

**DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF CLIMATE, CLEAN ENERGY & RADIATION  
PROTECTION  
RADIATION PROTECTION ELEMENT  
MONTHLY REPORT**

**MARCH 1 THROUGH MARCH 31, 2020**

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**SECTION I- OFFICE OF THE ASSISTANT DIRECTOR**

*Original signed by:*

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Assistant Director, Pat Mulligan

## **SECTION II – BUREAU OF X-RAY COMPLIANCE (BXC)**

### **A. OFFICE OF THE BUREAU CHIEF**

#### **CRCPD H-7 Committee on Diagnostic X-ray, Monthly Technical Trends and Topics**

On March 3, Bureau staff participated in CRCPD H-7 Committee on Diagnostic X-ray conference call to discuss current issues and topics of mutual concern to State X-ray compliance personnel.

#### **govDelivery Administrator Training**

On March 4, Bureau staff participated in the govDelivery Administrator Training utilizing a Webinar application. govDelivery is replacing Listservs as the means to send emails to stakeholders about X-ray Compliance. With govDelivery, the administrator will be able to send emails with pictures, track the number of opened and bounced emails, and the number of links clicked.

#### **Lean Six Sigma (LSS) Green Belt Project Charter Discussion**

On March 17, Chief Robinson's team: LSS Green Belt Project Charter discussion was held with the LSS Master Black Belt from Rutgers University-Camden to discuss the progress of the project. Chief Robinson is facilitating the Radon Compliance Improvement Process with the Bureau of Environmental Radiation-Radon Section.

#### **Bureau operations and COVID-19**

As of March 20, Bureau staff have been working remotely from home. Due to COVID-19, all field inspections have been cancelled until further notice. Field inspectors are working on developing and implementing new SOPs to improve the efficiency of Bureau Operations. Also, they are assisting the office staff by responding to emails and answering telephone call questions from the regulated community. Bureau staff will always continue providing services to the over 8,700 facilities with x-ray equipment and the over 23,000 radiologic technologists by answering their questions related to compliance issues.

Contact: Arthur Robinson (609) 984-5634

### **B. REGISTRATION SECTION**

#### **Machine Source Registration and Renewal Fees**

The Registration Section has begun invoicing the registrants for FY2020 registration renewals. In addition, new equipment is invoiced administrative and prorated registration fees when they are installed. The table below represents monthly and year to date activities.

<b>Machine Source Fees Invoiced and Collected for FY 2020</b>					
Monthly Invoiced	Monthly Collected	Fiscal YTD Invoiced	Fiscal YTD Collected	Fiscal YTD Adjustments	Percent Collected
\$14,322.00	\$15,171.00	\$3,050,174.00	\$3,007,012.00	\$6,352.00	99%

**Progress on Collection of FY 2020 Registration Renewal Fees**

Renewal Groups	Paid 7/31/19	Paid 8/31/19	Paid 9/30/19	Paid 10/31/19	Paid 11/30/19	Paid 12/31/19	Paid 1/31/20	Paid 2/28/20	Paid 3/31/20	Paid 4/30/20	Paid 5/31/20	Paid 6/30/20
0-F	45%	79%	89%	97%	98%	99%	100%	100%	100%			
G-L	N/A	49%	73%	88%	97%	99%	99%	100%	100%			
M-R	N/A	N/A	45%	75%	89%	94%	97%	99%	100%			
S-Z	N/A	N/A	N/A	49%	74%	89%	94%	97%	98%			

The Bureau of X-ray Compliance issued administrative orders to registrants who have failed to pay their annual registration fees.

Of the total number of invoices paid to date, 17% percent paid on-line.

**Monthly Machine Source Registration Activity FY 2020**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	YTD
<b>New Facilities</b>	28	16	19	27	16	14	22	21	10				173
<b>Terminated Facilities</b>	27	39	28	37	32	25	35	25	27				275
<b>Net Change (Facilities)</b>	1	-23	-9	-10	-16	-11	-13	-4	-17				-102
<b>New Registrations</b>	156	124	147	156	145	122	194	147	158				1349
<b>Stored Registrations</b>	56	63	46	53	51	32	73	59	47				480
<b>Disposed registrations</b>	102	90	98	89	98	120	102	66	74				839
<b>Net Change (Machines)</b>	-2	-29	3	14	-4	-30	19	22	37	0	0	0	30

The Registration Section staff continues to collect registrant e-mail addresses and enter them into the database in preparation for sending future notices and invoices electronically.

Contact: Ramona Chambus (609) 984-5370

**C. MACHINE SOURCE SECTION**

The machine source section is charged with the responsibility of inspecting all x-ray machines used within the state. Below is a summary of the inspection initiatives that the section is engaged in.

## **Medical Diagnostic Quality Assurance Inspections**

One initiative of the machine source section is the inspection of medical facilities that perform diagnostic x-ray procedures to ensure that they have implemented a quality assurance program. Department regulations require that each facility implement a program that includes the periodic performance of quality control tests and in-depth annual equipment performance testing of its x-ray equipment by Department certified medical physicists. The goal of the quality assurance program is for facilities to ensure optimal operation of the x-ray equipment in order to achieve high quality diagnostic x-ray images while simultaneously maintaining/reducing patient radiation exposure to acceptable levels. As part of the Bureau's inspections, image quality and patient radiation exposure metrics are gathered and evaluated as an indicator of facility performance. These measurables are reported to the facility along with the results of similar facilities performing similar x-ray studies.

### **Image Quality**

As part of the Bureau's quality assurance inspection program, an x-ray image of our image quality (IQ) phantom is taken and scored by the inspector in six criteria: background density, high contrast resolution, noise and artifacts, density uniformity, low contrast detail and low contrast resolution. Additionally, our database calculates an overall image quality score which is reported to the facility.

A report is generated and sent to each facility at which an IQ film was done. This report identifies which category (excellent, good, fair or poor) each of the six tests and the overall score the IQ falls into. The report explains IQ and its determining factors. Facilities with poor IQ scores are asked to consult with their physicist and determine the cause of the poor IQ, take corrective actions to improve IQ, and send a report of their findings and corrective actions to the BXC within thirty days.

In March 2020, IQ evaluations were performed on 76 x-ray units with the following results:

47 units (62%) had excellent image quality scores.

26 units (34%) had good image quality scores.

3 unit (4%) had fair image quality scores.

0 units (0%) had poor image quality scores.

### **Entrance Skin Exposures**

Entrance skin exposure (ESE) is a measurement of the radiation exposure a patient receives from a single x-ray at skin surface. There are three main factors that affect ESE: technique factors, film-screen or digital image receptor speed, and film or digital image processing. A key element of our strategy is to ensure that facilities are aware of their ESE and to encourage them to take steps to reduce their ESE if it is high.

When the Bureau conducts inspections to determine compliance with New Jersey Administrative Code 7:28, a measurement of entrance skin exposure (ESE) is taken. A report containing the

measurement results is sent to each facility at which an ESE measurement was taken. This report categorizes the facilities measured ESE as low, average, high or extremely high. Facilities with extremely high ESE readings are asked to consult with their physicist and determine the cause of the extremely high ESE, take corrective actions to reduce the x-ray machine ESE, and send a report of their findings and corrective actions to the BXC within thirty days.

**Medical Facilities**

Prior to the implementation of quality assurance regulations in June 2001, baseline data revealed that twenty-five percent of New Jersey facilities had extremely high ESE. These facilities are delivering unnecessary radiation exposure to its patients. The Bureau has documented a steady decrease in the number of facilities with extremely high patient radiation exposure since the implementation of its quality assurance program.

<b>Radiographic ESE Ranges in Milliroentgens (mR)</b>				
<b>Exam</b>	<b>Low</b>	<b>Average</b>	<b>High</b>	<b>Extremely High</b>
Chest	< 5	5 to 20	21 to 30	> 31
LS Spine	< 100	100 to 450	451 to 600	> 601
Foot	< 5	5 to 30	31 to 40	> 41

- In March 2020, ESE measurements were calculated on 52 x-ray units that performed lumbo-sacral spine x-rays. No units (0%) had extremely high ESE measurements.
- In March 2020, ESE measurements were calculated on 12 x-ray units that performed chest x-rays. No units (0%) had extremely high ESE measurements.
- In March 2020, ESE measurements were calculated on 12 x-ray units that performed foot x-rays. No units (0%) had extremely high ESE measurements.

**Dental Facilities**

Dental facilities use two types of digital imaging: direct radiography (DR) or computed radiology (CR); also, referred to as phosphor storage plates (PSP). Dental facilities also use two speeds of film: D and E/F or *Insight*. (*Insight* is the branded name of Kodak’s F speed film). D is the slowest speed and requires sixty percent more radiation than E/F or F to produce an acceptable image. Direct radiography requires the least radiation.

The Bureau inspected two thousand eight hundred and twenty-one (2,821) intra oral dental units from March to December of 2015. Eighty one percent (81%) of all dental facilities evaluated in 2015 were using digital imaging systems. This percentage breaks down to seventy three percent (73%) used DR and eight percent (8%) used CR (PSP). Only nineteen percent (19%) of all dental facilities evaluated in 2015 were using film-based imaging. This percentage breaks down to twelve (12%) used D speed film and seven percent (7%) used E/F or F speed film.

An inexpensive way to reduce radiation is to change to a faster speed film. Our research determined that E/F or F speed film costs only a few cents more per film than D speed. No changes in equipment or processing are necessary to use a faster speed film.

When the Bureau conducts inspections to determine compliance with New Jersey Administrative Code 7:28, a measurement of entrance skin exposure (ESE) is taken. The Bureau collected baseline ESE data on dental x-ray machines for the years 2008 and 2009. This data was evaluated to establish the ranges for four ESE categories similar to those in the medical quality assurance program (low, average, high and extremely high). A report is generated and sent to each facility at which an ESE measurement was taken. This report gives the ESE and identifies which category the ESE falls into. The report explains ESE and its determining factors. Facilities with extremely high ESE readings are asked to consult with their digital or film representative or physicist and determine the cause of the extremely high ESE, make changes to reduce ESE, and send a report of their findings and corrective actions to the BXC within thirty days. The table below depicts the current ESE ranges for the various imaging systems used.

<b>Dental ESE Ranges Measured in Milliroentgens (mR)</b>				
<b>Image Receptor</b>	<b>Low</b>	<b>Average</b>	<b>High</b>	<b>Extremely High</b>
Digital (DR)	0 to 20	21 to 110	111 to 160	≥161
CR (PSP)	0 to 35	36 to 170	171 to 215	≥216
<b>Film Speed</b>				
D	0 to 100	101 to 285	286 to 350	≥351
E/F,F,Insight	0 to 50	51 to 150	151 to 205	≥206

- In March 2020, ESE measurements were calculated on 105 dental x-ray units that used DR digital imaging. Twelve units (11%) were measured as having extremely high ESE.
- In March 2020, ESE measurements were calculated on 6 dental x-ray units that used CR (PSP) digital imaging. No units (0%) were measured as having extremely high ESE.
- In March 2020, ESE measurements were calculated on 4 dental x-ray units that used D speed film. No units (0%) were measured as having extremely high ESE.
- In March 2020, ESE measurements were calculated on 9 dental x-ray units that used E/F, F or Insight speed film. No units (0%) were measured as having extremely high ESE.

### **Dental Amalgam Inspections**

Effective November 1, 2009, all dental facilities that generate amalgam waste were required to install amalgam separators (N.J.A.C. 7:14A-1 et seq.). In June 2010, the Bureau met with Division of Water Quality staff to discuss the dental amalgam requirements and to develop an amalgam questionnaire. This questionnaire would be provided to each dental facility when they are scheduled for an x-ray inspection. During each inspection, the inspector verifies the

information on the questionnaire and visually inspects that an amalgam separator has been installed. In March 2020, 57 amalgam questionnaires were collected. The total dental amalgam questionnaires collected for FY2020 is 706.

### **Inspection Activity and Items of Non-compliance**

A three-page Inspector Activity Report of inspections performed, enforcement documents issued, and a description of the non-compliances found follows in Appendix A of this report.

Contact: Patricia Malloy (609) 984-5370

## **D. TECHNOLOGIST EDUCATION AND LICENSING SECTION**

The Section continued to process license and examination applications investigate complaints and respond to inquiries during the month of March. Statistical information follows in Appendix A of this report. In addition to its regular business functions, the following highlights are reported:

### **COVID-19 Activities**

Due to the critical need to provide and maintain competent x-ray services to New Jersey residents, the section crafted an notice that allows New Jersey hospitals and any other healthcare facilities to employ radiologic technologists, who are not New Jersey licensed, but hold a current active national certification issued by the American Registry of Radiologic Technologists until June 30, 2020. The notice was approved by DEP management, released to interested parties and has been posted on the Bureau's and Radiation Protection Elements' websites. A copy of this notice can be obtained at [https://www.state.nj.us/dep/rpp/tec/downloads/covid19\\_tech\\_notice.pdf](https://www.state.nj.us/dep/rpp/tec/downloads/covid19_tech_notice.pdf)

With DEP management approval, approved a hospital's request that results in the savings of PPE and faster interpretation of portable chest x-ray procedures on COVID-19 patients.

Provided administrative and technical support to the Radiologic Technology Board of Examiners' (Board) Program Evaluation Committee who met on March 11, 2020 and March 30, 2020 and developed acceptable standards for on-line didactic instruction and examination proctoring for 43 approved schools of radiologic technology. Additionally, the Committee reviewed the Board's Competency Based Clinical Education Standards, since the Board's standards exceeds national clinical education requirements, the Committee is recommending to the Board temporary relaxation of some clinical competency requirements to lessen the burden on schools and students, while still ensuring the clinical competency of students.

### **Technologist Education and Licensing Section (Fees)**

The Section continues to invoice individuals for initial licenses and examinations as applications are received or license renewal requests are made. The table below represents monthly and fiscal year-to-date billing and revenue activities.

<b>Technologist Education &amp; Licensing Section FY 2020 Invoiced &amp; Collected</b>				
<b>Invoice Type</b>	<b>Monthly Invoiced</b>	<b>Monthly Collected</b>	<b>Fiscal YTD Invoiced</b>	<b>Fiscal YTD Collected</b>
<b>Examinations</b>	\$0	\$0	\$480	\$480
<b>Initial Licenses</b>	\$3,140	\$2,520	\$55,660	\$56,180
<b>Renewal Licenses</b>	\$900	\$2,740	\$11,400	\$36,560
<b>Totals</b>	\$4,040	\$5,260	\$67,540	\$93,220

Contact: Al Orlandi (609) 984-5890

## **E. MAMMOGRAPHY SECTION**

### **Stereotactic Facilities Inspected**

The Mammography Section inspected 2 facilities with stereotactic/needle localization breast biopsy unit during the month of March. A total of 25 of the 61 planned stereotactic facility inspections have been performed since July 1, 2019.

### **Mammography Facilities Inspected**

Mammography facilities are inspected by the Bureau's FDA certified MQSA inspectors under the Mammography Quality Standards Act (MQSA). Any areas of non-compliance discovered during MQSA facility inspections are classified into one of three categories: Level 1, Level 2 and Level 3. Level 1 and Repeat Level 2 non-compliances are the most serious and the facility has fifteen days from the date of the inspection to respond to the FDA detailing the corrective actions they have taken. Level 2 and Repeat Level 3 non-compliances are considered serious. The facility must respond with their corrective actions within thirty days. Level 3 non-compliances are considered less serious and the facility is expected to correct the non-compliance in a timely manner. Inspectors will review facility corrective actions at the next annual inspection.

The Mammography Section inspected 8 facilities in March. There were no facilities found to have non-compliance issues. A total of 119 of the 239 facilities scheduled to be inspected under the contract that will expire on August 20, 2020.

### **Facility Non-compliance Discovered**

- There were no facilities with **Level 1 and Level 2 Repeat** non-compliances.
- There were no facilities with **Level 2** non-compliances.
- There were no facilities with **Level 3** non-compliances.

A table of inspection details can be found in Appendix A.

Contact: Mary Kanewski (609) 984-5370

**F. BUREAU ENFORCEMENT SERVICES SECTION**

**Enforcement Actions for March 2020**

Bureau Enforcement is responsible for producing and following up on all enforcement actions for violations found during Bureau x-ray inspections. Since the Bureau has not yet been fully integrated into the Department's NJEMS database system, it enters summary inspection information into NJEMS on all inspections conducted by the Bureau to provide more accurate inspection numbers for the Department's NJEMS reports. See the table below for current month and year to date information.

<b>Inspections and Enforcement Documents Issued</b>					
<b>March 2020</b>					
<b>Bureau of X-Ray Compliance</b>					
			<b>Month</b>	<b>YTD</b>	
	<b>Compliance Inspections entered into NJEMS</b>		80	591	
	<b>Dental/CBCT Inspections entered into NJEMS</b>		46	584	
<b>Notice of Violations</b>	<b>Closed</b>	<b>Effective</b>	<b>Pending</b>	<b>Total</b>	<b>YTD</b>
	4	5	8	17	156
<b>Administrative Orders</b>	<b>Closed</b>	<b>Effective</b>	<b>Pending</b>	<b>Total</b>	<b>YTD</b>
	0	0	31	31	267
<b>Notice of Prosecutions</b>	<b>Closed</b>	<b>Effective</b>	<b>Pending</b>	<b>Total</b>	<b>YTD</b>
	0	0	28	28	254
<b>Amount Assessed in Penalties</b>	<b>Amount Assessed for Month</b>	<b>Total amount assessed for FY</b>	<b>Amount Collected from current FY</b>	<b>Amount Collected from previous FY</b>	<b>Total amount collected</b>
	\$22,200.00	\$131,650.00	\$117,010.00	\$25,150.00	\$142,160.00

Contact: Arthur Robinson (609) 984-5634

Inspector: ALL  
Discipline: ALL

**Number of Inspections Performed**

Inspection Type	Inspection Description	Facilities Inspected	Machines Inspected	<u>Machines Audited</u>	<u>Machines Uninspected</u>
1	ROUTINE INSPECTION	52	173		10
2	VIOLATION INSPECTION ON SITE	1	2		
9	HAND DELIVERY	6			16
11	INVESTIGATION	15			
12	STEREOTACTIC INSPECTION	2	2		
15	QA INSPECTION ROUTINE LEVEL 1	74	78	88	3
22	NON-QA INSPECTION - HOSPITALS	1	5		
28	DENTAL CBCT INSPECTION	18	102		2
<b>Total On-Site Inspections:</b>		<u>169</u>	<u>362</u>	<u>88</u>	<u>31</u>
6	OFFICE VIOLATION RESPONSE REVIEW	14		18	
7	OFFICE RADIATION SAFETY SURVEY	1		1	
18	OFFICE QA VIOLATION RESPONSE REVIEW	24		28	
24	OFFICE INITIATED ENFORCEMENT ACTION	2		4	
27	OFFICE COMPLIANCE LETTER (FEES)	2		3	
30	DENTAL CBCT OFFICE REVIEW INSPECTION	10		13	
<b>Total Office Inspections:</b>		<u>53</u>		<u>67</u>	<u>0</u>

**Number of Enforcement Documents Issued**

NOV	16
AO	25
NOP	22
Amount of Penalties	\$22,200

Inspector: ALL  
Discipline: ALL

<b>Violation Code</b>	<b>Glossary Information</b>	<b>Description Non-Compliance</b>	<b>Number of Violations By Code</b>
<b>Violations Cited Non-QA</b>			
<b>Analytical</b>			
A-002	21.6(a)1	Testing safety devices every six months.	1
<b>Cabinet</b>			
C-002	17.7(e)	Requirements for surveys not met:	1
<b>CB</b>			
CB-001	22.3(i)	No Alternate QA program for CBCT	6
CB-003	22.7(a)3	CBCT No MPQCS	5
CB-005	22.3(a)	No QA Program for CBCT	1
<b>Dental</b>			
D-002	16.8(a)1	Survey of environs not available or not performed	3
D-016	16.3(a)7	kVp exceeds manufacturer's specifications (certified unit).	4
D-025	16.3(a)16	Timer accuracy exceeds manufacturer's specifications (certified units).	6
D-027	16.3(a)17	Radiation reproducibility exceeds 5% for certified unit	4
D-032	16.3(a)21	Tube head does not remain stationary in the exposure position	1
<b>FEE</b>			
FEE-001	3.12(g)	Failed to pay registration fees within 60 days of invoice date.	2
<b>G</b>			
G-007	2.5(c)	device not working properly	1
<b>Registration</b>			
REG1	3.1 (a) and	Failed to register the ionizing radiation producing machine within 30 days of acquisition.	3
<b>Therapy Below 1 Mev</b>			

Inspector: ALL  
Discipline: ALL

Violation Code	Glossary Information	Description Non-Compliance	Number of Violations By Code
<b>Violations Cited Non-QA</b>			
<b>Therapy Below 1 Mev</b>			
TB-008	14.3(d) 1, 2	Pursuant to N.J.A.C. 7:28-14.3(d) for therapeutic x-ray systems, spot checks shall be performed on therapeutic x-ray systems with energies greater than 0.018 MeV and less than one MeV and shall meet the following requirements: 1. The qualified radiological physicist will determine those parameters to be spot-checked and the procedure to be used when performing those spot checks. The spot check procedure shall be in writing and specify the frequency at which tests or measurements are to be performed, not to exceed one month, and the acceptable tolerance for each parameter measured in the spot-check. A qualified radiological physicist need not actually, perform the spot-check measurement. If a qualified radiological physicist does not perform the spot-check measurement, the results of the spot-check measurement shall be reviewed by a qualified radiological physicist within 15 days; 2. The measurements taken during spot checks shall demonstrate the degree of consistency of the operating characteristics which can affect	1
TB-012	14.3(c)1	system calibrations not performed as required	1
<b>Total Violations Cited Non-QA</b>			<b>40</b>
<b>Violations Cited QA</b>			
<b>Quality Assurance</b>			
QA-009	22.3(a)	Failed to develop and continuously implement QA program.	1
QA-011	22.5(a)2	QC tests from Table 1 (Radiographic) not performed at the required intervals.	12
QA-012	22.5(a)3	Medical Physicist's QC Survey not performed at required interval or all tests not performed.	7
QA-037	22.6(a)2	QC tests from Table 2 (Fluoroscopic) not performed at the required intervals.	9
QA-038	22.6(a)3	No Med Phys QC Survey for Fluoro	4
QA-063	22.7(a)2	QC tests from Table 3 (CT) not performed at the required intervals.	4
QA-174	22.5(j)3	All images for QC tests for items 8, 11, 12 & 13 maintained for 1 year	1
<b>Total Violations Cited QA</b>			<b>38</b>

Inspector: ALL  
Discipline: ALL

By Cod

Violation Code	<u>Glossary Information</u>	Description Non-Compliance	Number of Violations
Total Violations			<u>78</u>

**APPENDIX A - TECHNOLOGIST EDUCATION AND LICENSING SECTION  
MONTH OF MARCH 2020**

<b>License Category</b>	<b>Diagnostic Rad</b>	<b>Nuc Med</b>	<b>Rad Therapy</b>	<b>Dental Rad</b>	<b>Chest Rad</b>	<b>Podiatric Rad</b>	<b>Orthopedic Rad</b>	<b>Fusion Imaging CT</b>	<b>Monthly Total</b>	<b>FY to Date</b>	<b>FY Projected</b>
Initial Licenses Processed	12	3	3	24	-	-	-	-	42	902	1,100
Licenses Renewed	9	1	1	17	-	-	-	-	28	369	N/A
Total Licensed	9,335	1,026	869	11,802	55	22	7	77	23,193	N/A	N/A
Exams Scheduled	-	-	-	-	-	-	-	-	0	2	N/A
Investigations Conducted	1	-	-	-	-	-	-	-	1	28	30
Licenses Verified	52	-	-	267	-	-	-	-	319	4,787	7,000
Expired Licenses	-	-	-	-	-	-	-	-	0	19	N/A
Unlicensed	-	-	-	-	-	-	-	-	0	22	N/A
Enforcement Documents Issued	-	-	-	-	-	-	-	-	0	164	N/A
NEAs Issued	-	-	-	-	-	-	-	-	0	0	N/A
Offer of Settlement	-	-	-	-	-	-	-	-	0	\$33,600	N/A
Licenses Sanctioned	-	-	-	-	-	-	-	-	0	6	N/A
Approved Educational Schools	15	2	3	23	-	-	-	-	43	43	N/A
New School Application Evaluated	-	-	-	-	-	-	-	-	0	3	8
Curriculum Modifications Evaluated	1	-	-	1	-	-	-	-	2	19	20
School Inspections Conducted	-	-	-	-	-	-	-	-	0	7	7
Total Schools Reviewed	1	-	-	1	-	-	-	-	2	29	27
Clinical Applications Approved	1	-	-	89	-	-	-	-	90	644	1,100

**Appendix A - Bureau of X-ray Compliance  
Mammography Section  
March 2020**

Type of Facility	INDUSTRY	PHYSICIAN	HOSPITAL	GOVERNMENT	TOTAL MONTH	FY TO DATE	TOTAL DUE THIS FY
<b>MQSA</b>							
Facilities Inspected	0	6	2	0	8	119	239
Machines Inspected	0	6	4	0	10	160	
FDA Violations Level 1	0	0	0	0	0	0	
FDA Violations Level 2	0	0	0	0	0	11	
FDA Violations Level 3	0	0	0	0	0	0	
Registered	0	5	0	0	5	26	
Canceled	0	4	0	0	4	29	
<b>Stereotactic</b>							
Facilities Inspected	0	0	2	0	2	25	61
Machines Inspected	0	0	2	0	2	26	
Notice of Violation	0	0	0	0	0	0	
Administrative Order	0	0	0	0	0	0	
Notice of Prosecution	0	0	0	0	0	0	
Registered	0	1	1	0	2	8	
Canceled	0	1	1	0	2	8	

## SECTION III - BUREAU OF ENVIRONMENTAL RADIATION (BER)

### A. OFFICE OF THE BUREAU CHIEF

#### COVID-19

The Bureau of Environmental Radiation staff was instructed to work from home on March 17th. Aside from several glitches getting everyone the remote database capabilities, the transition has gone smoothly. There have been several inquiries regarding regulatory compliance difficulties due to the Public Health Emergency. Staff is handling them on a case by case basis.

### B. RADIOACTIVE MATERIALS PROGRAM

#### Medical, Industrial, and Reciprocity

During the month of March 2020, the Radioactive Materials Program responded to three (3) radiation incidents:

Date	Type of Incident	Description	Status
3/2/20	Trash	Load of MSW originating in NJ rejected at PA landfill and diverted to another PA landfill permitted to handle this type of load.	Closed
3/5/20	Other	Trailer placarded "Radioactive" discovered on foreclosed property. Investigated and discovered to only contain wood pallets. Local authorities handling property from a code enforcement perspective.	Closed
3/10/20	Trash	Load of MSW originating in NJ rejected at PA landfill and diverted to another PA landfill permitted to handle this type of load.	Closed

Contact: Nancy Stanley (609) 984-5452

On March 11<sup>th</sup>, two BER RAMRAT staff held a joint comprehensive training session for the Union, Somerset, Morris, and Hunterdon County HAZMAT teams. Topics covered included a radiation basics refresher, radiation protection concepts, response strategies and operations for responding to a radiological dispersal device (RDD), and a hands-on session with radiation survey instrumentation. The training was well received by the teams, and it has been requested that we provide this training again in the fall.

Contact: Nancy Stanley (609) 984-5452

**C. ROUTINE ACTIVITIES**

	<b>This Month 1/1/20-3/31/20</b>	<b>FY-To-Date 7/1/19-3/31/20</b>
Number of Amendments Processed:	47	174
Number of Renewals Processed:	3	18
Number of Initial Applications Processed:	0	9
Number of Active Licenses	584	584
Number of Terminations	1	11
Number of Reciprocity Requests Received:	40	237
Number of Incidents:	3	18
Number of Inspections:	1	134

Contact: Debbie Wenke (609) 984-5509 or Jack Tway (609) 984-5514

**General Licensing**

Reconciliation of the Generally Licensed and Tritium Databases that were inherited from the NRC in 2009 continues. 1 source on the databases was verified during March.

Staff continues to maintain entry of quarterly reports from manufacturers and distributors into the generally licensed database. One report was received reflecting quarterly transactions. Generally Licensed Device Registration Forms continue to be maintained. A total of 50 registrations are currently active.

Contact: Sarah Adkisson (609) 984-5466

**D. SUMMARY OF ENFORCEMENT – March 2020**

Bureau of Environmental Radiation – By Month (3/1/20 – 3/31/20)				
<b>Administrative Orders</b>				
	Closed	Effective	Pending	Total
Radioactive Materials Section	0	0	2	2
Radon Section	0	0	3	3
<b>Notice of Prosecutions</b>				
	Closed	Effective	Pending	Total
Radioactive Materials Section	0	0	2	2
Radon Section	0	0	1	1
<b>Notice of Violations</b>				
	Closed	Effective	Pending	Total
Radioactive Materials Section	0	0	4	4

Radon Section	0	0	2	2
Bureau of Environmental Radiation – Fiscal Year to Date (7/1/19 – 3/31/20)				
<b>Administrative Orders</b>				
	Closed	Effective	Pending	Total
Radioactive Materials Section	12	5	2	19
Radon Section	0	0	3	3
<b>Notice of Prosecutions</b>				
	Closed	Effective	Pending	Total
Radioactive Materials Section	1	1	2	4
Radon Section	0	0	1	1
<b>Notice of Violations</b>				
	Closed	Effective	Pending	Total
Radioactive Materials Section	5	2	4	11
Radon Section	0	0	2	2
<b>Amount Assessed in Penalties = FY</b>				
	Total Amount Assessed for FY 20	Amount Collected from Current FY20	Amount Collected from FY19	Total Amount Collected (FY19+FY20)
Radioactive Materials Section	\$1,250.00	\$1,250.00	\$ 6,505	\$ 7,755
Radon Section	\$0.00	\$0.00	\$87,000	\$87,000
<b>Amount Assessed in Penalties = By Month</b>				
	Total Amount Assessed for 3/1/20 – 3/31/20		Amount Collected from 3/1/20 – 3/31/20	
Radioactive Materials Section	\$0.00		\$0.00	
Radon Section	\$0.00		\$0.00	

## **E. RADIOLOGICAL AND ENVIRONMENTAL ASSESSMENT SECTION (REAS)**

### **Water Treatment**

There are currently 23 active water treatment systems regulated with specific licenses and 17 active general license registrations (12 radium systems and 5 uranium systems).

Contact: Joseph Power (609) 777-4252

### **Decommissioning and Contaminated Site Reviews**

Staff worked on the following sites/projects:

- National Lead site in Sayreville
- Shieldalloy Metallurgical Corporation in Newfield
- American Dream Meadowlands Project in East Rutherford
- EPEC site in Fords
- Howmet Corporation in Dover
- Agrico site in Carteret - Dupont parcels were approved for restricted release
- Middlesex Sampling plant – Vicinity Property

Meetings were conducted with representatives of National Lead and Shieldalloy. Staff also listened to a Nuclear Regulatory Commission’s teleconference on a Draft Interpretive Rule for Very Low Level Waste (VLLW) Disposal Activities.

Contacts: James McCullough (609) 984-5480 or Joseph Power (609) 777-4252

### **Historic Non-Military Radium Project**

Staff reviewed a final status survey report for one impacted location and are awaiting additional information.

Contacts: James McCullough (609) 984-5480

## **F. RADON SECTION**

### **Radon Rule**

The draft rule proposal was submitted on March 11, 2020 to our attorney for the first round of review and comment.

Contact: Anita Kopera (609) 984-5543 or Charles Renaud (609) 984-5423

### **Electrets**

Two electrets were sent out to a homeowner as part of the post-mitigation testing program. The electrets have not yet been returned.

Contact: Charles Renaud (609) 984-5423

### **Radon Outreach**

The waitlist for the Radon Awareness Program has grown to 17 candidates. Two new candidates have been moved from the waitlist into the program after more funds became available. Due to the coronavirus outbreak, test kit distribution by participants is not currently possible. Because of these difficulties, the quarterly report showing participants distribution progress and testing rates has been postponed until the next quarter.

Staff began collaborating with the Governor’s Task Force on Cancer Control & Prevention. The group consist of members in both the private and public health care sectors. The overarching goals are to focus on lung cancer prevention, early detection, treatment, and survivorship. Staff presented during a teleconference with the group on the topic of radon and its importance in relation to lung cancer. The objective is to get more radon relevant information and infographics included in the 2020-2025 comprehensive cancer plan that is currently under development.

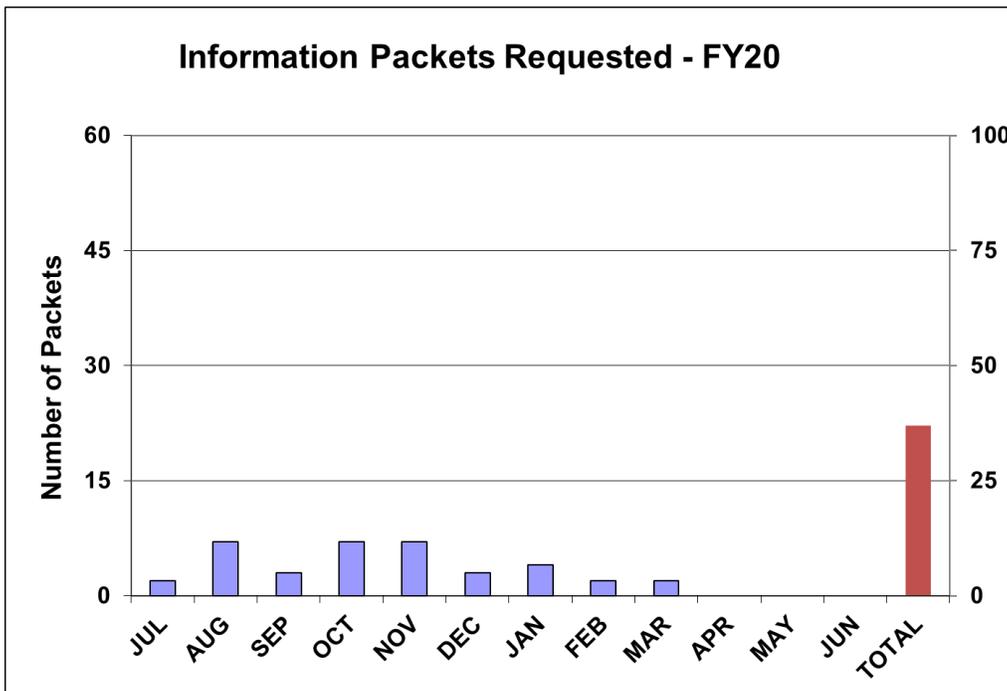
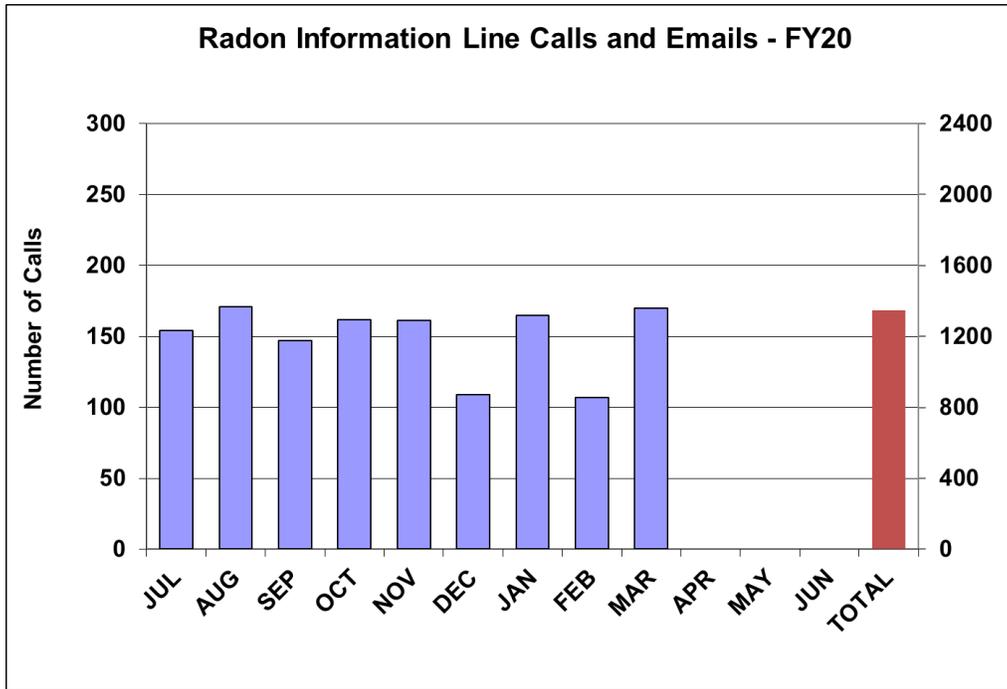
Contact: Brian Giancola (609) 984-5434

Measurement and Mitigation Radon Certifications

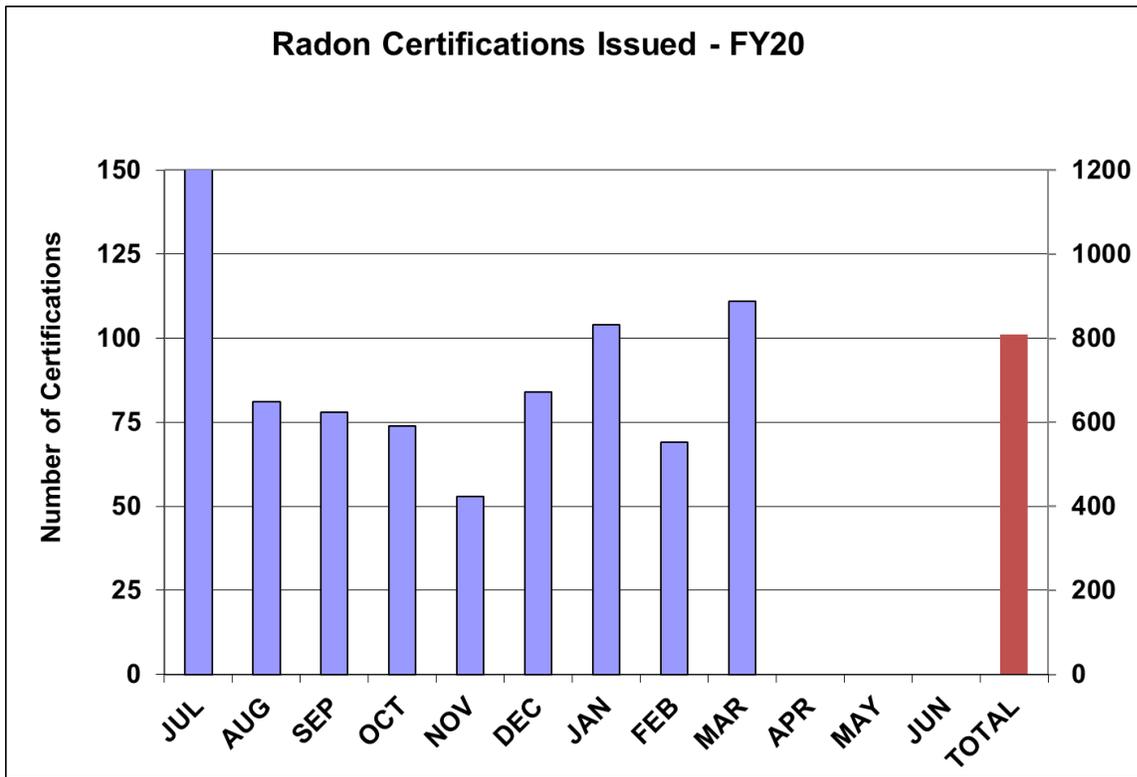
Certification Type	Initial	Renewal
MES		1
MET	6	90
MIS		2
MIT		
Provisional to Full		7
MEB		2
MIB		3

Contact: Anita Kopera (609) 984-5543

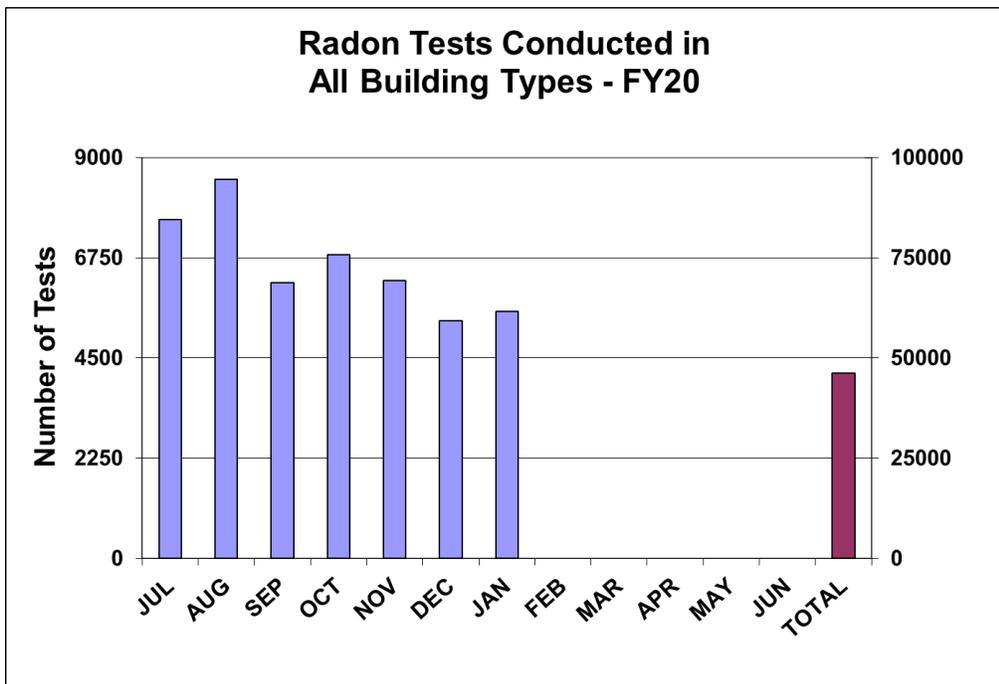
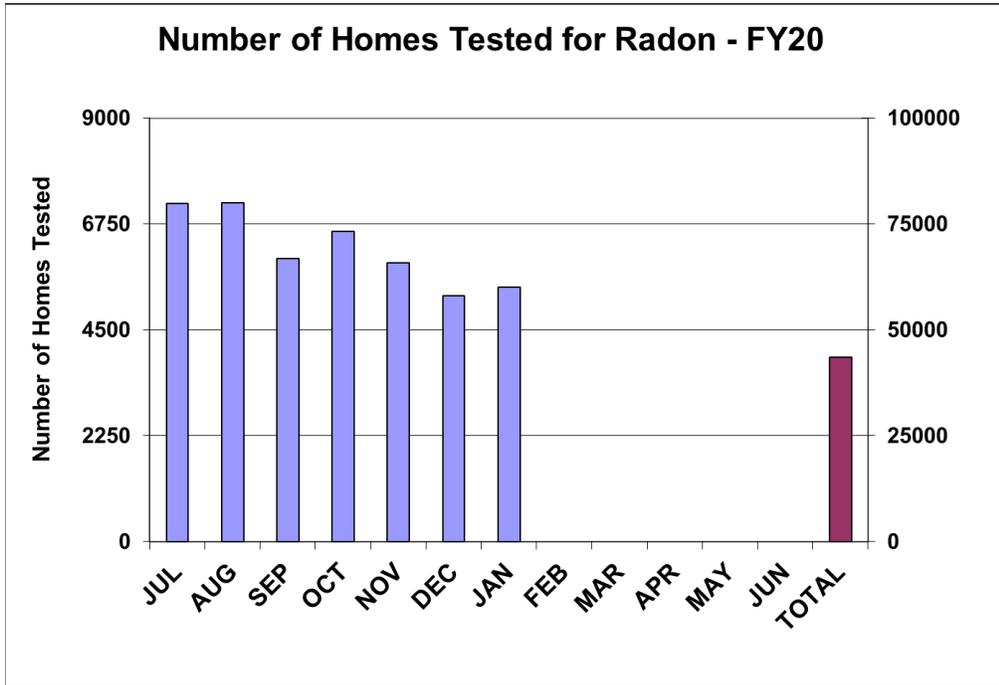
## APPENDIX B: BUREAU OF ENVIRONMENTAL RADIATION SUMMARY OF STATISTICS

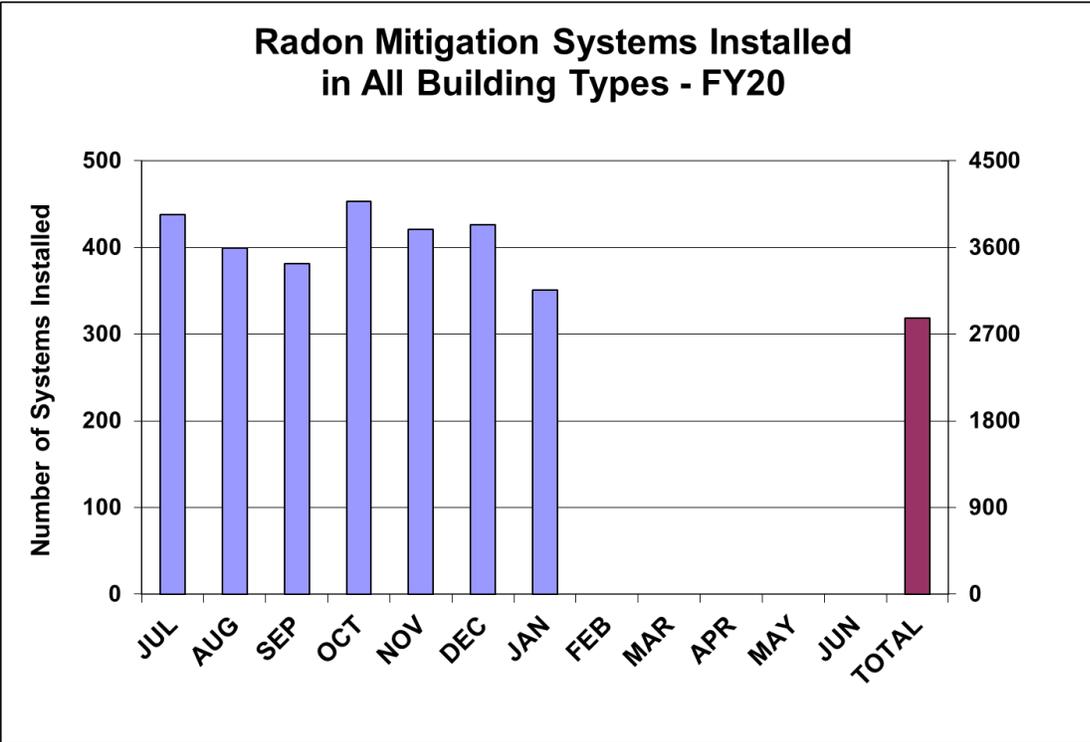
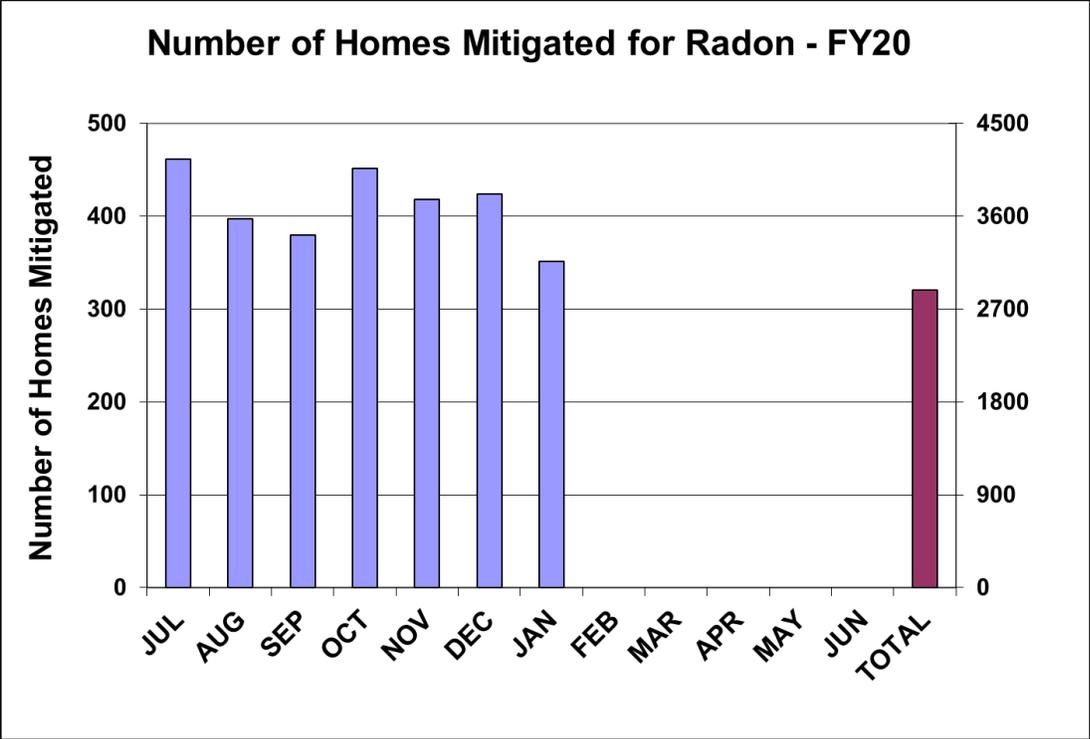


### Radon Certifications Issued - FY20



Radon testing and mitigation data is submitted to the Radon Section monthly by all certified radon businesses. This data has been collected for all building types since the implementation of the radon certification regulations in 1991. According to N.J.A.C. 7:28-27.28 (a) and (e), Radon test results and mitigation reports for January 2020 are due by March 1, 2020.





## **SECTION IV – BUREAU OF NUCLEAR ENGINEERING (BNE)**

### **A. OFFICE OF THE BUREAU CHIEF**

#### **Significant Events**

Due to the COVID-19 pandemic, all NES staff have been working from home since March 16<sup>th</sup>.

### **B. NUCLEAR ENGINEERING SECTION**

#### **Oyster Creek – Permanently Shutdown**

Exelon permanently ceased power operations at Oyster Creek on September 17<sup>th</sup>, 2018. Oyster Creek immediately began the process of defueling the reactor which was completed on September 25<sup>th</sup>, 2018. Following defueling completion, Exelon provided certifications to the Nuclear Regulatory Commission (NRC) of permanent cessation of power operations and permanent removal of fuel from the reactor. Oyster Creek is currently in the DECON mode of decommissioning.

On August 31, 2018, Exelon Generation and Holtec International submitted a License Transfer Application (LTA) to the NRC. The NRC completed its review of the LTA and found that Holtec is suitable and qualified to complete the safe decommissioning of Oyster Creek. The NRC approved the LTA on June 20, 2019.

On July 1, 2019, Holtec International and its subsidiaries announced the ownership and acquisition of Oyster Creek. Oyster Creek Environmental Protection (OCEP) is the licensed owner of Oyster Creek. Holtec Decommissioning International (HDI) is the licensed decommissioning operator. HDI has contracted Comprehensive Decommissioning International (CDI) to manage and perform day-to-day decommissioning activities at Oyster Creek.

#### **Oyster Creek Decommissioning Projects**

General Electric Hitachi (GEH) has completed the removal and segmentation of the reactor head heat shield and the reactor vessel head. GEH has also completed segmentation of the drywell head and the drywell concrete shield plugs. GEH is currently working on tooling and training of personnel for the reactor internals segmentation. Tooling installation is expected in April with the segmentation of the reactor vessel internals to follow.

CDI is currently working on the expansion of the Independent Spent Fuel Storage Installation (ISFSI) pad. The ISFSI pad expansion will accommodate storage of all Spent Fuel and Greater than Class C (GTCC) Waste casks. The ISFSI pad expansion will also provide a new stand-alone Security Building for future ISFSI only operations. Excavation of the cask transfer pit at the ISFSI pad continues. The ISFSI pad concrete pour is on track for completion in June and with final grading to be completed in July. The present CDI schedule indicates that all the ISFSI pad construction and dry runs will be completed during 2020 and all fuel assemblies presently in the spent fuel pool will be moved into dry storage on the ISFSI pad no later than the end of 2021.

Three outer buildings (not located in the radiological controlled area) have been demolished and removed from the site. Eight power transformers have been removed from the site. A maintenance building and a previously abandoned water tank are next to be demolished and removed.

Contact: Veena Gubbi (609) 984-7457

### **Hope Creek**

Hope Creek ran essentially at full power throughout March with the following exception. On March 14<sup>th</sup>, a scheduled power reduction was completed to 65% power in order to perform turbine valve testing, reactor control rod scram time testing and various maintenance activities. Power was returned to 100% on March 15<sup>th</sup>. Brief power reductions to perform reactor control rod pattern adjustments were made following the return to 100% power.

Contact: Jerry Humphreys (609) 984-7469

### **Salem Unit 1**

Salem Unit 1 began the month offline to address a tube leak in the 14 Steam Generator. At 12:56 AM on March 25<sup>th</sup> during plant start up, a manual trip was initiated, at 17% power, due to loss of voltage on the 11 Rod Control Motor Generator set. The unit was returned to service at 10:40 AM on March 26<sup>th</sup> and reached full power on March 28<sup>th</sup>. The unit ran at essentially full power for the remainder of March.

Contact: Elliot Rosenfeld (609) 984-7548

### **Salem Unit 2**

Salem Unit 2 ran at essentially full power until March 22<sup>nd</sup> when the unit began an end of cycle power coast down. The unit was at 96% power at the end of March.

Contact: Elliot Rosenfeld (609) 984-7548

On March 11<sup>th</sup> one NES engineer was onsite at Salem to observe outage activities and to obtain status of the Salem 1 Steam Generator Tube Leak forced outage via the Outage Control Center (OCC) periodic briefings.

Contact: Elliot Rosenfeld (609) 984-7548

### **NES Maintains Contact with PSEG, Holtec and NRC while Working Remotely**

As a result of the COVID-19 pandemic, NES staff have been working remotely from home. NES staff have been actively in telephone and email contact with the PSEG management (Salem & Hope Creek) and Holtec management (Oyster Creek) to discuss activities at the individual stations.

In addition, the staff has also been in contact with the NRC Resident inspectors, who are also working remotely, in order to determine if the NRC has any concerns about the stations. If any events or concerns would occur, the NES staff would be available to visit the stations while maintaining COVID-19 protocol.

Communications have been established with the NRC Region I inspector who will be performing the Inservice Inspection (ISI) inspection at Salem Unit 2 during the twenty-fourth refueling outage (S2R24) (presently scheduled to begin April 11<sup>th</sup>). Working with the NRC inspector and the PSEG Regulatory Assurance staff, the NES staff has established methods for communication and review of documents during the inspection without having to access the site. If any concerns would occur, the NES staff would be available to travel to the site while maintaining COVID-19 protocol.

In addition, NES has established a process with station management to maintain site access qualification at the stations. Access to operating information via remote access has also been maintained.

The NES staff meets twice a day via Microsoft Team video chat in order to ensure that the staff is fully informed of station status and work assignments for the section.

The NES staff has also attended various DEP video conferences describing what is expected from working at home; what tools are available for working at home; IT training for use of the tools; updates from the DEP Commissioner; and, various Governor press conferences.

Contact: Jerry Humphreys (609) 984-7469

### **NES Staff Attends NRC COVID-19 Related Teleconferences while Working Remotely**

On March 26<sup>th</sup> and 27<sup>th</sup>, the NRC held two public teleconferences to discuss with the Nuclear Energy Institute (NEI) and nuclear industry representatives the existing methods to request temporary regulatory changes that may be required due to the national priority of limiting the spread of COVID-19. The March 26<sup>th</sup> meeting focused on refueling issues, e.g., 10 CFR 50.55a Codes and Standards (ASME, etc.), Steam Generator tube inspections, and other refueling outage issues. The March 27<sup>th</sup> meeting focused on operator licensing programs.

The following is a summary of the concerns presented by the industry:

#### **A. Refueling:**

##### **10 CFR 50.55a**

Some utilities are at the end of the 10-year ASME Code interval for performing certain inspections (e.g., visual reactor internal inspections, etc.). These utilities may be seeking extensions for certain low-risk inspections into the next 18- or 24-month refueling cycle.

##### **Steam Generator Tube Inspections**

Steam Generator tube inspections require specialty staff and equipment. This increases the number of people on site and these individuals may have traveled across the nation as well as the world; thus, increasing the possibility of person-to-person spread of COVID-19.

#### Code Reporting Requirements

The NRC requires certain ASME Code reports to be submitted within a specific time period following a refueling outage. For a station to finalize these reports for submittal, multiple revisions, multiple interactions and extensive amounts of paperwork may be necessary. In a normal situation, this can be done onsite and face-to-face. It becomes much more difficult when people are working from home; therefore, extensions of the submittal time period may be requested.

#### Inservice Inspection (ISI)

In some instances, these inspections require work by individuals in close proximity to each other and also may require specialty staff.

### **B. Operator Licensing:**

#### Qualifications of Present Licensed Operators

On a two-year cycle, licensed operators are required to have physical exams and to maintain a requalification program, including written and simulator operating exams. In some instances, physical exams have been difficult to obtain due to the pressure on the medical industry as a result of COVID-19. Although operators will be in the control room as a group, testing in the simulator provides an additional forum for increased risk to COVID-19 transmission.

#### Initial Operator Examinations

The NRC has postponed some initial operator examinations due to COVID-19. This adds additional emphasis in allowing extensions for the present operator qualifications as described above. The initial operator written examinations could be given while maintaining social distancing and other CDC recommendations; but, the present 30-day interval between the written and simulator examination may not be advisable.

#### Reinstatement of Operator Licenses

There are individuals at the stations, who for various reasons (e.g. promotions, etc.), no longer maintain their operator license. There is an NRC process for re-instating the licenses of these individuals. There may be a need to accelerate this process.

The NRC has various processes in place to provide temporary relief for the above concerns. Some require formal license amendment requests, others do not as the regulations have relief processes already incorporated into them. The NRC stated that it needs the industry to provide estimates as to how many and what type of relief that it foresees so the NRC can schedule staff. Individual station requests will be reviewed as expeditiously as possible; but the goal will remain to protect the health and safety of the public while attempting to follow the national program to prevent the spread of COVID-19. The NRC encouraged the industry to maintain communication

with the NRC both as a group and as individual stations. The NRC also recommended that any relief requests be detailed as possible in order to facilitate the NRC's review process. The NRC expects further teleconferences to occur.

Contact: Jerry Humphreys (609) 984-7469

### **NRC Performs an Open Phase Inspection at Salem Units 1 & 2 and Hope Creek**

On March 2-5<sup>th</sup>, one NES engineer observed the NRC Salem/Hope Creek Open Phase Inspection. In addition, the NES supervisor observed the first two days of the inspection. The inspection was performed in accordance with NRC Temporary Instruction 2515/194, "Inspection of the Licensee's Implementation of Industry Initiative Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems (NRC Bulletin 2012-01)". The objective of Temporary Instruction 2515/194 is to verify that licensees have appropriately implemented the Nuclear Energy Institute (NEI) voluntary industry initiative, dated March 16, 2015, including updating their licensing basis to reflect the need to protect against open phase conditions (OPCs). The NRC discussed the impacts of OPCs on the licensee's electrical system design, the ability to detect and alarm OPCs on station transformers, and ongoing implementation of training and updates to operating procedures with both Salem and Hope Creek staff. The NRC reviewed licensee and vendor documentation and performed system walkdowns to verify that the installed equipment was supported by the design documentation. The NRC reviewed: the status of the installation and testing of equipment (with the exception of the tripping functions); the status of installed and tested alarming circuits both local and in the control room; and, the analyzed potential impacts associated with the design implementation on the current licensing basis. The NRC also reviewed licensee analysis and calculations and performed distribution system and switchyard equipment walkdowns. The NRC inspection reports can be found in the NRC ADAMS document system: Salem report dated 03/20/20, ADAMS Ascension No. ML20077L169; Hope Creek report dated 03/20/20, ADAMS Ascension No. ML20077M187.

Contact: Jacob Fakory (609) 984-7458

### **Review of the Draft Environmental Impact Statement Report for Holtec's Consolidated Interim Storage Facility (CISF)**

The Nuclear Regulatory Commission (NRC) issued the Draft Environmental Impact Statement (EIS) report for Holtec's CISF on March 10<sup>th</sup>, 2020. The NRC will be seeking public comments on the draft EIS report for Holtec's application for a license to construct and operate a CISF in Lea County, NM. The NRC will seek public comments via a notice in the Federal Register. Publication of that notice will begin the public comment period, which will run for 60 days. The NRC staff is planning several public meetings in New Mexico during the comment period.

Holtec proposes to store 500 canisters during Phase 1 which will hold approximately 8,680 metric tons of spent nuclear fuel. In Phase 2-20, Holtec will be able to store up to 10,000 canisters at the CISF. The canisters would be transported by rail from operating, decommissioning, and decommissioned commercial nuclear power plants around the country.

The NRC staff will review the public comments and prepare the final EIS report, which is scheduled to be published in March 2021.

Contact: Jerry Humphreys (609) 984-7469

**NES Supervisor Attends DOE National Transportation Stakeholders Forum Planning Committee Teleconferences**

The DOE National Transportation Stakeholders Forum (NTSF) is the mechanism through which DOE communicates at a national level with states and tribes about the DOE’s shipments of radioactive waste and materials. The purpose of the NTSF is to bring transparency, openness, and accountability to DOE’s transportation activities through collaboration with state and tribal governments. The NTSF informs states and tribes about ongoing, upcoming, or tentatively planned DOE shipments or shipping campaigns that may have an impact on their jurisdictions. It also allows the DOE to obtain input from states and tribes about concerns, needs, or logistics that are relevant to shipment planning and execution. Additionally, the NTSF can identify emerging issues for DOE and its transportation stakeholders that may affect shipment planning, preparedness, and execution, including intergovernmental consultation and cooperation.

Each year the NTSF holds a national meeting bringing together the four regional state groups, the tribal group and participants from the DOE, NRC and the nuclear industry. This year this meeting was scheduled for May 18 – 21 in Scottsdale, AZ. On March 13<sup>th</sup> and 24<sup>th</sup>, the Planning Committee for the annual meeting met via teleconference. The NES Supervisor is a member of the committee and attended both teleconferences. At these teleconferences, the cancellation of the annual meeting was discussed. On March 24<sup>th</sup>, it was decided to cancel the 2020 NTSF National Meeting due to COVID-19 concerns. The Planning Committee will continue to meet in order to continue to plan for the 2021 National Meeting.

Contact: Jerry Humphreys (609) 984-7469

**Radioactive Materials Shipment Notifications**

The Bureau of Nuclear Engineering is responsible for tracking certain radioactive materials that are transported in New Jersey. Advance notification for these radioactive materials is in three categories: 1) Spent Fuel and Nuclear Waste; 2) Highway Route Control Quantity Shipments; and 3) Radionuclides of Concern. Each category must meet certain packaging and notification requirements established by the federal government. Below is a table representing the number of shipments completed in March 2020:

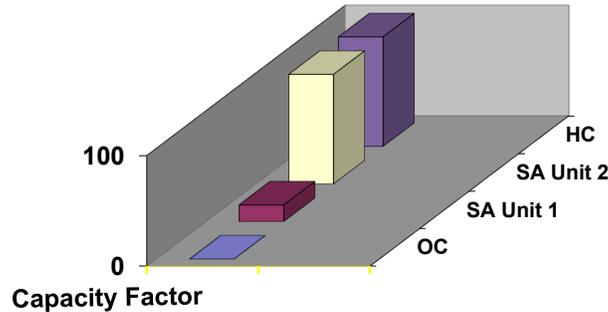
Spent Fuel and Nuclear Waste	Highway Route Control Quantity Shipments	Radionuclides of Concern
0	0	0

Contact: Jerry Humphreys (609) 984-7469  
Veena Gubbi (609) 984-7457

**BUREAU OF NUCLEAR ENGINEERING**

**Plant Operating Performance – March 2020**

**Note: On September 17<sup>th</sup>, 2018 Oyster Creek permanently ceased operation.**



**STATISTICAL INFORMATION**

EMERGENCY AND NON-EMERGENCY EVENT NOTIFICATIONS FOR  
MARCH 2020

Emergency events (EEs) at nuclear power plants are classified, in increasing order of severity, as an Unusual Event (UE), Alert, Site Area Emergency (SAE), and General Emergency (GE). Non-emergency events (NEEs) are less serious events that require notification of the NRC within one to twenty-four hours. The nuclear power plants operating in New Jersey also notify the BNE of NEEs. The BNE analyzes the NEEs as part of its surveillance of nuclear power plant operation.

	MARCH 2020		JAN - MAR 2020		JAN - MAR 2019	
	EE	NEE	EE	NEE	EE	NEE
OYSTER CREEK	0	0	0	0	0	0
SALEM 1	0	1	0	1	0	0
SALEM 2	0	0	0	0	0	1
SALEM SITE	0	0	0	0	0	0
HOPE CREEK	0	0	0	0	0	0

## **C. NUCLEAR ENVIRONMENTAL ENGINEERING SECTION**

### **Radiological Environmental Monitoring Program**

The BNE conducts a comprehensive Radiological Environmental Monitoring Program (REMP) in the environs surrounding New Jersey's four nuclear generating stations. The program collected 51 samples during the month of March 2020. The number and type of samples collected are given in the table below.

Sample results are entered into the BNE's database for tracking and trending of environmental results. Data obtained from these analyses are used to determine the effect, if any, of the operation of New Jersey's nuclear power plants on the environment and the public. BNE staff reviews all results to ensure that required levels of detection have been met and that state and federal radiological limits have not been exceeded. Any exceedances, or anomalous data, are investigated. The REMP includes the development of annual data tables. The data tables, covering sampling results conducted during the prior calendar year in the environs of the Oyster Creek and Salem / Hope Creek nuclear power plants, can be found on the NJDEP website at <http://www.nj.gov/dep/rpp/bne/esmr.htm>, along with data tables from previous years.

Questions regarding specific test results or the annual environmental report can be directed to Karen Tuccillo. Results of specific analyses can be obtained by request.

### **COUNT OF SAMPLES COLLECTED IN MARCH 2020**

<b>SAMPLE MEDIUM</b>	<b>NUMBER OF SAMPLES</b>
AIR FILTER	29
AIR CHARCOAL	10
MILK (Cow)	4
SURFACE WATER	8
<b>TOTAL SAMPLES</b>	<b>51</b>

### **Update on Salem Units 1 & 2 and Hope Creek Tritium Monitoring**

During the month of March 2020, 7 groundwater monitoring well samples were collected and shipped to the BNE's contract laboratory, GEL Laboratories, for radiological analysis.

Contacts: James J. Vouglitois (609) 984-7514 or Karen Tuccillo (609) 984-7443

### **Emergency Preparedness Drill at the Hope Creek Nuclear Generating Station**

#### **Standard Operating Procedure Review**

1. SOP-301, "Offsite Dose Projections for the Early Phase"
2. SOP-305, "Protective Action Recommendations for Plume Exposure"
3. SOP-205, "Emergency Operations Facility"

Contacts: Paul E. Schwartz (609) 984-7539 or Karen Tuccillo (609) 984-7443

### **Work-Related Meetings Pertaining to COVID-19 Pandemic**

The State of New Jersey conducted remote meetings with staff on Information Technology tools in preparation for remote telecommuting due to the Covid-19 pandemic. Staff members attended meetings on (1) Access to Intranet Shared Services drives, (2) DEP Cloud Technology, and (3) Microsoft Teams video conferencing. Staff members are working remotely per Governor Murphy's declaration on March 16, 2020 regarding the closure of all non-essential business and travel in New Jersey. Additional information with regard to Covid-19 can be found on the NJDEP public website at, <https://www.nj.gov/>.

A staff member attended a webinar conducted by the United States Nuclear Regulatory Commission on March 20, 2020 and March 27, 2020. The purpose of the meetings was to discuss with the nuclear industry and public the regulatory impacts due to Covid-19. Additional information on the meeting including contact information can be found at, <https://adamswebsearch2.nrc.gov/webSearch2/view?AccessionNumber=ML20079D897>. Selected industry questions discussed at the conference can be found at, <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML20079L589>

Contacts: Karen Tuccillo (609) 984-7443, Compton Alleyne (609) 984-7455, Paul E. Schwartz (609) 984-7539, or Jay Vouglitois (609) 984-7514

### **Thermoluminescent Dosimetry Program**

The annual calibration and maintenance of the Panasonic UD716 Thermoluminescent Dosimeter (TLD) Reader was performed on March 3, 2020 through March 6, 2020. **The purpose of maintenance and calibration is to ensure that the TLD reader (and subsequent data) is accurate, reliable, and consistent.**

Contact: Compton Alleyne (609) 984-7455

### **Effluent Release Data**

The BNE monitors the effluents released from all four (4) nuclear generating stations each month. The reported effluents include fission and activation products, total iodine, total particulate and tritium released to the atmosphere and water. At the Oyster Creek, Hope Creek and Salem nuclear power plants, releases to the air and water are monitored each month and compared to historic releases. Releases to the atmosphere are from the 112-meter stack (Oyster Creek) or various monitored building vents (Oyster Creek, Hope Creek and Salem). On September 17, 2018, the Oyster Creek Nuclear Generating Station (owned and operated by Exelon Nuclear) ceased to generate power leading to a reduction in gaseous effluents. On September 25, 2018, the plant officially entered Decommissioning.

Prior to November 2010, Oyster Creek did not routinely release liquid effluents to the environment. In accordance with a DEP Directive (EA ID #: PEA100001) issued to the Oyster Creek Nuclear Generating Station, and the Spill Compensation and Control Act (N.J.S.A. 58:10-23.11), Exelon was required to cleanup and remove tritium discharges released onsite from underground pipe leaks that occurred during calendar year 2009. In late November 2010, the pumping of groundwater at Oyster Creek was initiated in support of the ongoing tritium groundwater monitoring project. With DEP approval, Exelon sampled groundwater from a dedicated pumping well (MW-73), measuring the concentration of tritium in the extracted groundwater and discharging it into the plant's intake structure.

On June 20, 2019, the NRC approved the transfer of the OCNGS license from Exelon to Oyster Creek Environmental Protection, as owner, and Holtec Decommissioning International (HDI), as decommissioning operator. The license transfer officially took place on July 1, 2019. HDI continued the sampling and measurement of tritium concentrations in groundwater from MW-73.

On January 9, 2020, in a letter from the State of New Jersey DEP to the Holtec International Decommissioning Plant Manager of Oyster Creek, the Bureau of Nuclear Engineering and Site Remediation Program concurred that the Oyster Creek site had complied with the requirements outlined in the paragraph 41 of the Directive and Notice to Insurers EA ID #: PEA100001, thereby closing the Directive. While the pump and treat remediation of tritium has been completed, Holtec continues groundwater monitoring as part of their Radiological Groundwater Protection Program.

In addition to groundwater monitoring it is necessary for the plant to process and discharge liquid effluents as a necessary activity during decommissioning of the site and eventual license termination. Radioactive liquid effluent discharged as a result of decommissioning activities will be monitored by HDI. All liquid effluent data are reported below. Additional information on the Oyster Creek tritium leak is available at the DEP website, <http://www.state.nj.us/dep/rpp/bne/octritium.htm>.

The gaseous and liquid effluent data for the Oyster Creek, Salem, and Hope Creek nuclear plants for February 2020 have been included in this report.

**PSEG Nuclear  
Radioactive Effluent Releases<sup>1</sup>  
Nuclear Environmental Engineering Section  
For the Period of 02-01-20 to 02-29-20**

**Hope Creek  
Gaseous  
Effluents**

Effluent

Fission Gases	0	Ci
Iodines	0.00004	Ci
Particulates	0.00001	Ci
Tritium	11.0	Ci

**Hope Creek  
Liquid Effluents**

Effluent

Fission Products	0.0203	Ci
Tritium	6.15	Ci

**Salem Unit 1  
Gaseous Effluent**

Effluent

Fission Gases	0.064	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	218	Ci

**Salem Unit 1  
Liquid Effluents**

Effluent

Fission Products	0.00005	Ci
Tritium	0.098	Ci

**Salem Unit 2  
Gaseous Effluent**

Effluent

Fission Gases	0.0251	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	0.06	Ci

**Salem Unit 2  
Liquid Effluents**

Effluent

Fission Products	0.00012	Ci
Tritium	0	Ci

<sup>1</sup> Effluent releases are preliminary totals. The official radioactive effluent releases from each facility are contained in the licensee's "Annual Radioactive Effluent Release Report" and can be found on the USNRC website at, <https://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html>. These reports are submitted annually by the licensee to the NRC by May 1<sup>st</sup> of the following calendar year.

**Holtec Decommissioning International (HDI)  
Radioactive Effluent Releases  
Nuclear Environmental Engineering Section  
For the Period of 02-01-20 to 02-29-20**

**Oyster Creek  
Gaseous Effluents  
Elevated Releases**

**Oyster Creek  
Gaseous Effluents  
Ground Releases**

Effluent

Fission Gases	0	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	0.057	Ci

Effluent

Fission Gases	0	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	0	Ci

**Holtec Decommissioning International (HDI)  
Radioactive Effluent Releases  
Nuclear Environmental Engineering Section  
For the Period of 02-01-20 to 02-29-20**

**Oyster Creek Liquid Effluents**

Effluent

Fission Products	0.00053	Ci
Tritium	0.74	Ci

**Oyster Creek Liquid Effluent Groundwater Extraction<sup>2</sup>**

Effluent

Tritium	< MDA <sup>3</sup>	Ci
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Contact: Paul E. Schwartz (609) 984-7539

<sup>2</sup> On November 4, 2019, Pumping Well MW-73 failed and was placed out of service. The current plan is to continue monitoring MW-73, and to terminate pumping unless activity is identified that would require restoration of groundwater extraction by returning the pump for MW-73 to service.

<sup>3</sup> The Minimum Detectable Activity (MDA) is the smallest amount of radioactivity in a sample that can be detected with a 5% probability of erroneously detecting radioactivity, when, in fact, none was present, also, a 5% probability of not detecting radioactivity, when in fact it is present. The laboratory's MDA was 1.98E-6 uCi/mL. The USNRC Code of Federal Regulation's 10 Appendix B to Part 20, Table 2, Column 2 tritium (H-3) concentration limit is 1.0E-3 uCi/mL.

## D. NUCLEAR EMERGENCY PREPAREDNESS SECTION

### Continuous Radiological Environmental Surveillance Telemetry System

Thirty-two Continuous Radiological Environmental Surveillance Telemetry (CREST) sites are located in the environs of Oyster Creek, Salem I, II, and Hope Creek nuclear generating stations. CREST is a part of the Air Pollution/Radiation Data Acquisition and Early Warning System, a remote data acquisition system whose central computer is located in Trenton, New Jersey. Sites are accessed via cellular communication and polled for radiological and meteorological data every minute.

The Air Pollution/Radiation Data Acquisition and Early Warning System is equipped with a threshold alarm of twenty-five (25) microRoentgens per hour. The system notifies staff via text messages and email alerts if the threshold is exceeded, providing 24-hour coverage of potential radiological abnormalities surrounding each nuclear facility.

Contact: Ann Pfaff (609) 984-7451

The following tables include the average ambient radiation levels at each site for the month of March:

Artificial Island CREST System Ambient Radiation Levels March 2020 Derived From One Minute Averages UNITS = mR/Hr				
AI1	AI2	AI3	AI4	AI5
.0062	.0064	.0058	.0063	.0066
AI6	AI7	AI8	AI9	AI10
.0064	.0055	.0055	.0073	.0052

Oyster Creek CREST System Ambient Radiation Levels March 2020 Derived From One Minute Averages UNITS = mR/Hr			
OC1	OC2	OC3	OC4
.0042	.0055	.0038	.0048
OC5	OC6	OC7	OC8
.0054	.0056	.0048	.0051
OC9	OC10	OC11	OC12
.0058	.0053	.0053	.0054
OC13	OC14	OC15	OC16
.0049	.0054	.0051	.0053

\*\*\*\* indicates insufficient valid data

Contact: Ann Pfaff (609) 984-7451

### **New Monitoring Station at Oyster Creek Independent Spent Fuel Storage Installation**

On March 2, 2020, a new monitoring station was installed and began collecting data at the Oyster Creek Independent Spent Fuel Storage Installation (ISFSI). This is the fourth station adjacent to the ISFSI pad providing real-time radiation and meteorological data. One of the original three monitoring stations was relocated 1000 yards to accommodate associated construction for the ISFSI expansion as part of the same project.

Contact: Ann Pfaff (609) 984-7451

### **Exercise Planning Conference for 2020 Federally Evaluated Exercise at Salem/Hope Creek**

On March 11, 2020, Assistant Director Pat Mulligan and NEPS Supervisor Ann Pfaff attended the second meeting of the Exercise Planning Committee (EPC) for the Salem/Hope Creek federally evaluated exercise scheduled for May 19, 2020. FEMA Regions 2 and 3, State Police OEM, Delaware Emergency Management Agency, Salem and Cumberland Counties and PSEG were represented as the scope and extent of the exercise were further refined. Additional detailed planning for the timing and sequence of scenario events were addressed by a sub-committee of controllers, non-players and trusted agents. Potential impact of COVID-19 was discussed, with a determination to continue moving forward at this juncture. Since that time and given the current circumstances with the State EOC stood up to respond to the pandemic and County and local officials and first responders focused on the response efforts, the exercise will be postponed. Another date has not yet been established by PSEG, SPOEM, FEMA and NRC.

Contact: Ann Pfaff (609) 984-7451

### **DEP Online Training Sessions**

During March in response to the COVID-19 remote work policies, NEPs members participated in multiple online training sessions hosted by the DEP through Microsoft Teams. Online training included sessions regarding Work-from-Home policies and best practices, an overview of Microsoft Teams, and an overview of OneDrive for Business.

Contact: Ann Pfaff (609) 984-7451

### **Utilizing Online Tools and Resources to Work-From-Home**

To successfully complete our work remotely, all NEPS members are utilizing Office 365, particularly Outlook, Teams, and OneDrive, and myDEP. Some members are also utilizing Citrix and GoToMyPC to access needed programs and files, including Continuous Radiological Environmental Surveillance Telemetry (CREST) data.

Contact: Ann Pfaff (609) 984-7451

### **Acquisition of SAIC Personal Dosimeters**

Seventy-five (75) SAIC PD3i Personal Dosimeters were acquired from NJ State Police Office of Emergency Management (SPOEM) in March 2020. NEPS provides Canberra Personal Dosimeters to Nuclear Emergency Responders on its response roster. Several Canberra units are no longer passing calibration and require repair by the manufacturer. The out-of-service Canberra units are contributing to a restricted stock of personal dosimeters. NEPS investigated multiple options to increase the stock of dosimeters and determined the best course of action is to incorporate the SAIC Personal Dosimeters provided by the SPOEM rather than buying new Canberra units.

Contact: Ann Pfaff (609) 984-7451

### **Upgrading Simulator Probe-Paks**

The Bureau of Nuclear Engineering (BNE) is upgrading the radiological instrument simulators used for training nuclear emergency responders. The training instruments have been used for several decades to resemble real handheld radiation meters. Since the BNE has purchased new Ludlum 3001 meters, the simulator instruments also must be upgraded. A request for Waiver of Adverting to award the contract to the vendor who provided the original instrumentation is being processed. The package was sent to Department of Treasury mid-March and received first level of approval. It is now under review by the Attorney General's office.

Contact: Ann Pfaff (609) 984-7451

### **Standard Operating Procedure Updates**

Throughout the month of March 2020, the Nuclear Emergency Preparedness Section engaged in a broad-reaching effort to update its Standard Operating Procedures. The changes under review reflect bureau's transition to newer radiation detection equipment, migrating to electronic tools to share data, and also address the new physical location of Field Command Center (FCC) formerly known as Forward Command Post (FCP).

Contact: Ann Pfaff (609) 984-7451