

INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM  
QUESTIONNAIRE

**Tennessee Division of Radiological Health**  
**Reporting Period: March 11, 2016 – May 7, 2021**

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.

In response to part 1 of the recommendation the Radioactive Material Licensing Manager and the Division's specialist in waste processing license reviews reviewed the currently issued waste processing licenses and studied every condition ever used comparing the condition to the example conditions in the Waste Processing White Paper. This review concluded that the license conditions were used appropriately. Both reviewers verified the need for each of the conditions and in their discussions noted that the particular conditions should remain customized to the particular waste processing license, including the storage time lengths that were grand fathered. During the time period since the recommendation clarification to the condition requiring financial assurance was instituted when appropriate. Additional verification of the status of the consistency of conditions is a part of the Licensing Manager's review of each amendment. Efforts will be made to make the conditions as generic and simple as possible at the time of each subsequent renewal by requiring the licensee to further clarify waste storage times, adjust inventories and make other clarifications to remove the need for certain extensive conditions.

In response to part 2 of the recommendation the Licensing Manager, waste reviewer specialist and Deputy Director completed the Waste Processing Checklist, A copy was forwarded to NRC at their request. The checklist was provided to a new waste processor applicant in 2019. A guidance narrative to accompany the checklist has been completed and is available for use in the review of new requests.

**B. COMMON PERFORMANCE INDICATORS**

I. Technical Staffing and Training

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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.

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;

See Attachment #1

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

See Attachment #2

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

See Attachment #3

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:

Name                      Position                      Area of Effort                      FTE%

NAME	POSITION	AREA OF EFFORT			FTE%
NAME	POSITION TITLE AND POSITION NUMBER FOR DIRECTOR'S OFFICE	BASED ON 60 MONTHS-April 1, 2016 – APRIL 30, 2021			FTE
		Adm	Emerg Resp	Comp	
Debra Shults	Director 00041684	40	10		50
Anthony Hogan 51 mo	Deputy Dir-Central Ofc 00070144	40	10		50
Beth Shelton 2 mo	Deputy Dir-Central Ofc 00070144	40	10		50
Billy Freeman	Deputy Dir-Field Operations 00041700	20	10	40	70

NAME	POSITION TITLE AND	BASED ON 60 MONTHS-April 1, 2016 – APRIL 30, 2021	FTE
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	POSITION NUMBER FOR LICENSING PROGRAM					
		Adm	Lic	Emerg Resp	Other	
Johnny Graves	TDEC-Env Mgr 3 00041702	10	50	5	SS&D 1	66
Charlie Arnott 44 mo	TDEC-Env Cons 3 00070142		85	5	SS&D 5	95
Ron Parsons 27 mo	TDEC-Env Cons 3 00142378		85	5	SS&D 5	95
Ron Parsons 31 mo	TDEC-Env Cons 1 00105882		85	5	SS&D 5	95
Jerry Bacon 10 mo	TDEC-Env Scientist 3 00075797		90	5		95
Sasi Krishnasarma 55 mo	TDEC-Env Scientist 3 00105877		90	5		95
Michael Singleton 40 mo	TDEC-Env Mgr 2 00103872	5	25	5		35
Sabrina Robertson 24 mo	TDEC-Env Scientist 3 00075798		Recp 10	5	GL 40	55
Matthew Greenwood 33 mo	TDEC-Env Scientist 2 00075798		Recp 90	5		95
Amy McKenna 31 mo	TDEC-Env Scientist 2 00075799			5	GL/Shippers 90	95
Roger Fenner	TDEC-Env Cons 4 00105887	35	10	5	BSFR 25	75

<u>NAME</u>	<u>POSITION</u>	<u>AREA OF EFFORT</u>		<u>FTE%</u>
NAME	POSITION TITLE AND POSITION NUMBER FOR INSPECTION PROGRAM	BASED ON 60 MONTHS-April 1, 2016 – APRIL 30, 2021		FTE
		Comp	Emerg Resp	
Dean Baker	TDEC-Env Scientist 3 00105874	10	5	15
Jamie Bunch	TDEC-Env Scientist 3 00106263	10	5	15
Gerald Kwazu	TDEC-Env Cons 1 00108274	75	5	80
Amy Ford	TDEC-Env Scientist 2 00104134	50	5	55
Paula Snyder	TDEC-Env Cons 2 00105876	10	5	15

Beth Shelton 58 mo	TDEC-Env Mgr 3 00105884	50	5	55
Stuart Belva	TDEC-Env Cons 2 00105879	50	5	55
Angie Dunn	TDEC-Env Scientist 3 00104133		5	5
Jessica Hayes 53 mo	TDEC-Env Scientist 2 00105872	40	5	45
Steve Seeger	TDEC-Env Mgr 3 00103871	50	5	55
Mark Andrews	TDEC-Env Mgr 3 00041694	50	5	55
Mariza Gonzalez	TDEC-Env Mgr 2 00103873	70	5	75
Chuck Johnson 20 mo	TDEC-Env Cons 3 00107468	20	5	25
Roger Macklin	TDEC-Env Cons 1 00076840	85	5	90
Norman Miller	TDEC-Env Scientist 2 00105881	85	5	90
Josh Munyon	TDEC-Env Cons 2 00076839	85	5	90
William Barnett 12 mo	TDEC-Env Scientist 2 00105880	25	5	30
Allen Grewe	TDEC-Env Mgr 3 00103870	60	5	65
Nicole Leuthold 14 mo	TDEC-Env Scientist 1 00070263	50	5	55
Grigsby Stevens	TDEC-Env Cons 2 00108272	70	5	75
Nicole Wells-2 mo  58 mo	Health Physicist 3 00104134 TDEC-Env Cons 1 00107469		5 5	5 5

<b>NAME</b>	<b>POSITION</b>	<b>AREA OF EFFORT</b>			<b>FTE%</b>
<b>NAME</b>	<b>POSITION TITLE AND POSITION NUMBER FOR TECHNICAL SERVICES / REGULATIONS PROGRAM</b>	<b>BASED ON 48 MONTHS-MAY 1, 2016 – APRIL 30, 2021</b>			<b>FTE</b>
		<b>Emerg Resp</b>	<b>LLW</b>	<b>Reg Dev</b>	
Ruben Crosslin 40 mo	TDEC-Env Mgr 3 00103959	10	25	30	65
Jerry Bingaman 50 mo 10 mo	TDEC-Env Cons 3 00070141 TDEC-Env Mgr 4	10			10

	00041692				
Ryan Crihfield 38 mo 22 mo	TDEC-Env Cons 1 00107477 TDEC-Env Cons 2 00104200	10 10	80		10 90
Trevor Jackson 24 mo	TDEC-Env Scientist 2 00105873	10			10
Mark Hatcher 21 mo	TDEC-Env Cons 2 00104200	10	80		90
Andrew Holcomb 22 mo	TDEC- Env Mgr 2 00103878	40		50	90
Holly Morse 4 mo	TDEC-Env Scientist 1 00075799	90			90
Toni Ostrander	TDEC-Env Cons 2 00074047	90			90

Andrew Holcomb 20 mo	Health Physicist Spv 2 00074047	90			90
		90			90
Bruce House-9 mo	Health Physicist 3 00041698	90			90
Laura Turner-26 mo	Health Physicist 3 00104132	5		20 NMED 20	45

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.

Licensing Section		
Name	Date of Hire	Degree
Jana Miller	June 1, 2017	B.S. Degree of Science in Biological Sciences/Concentration in Pre-Veterinary from Mississippi State University-2015
Matthew Greenwood	July 16, 2018	B.S. Degree in History/Astronomy from University of the South-2008 / B.S. Degree in Geology from Middle TN State University-2013 / Master of Science in Geology from University of Memphis-2015 / Master of Science in Earth Sciences/Concentration in

		Geographic Information Systems from University of Memphis-2018
Amy McKenna	September 4, 2018	B.S. Degree of Science in Public & Allied Health from East TN State University-2007

<b>Technical Services</b>		
<b>Name</b>	<b>Date of Hire</b>	<b>Degree</b>
Clifford McWilliams	June 1, 2016	Associates Degree in Sciences from Columbia State Community College / B.S. of Environmental & Soil Sciences/Concentration in Environmental Science/Minor in Watershed from University of Tennessee-Knoxville-2015
Kathryn Cloud	June 16, 2016	B.S. of Sciences in Biochemistry and Cellular and Molecular Biology from University of Tennessee Knoxville-2014
Thomas "Jake" Parker	December 3, 2018	B.S. of Sciences in Environmental Science/Concentration in Conservation of Natural Resources and Biodiversity from University of Tennessee Knoxville-2018
<b>Inspection and Enforcement</b>		
<b>Name</b>	<b>Date of Hire</b>	<b>Degree</b>
Angela Wood	June 19, 2016	B.S. of Science in Environmental Biology from University of Dayton-1996
Jessica Hayes Ingham	November 1, 2016	B.S. of Science in Environment Science, Chemistry/Minor in Chemistry from University of Tennessee at Chattanooga-2013
Daniel Erickson	June 30, 2017	B.S. of Sciences in Biology from Austin Peay State University-2016
Colin Shumake	July 31, 2017	Master of Science in Environmental Science / Master of Public Affairs/Concentration in Environmental Policy and Natural Resource Management from Indiana

		University School of Public and Environmental Affairs- 2014 / B.S. of Sciences in Liberal Arts/Concentration in Biology/Minor in Chinese from University of Mississippi- 2010
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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.

-Daniel Erickson was hired on 06/30/2017. He has completed the classroom training for priority 1, 2 & 3 and is currently in the online DOT course. He had been released to do portable/fixed industrial gauges and diagnostic medical licenses. He still needs experience in therapy, industrial radiography, and more complex licenses prior to being released to perform these type inspections. He should be able to perform all types of inspections in the next 1-2 years.

-Colin Shumake was hired on 07/31/2017. He has completed the classroom training for priority 1, 2 & 3 and the DOT course. He had been released to do portable/fixed industrial gauges and industrial radiography licenses. He still needs experience in therapy, medical, and more complex licenses prior to being released to perform these type inspections. He should be able to perform all types of inspections in the next 1-2 years.

- Angie Dunn: She has been trained, has met the requirements and inspects gauges and nuclear medicine.

-Jessica Hayes: She has been trained, has met the requirements and inspects gauges and nuclear medicine...she will eventually, within the next two years, be trained on every type on inspection.

-Angela Wood was hired with our agency in 6/19/16. Angela is released to perform Priority 5 inspections and most Priority 1-3. Angela has completed Classroom Training for performing Priorities 1, 2, and 3, however, still needs some field experience in brachytherapy, large scale complex industrial facilities i.e. waste processors. Her training/mentoring has been hindered due to COVID. She should be prepared to inspect all licenses in the next 2 years.

All license reviewers are qualified.

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

A License Reviewer Qualification Record was developed for training and documenting the requirements for personnel assigned to perform safety and technical license reviews of license applications.

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

<b>Licensing Program</b>	
<b>Name</b>	<b>Date of Separation</b>
Julie Sejour	March 31, 2017
Gerald Bacon	March 5, 2018
Charlie Arnott	August 2019
Michael Singleton	September 30, 2019
Anthony Hogan	August 7, 2020
Sasi Krishnasarma	January 15, 2021

<b>Technical Services</b>	
<b>Name</b>	<b>Date of Separation</b>
Holly Morse	July 13, 2016
Mark Hatcher	January 5, 2018
Ruben Crosslin	August 2019

<b>Inspection and Enforcement</b>	
<b>Name</b>	<b>Date of Separation</b>
Chuck Johnson	December 2017
William Barnett	April 20, 2017
Nicole Leuthold	June 15, 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.

<b>Vacant Positions Assigned to the Radioactive Materials Program</b>		
<b>Vacant Position/Position #</b>	<b>Length of Time Vacant</b>	<b>Brief Summary to fill Position</b>
TDEC-Environmental Scientist 3 00105877 / Inspection Program	March 2021 / 1 month	Currently pursuing
TDEC-Environmental Scientist 3 00075797 / Inspection Program	March 2018 / 37 months	Currently pursuing
TDEC-Environmental Scientist 2 00106270 / Inspection Program	July 2018 / 33 months	Currently pursuing
TDEC-Environmental Manager 3 00105884 / Inspection Program	February 2021 / 2 months	Currently pursuing
TDEC-Environmental Scientist 2 00041697 / Licensing Program	May 2017 / 48 months	Currently pursuing
TDEC-Environmental Consultant 1 00075800 / Licensing Program	June 2020 / 10 months	Currently pursuing
TDEC-Environmental Consultant 3 00070141 /	June 2020 / 10 months	Currently pursuing



Environmental Monitoring Program		
TDEC-Environmental Scientist 2 00041701 / Environmental Monitoring Program	March 2020 / 11 months	Currently pursuing
TDEC-Environmental Scientist 2 00041698 / Emergency Preparedness/Incident Reporting Program	June 2020 / 10 months	Currently pursuing

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

10. 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

10. 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.

	Nashville Total Inspections Priority 1-3 (does not include reciprocity)	Nashville Initial RAM inspections (does not include reciprocity)	Knoxville total Inspections Priority 1-3 (does not include reciprocity)	Knoxville initial RAM inspections (does not include reciprocity)	Chattanooga Total Inspections Priority 1-3 (does not include reciprocity)	Chattanooga Initial RAM inspections (does not include reciprocity)	Memphis total Inspections Priority 1-3 (does not include reciprocity)	Memphis Initial RAM inspections (does not include reciprocity)
2016	29	7	33	4	30	0	16	2
2017	23	2	52	7	31	2	18	1
2018	43	1	42	8	38	3	22	0
2019	38	4	33	4	29	4	5	0
2020	34	0	41	7	25	1	10	5
2021	4	0	5	1	6	0	1	0
<b>total</b>	<b>171</b>	<b>14</b>	<b>206</b>	<b>31</b>	<b>159</b>	<b>10</b>	<b>72</b>	<b>8</b>

\*Data pulled from Monthly reports March 11, 2016- February 28<sup>th</sup>, 2021. Data reflects number of inspection codes.

<b>DRH Priority 1,2,3 inspections</b>	<b>DRH initial inspections</b>
<b>608</b>	<b>63</b>

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 **Landauer Medical Physics**
- (2) License Number **R-M6006**
- (3) Priority (IMC 2800) **5**
- (4) Last inspection date or license issuance date, if initial inspection **5/9/2017**
- (5) Date Due **5/9/18**
- (6) Date Performed **March 11, 2020**
- (7) Amount of Time Overdue **22 months**
- (8) Date inspection findings issued **March 30, 2020**

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.

**None**

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.

<b>Reciprocity information 2016-2021</b>			
<b>Year</b>	<b>Cat 1-3 licenses</b>	<b>Number inspected</b>	<b>% insp</b>
<b>2016</b>	<b>15</b>	<b>9</b>	<b>60%</b>
<b>2017</b>	<b>14</b>	<b>8</b>	<b>57%</b>
<b>2018</b>	<b>17</b>	<b>10</b>	<b>59%</b>
<b>2019</b>	<b>12</b>	<b>9</b>	<b>75%</b>
<b>2020</b>	<b>11</b>	<b>5</b>	<b>45%</b>
<b>2021</b>	<b>10</b>	<b>4</b>	<b>40%</b>
<b>Total</b>	<b>79</b>	<b>45</b>	<b>57%</b>

**These numbers are for all reciprocity licensees that enter the state**

### III. Technical Quality of Inspections

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

**None**

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

Inspector                      Supervisor                      License Category                      Date

See Attachment #4

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?

**Laboratory Capabilities:** The Department of Health Radiochemistry laboratory is capable of analyzing directly or contracting the analysis of sample media using a number of analytical methods including but not limited to: gamma spectrometry, gross proportional counting, liquid scintillation counting, alpha spectrometry, strontium analysis, and isotopic uranium analysis.

**Instrumentation:** Calibrations of detection instrumentation are performed by K & S Associates. K&S is accredited by A2LAIN accordance with ISO/IEC 17025:2017 and meets the requirements of ANSI Z540-1-1994 and R205. K&S is also accredited by The American Association of Physicists in Medicine (AAPM) as a Dosimetry Calibration Laboratory. The Division of Radiological Health contracts K&S Associates to calibrate the necessary survey and inspection instrumentation needed by the Division. There are a few instrument types that require calibrations to be performed by the manufacturer for reasons involving proprietary software, or the required calibration is unable to be performed by K&S Associates. The first of which is the NucSafe Guardian Backpack Survey Unit. Due to the unique software package that operates the instrument, it is transported to the manufacturer in Oak Ridge, TN on an annual basis. The other instruments requiring manufacturer calibrations are the neutron detectors as K&S does not have the capability to calibrate neutron detectors. We currently have three Thermo WENDI's (Wide Energy Neutron Detection Instrument) and one Ludlum Remball in our inventory. Three of these instruments are currently in standby status with one remaining in current calibration status based on the needs of the inspection program. All calibrations records are maintained centrally by a staff member in Nashville. Statewide instrument locations and calibration due dates are tracked using a database by this staff member. The process in place for instrument exchanges is as follows: When an office's instrument is coming due for calibration or if that office has instrumentation that is malfunctioning and in need of repair, instruments are exchanged with that office by Nashville staff. The Nashville staff will then coordinate the calibration and/or repair of that instrumentation. This process ensures that inspection staff have ready access to necessary instrumentation. This process is ongoing with exchanges occurring weekly and monthly as needed. Since our last review we have added further instrumentation to ensure inspection staff always has access to calibrated instrumentation.

In the below chart we have listed the types and quantities of instrumentation the Division maintains.

Manufacturer	Model	Total available	Detector Type
Bicron	Micro Rem	7	Organic Scintillator
Bicron	RSO-5	1	Ion Chamber

Canberra	Falcon 5000	1	HpGe
Canberra	Insp. 1000	4	NaI Scintillator / RIID
Exploranium	GR-135	3	NaI Scintillator / RIID
F&J	DF-1	7	High Vol Digital Air Pump
F&J	DF-AB-40L	5	High Vol Digital Air Pump
F&J	HV-1BC	6	High Vol Analog Air Pump
F&J	LV-1	1	High Vol Analog Air Pump
F&J	MC-60L	1	Air Sampler System Calibrator
Ludlum	12 kit	8	Multiple Probe Response Kit
Ludlum	12-4	1	Rem Ball 42-31
Ludlum	12S	6	Internal NaI Scintillator
Ludlum	19	8	Internal NaI Scintillator
Ludlum	193-6	3	Scintillator extended probe
Ludlum	2241-2	1	Multiple Probe Response Kit
Ludlum	2241-3	9	Multiple Probe Response Kit
Ludlum	25	12	Internal GM / Electronic Dosimeter
Ludlum	26-1	19	Internal GM/Frisker/exposure filter
Ludlum	3019	10	Internal CsI scintillator / Digital
Ludlum	375-10	1	Internal NaI Scintillator
Ludlum	52-1-1	1	Portal Monitor / 4 NaI Scintillators
Ludlum	9-3	11	Ion Chamber
Ludlum	Model 3	11	GM frisker probe
Ludlum	Model 5	3	Internal GM
MDH	1015	9	Ion Chamber
NucSafe	Guardian G4	1	NaI Scintillator / portal Backpack/ RIID
Ortec	Detective EX-100	1	HPGe & He3 Neutron Detector
Radcal	ACCU-Gold	4	Ion Chamber
Raysafe	ThinX	15	X-ray Survey
Thermo Eberline	RadEye PX	3	Wendi / Neutron
Thermo Elec.	Micro Rem	3	Organic Scintillator
Thermo Elec.	RIIDEye	6	NaI Scintillator / RIID
Unfors XI	XI	11	X-ray Survey / RF

#### IV. Technical Quality of Licensing Actions

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

Total number of licenses is 499.

During the review period, the program performed 2,211 radioactive materials licensing actions (2065 amendments, including renewals, 88 terminations and 58 new license).

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.

See Attachment #5

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

R-73008 EnergySolutions

45. An exemption is granted to the requirements in 0400-20-05-.115(3) of “State Regulations for Protection Against Radiation” that a package received during normal working hours shall be monitored within 3 hours, and that a package not received during normal working hours shall be monitored no later than 3 hours after the beginning of the next working day. Instead, the licensee may monitor a package received during normal working hours within the shift that it is received, or for a package not received during normal working hours may monitor that package within the first shift of the next working day. This authorization does not relieve the licensee from monitoring packages as soon as practical after receipt.

This exemption may be withdrawn or modified by the Department at any time it is determined necessary to protect the public health and safety or if it is found that the conditions on which this exemption is based have been violated.

R-95009 World Testing

22. An exemption is granted to the requirements of “State Regulations for the Protection Against Radiation” 0400-20-05-.32(24), 0400-20-05-.70(3)(1), and 0400-20-08-.05(3)(a) for the use of the Mirion Technology Instadose dosimetry for this license. This exemption may be withdrawn or modified by the Department at any time it is determined necessary in order to protect public health and safety or if it is found that the conditions upon which this exemption has been granted have been violated.

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

The table below lists all RAM Licensing Procedure documents from Radiological Health SharePoint site:

<https://tennessee.sharepoint.com/sites/environment/drh/SitePages/Home.aspx>

Link	Title	Type
<a href="#">DRH-RAM-P-400-015-082118.pdf</a>	Control of Security-Related Sensitive Information	Policy
<a href="#">DRH-RAM-P-400-018-082818.pdf</a>	Policy for Processing/Waste Handling Radioactive Material License Applications and Amendments	Policy
<a href="#">DRH-RAM-P-400-014-101818 .pdf</a>	Request for Specific Radioactive Material License File Review or Information	Policy

<a href="#">DRH-RAM-P-400-004-090618.pdf</a>	Procedures for the Renewal of Radioactive Waste License-For-Delivery	Procedure
<a href="#">DRH-RAM-P-400-003-090618.pdf</a>	Procedures for the Issuance of Radioactive Waste License-For-Delivery	Procedure
<a href="#">DRH-RAM-P-400-017-062518.pdf</a>	Procedures for the Issuance of Waste processing/Handling Specific RAM License	Procedure
<a href="#">DRH-RAM-P-400-016-070518.pdf</a>	Notification of Licensing Actions for Public Participation regarding Waste Processors	Procedure
<a href="#">DRH-RAM-P-400-002-070518.pdf</a>	Procedures for the Termination of Specific Radioactive Material License	Procedure
<a href="#">DRH-RAM-P-400-006-062518.pdf</a>	Procedures for the Issuance of Broad Specific Radioactive Material License	Procedure
<a href="#">DRH-RAM-P-400-011-070518 .pdf</a>	Procedures for DRH Tracking Log for Radioactive Material Applications/Amendments	Procedure
<a href="#">DRH-RAM-P-400-007-062518 .pdf</a>	Procedures for the Issuance Medical Specific Radioactive Material License	Procedure
<a href="#">DRH-RAM-P-400-009-062518 .pdf</a>	Procedures for the Issuance of Portable Moisture Density Gauge Specific Radioactive Material License	Procedure
<a href="#">DRH-RAM-P-400-010-062818 .pdf</a>	Procedures for the Issuance of a Radiography Specific Radioactive Material License	Procedure
<a href="#">DRH-RAM-P-400-001-070518 Issuance of Specific RAM.pdf</a>	Process for the Issuance of Specific Radioactive Material License	Process

Approval of licenses and amendments written by the Environmental Scientists is accomplished by review and approval by the Environmental Consultant and the Licensing Manager. The Environmental Consultant's work is reviewed and approved by the Licensing Manager. The Licensing Manager's work is reviewed and approved by the Deputy Director. Waste Processor authorizations are reviewed and approved by the Licensing Manager and the Deputy Director.

The Division has adopted the NRC's Web Based Licensing Database as a way to enhance tracking of license and amendment review and the electronic storage of license and inspection information. The process of storage of license and inspection information is in process.

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.

None

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:

Licensee Name      License #      Date of Incident/Report      Type of Incident

All submitted

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

The following revisions have been made to the Division's Complaint/Allegation/Investigation (CAI) procedure since 2016.

Revision	Procedure	Date	Comment
16	CAI-P-120-001	05/30/2019	Added response times info in Section VI item 5.
2	CAI-P-120-002	06/27/2018	Updates to new policy format.
2	CAI-P-120-003	06/27/2018	Updates to procedure for digital records management.
4	CAI-P-120-004	05/30/2019	Added radiation producing devices reporting table.
15	CAI-P-120-005	06/28/2018	Updated policy format.
1	CAI-P-120-006	06/27/2018	Revised to a new policy format.
1	CAI-P-120-007	06/27/2018	Revised to a new policy format.

C. **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.

Tennessee Code Annotated TCA, Title 68, Chapter 202, Parts 1 through 9. No new legislation affecting the radiation control program was passed during the review period.

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

Rules adopted during the year are subject to sunset on June 30 of the following calendar year, unless approved by the legislature. Historically, all regulations approved by the Government Operations Committee (GOC) of the Tennessee General Assembly are then approved by the legislature by passage of a bill. All DRH regulations must have approval of the GOC.

The Department of Environment and Conservation is an entity that is subject to sunset review pursuant to the Tennessee Governmental Entity Review Law compiled in Tenn. Code Ann., Title 4, Chapter 29

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 State Regulation Status (SRS) sheet for Tennessee (TN) dated 11/27/17 (Tracking Ticket #: 18-01) should be amended with the following information:

<u>NRC Chronology Identification</u>	<u>FR Notice</u>	<u>Due Date for State Adoption</u>	<u>RATS ID</u>	<u>Proposed/Final Rule</u>	<u>Sent for NRC Initial Review</u>	<u>State's progress</u>
Distribution of Source Material to Exempt Persons and to General Licensees and Revision of General License and Exemptions – Parts 30, 40, 70, 170, and 171	78 FR 32310	8/27/2016	2013-2	Proposed	08/28/2017	Undergoing Office of General Counsel review. -Public Hearing held on 11/13/2020.
Domestic Licensing of Special Nuclear Material – Written Reports and Clarifying Amendments-Part 70	79 FR 57721, 80 FR 143	01/26/2018	2015-1	Proposed	08/28/2017	-Undergoing Office of General Counsel review. -Revisions already made in state regulations. -Public Hearing held on 11/13/2020.
Safeguards Information - Modified Handling Categorization, Change for Materials Facilities– Parts 30, 37, 73 and 150	79 FR 58664, 80 FR 3865	01/28/2018	2015-2	Proposed	08/28/2017	-Undergoing Office of General Counsel review. -Revisions already made in RATS ID 2013-1. -Public Hearing held on 11/13/2020.



Revisions to Transportation Safety Requirements and Harmonization with International Atomic Energy Agency Transportation Requirements Part 71	80 FR 33987	07/13/2018 *extended to 08/15/2020 See STC 17-060	2015-3	Proposed	08/28/2017	Undergoing Office of General Counsel review. --Public Hearing held on 11/13/2020.
Miscellaneous Corrections, Parts 37 and 40	80 FR 45841	09/02/2018	2015-4	Proposed	08/28/2017	-Undergoing Office of General Counsel review. -Change already made. -Public Hearing held on 11/13/2020.
Miscellaneous Corrections, Parts 19, 20, 30, 32, 37, 40, 61, 70, 71 and 150	80 FR 74974	12/31/2018	2015-5	Proposed	08/28/2017	-Undergoing Office of General Counsel review. -Changes were either already made or not applicable to state regulations. -Public Hearing held on 11/13/2020.
Medical Use of Byproduct Material – Medical Event Definitions, Training and Experience, and Clarifying Amendments, 10 CFR Parts 30, 32, and 35	83 FR 33046	01/14/2022	2018-1	Proposed		
Miscellaneous Corrections - Organizational Changes 10 CFR Parts 37, 40, 70 and 71	83 FR 57231	12/21/2021	2018-2	Proposed		
Miscellaneous Corrections 10 CFR Parts 1, 2, 34, 37, 50, 71, 73, and 140	83 FR 30285	07/30/2022	2018-3	Proposed		
Miscellaneous Corrections 10 CFR Parts 2, 21, 37, 50, 52, 73, and 110	83 FR 63565	12/18/2022	2019-1	Proposed		
Organizational Changes and Conforming Amendments 10 CFR Parts 1, 2, 37, 40, 50, 51, 52, 55, 71, 72, 73, 74, 100, 140, and 150	84 FR 65639 84 FR 66561	12/30/2022	2019-2	Proposed		

Individual Monitoring Devices 10 CFR Parts 34, 36, and 39	85 FR 15347	06/16/2023	2020-1	Proposed		
Social Security Number Fraud Prevention 10 CFR Parts 9 and 35	85 FR 44685	08/17/2023	2020-2	Proposed		
Miscellaneous Corrections 10 CFR Parts 1, 2, 19, 20, 21, 30, 34, 35, 40, 50, 51, 52, 60, 61, 62, 63, 70, 71, 72, 73, 74, 75, 76, 110, and 140	85 FR 65656	11/16/2023	2020-3	Proposed		

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.

Tennessee has three procedures for amending regulations: Rulemaking Hearing Rules, Proposed Rules, Emergency/Public Necessity Rules. The first two procedures, which lead to final rules, are generally used.

Under Rulemaking Hearing Rules procedures, after review of a proposed rule change [by the Division, by the Department's Office of General Counsel (OGC), and by outside interested parties] a date for a hearing is determined. Notice of the hearing is transmitted to the Secretary of State for publication on the Tennessee Administrative Register (TAR) website. Notice of the hearing is also published on the Division's website.

Comments are accepted through the end of the comment period. Any changes resulting from the comments received are made, and the finalized rule is sent back to the OGC for their final review. The package is sent to the Governor's Office for review. Afterwards, the OGC sends the rule to the Department's Commissioner for his/her signature, and then to the State's Office of the Attorney General for review. After the Attorney General has signed it, the rule goes to the Office of the Secretary of State. Rulemaking Hearing Rules logged with the Secretary of State become effective after a waiting period of 90 days.

Under Proposed Rules, rules considered non-controversial may be filed without a public hearing. After review of a proposed rule [by the Division, by the Department's Office of General Counsel (OGC), by outside interested parties, by review/signature of the Commissioner, and by review/signature of the Attorney General], notice of the proposed rule is transmitted to the Secretary of State for publication on the Tennessee Administrative Register (TAR) website. The Division also publishes notice on its website. A petition requesting a public hearing may be filed within sixty (60) days from

the first day of the month subsequent to the filing of the proposed rule with the Secretary of State. In the absence of a petition, the rule becomes effective after a waiting period of 150 days.

Rules may undergo additional review by the Division and the OGC as the rules proceed through the OGC and Attorney General review process.

After a rule becomes effective, representatives of the Division and the OGC will be scheduled to appear before the Government Operations Committee of the legislature for the Committee's approval.

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

<b>Manufacturer /Distributor</b>	<b>Registry Number</b>	<b>Model</b>	<b>Type</b>	<b>Type of Action</b>	<b>Issue Date</b>
Berthold Technologies,U.S.A	TN-1031-D-101-B	LB 7400 Series	Gamma gauge dens/level	Amendment	2/24/2021
Berthold Technologies,U.S.A	TN-1031-S-103-S	P2608-100	Gamma source rod	Amendment	9/10/2018
Berthold Technologies,U.S.A	TN-1031-D-104-B	LB 300L,300LP	Gamma gauge rod/point	Amendment	1/22/2020
Berthold Technologies,U.S.A	TN-1031-D-105-B	LB 379	Gamma gauge dens/pipe	Amendment	7/11/2018
Berthold Technologies,U.S.A	TN-1031-D-802-B	LB-7487	Gamma gauge ash mon.	Amendment	9/12/2016
Berthold Technologies,U.S.A	TN-1031-D-107-S	LB 300IRL TY I	Gamma gauge cable/dip t	Amendment	7/10/2018
Berthold Technologies,U.S.A	TN-1031-D-108-S	LB 300 ML,MLT	Gamma gauge molten met	Amendment	7/10/2018
Berthold Technologies,U.S.A	TN-1031-D-109-S	LB 300 IRL ML II	Gamma gauge dip tube	Amendment	8/3/2018

Berthold Technologies,U.S.A .	TN-1031-D-803-B	LB 375	Gamma gauge sulfur anal.	Amendment	9/12/2016
Berthold Technologies,U.S.A .	TN-1031-D-112-B	LB 8110	Gamma gauge mass flow	Amendment	7/16/2018
Berthold Technologies,U.S.A .	TN-1031-D-805-B	LB 7501,7501C R	Gamma gauge low activity	Amendment	9/5/2017
Berthold Technologies,U.S.A .	TN-1031-D-806-B	LB 7502	Gamma gauge low act rod	Amendment	9/6/2017
Berthold Technologies,U.S.A .	TN-1031-D-801-S	LB 300 IS	Gamma gauge cable/dip t	Amendment	3/31/2016
Berthold Technologies,U.S.A .	TN-1031-D-804-B	LB 7409-3	Moisture gauge insertion	Amendment	9/5/2017
Berthold Technologies,U.S.A .	TN-1031-D-117-B	LB 7410	Moisture Gauge	Amendment	7/20/2018
Berthold Technologies,U.S.A .	TN-1031-D-118-S	LB 300 IRL Type III	Gamma Gauge	Amendment	8/23/2018
Berthold Technologies,U.S.A .	TN-1031-D-119-B	LB 8010	Gamma Gauge	Amendment	10/12/2017
Berthold Technologies,U.S.A .	TN-1031-S-120-S	SSC SERIES	Gamma Source	Amendment	9/30/2016
Berthold Technologies,U.S.A .	TN-1031-D-121-B	LB 300 W Series	GammaGauge	Amendment	7/30/2018
Berthold Technologies,U.S.A .	TN-1031-D-122-B	BT-MPLM	GammaGauge	New	11/20/2018
Berthold Technologies,U.S.A .	TN-1031-D-123-B	LB 8300	GammaGauge	Pending	3/31/2021
Energy Technologies, Inc.	TN-0799-D-103-S	FSEA-NAA	Gamma Gauge	Amendment	3/11/2019
Sanders Medical Products	TN-0241-S-101-S	PET-XXX/YY	Nuc. Med. Cal. Source	Amendment	1/12/2017
MASEP Global Dist., LLC	TN-1389-D-101-S	INFINI	Gam.Ster Radiosurgery	Amendment	11/7/2016

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

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;

Provided in B.I.2.(a)

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

Provided in B.I.2.(b)

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

Provided in B.I.3.(c)

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.

Name	Position	Area of Effort	FTE%
Johnny Graves	Manager	Concurrence	1
Ron Parsons	Environmental Consultant	Review and Concurrence	5
Matthew Greenwood	Environmental Scientist	Review	5
Amy McKenna	Environmental Scientist	In Training	-

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.

Matthew Greenwood-attended the SSDS workshop in August 2020, in process of new device review.

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.

See answer to question 4

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

None

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

Gerald Bacon-2018

Charles Arnott-2019

Sasi Krishnasarma-Jan. 2021

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.

NA

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.

NA

#### Technical Quality of Licensing Actions - Questions 18-22

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

9

Amersham Corp.	TN-628-D-200-S	861	Indust. Gauge custom	10/26/1995
Berthold Technologies, U.S.A.	TN-1031-D-101-B	LB 7400 Series	Gamma gauge dens/level	7/15/1997
Berthold Technologies, U.S.A.	TN-1031-S-102-S	P2602-100	Gamma source point	7/15/1997
Berthold Technologies, U.S.A.	TN-1031-S-103-S	P2608-100	Gamma source rod	7/24/1997
Berthold Technologies, U.S.A.	TN-1031-D-104-B	LB 300L,300LP	Gamma gauge rod/point	9/8/1997
Berthold Technologies, U.S.A.	TN-1031-D-105-B	LB 379	Gamma gauge dens/pipe	11/21/1997
Berthold Technologies, U.S.A.	TN-1031-D-802-B	LB-7487	Gamma gauge ash mon.	1/15/1998
Berthold Technologies, U.S.A.	TN-1031-D-107-S	LB 300IRL TY I	Gamma gauge cable/dip t	6/8/1998
Berthold Technologies, U.S.A.	TN-1031-D-108-S	LB 300 ML,MLT	Gamma gauge molten met	6/15/1998
Berthold Technologies, U.S.A.	TN-1031-D-109-S	LB 300 IRL ML II	Gamma gauge dip tube	7/6/1998
Berthold Technologies, U.S.A.	TN-1031-S-110-S	LB 8910,8920	Gamma source line	1/6/1999
Berthold Technologies, U.S.A.	TN-1031-D-803-B	LB 375	Gamma gauge sulfur anal.	4/14/1999
Berthold Technologies, U.S.A.	TN-1031-D-112-B	LB 8110	Gamma gauge mass flow	7/29/1999
Berthold Technologies, U.S.A.	TN-1031-D-805-B	LB 7501,7501CR	Gamma gauge low activity	1/22/2001
Berthold Technologies, U.S.A.	TN-1031-D-806-B	LB 7502	Gamma gauge low act rod	9/6/2017
Berthold Technologies, U.S.A.	TN-1031-D-801-S	LB 300 IS	Gamma gauge cable/dip t	2/7/2003
Berthold Technologies, U.S.A.	TN-1031-D-804-B	LB 7409-3	Moisture gauge insertion	4/24/2003
Berthold Technologies, U.S.A.	TN-1031-D-117-B	LB 7410	Moisture Gauge	4/28/2005
Berthold Technologies, U.S.A.	TN-1031-D-118-S	LB 300 IRL Type III	Gamma Gauge	8/7/2006
Berthold Technologies, U.S.A.	TN-1031-D-119-B	LB 8010	Gamma Gauge	7/30/2008
Berthold Technologies, U.S.A.	TN-1031-S-120-S	SSC SERIES	Gamma Source	9/1/2011
Berthold Technologies, U.S.A.	TN-1031-D-121-B	LB 300 W Series	GammaGauge	1/31/2013
Berthold Technologies, U.S.A.	TN-1031-D-122-B	BT-MPLM	GammaGauge	11/20/2018
Berthold Technologies, U.S.A.	TN-1031-D-123-B	LB 8300	GammaGauge	3/31/2021
Siemens Medical Solutions	TN-237-S-101-S	RS	Ring source	6/18/1990
Siemens Medical Solutions	TN-237-S-102-S	PS	Calibration source plane	11/9/1990
Siemens Medical Solutions	TN-237-S-103-S	LS	Calibration source line	4/16/1991
Siemens Medical Solutions	TN-237-S-104-S	CS, CS-HT	Cylinder source	7/19/1991
Siemens Medical Solutions	TN-237-S-105-S	LS-POINT	Line source	2/8/2001
Siemens Medical Solutions	TN-237-S-106-S	P-39	Point Source	6/12/2002
Siemens Medical Solutions	TN-1067-D-101-S	ECAT EXACT	Source holder PET scan.	12/15/1998
Siemens Medical Solutions	TN-1067-D-102-S	ECAT ART	Source holder PET scan.	5/7/1999
Siemens Medical Solutions	TN-1067-D-103-S	ECAT HRRT	Source holder PET scan.	7/21/2003
Siemens Medical Solutions	TN-1067-D-104-S	Inveon Twinscan	Source holder PET scan.	10/19/2006
ELECTRONIC SYSTEMS spa	TN-1036-D-101-S	Isoscint 1000	Beta Thickness Gauge	10/17/1997
ELECTRONIC SYSTEMS spa	TN-1036-D-102-S	Isoscint 2000	Beta Thickness Gauge	10/17/1997
Energy Technologies, Inc.	TN-0799-D-101-B	DGA-Series 400	Rapid Ashmeter	10/5/1994
Energy Technologies, Inc.	TN-0799-D-102-B	DGA,SGA Se 500	Nuc.Belt Scale/ Dens.Gau.	4/14/1998
Energy Technologies, Inc.	TN-0799-D-103-S	FSEA-NAA	Gamma Gauge	3/11/2019
ETRAC Laboratories, Inc.	TN-314-S-101-S	CS-Series	Liquid alpha ref. source	7/1/1991
Sanders Medical Products	TN-0241-S-101-S	PET-XXXYY	Nuc. Med. Cal. Source	7/7/1995
Sanders Medical Products	TN-0241-S-102-S	PET-Cyl.DDLL/AA	Nuc. Med. Cal. Source	10/18/1996
Sanders Medical Products	TN-0241-S-103-S	PET-Pla.WWLL/AA	Nuc. Med. Cal. Source	10/18/1996
Foss Therapy Services, Inc.	TN-1357-D-101-S	Eldorado 78	Irradiation Device/Calibrator	11/29/2012
MASEP Global Dist., LLC	TN-1389-D-101-S	INFINI	Gam.Stereo.Radiosurgery	11/20/2014

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.

See Question 29 above. Manager deems all reviews major.

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

None

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

None

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.

None

### 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:

NA

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:

No 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

Attachment #4

ACCOMPANIMENTS

Nashville

Inspector	Supervisor	Facility	License Number	NRC Code	Date
Gerald Kwazu	Beth Shelton	Geotek Engineering	R-19151	3121	7/21/2020
Gerald Kwazu	Beth Shelton	Middle Tennessee State University	R-75043/GL-168	GL, 1100	11/21/2019
Gerald Kwazu	Amy Ford	Music City Pharmacy	R-19245	2500	2/22/2019
Gerald Kwazu	Beth Shelton	Vanderbilt	R-19021	1100, 3510, 50002	5/15/2018
Gerald Kwazu	Beth Shelton	ESC Laboratories	R-95006	3225	12/11/2017
Gerald Kwazu	Amy Ford	Sumner Regional Medical Center	R-83004	2120	12/7/2016
Gerald Kwazu	Paula Snyder	Vanderbilt	R-19266	2110, 2230, 2240, 3510	6/29/2016
Amy Ford	Beth Shelton	Urology Surgery Center	R-19242	2200	3/5/2021
Amy Ford	Beth Shelton	Vanderbilt	R-19021/R-19266	2110, 2230, 2240, 3510	9/2/2020
Amy Ford	Beth Shelton	Middle Tennessee State University	R-75043/GL-168	GL, 1100	11/21/2019
Amy Ford	Gerald Kwazu	Janx	R-19219	3320, 50001	1/3/2019
Amy Ford	Beth Shelton	Vanderbilt	R-19021	1100, 3510, 50002	5/15/2018
Amy Ford	Beth Shelton	Tristar Centennial Medical Center	R-19112	2120	1/3/2018
Amy Ford	Gerald Kwazu	Janx	R-19219	3320, 50001	12/29/2017
Amy Ford	Paula Snyder	Vanderbilt	R-19266	2110, 2230, 2240, 3510	6/29/2016
Amy Ford	John Politte	Murfreesboro Medical Clinic	R-75044	2200	1/21/2016
Paula Snyder		No Ram Inspections			2020
Paula Snyder		No Ram Inspections			2019
Paula Snyder	Beth Shelton	Vanderbilt	R-19021	1100, 3510, 50002	5/15/2018
Paula Snyder		No Ram Inspections			2017
Paula Snyder	Beth Shelton	Vanderbilt	R-19266	2110, 2230, 2240, 3510	6/29/2016
Jamie Bunch		No Ram Inspections			2020
Jamie Bunch		No Ram Inspections			2019
Jamie Bunch		No Ram Inspections			2018
Jamie Bunch		No Ram Inspections			2017
Jamie Bunch	Gerald Kwazu	Vanderbilt	R-19266	2110, 2230, 2240, 3510	6/29/2016

**Knoxville**

<b>Inspector</b>	<b>Supervisor</b>	<b>Facility</b>	<b>License Number</b>	<b>NRC Code</b>	<b>Date</b>
Mariza Gonzalez	Mark Andrews	Sanders Medical Products, Inc	R-47154, R-47155	3620, 3214	3/9/2021
Mariza Gonzalez	Mark Andrews	Methodist Medical Center of Oak Ridge	R-01095	2120	6/17/2020
Mariza Gonzalez	Mark Andrews	East Tennessee State University	R-90029	1100	5/9/2019
Mariza Gonzalez	Mark Andrews	Manufacturing Sciences Corp	S-01046	11300	/2018, 3/19/2018
Mariza Gonzalez	Mark Andrews	Endocrinology Consultant of East TN	R-47145	2200	6/11/2017
Mariza Gonzalez	Mark Andrews	Blount Memorial Hospital	R-05008	2120	4/27/2016
Roger Macklin	Mark Andrews	Energy Solutions	R-73006	3234, 50002	2/10/2021
Roger Macklin	Mark Andrews	Miron Technologies	R-01013	3620, 50005	7/17/2020
Roger Macklin	Mariza Gonzales	Unitech	R-M3007	3234	9/25/2019
Roger Macklin	Mariza Gonzales	Toxco	R-01037	3234, 50002	/2018, 4/23/2018
Roger Macklin	Mark Andrews	Teledyne Brown Engineering	S-A1027	3620	9/27/2017
Roger Macklin	Mariza Gonzales	Ft. Sanders West Diagnostic Center	R-47116	2121	6/29/2017
Roger Macklin	Mariza Gonzales	University of Tennessee	N-47007	22120	/2016, 4/18/2016
Angela Wood	Mariza Gonzalez	AFCO NDE	R-01092	3320, 50001	1/21/2020
Angela Wood	Mark Andrews	Applied Engineering& Management	R-47186	3121	7/3/2019
Angela Wood	Mariza Gonzalez	AFCO NDE	R-01092	3320, 50001	11/29/2018
Angela Wood	Mariza Gonzalez	Sweetwater Hospital, Asso	R-62004	2121	7/2018, 5/8/2018
Norman Miller	Mariza Gonzales	Bionomics	R-73021	3234, 50002	6/25/2020
Norman Miller	Mariza Gonzales	Arconic	R-05004	3120	5/30/2019
Norman Miller	Mariza Gonzales	Unitech Services Group	R-M3007	3234	8/22/2018
Norman Miller	Mariza Gonzales	Wellmont Bristol Regional Medical Center	R-82016	2120	5/18/2017
Norman Miller	Mariza Gonzales	Parkwest	R-47201	2230	8/11/2016
Josh Munyon	Mark Andrews	Mason Liveday Scientific, LLC	R-01122	3225,3221	6/18/2020
Josh Munyon	Mark Andrews	FLIR Radiation, Inc	R-01097	3620	5/1/2019
Josh Munyon	Billy Freeman	Environmental Dimensions, Inc (EDI)	R-01103	3234, 3900	10/18/2018
Josh Munyon	Mark Andrews	RbM Services, LLC	R-01104	3620	5/21/2018
Josh Munyon	Mark Andrews	Blount Memorial Hospital	R-05021	2120,2230	9/20/2017
Josh Munyon	Mark Andrews	MSHA-Johnson City Medical Center	R-90005	2120	2/3/2017
Josh Munyon	Mark Andrews	Safety & Ecology Corp	R-47209	3222, 50005	4/22/2016

**Chattanooga**

<b>Inspector</b>	<b>Supervisor</b>	<b>Facility</b>	<b>License Number</b>	<b>NRC Code</b>	<b>Date</b>
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Angie Dunn	Stuart Belva	Chattanooga Imaging - East	R-33131	2200	11/19/2020
Angie Dunn	Stuart Belva	Memorial Health Care System	R-33120	2120,2230	10/29/2019
Angie Dunn	Stuart Belva	Memorial Health Care System	R-33176	2200	11/21/2018
Angie Dunn	Steve Seeger	Saint Thomas Stones River Hospital	R-08001	2121	10/26/2017
Angie Dunn	John Politte	Volkert	R-33148	3121	9/6/2016
Angie Dunn	John Politte	Invista	R-33018	3120	2/25/2016
Angie Dunn	John Politte	Johns Manville	R-54006	3120	2/24/2016
Angie Dunn	John Politte	Saint Thomas River Park	R-89003	2120	5/20/2016
Angie Dunn	John Politte	Memorial Healthcare	R-33013	2120	4/4/2016
Angie Dunn	John Politte	Livingston Regional Hospital	R-67002	2120	3/24/2016
Jessica Hayes	Stuart Belva	Memorial Hospital Cancer Center	R-33120	2120	10/23/2020
Jessica Hayes	Stuart Belva	Tennova Healthcare	R-06002	2120	10/24/2019
Jessica Hayes	Stuart Belva	W. R. Grace	S-33006	11700	5/30/2018
Jessica Hayes	Stuart Belva	Ivey Cooper Services	R-33145	3310	5/23/2018
Jessica Hayes	Stuart Belva	Prime Imaging Chattanooga	R-33096	2200	5/10/2018
Jessica Hayes	Stuart Belva	Chattanooga Imaging	R-06017	2200	4/27/2018
Jessica Hayes	Stuart Belva	Memorial Ooltewah Imaging Center	R-33132	2121	12/6/2017
Jessica Hayes	Stuart Belva	Chattanooga Imaging - East	R-33131	2200	11/9/2017
Stuart Belva	Steve Seeger	Applied Technical Services	R-33172	3320	2/18/2021
Stuart Belva	Steve Seeger	Applied Technical Services	R-33172	3320	2/25/2020
Stuart Belva	Steve Seeger	Exam, Inc	R-33138	3320	6/18/2019
Stuart Belva	Steve Seeger	Ivey Cooper Services	R-33145	3320	5/23/2018
Stuart Belva	Steve Seeger	Eagle Testing	R-33155	3320	6/7/2017
Stuart Belva	Steve Seeger	Exam, Inc	R-33138	3320	6/9/2016
Steve Seeger	Stuart Belva	Cardinal Health - Algood	R-71029	2500	5/24/2020
Steve Seeger	Stuart Belva	TUV Rheinland	R-A1026	50001	9/18/2019
Steve Seeger	Stuart Belva	W. R. Grace	S-33006	11700	5/30/2018
Steve Seeger	Billy Freeman	Cardiac Imaging Center @ Cookville Med. Ct	R-70127	2201	9/5/2018
Steve Seeger	Stuart Belva	Ivey Cooper Services	R-33145	50001	5/23/2017
Steve Seeger	Stuart Belva	Exam, Inc	R-33138	50001	6/9/2016

## Memphis

Inspector	Supervisor	Facility	License Number	NRC Code	Date
Allen Grewe	Billy Freeman	Henry County Medical Center	R-40002	2120	12/19/2018



## Attachment #5

(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.)

2016		
Licensee	License #	Type of Action
HD Calibration Services, Inc	R-06015	Renewal
Omega Technical Services	R-01116	new license
Urology Associates, P.C.	R-19276	new license
Maury Regional Cancer Center at Columbia	R-60025	new license
Restoration Services	R-73028	new license
TDOT	R-19017	Renewal
World Testing	R-95009	Renewal
Memphis Processing	R-79273	Termination/Decommissioning
Teledyne Brown Engineering	S-A1027	new license
Heritage Railroad	R-01117	new license
Alliance Healthcare Services, Inc.	R-C1006-D26	Renewal
Spectrum Techniques, LLC	R-01079-D26	Renewal
CG Services Corporation	R-01109-L26	Renewal
Heritage Railroad	R-01117-L26	Renewal
Halliburton Energy Services	R-T2015-I26	Renewal
St. Judes Childrens Research Hospital	R-79056-L26	Renewal
Tristar Skyline Medical Center	R-19016-J26	Renewal
The Chemours Company	R-43006-J26	Renewal
Toxco, Inc.	R-01037-J26	Renewal
Philotechnics	R-01084	Amendment 31
Bionomics	R-73021	Amendment 37-storage of Cat 2 material
Clinical Pharmacy Services	R-90033	Amendment 39-addition of Ge/Ga generators
Cardinal Health	R-19149	Amendment 117-addition of Ge/Ga Generators
Spectrum Techniques, LLC	R-01079-D26	Amendment 28-fabrication of Sealed source change

2017		
Licensee	License #	Type of Action
Triad Isotopes	R-F1003	Renewal
ATC Group Services	R-75045	New License
Engineering Design Technologies	R-G1021	Termination
Heritage Railroad	R-01118	new license
SE International	R-51002	Renewal

Erlanger Regional Hospital	R-33008	Renewal
GP Strategies, Inc.	R-16020	Termination
TEMA	R-19024	Amendment
Triad Isotopes	R-F1004	Renewal
Mid-South Nuclear Services	R-M6004	Renewal
Diagnostic Imaging Rental Services	R-78008	New License
MTPC, LLC	R-47226	New License
Animal Emergency & Specialty Clinic	R-47227	New License
Radiosurgical Center of Memphis	R-79245	Renewal
Cardinal Health	R-47211	Termination
EI Dupont	R-33156	Termination
Dade Moeller	R-01111	Termination
Erlanger Medical Center	R-33008-B27	Renewal
Environmental Dimensions, Inc.	R-01103-C27	Renewal
University of The South	R-26002-C27	Renewal
Cardinal Health	R-79174-D27	Renewal
Eastern Lighting Distribution Center	R-06016-C27	Renewal
Sanders Medical Products, Inc.	R-47154-D27	Renewal
TriStar Hendersonville Medical Center	R-83006-D27	Renewal
Wellmont Holston Valley Medical Center	R-82031-D27	Renewal
BioMimetic Therapeutics, LLC	R-94037-E27	Renewal
Erwin ResinSolutions, LLC	R-86011-E27	Renewal
RbM Services, LLC	R-01104-E27	Renewal
Tennessee Dept of Health / Laboratory Services	R-19144-E27	Renewal
Williamson Co. Hospital District dba Williamson Medical Center	R-94006-F27	Renewal
Daxor Corporation	R-01107-G27	Renewal
JAN X-Ray Services, Inc. dba JANX	R-19219-H27	Renewal
Ordela, Inc.	R-01054-H27	Renewal
National Aerospace Solutions, LLC	R-16011-I27	Renewal
MedWorks, Inc.	R-A1022-J27	Renewal
Saint Jude Children's Research Hosp	R-79037-L27	Renewal
Bionomics	R-73021	Amendment 38-storage of Cat 1 material
Bionomics	R-73021	Amendment 40- increase FA
Vanderbilt University Medical Center	R-19266	Amendment 9-removal of sources
2018		
Licensee	License #	Type of Action
Radiation Safety Services	R-47200	Renewal
City of Memphis	R-79114	Termination
Physicians Regional Medical Center	R-47002	Termination
IB3	R-01119	New License
American Centrifuge Operating, LLC	S-01120	New License
Agilent Technologies	R-79326	New License



FedEx Supply Chain Systems	R-79320	Termination
Omega Technical Services	R-01116	Termination
Omega Technical Services	R-01112	Termination
Smoky Mountain Solutions	R-01113	Termination
Nucor Steel Memphis, Inc.	R-79303-B28	Renewal
TEAM Industrial Services, Inc.	R-79323-B28	Renewal
Evonik Corporation (formerly JM Huber Corp)	R-54013-E28	Renewal
EXAM, Inc.	R-33138-F28	Renewal
H & H X-Ray Services, Inc. dba Waggoner & Associates	R-L1003-F28	Renewal
Advanced Measurement Technology	R-01003-C29	Renewal
Parkwest Medical Center	R-47201-G28	Renewal
Sanders Medical Products, Inc.	R-47155-G28	Renewal
Teledyne Brown Engineering, Inc.	R-47173-G28	renewal
Eastman Chemical Company	R-82007-H28	Renewal
Mobile Tech Service	R-54007-H28	Renewal
Parkridge Medical Center	R-33036-I28	Renewal
University of Tennessee - Knoxville	R-47005-I28	Renewal
Radiological Physics Associates, Inc.	R-19182-J28	Renewal
University of Tennessee - Chattanooga	R-33126-J28	Renewal
Saint Thomas West Hospital	R-19001-L28	Renewal
Wellmont Bristol Regional Medical Center	R-82009-J28	Renewal
Summit Medical Center	R-19066-K28	Renewal
Vanderbilt University Medical Center	R-19266	Amendment 12-Addition of sources
Vanderbilt University Medical Center	R-19266	Amendment 13-addition of Ge/Ga generators
Aerojet Ordance Tennessee	S-90009	Amendment 166-produce Uranium hexafluoride
Aerojet Ordance Tennessee	S-90009	Amendment 164-wastewater disposal
JanX	R-19219	Amendment 22-change of storage location
Radiosurgical Center of Memphis	R-79245	Amendment 46-Change of Gamma Knife (MASEP)
2019		
Licensee	License #	Type of Action
Tennessee Oncology	R-94047	New license
West Cancer Center - Midtown	R-79328	New license
Microbac TriCities Technologies	R-90051	Termination
Music City Nuclear Pharmacy	R-19245	Termination
Music City Nuclear Pharmacy	R-19253	Termination
3M Company	ROM5003	New license
Prime Imaging, LLC	R-33153	Termination
IveyCooper Services, Inc.	R-33145	Termination

IB3 Global Solutions	R-01122	New license
Memorial Health Care System / Cancer Treatment Center	R-33120-A29	Renewal
East Tennessee State University	R-90029-A29	Renewal
TriStar Centennial Medical Center	R-19132-A29	Renewal
Digirad Imaging Solutions, Inc.	R-G1017-B29	Renewal
Applied Technical Services, Inc.	R-33172-C29	Renewal
Chase Environmental Group, Inc.	R-53008-E29	Renewal
Jackson Madison County General Hospital	R-57002-E29	Renewal
Best ABT., Inc.	R-05026-E29	Renewal
TriStar Centennial Medical Center	R-19111-E29	Renewal
Midtown Animal LLC dba Central Animal Hospital	R-79311-F29	Renewal
Tennessee Equine Hospital	R-94039-F29	Renewal
Nuclear Fuel Services, Inc.	R-86002-H29	Renewal
Saint Francis Hospital	R-79104-I29	Renewal
Radiation Oncology Associates, Inc.	R-57027-I29	Renewal
Bionomics	R-73021	Amendment 42- increase FA
Cardinal Health	R-19149	Amendment 122-addition of isotopes
Cardinal Health	R-19149	Amendment 120-addition of Ge/Ga Generators
TEAM Industrial Services	R-79323	Amendment 16-Addition of Field Station
2020		
Licensee	License #	Type of Action
Schlumberger Technology Corporation	R-T2011	Termination
Exam, Inc.	R-33138	Termination
Environmental Dimensions, Inc. (Edi)	R-01103	Termination
Permafrix Environmental Services	R-73029	New license
Osram Sylvania	R-79330	New license
Integrity Testing and Inspection	R-K2018	New license
Manufacturing Sciences Corporation	S-01046-B30	Renewal
University of Tennessee - Memphis	R-79019-C30	Renewal
Mistras Group, Inc.	R-79313-D30	Renewal
Fisher & Arnold, Inc.	R-79314-F20	Renewal
Blue Pearl Veterinary Partners	R-94040-G20	Renewal
Philotechnics	R-01084	Amendment 39 - Add D&D
Bionomics	R-73021	Amendment 43-storage of Sr 90
Aerojet Ordance Tennessee	S-90009	Amendment 169-implement effluent limits
Aerojet Ordance Tennessee	S-90009	Amendment 170-DOD contract
Fort Sanders Regional Gamma Knife Center	R-47188	Amendment 28-Addition of the IKON gamma knife
RbM Services, LLC	R-47104	Amendment 12-expansion of Restricted Area

Sanders Medical Products, Inc.	R-47154/R-47155	Amendments 16/23-change in Ventilation System
Siemens Molecular Imaging	R-05023	Amendment 13-expand restricted area
Saint Thomas Midtown Hospital	R-19038	Amendment 65-new HDR room
2021		
Licensee	License #	Type of Action
Veterinary Care & Specialty Group	R-33179	New license
Inland Dredging Company	R-23009	New license
Avanti Manufacturing	R-63022	New license
Jubilant DraxImage Radiopharmacy	R-P1008	Amendment 53-addition of dose calibration for hire
Shelby County Engineering Department	R-79130-A21	Renewal
Cardinal Health - under review	R-71029-C21	Renewal
PETNET Solutions, Inc. - under review	R-47174-C21	Renewal
Bionomics	R-73021	Amendment 44-storage Am 241 extension