials licensing & compliance Emergency response	95 5
Bruce Packard	Radiation Control Officer	Materials licensing & compliance Emergency response	95 5
Ellie Choi	Radiation Control Officer	Materials licensing & compliance Emergency response	95 5
Ed Salomon	Emergency Planner	Materials licensing & compliance Emergency response	5 5
Robert (Bob) Locke	Radiation Control Officer	Materials licensing & compliance Emergency response Other (SS&D)	60 5 35
Szymon Mudrewicz	Radiation Control Officer	Materials licensing & compliance Emergency response Other (SS&D)	60 5 35
Mario Iannaccone	Planning / Monitoring / NIR / Industrial / Lasers Unit Supervisor	Materials licensing & compliance Emergency response	5 5
Yamil Tejeda	Program Coordinator	Other (Billing, Low- Level Radioactive Waste and Clerical)	80
Kaitlin Haverty	Accountant	Other (Billing)	50
Judy Garbati	Clerk	Other (Clerical)	100
Paul Daly	Clerk	Other (Clerical)	50

4. Please provide a listing of all new professional personnel hired into your radioactive materials program since the last review, indicate the date of hire; the degree(s) they received, if applicable; additional training; and years of experience in health physics or other disciplines, as appropriate.

<u>Name</u>	<u>Date of Hire</u>	<u>Degree(s)</u>	<u>Additional Training</u>	<u>Years of Experience in</u>

				<b>Health Physics</b>
Bob Locke	September 2, 2014	B.S. in Chemical Engineering	Extensive, see below	7
Szymon Mudrewicz	January 4, 2015	M.S. in Chemical Engineering	Extensive, see below	3
Holly Holden	February 1, 2016	A.S. in Diagnostic Medical Imaging. R.T. License in Nuclear Medicine	Extensive, see below	9
Zara Rejaee	March 7, 2016	M.S. in Radiological Science and Protection	Extensive, see below	12
Ellie Choi	March 13, 2017	M.S. in Radiological Science and Protection	Extensive, see below	2

Bob Locke's additional training includes Fundamental Health Physics (H-122); Intermediate Health Physics (H-123); Brachytherapy & Gamma Knife (H-313); Nuclear Medicine (H-304); Transportation of Radioactive Materials Course (H-308); Materials Control & Security Systems & Principles (S-201); Inspection Procedures (G-108); Licensing Procedures (G-109); Industrial Radiography (H-305); Sealed Source and Device Workshop (G-116); Advanced Health Physics (H-201); Root Cause Workshop (G-205); and on-the-job training.

Szymon Mudrewicz's additional training includes Fundamental Health Physics (H-122); Intermediate Health Physics (H-123); Brachytherapy & Gamma Knife (H-313); Nuclear Medicine (H-304); Transportation of Radioactive Materials Course (H-308); Materials Control & Security Systems & Principles (S-201); Inspection Procedures (G-108); Licensing Procedures (G-109); Industrial Radiography (H-305); Sealed Source and Device Workshop (G-116); Root Cause Workshop (G-205); Environmental Monitoring (H-111); Air Sampling for Radioactive Materials (H-119); and on-the-job training.

Holly Holden's additional training includes Fundamental Health Physics with Intermediate Health Physics with Lab Activities (H-122 new multi-month format); Brachytherapy & Gamma Knife (H-313); Nuclear Medicine (H-304); Transportation of Radioactive Materials Course (H-308); Materials Control & Security Systems & Principles (S-201); Inspection Procedures (G-108); Licensing Procedures (G-109); Industrial Radiography (H-305); Root Cause Workshop (G-205); and on-the-job training.

Zara Rejaee's additional training includes Brachytherapy & Gamma Knife (H-313); Nuclear Medicine (H-304); Transportation of Radioactive Materials Course (H-308); Materials Control & Security Systems & Principles (S-201); Inspection Procedures (G-108); Licensing Procedures (G-109); Industrial Radiography (H-305); Root Cause Workshop (G-205); MARSSIM (H-121); and on-the-job training.

Ellie Choi's additional training includes Brachytherapy & Gamma Knife (H-313); Nuclear Medicine (H-304); Transportation of Radioactive Materials Course (H-308); Materials Control & Security Systems & Principles (S-201); Inspection Procedures (G-108); Licensing Procedures (G-109); Root Cause Workshop (G-205); MARSSIM (H-121); Air Sampling for Radioactive Materials (H-119); and on-the-job training.

5. Please list all professional staff who have not yet met the qualification requirements for a radioactive materials license reviewer or inspector. For each, list the courses or equivalent training/experience they need and a tentative schedule for completion of these requirements.

Ellie Choi; Courses or equivalent training/experience needed include Industrial Radiography (H-305) and additional on-the-job training. Tentative schedule for completion of these requirements is October 2018.

6. Identify any changes to your qualification and training procedure that occurred during the

review period.

A new Inspector Preparation and Qualification Tracking Form was developed and implemented for qualifying inspectors that perform security inspections (Upon 105 CMR 120.050 through 120.080 requirements that are equivalent to 10 CFR Part 37).

7. Please identify the technical staff that left your radioactive materials program during the review period and indicate the date they left.

Doug Cullen, Radiation Control Officer; Promoted to MERL (Massachusetts Environmental Radiation Laboratory) Unit Supervisor in July of 2015. Doug had provided 1.0 FTE to our Radioactive Materials Unit.

Michael Whalen, Jr., Planning / Monitoring / NIR / Industrial / Lasers Unit Supervisor; Resigned on June 30, 2015. Michael had provided 0.2 FTE to our Radioactive Materials Unit.

John Sumares, Radiation Control Officer; Retired in June of 2015. John had provided 1.0 FTE to our Radioactive Materials Unit before retirement. After retirement, John provided 0.4 FTE under contract to our Radioactive Materials Unit until September 28, 2017.

8. List any vacant positions in your radioactive materials program, the length of time each position has been vacant, and a brief summary of efforts to fill the vacancy.

There are no vacant positions.

9. For Agreement States, does your program have an oversight board or committee which provides direction to the program and is composed of licensees and/or members of the public? If so, please describe the procedures used to avoid any potential conflict of interest.

No.

## II. Status of Materials Inspection Program

8. Please identify individual licensees or categories of licensees the State is inspecting less frequently than called for in NRC's Inspection Manual Chapter (IMC) 2800 and explain the reason for the difference. The list only needs to include the following information: license category or licensee name and license number, your inspection interval, and rationale for the difference.

None are inspected less frequently.

8. Please provide the number of routine inspections of Priority 1, 2, and 3 licensees, as defined in IMC 2800 and the number of initial inspections that were completed during each year of the review period.

2014 beginning August 2, 2014: 12 routine Priority 1, 2, and 3; 10 initial.

2015: 45 routine Priority 1, 2, and 3; and 14 initial.

2016: 31 routine Priority 1, 2, and 3; and 8 initial.

2017: 49 routine Priority 1, 2, and 3; and 12 initial.

2018: 14 routine Priority 1, 2, and 3; and 4 initial.

12. Please submit a table, or a computer printout, that identifies inspections of Priority 1, 2, and 3 licensees and initial inspections that were conducted overdue.

At a minimum, the list should include the following information for each inspection that was conducted overdue during the review period:

(1) Licensee Name

- (2) License Number
- (3) Priority (IMC 2800)
- (4) Last inspection date or license issuance date, if initial inspection
- (5) Date Due
- (6) Date Performed
- (7) Amount of Time Overdue
- (8) Date inspection findings issued

None were conducted overdue.

13. Please submit a table or computer printout that identifies any Priority 1, 2, and 3 licensees-and initial inspections that are currently overdue, per IMC 2800. At a minimum, the list should include the same information for each overdue inspection provided for Question 12 plus your action plan for completing the inspection. Also include your plan for completing the overdue inspections.

There are currently no overdue inspections for Priority 1, 2, and 3 licensees and also no overdue initial inspections.

14. Please provide the number of reciprocity licensees that were candidates for inspection per year as described in IMC 1220 and indicate the number of reciprocity inspections of candidate licensees that were completed each year during the review period.

<u>Year</u>	<u>Candidates</u>	<u>Candidates Inspected</u>
2014	14	4
2015	13	5
2016	13	7
2017	16	6
2018	8	1

### III. Technical Quality of Inspections

15. What, if any, changes were made to your written inspection procedures during the reporting period?

Inspection Procedure 37INS was issued. The objective made part of this new procedure is to verify that licensees are effectively implementing the requirements promulgated by 105 CMR 120.050 through 120.080, "Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material" that are equivalent to 10 CFR Part 37.

Inspection related forms were updated from WordPerfect to Word format that incorporates Developer content controls such as pull down menus and check boxes.

16. Prepare a table showing the number and types of supervisory accompaniments made during the review period. Include:

<u>Inspector</u>	<u>Supervisor</u>	<u>License Category</u>	<u>Date</u>
D.C.	J.D.	02121	3/24/2014
J.S.	J.D.	03211; Special	9/16/2014
B.P.	J.D.	02310; and Security	9/26, 9/30 and 11/10; 2014
M.I.	J.D.	02120	10/2/2014
D.C.	J.D.	03121	10/3/2014
A.C.	J.D.	03510; Security only	10/24/2014

M.W.	J.D.	02230	11/14/2014
A.C.	J.D.	02230	1/14 and 1/15; 2015
B.P.	J.D.	03121	3/6, 3/10 and 3/20; 2015
E.S.	J.D.	03121	3/19/2015
J.S.	J.D.	02120	4/14/2015
M.I.	J.D.	03510; Security only	6/9/2015
E.S.	J.D.	03121	6/10/2015
D.C.	J.D.	03121	7/20/2015
B.L.	J.D.	03121	10/15 and 10/22; 2015
A.C.	J.D.	03620	11/6/2015
B.P.	J.D.	02120	3/3 and 3/15; 2016
J.S.	J.D.	03211 and Security	4/12 and 4/13; 2016
A.C.	J.D.	03211 and Security	4/12 and 4/13; 2016
S.M.	J.D.	03121	7/21/2016
A.C.	J.D.	03320 and Security	8/22 and 8/23; 2016
M.I.	J.D.	03320 and Security	8/22 and 8/23; 2016
B.L.	J.D.	03620	11/8/2016
B.L.	J.D.	02120	12/14/2016
H.H.	J.D.	02201	3/27 and 4/11; 2017
E.S.	J.D.	03611	8/2/2017
S.M.	J.D.	03320 and Security	8/15 and 8/16; 2017
A.C.	J.D.	03320 and Security	8/15 and 8/16; 2017
M.I.	J.D.	03121	9/8/2017
B.L.	J.D.	03521 and Security	10/31 and 11/1; 2017
A.C.	J.D.	03521 and Security	10/31 and 11/1; 2017
B.P.	J.D.	02400	11/15, 12/5 and 12/15; 2017
Z.R.	J.D.	02400	11/15/2017
Z.R.	J.D.	03620	2/8/2018

17. Describe or provide an update on your instrumentation, methods of calibration, and laboratory capabilities. Are all instruments properly calibrated at the present time? Were there sufficient calibrated instruments available throughout the review period?

Typical instrumentation available to the Program is identified in the following table:

COMMONWEALTH OF MASSACHUSETTS - DEPARTMENT OF PUBLIC HEALTH													
RADIATION CONTROL PROGRAM													
TABLE B-2													
OPERABLE IONIZING RADIATION DETECTION and/or MEASUREMENT EQUIPMENT & LOCATION - June, 2017													
QTY	TYPE	DESCRIPTION	LOCATION	Radiation Detected				Primary Function					
				Alpha	Beta	Gamma/ X-ray	Neutron	Exposure	Isotope Identification	Air Sampling	Gamma Spectroscopy	Contamination Detection	
1	Fixed	Packard Canberra Tri-Carb 2750 TR/LL LSC	Jamaica Plain, MA (MERL)	X	X	X							X
1	Fixed	Perken Elmer Tri-Carb 2910 TR	Jamaica Plain, MA (MERL)	X	X	X							X
1	Fixed	Canberra Detector HPGe 30%	Jamaica Plain, MA (MERL)			X				X		X	
1	Fixed	Canberra HPGe 35% REGe 30%	Jamaica Plain, MA (MERL)			X				X		X	
***1	Portable	**Panasonic TLD reader 705A w/ 801, 814 badges	Jamaica Plain, MA (MERL)			X		X					
1	Portable	Ludlum 15 neutron detector	Charlestown, MA (Office @ Schrafft Ctr.)				X						
7	Portable	Ludlum Model 19 Micro-R NaI(Tl) gamma scintillator	Charlestown, MA (Office @ Schrafft Ctr.)			X		X					
4	Portable	Nuclear Research Corp. CDV-718 GM detector	Charlestown, MA (Office @ Schrafft Ctr.)		X	X		X					X
1	Portable	Victoreen 450P Ion Chamber (0-5 R/hr)	Charlestown, MA (Office @ Schrafft Ctr.)			X		X					
1	Portable	Ludlum Model 9DP Ion Chamber (0-5 R/hr)	Charlestown, MA (Office @ Schrafft Ctr.)			X		X					
**2	**Portable	Eberline PIC-6B Ion Chamber	Charlestown, MA (Office @ Schrafft Ctr.)			X		X					
**1	**Portable	Victoreen 450B Ion Chamber (0-50 R/hr)	Charlestown, MA (Office @ Schrafft Ctr.)		X	X		X					
***1	**Portable	Keithley 36150 Ion Chamber	Charlestown, MA (Office @ Schrafft Ctr.)			X		X					
9	Portable	Ludlum 3 with various probes	Agency staff home and/or vehicle and office	X	X	X		X					X
16	Portable	Ludlum 26-1 Frisker	Agency staff home and/or vehicle and office	X	X	X		X					X
10	Portable	RadEye B20-ER	Agency staff home and/or vehicle and office	X	X	X		X					X
1	Portable	Ludlum 78 GM stretchscope	Charlestown, MA (Office @ Schrafft Ctr.)			X		X					
2	Portable	Ludlum 2200 scaler rate meter with various probes	Jamaica Plain, MA (MERL)	X	X	X							X
2	Portable	Ludlum 2221 scaler rate meter with various probes	Jamaica Plain, MA (MERL)	X	X	X							X
2	Portable	Ludlum 2224-1 scaler rate meter	Jamaica Plain, MA (MERL)	X	X								X
1	Fixed	Ludlum 500-2 pulser	Jamaica Plain, MA (MERL)										
2	Portable	Ludlum 239-1F floor monitors (582 cc active area)	Jamaica Plain, MA (MERL)	X	X								X
***1	**Portable	Berkeley Nucleonics SAM-935 MCA	Charlestown, MA (Office @ Schrafft Ctr.)			X	X	X	X			X	
***1	**Portable	Berkeley Nucleonics 935 SAM-935 MCA	Charlestown, MA (Office @ Schrafft Ctr.)			X	X	X	X			X	
3	Portable	Ludlum 14C GM	Salsbury, MA (Salsbury Fire Department)		X	X		X					X
3	Portable	CDV 718A beta gamma kit	Salsbury, MA (Salsbury Fire Department)		X	X		X					X
3	Portable	DC Radeco H-809C A/S & spare head	Salsbury, MA (Salsbury Fire Department)							X			
10	Portable	Silver zeolite cartridges and particulate filters	Salsbury, MA (Salsbury Fire Department)							X			
3	Portable	Ludlum 14C GM	Plymouth, MA (Pilgrim EOF)		X	X		X					X
3	Portable	CDV 718A beta gamma kit	Plymouth, MA (Pilgrim EOF)		X	X		X					X
1	Portable	DC Radeco H-809C A/S & spare head	Plymouth, MA (Pilgrim EOF)							X			
10	Portable	Silver zeolite cartridges and particulate filters	Plymouth, MA (Pilgrim EOF)							X			
2	Portable	Ludlum 14C GM	Charlestown, MA (Office @ Schrafft Ctr.)		X	X		X					X
3	Portable	CDV 718A beta gamma kit	Charlestown, MA (Office @ Schrafft Ctr.)		X	X		X					X
4	**Portable	DC Radeco H-809C A/S & spare head	Charlestown, MA (Office @ Schrafft Ctr.)							X			
10	Portable	Silver zeolite cartridges and particulate filters	Charlestown, MA (Office @ Schrafft Ctr.)							X			
2	Portable	F & J Specialty Products, Battery Air Sampler	Charlestown, MA (Office @ Schrafft Ctr.)							X			
1	Portable	XRF Corp ICS 4000	Agency staff home and/or vehicle and office			X		X	X			X	
1	Portable	XRF Corp ICS 4000	Agency staff home and/or vehicle and office			X		X	X			X	
1	Portable	XRF Corp ICS 4000	Agency staff home and/or vehicle and office			X		X	X			X	
1	Portable	SAIC/Exploranium GR-135 Plus	Charlestown, MA (Office @ Schrafft Ctr.)			X	X	X	X			X	
1	Portable	Ludlum Model 700 Isotope Identifier	Charlestown, MA (Office @ Schrafft Ctr.)			X		X					
1	Portable	Thermo Scientific RIIDEye X-G Rad Nuclide Identifier	Agency staff home and/or vehicle and office			X		X	X				
**		Operable but not calibrated											
***		Undergoing planned phase out											

COMMONWEALTH OF MASSACHUSETTS - DEPARTMENT OF PUBLIC HEALTH													
RADIATION CONTROL PROGRAM													
TABLE B-2 (continued)													
OPERABLE IONIZING RADIATION DETECTION and/or MEASUREMENT EQUIPMENT & LOCATION - June, 2017													
QTY	TYPE	DESCRIPTION	LOCATION	Radiation Detected				Primary Function					
				Alpha	Beta	Gamma/ X-ray	Neutron	Exposure	Isotope Identification	Air Sampling	Gamma Spectroscopy	Contamination Detection	
1	Fixed	Panasonic TLD Reader UD-716AGL, w/801, 814 badges	Jamaica Plain, MA (MERL)			X		X					
1	Fixed	Canberra HPGe 35% Eff. w/ Genie 2K software	Jamaica Plain, MA (MERL)			X			X				
1	Fixed	Canb. Tennelec Series 5 XLB Alpha/Beta Counter	Jamaica Plain, MA (MERL)	X	X								
1	Portable	ThermoEberline HandECount Alpha/Beta Counter	Jamaica Plain, MA (MERL)	X	X								
2	Portable	Ludlum 14C with 44-9 Probe	Jamaica Plain, MA (MERL)										
1	Probe	Ludlum 42-30, PR148179, MERL FM#31(base only)	Jamaica Plain, MA (MERL)				X						
1	Probe	Ludlum 43-68, PR095923	Jamaica Plain, MA (MERL)	X	X								
1	Probe	Ludlum 43-68, PR160698	Jamaica Plain, MA (MERL)	X	X								
1	Probe	Ludlum 43-77, PR095922	Jamaica Plain, MA (MERL)			X							
1	Probe	Ludlum 43-77, PR095924	Jamaica Plain, MA (MERL)			X							
1	Probe	Ludlum 43-89, PR139996, No.1, AB SCINT PHOSWITCH	Jamaica Plain, MA (MERL)	X	X								
1	Probe	Ludlum 43-89, PR139581, No.2, AB SCINT PHOSWITCH	Jamaica Plain, MA (MERL)	X	X								
1	Probe	Ludlum 43-90, PR129812, No.1, AB SCINT MERL	Jamaica Plain, MA (MERL)	X	X								
1	Probe	Ludlum 43-90, PR129811, No.2, AB SCINT	Jamaica Plain, MA (MERL)	X	X								
1	Probe	Ludlum 44-10, PR162410, MERL	Jamaica Plain, MA (MERL)			X							
1	Probe	Ludlum 44-10, PR066588, MERL	Jamaica Plain, MA (MERL)			X							
1	Probe	Ludlum 44-10, PR162403, MERL	Jamaica Plain, MA (MERL)			X							
1	Probe	Ludlum 44-17, PR159200	Jamaica Plain, MA (MERL)			X							
1	Probe	Ludlum 44-110, PR160171 Tritium	Jamaica Plain, MA (MERL)										
1	Probe	Ludlum 44-110, PR160172 Tritium	Jamaica Plain, MA (MERL)										
1	Probe	Ludlum 44-98, PR124143, BGO I125, C14	Jamaica Plain, MA (MERL)		X	X							
1	Probe	Ludlum 180-14, PR071318	Jamaica Plain, MA (MERL)										
1	Portable	Ludlum Model 1000 Scaler	Jamaica Plain, MA (MERL)										
1	Portable	Eberline E-120 GM, Serial 2111+ HP210+ SH4 Holder	Jamaica Plain, MA (MERL)										
1	Probe	Eberline HP210+ SH 4 Sample Holder	Jamaica Plain, MA (MERL)										
2	Fixed	Ludlum 1000 Scaler	Jamaica Plain, MA (MERL)										
1	Fixed	Ludlum 2350-1 Data Logger	Jamaica Plain, MA (MERL)										
		END											
**		Operable but not calibrated											
***		Undergoing planned phase out											

Survey Instruments used by inspectors are calibrated by persons specifically licensed by Agreement States to perform calibrations to include by Atlantic Nuclear of Massachusetts and Ludlum Measurements of Texas. Laboratory type instrumentation used at the Massachusetts Environmental Radiation



Laboratory is calibrated in accordance with the model procedures contained in Appendix J of U.S. NRC NUREG-1556, Volume 7, Revision 1, Draft Report published January 2014.

All instruments actually in use by inspectors are properly calibrated at this time. There were sufficient calibrated instruments available throughout the review period.

#### IV. Technical Quality of Licensing Actions

18. How many specific radioactive material licenses does your program regulate at this time?

413.

19. Please identify any major, unusual, or complex licenses which were issued, received a major amendment, were terminated, decommissioned, submitted a bankruptcy notification or renewed in this period.

Docket No. 20-2858: Amended License, unusual and complex license about distribution activities including coordination with NRC about import activities, whether the product is a radiochemical or rather a radiopharmaceutical or medical source or device subject to specific distribution requirements, and also whether or not the product needed to be registered in the Sealed Source and Device Registry.

Docket No. 20-1971: Renewed license, major license renewal in its entirety, pool irradiator.

Docket No. 18-2363: New license, new teletherapy unit. Major since high activity and unusual since trend of other MA licensees was rather to terminate their teletherapy unit licenses.

20. Discuss any variances in licensing policies and procedures or exemptions from the regulations granted during the review period.

Financial Surety Cases: Exemption from decommissioning funding plan requirements of 105 CMR 120.125(C) were granted, to be compatible with the recommendations of NRC's STC-17-057.

21. What, if any, changes were made in your written licensing procedures (new procedures, updates, policy memoranda, etc.) during the reporting period?

RCP Policy No. 2015-01, *Administrative Policy for Response to License Expirations*; This new Policy is for decision making related to licensees who have allowed their license to expire, either intentionally or unintentionally, without filing for renewal.

RCP Policy No. 2015-02, *Administrative Policy for evaluating Radioactive Material License Extensions*; This new RCP Policy documents the process for the extension of radioactive materials license expiration dates from 5 years to 10 years for qualifying licenses.

A new Inspection and Enforcement History Evaluation Form was developed and implemented for license renewal actions.

A revised License Application Review Worksheet was developed and implemented for licensing actions that specifically identifies NRC's NUREG-1556 Guidance for performing reviews.

A new Risk-Significant Radioactive Material Checklist was developed and implemented that is compatible with the recommendations of NRC's RCPD-17-007.

Licensing related forms were updated from WordPerfect to Word format that incorporates Developer content controls such as pull down menus and check boxes.

22. Identify by licensee name and license number any renewal applications that have been pending for one year or more. Please indicate why these reviews have been delayed and describe your action plan to reduce the backlog.

A total of nine renewal actions have been pending for one year or more. This is a reduction of peak of approximately 30 renewal actions that were pending for one year or more approximately two years ago. Delayed reviews began to peak during a period that positions were vacant and before four Radiation Control Officers were hired and qualified to perform licensing actions. In addition to the hiring and training of these Radiation Control Officers, a fifth Radiation Control Officer was hired and is undergoing qualifications training that includes supervised work experience for completing license actions, including renewals. These hiring and qualifications actions, combined with a newly implemented policy for extending license terms from 5 years to 10 years, have effectively reduced renewal applications that have been pending for one year or more that we expect soon to be zero. A list of licensee names and license numbers for renewal applications that have been delayed for one year or more, if any by the time that the IMPEP team is on-site, will be made available to the IMPEP team.

V. Technical Quality of Incident and Allegation Activities

23. For Agreement States, please provide a list of any reportable incidents not previously submitted to NRC (See Procedure SA-300, *Reporting Material Events*, for additional guidance, OMB clearance number 3150-0178). The list should be in the following format:

<u>Licensee Name</u>	<u>License #</u>	<u>Date of Incident/Report</u>	<u>Type of Incident</u>
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None.

24. Identify any changes to your procedures for responding to incidents and allegations that occurred during the period of this review.

RCP Policy No. 2014-03, Rev. 1, *Event Report Closeout Expectations*; This new policy addresses expectations regarding review of events and closing out reports of events.

RCP Policy No. 2014-04, Rev. 1, *Event Report Response*; This new policy addresses decision making for responding to events, including onsite response times.

Event and allegation related forms were updated from WordPerfect to Word format that incorporates Developer content controls such as pull down menus and check boxes.

**B. NON-COMMON PERFORMANCE INDICATORS**

I. Compatibility Requirements

25. Please list all currently effective legislation that affects the radiation control program. Denote any legislation that was enacted or amended during the review period.

Massachusetts Department of Public Health Radiation Control Statutes: M.G.L. c. 111 §§2, 3, 4F, 5K, 5L, 5M, 5O, 5P, 5Q. Administrative Procedures Act: M.G.L. c. 30A. Conflict of Interest Law: M.G.L. c. 268A. Low-Level Radioactive Waste Law: M.G.L. c. 111H. Labor and Industry Statutes: M.G.L. c. 149.

26. Are your regulations subject to a "Sunset" or equivalent law? If so, explain and include the next expiration date for your regulations.

No.

27. Please review and verify that the information in the enclosed State Regulation Status (SRS) sheet is correct. For those regulations that have not been adopted by the State, explain why they were not adopted, and discuss actions being taken to adopt them. If legally binding requirements were used in lieu of regulations and they have not been reviewed by NRC for compatibility, please describe their use.

The SRS sheet dated 3/28/2017 enclosed with the questionnaire made part of NRC scheduling letter is correct. Eight RATS-IDs (2011-2; 2012-1; 2012-2; 2012-3; 2013-1; 2015-1; 2015-2; 2015-4; and 2015-5) were completed as final regulations in 2016. For four RATS-IDs (2015-3; 2013-2; 2012-4; 2011-1), proposed regulations have been sent to NRC and have not yet been promulgated by the Commonwealth as final regulations. Two of those RATS-IDs (2011-1 and 2012-4) are overdue.

The proposed regulations regarding the four RATS-IDs have been reviewed by legal counsel and the next step is to send them to the Commonwealth's Public Health Council (PHC) for review. After PHC review, a public comment period, and back to PHC for approval, the regulations are submitted to the Secretary of the Commonwealth, who establishes an effective date for the regulations.

Two steps (See steps 7 and 8 in response to question No. 28 below) regarding legal office and management actions has taken longer than usual to complete due to policy and regulatory positions that became vacant (Director, Policy & Regulatory Affairs; Chief of Regulatory Implementation; and Deputy Director, Regulatory) within the Bureau of Environmental Health (BEH) that oversees the Radiation Control Program. BEH filled one of the vacant positions with a Policy Manager and the Program is hopeful that the regulations will be sent to PHC for review and be adopted in final in 2018.

28. If you have not adopted all amendments within three years from the date of NRC rule promulgation, briefly describe your State's procedures for amending regulations in order to maintain compatibility with the NRC, showing the normal length of time anticipated to complete each step.

The Program's process for maintaining compatibility between NRC and RCP regulations is as follows. The process can be accomplished in approximately one year as was demonstrated for RATS-IDs 2013-1 "Physical Protection of Byproduct Material" that was completed as final regulations in 2016.

1. NRC notifies RCP of changes to regulations. Massachusetts regulations must be reviewed and if necessary changed or justified to maintain compatibility with NRC regulations.
2. The status of Massachusetts regulations related to radiation control may be viewed at: [http://nrc-stp.ornl.gov/special/regs/ma\\_srschart.pdf](http://nrc-stp.ornl.gov/special/regs/ma_srschart.pdf)
3. Upon notification by NRC, RCP will review NRC new or changes to existing CFR's and develop proposed changes to Massachusetts codes, or communicate to NRC where existing regulations address the same issues as the federal code.
4. All changes, or proposed justifications for compatibility, will be reviewed first by assigned RCP staff and the RCP Director.
5. Draft materials will then be issued to the NRC for initial review and comment.
6. Reviewed draft material including changes based on comments from NRC will then be sent to MDPH Legal Office for review, comment and approval, then revised accordingly.
7. RCP, in coordination with the Legal Office, will draft a memo to the Public Health Council (PHC) on the proposed amendments. The draft PHC memo will be sent to the Director of the Bureau of Environmental Health for review and approval.
8. The Legal Office will initiate approval process and docketing for PHC review. Following initial presentation to the PHC, the Legal Office will assist in filing hearing notice with the Secretary of State and scheduling one or more public hearings. .
9. Upon receipt of the galleys from the Secretary of State's Office, the Legal Office will provide a copy for RCP review. The RCP Director and two or more staff will review the galleys to ensure accuracy of proposed amendments.
10. Following the public comment period, RCP will make any additional edits to the proposed amendments, as deemed appropriate, and prepare the final PHC memo, in consultation with the Legal Office. Draft final PHC memo will be shared with BEH Director for review and approval.

11. The Legal Office will coordinate final approvals and docketing for PHC meeting. Upon approval by the PHC, the Legal Office will prepare submission of final regulation for publication in the Massachusetts Register. The Legal Office will request from the Secretary of State's Office an opportunity to review the final version prior to publication. The final version will be reviewed by the RCP Director and two or more staff. Upon completion of review, the final version will be sent to the Secretary of State's Office for final promulgation.

II. Sealed Source and Device (SS&D) Evaluation Program

29. Prepare a table listing new and amended (including transfers to inactive status) SS&D registrations of sources and devices issued during the review period. The table heading should be:

SS&D Registry Number      Manufacturer, Distributor or Custom User      Product Type or Use      Date Issued      Type of Action

Facility Name	SSD Number:	Docket No	1st Reviewer	2nd Reviewer	Action	Action Issued Date
QSA GLOBAL, INC.	MA-1059-D-376-S	19-0829	JS	KT	SSDEV	8/5/2014
HEURESIS CORPORATION	MA-1397-D-101-B	15-1755	KT	JS	SSDEV	6/30/2015
ECKERT & ZIEGLER RADIOPHARMA, INC.	MA-1390-S-101-S	23-1560	JD	JS	SSDEV	11/13/2015
THERMO PROCESS INSTRUMENTS, L.P.	MA-1396-D-101-B	15-1745	JS	JD	SSDEV	12/17/2015
THERMO PROCESS INSTRUMENTS, L.P.	MA-1396-D-102-B	24-2165	JS	SM	SSDEV	5/6/2016
THERMO PROCESS INSTRUMENTS, L.P.	MA-1396-D-103-B	15-1744	JS	SM	SSDEV	6/21/2016
QSA GLOBAL, INC.	MA-1059-D-378-S	15-2247	SM	JS	SSDEV	8/8/2016
THERMO PROCESS INSTRUMENTS, L.P.	MA-1396-D-104-B	15-1747	JS	BL	SSDEV	11/16/2016
QSA GLOBAL, INC.	MA-1059-S-379-S	24-2570	BL	JS	SSDEV	5/17/2017
MALVERN PANALYTICAL, INC.	MA-1348-D-102-S	13-2633	JS	BL	SSDEV	2/7/2018
QSA GLOBAL, INC.	MA-1059-S-198-S	17-1295	JS	KT	SSDAM	9/2/2014
QSA GLOBAL, INC.	MA-1059-S-204-S	18-1331	JS	KT	SSDAM	9/25/2014
QSA GLOBAL, INC.	MA-1059-D-361-S	19-0827	JS	KT	SSDAM	9/25/2014
QSA GLOBAL, INC.	MA-1059-S-200-S	24-1094	JS	KT	SSDAM	10/27/2014
QSA GLOBAL, INC.	MA-1059-S-240-S	15-1211	JS	KT	SSDAM	10/29/2014
PERKINELMER HEALTH SCIENCES, INC.	MA-1371-D-101-G	20-1443	JS	KT	SSDAM	10/31/2014
PERKINELMER HEALTH SCIENCES, INC.	MA-1371-D-102-G	20-1442	JS	KT	SSDAM	10/31/2014
QSA GLOBAL, INC.	MA-1059-S-204-S	14-1728	JS	KT	SSDAM	4/17/2015
PERKINELMER HEALTH SCIENCES, INC.	MA-1371-D-102-G	15-1771	KT	JS	SSDAM	5/15/2015
QSA GLOBAL, INC.	MA-1059-S-136-S	24-1658	JS	KT	SSDAM	6/5/2015
QSA GLOBAL, INC.	MA-1059-S-198-S	16-1830	JD	JS	SSDAM	6/18/2015
QSA GLOBAL, INC.	MA-1059-S-204-S	16-1832	JD	JS	SSDAM	6/18/2015
QSA GLOBAL, INC.	MA-1059-S-240-S	16-1831	JD	JS	SSDAM	6/18/2015
QSA GLOBAL, INC.	MA-1059-D-376-S	15-1792	JS	JD	SSDAM	10/15/2015
QSA GLOBAL, INC.	MA-1059-S-126-S	17-1868	JS	JD	SSDAM	10/22/2015
QSA GLOBAL, INC.	MA-1059-S-104-S	17-1869	JS	JD	SSDAM	10/22/2015
QSA GLOBAL, INC.	MA-1059-S-191-S	24-2155	BL	JS	SSDAM	2/17/2016
QSA GLOBAL, INC.	MA-1059-D-365-S	17-1871	JS	JD	SSDAM	3/31/2016
QSA GLOBAL, INC.	MA-1059-S-104-S	15-2251	BL	JS	SSDAM	4/28/2016
QSA GLOBAL, INC.	MA-1059-S-105-S	15-2250	BL	JS	SSDAM	4/28/2016
QSA GLOBAL, INC.	MA-1059-S-198-S	24-2156	SM	JS	SSDAM	4/29/2016

Facility Name	SSD Number:	Docket No	1st Reviewer	2nd Reviewer	Action	Action Issued Date
QSA GLOBAL, INC.	MA-1059-S-126-S	15-2252	SM	JS	SSDAM	4/29/2016
SIRTEX WILMINGTON LLC	MA-1229-D-101-S	22-2056	JS	JD	SSDAM	12/16/2016
QSA GLOBAL, INC.	MA-1059-D-377-S	13-2643	SM	BL	SSDAM	3/9/2017
QSA GLOBAL, INC.	MA-1059-D-334-S	13-2644	BL	SM	SSDAM	3/30/2017
THERMO EGS GAUGING, INC.	MA-1287-D-107-B	14-2657	BL	SM	SSDAM	4/13/2017
THERMO EGS GAUGING, INC.	MA-1287-D-104-B	14-2654	BL	SM	SSDAM	4/13/2017
THERMO EGS GAUGING, INC.	MA-1287-D-102-B	14-2653	BL	SM	SSDAM	4/13/2017
THERMO EGS GAUGING, INC.	MA-1287-D-106-B	14-2656	SM	BL	SSDAM	4/13/2017
THERMO EGS GAUGING, INC.	MA-1287-D-105-B	14-2655	SM	BL	SSDAM	4/13/2017
THERMO EGS GAUGING, INC.	MA-1287-D-101-B	14-2652	SM	BL	SSDAM	4/13/2017
THERMO EGS GAUGING, LLC	MA-1287-D-105-B	21-2912	SM	BL	SSDAM	12/13/2017
THERMO EGS GAUGING, LLC	MA-1287-D-107-B	21-2914	SM	BL	SSDAM	12/13/2017
THERMO EGS GAUGING, LLC	MA-1287-D-106-B	21-2913	SM	BL	SSDAM	12/13/2017
THERMO EGS GAUGING, LLC	MA-1287-D-102-B	21-2910	SM	BL	SSDAM	12/13/2017
THERMO EGS GAUGING, LLC	MA-1287-D-104-B	21-2911	SM	BL	SSDAM	12/13/2017
THERMO EGS GAUGING, LLC	MA-1287-D-101-B	21-2909	SM	BL	SSDAM	12/13/2017
THERMO PROCESS INSTRUMENTS, L.P.	MA-1396-D-102-B	23-3017	SM	BL	SSDAM	2/20/2018
THERMO PROCESS INSTRUMENTS, L.P.	MA-1396-D-101-B	23-3016	SM	BL	SSDAM	2/20/2018
QSA GLOBAL, INC.	MA-1059-S-158-S	20-2877	SM	BL	SSDAM	2/20/2018
THERMO PROCESS INSTRUMENTS, L.P.	MA-1396-D-103-B	23-3018	SM	BL	SSDAM	2/20/2018
THERMO PROCESS INSTRUMENTS, L.P.	MA-1396-D-103-B	23-3018	SM	BL	SSDAM	2/20/2018
THERMO PROCESS INSTRUMENTS, L.P.	MA-1396-D-104-B	23-3019	SM	BL	SSDAM	2/20/2018
QSA GLOBAL, INC.	MA-1059-S-355-S	14-3119	BL	SM	SSDAM	2/27/2018
QSA GLOBAL, INC.	MA-1059-S-200-S	15-3175	BL	SM	SSDAM	3/29/2018
QSA GLOBAL, INC.	MA-1059-S-113-S	15-3174	SM	BL	SSDAM	5/2/2018
THERMO FISHER SCIENTIFIC, INC.	MA-1303-D-102-G	18-1363	JS	KT	SSDIN	10/31/2014
RMD INSTRUMENTS CORP.	MA-0573-D-103-B	24-1634	JS	KT	SSDIN	1/23/2015
QSA GLOBAL, INC.	NR-0628-S-134-S	19-1377	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	NR-0136-S-242-S	19-1381	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-253-S	19-1378	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	MA-1059-S-249-S	19-1380	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-146-S	19-1379	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-246-S	19-1386	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-286-S	19-1385	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-293-S	19-1384	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-275-S	19-1383	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-287-S	19-1382	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	NR-0628-D-108-S	19-1375	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	NR-0628-D-125-S	19-1376	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	NR-0136-D-203-B	19-1369	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	MA-1059-S-202-S	19-1370	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-290-S	19-1373	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-332-S	19-1371	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-S-334-S	19-1372	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	IL-0136-D-341-S	19-1374	JS	JD	SSDIN	6/18/2015
QSA GLOBAL, INC.	MA-1059-D-137-S	20-1986	JD	JS	SSDIN	9/10/2015
QSA GLOBAL, INC.	MA-1059-S-154-S	13-2173	BL	JS	SSDIN	3/17/2016

Facility Name	SSD Number:	Docket No	1st Reviewer	2nd Reviewer	Action	Action Issued Date
QSA GLOBAL, INC.	MA-1059-D-362-S	13-2176	BL	JS	SSDIN	3/17/2016
QSA GLOBAL, INC.	MA-1059-D-114-S	24-2153	BL	JS	SSDIN	3/17/2016
QSA GLOBAL, INC.	MA-1059-S-128-S	13-2171	SM	JS	SSDIN	3/24/2016
QSA GLOBAL, INC.	MA-1059-S-103-S	13-2172	SM	JS	SSDIN	3/24/2016
QSA GLOBAL, INC.	MA-1059-S-191-S	15-2273	BL		SSDCR	3/24/2016
QSA GLOBAL, INC.	MA-1059-S-126-S	17-2328	SM		SSDCR	6/2/2016
QSA GLOBAL, INC.	MA-1059-D-362-S	15-2283	BL		SSDCR	11/3/2016
QSA GLOBAL, INC.	MA-1059-S-158-S	15-3176	SM		SSDCR	3/30/2018

SS&D product type and use codes are identified on each registration. The registration numbers on the listed SS&D registrations are those acted upon when assigned and in some cases, such as for in-activations, changed to a different number. The information is available in our files and also in the national Sealed Source and Device Registry.

30. Please include information on the following questions in Section A, as they apply to the SS&D Program:

Technical Staffing and Training - Questions 2-9  
 Technical Quality of Licensing Actions - Questions 18-22  
 Technical Quality of Incident and Allegation Activities - Questions 23-24

The SS&D program is part of the materials program and is integrated into all the sections of this questionnaire.

III. Low-level Radioactive Waste Disposal Program

31. Please include information on the following questions in Section A, as they apply to the Low-Level Radioactive Waste Disposal Program:

Technical Staffing and Training - Questions 2-9  
 Status of Materials Inspection Program - Questions 10-14  
 Technical Quality of Inspections - Questions 15-17  
 Technical Quality of Licensing Actions - Questions 18-22  
 Technical Quality of Incident and Allegation Activities - Questions 23-24

IV. Uranium Recovery Program

32. Please include information on the following questions in Section A, as they apply to the Uranium Recovery Program:

Technical Staffing and Training - Questions 2-9  
 Status of Materials Inspection Program - Questions 10-14  
 Technical Quality of Inspections - Questions 15-17  
 Technical Quality of Licensing Actions - Questions 18-22  
 Technical Quality of Incident and Allegation Activities - Questions 23-24

MATERIALS REQUESTED TO BE AVAILABLE FOR  
THE ON-SITE PORTION OF AN IMPEP REVIEW

Please have the following information available for use by the IMPEP review team when they arrive at your office:

- List of open license cases, with date of original request, and dates of follow-up actions.
- List of licenses terminated during review period.
- Copy of current log or other document used to track licensing actions.
- List of all licensing actions completed during the review period (sorted by license reviewer, if possible).
- Copy of current log or other document used to track inspections.
- List of all inspections completed during the review period (sorted by inspector, if possible).
- List of inspection frequencies by license type.
- List of all allegations occurring during the review period. Show whether the allegation is open or closed and whether it was referred by NRC.
- List of all licenses that your agency has imposed additional security requirements upon.

ALSO, PLEASE HAVE THE FOLLOWING DOCUMENTS AVAILABLE:

- All State regulations
- Statutes affecting the regulatory authority of the State program
- Standard license conditions
- Technical procedures for licensing, model licenses, review guides
- SS&D review procedures, guides, and standards
- Instrument calibration records
- Inspection procedures and guides
- Inspection report forms
- Documented training plan, if applicable
- Records of results of supervisory accompaniments of inspectors
- Emergency plan and communications list
- Procedures for investigating allegations
- Procedures for investigating incidents
- Enforcement procedures, including procedures for escalated enforcement, severity levels, civil penalties (as applicable)
- Job descriptions