

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

MAY 1 THROUGH MAY 31, 2020

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SECTION I- OFFICE OF THE ASSISTANT DIRECTOR

Original signed by:

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 May 5, 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.

Bureau Operations and COVID-19

As of March 20, Bureau staff have been working remotely from home. As a result of COVID-19, all field inspections have been cancelled until further notice. However, there is a limited number of staff in the office to continue providing a service 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.

Bureau Webinar Training Activities

Bureau inspectors participated in the following Webinar training activities by the work-from-home remotely: The International Atomic Energy Agency, “Combined Emergencies”, and “Continuity in COVID-19 pandemic how to run effective services of individual monitoring during the pandemic”; and Social Sciences and Humanities in Ionizing Radiation Research webinar: Key Challenges for managing a transition phase- lessons from Chernobyl and Fukushima.

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.

Machine Source Fees Invoiced and Collected for FY 2020					
Monthly Invoiced	Monthly Collected	Fiscal YTD Invoiced	Fiscal YTD Collected	Fiscal YTD Adjustments	Percent Collected
\$5,519.00	\$9,175.00	\$3,062,428.00	\$3,025,519.00	\$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%	100%	100%	
G-L	N/A	49%	73%	88%	97%	99%	99%	100%	100%	100%	100%	
M-R	N/A	N/A	45%	75%	89%	94%	97%	99%	100%	100%	100%	
S-Z	N/A	N/A	N/A	49%	74%	89%	94%	97%	98%	98%	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
New Facilities	28	16	19	27	16	14	22	21	10	8	12		193
Terminated Facilities	27	39	28	37	32	25	35	25	27	12	7		294
Net Change (Facilities)	1	-23	-9	-10	-16	-11	-13	-4	-17	-4	5		-101
New Registrations	156	124	147	156	145	122	194	147	158	83	63		1495
Stored Registrations	56	63	46	53	51	32	73	59	47	23	13		516
Disposed registrations	102	90	98	89	98	120	102	66	74	40	36		915
Net Change (Machines)	-2	-29	3	14	-4	-30	19	22	37	20	14		64

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.

As a result of COVID-19 Public Health Emergency, all field inspections scheduled for May 2020 were cancelled and no IQ evaluations were performed.

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.

Radiographic ESE Ranges in Milliroentgens (mR)				
Exam	Low	Average	High	Extremely High
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

As a result of COVID-19 Public Health Emergency, all field inspections scheduled for May 2020 were cancelled and no QA evaluations were performed.

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 May 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 then 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.

Dental ESE Ranges Measured in Milliroentgens (mR)				
Image Receptor	Low	Average	High	Extremely High
Digital (DR)	0 to 20	21 to 110	111 to 160	≥161
CR (PSP)	0 to 35	36 to 170	171 to 215	≥216
Film Speed				
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

As a result of COVID-19 Public Health Emergency, all field inspections scheduled for May 2020 were cancelled and no Dental inspections were performed.

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 May 2020, zero 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 May. Statistical information follows in Appendix A of this report. In addition to its regular business functions, the following highlights are reported:

Radiologic Technology Board of Examiners (Board)

The Board met remotely on May 14, 2020. Minutes of the meeting will be made available on the Bureau website once accepted by the Board at a future meeting. This meeting resulted in sixty-nine activities and letters/reports to be written. A full summary of the meeting is available upon request. The following are highlights of some major issues discussed at this meeting:

1. Voted to approve the following Program Evaluation Committee’s recommendations relating to COVID-19 in order to lessen the impact on radiologic technology programs and students:
 - a. Temporary acceptance of on-line didactic instruction and on-line examination proctoring provided that schools adhere to the requirements for conducting on-line instruction and proctoring.
 - b. For the current second-year students (Class of 2020) enrolled in diagnostic radiologic technology programs, relaxation of certain sections of the Board’s “Competency Based Clinical Education” Standard that exceed national requirements.
 - c. Modification of the Board’s position statement recommending that students not be involved in the care of patients with suspected or confirmed Ebola to include contagious medical events such as COVID-19 and future contagious life-threatening diseases and/or viruses.

2. Voted to reduce a dental radiography program’s approval status to probationary approval due the number and severity of violations of Board’s Standards found during the Bureau’s February 2020 inspection. The Board also voted to prohibit the school from enrolling new students until the school has submitted to the Bureau a response that demonstrates correction of all violations.

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.

Technologist Education & Licensing Section FY 2020 Invoiced & Collected				
Invoice Type	Monthly Invoiced	Monthly Collected	Fiscal YTD Invoiced	Fiscal YTD Collected
Examinations	\$160	\$0	\$800	\$640
Initial Licenses	\$1,500	\$820	\$58,340	\$58,860
Renewal Licenses	\$270	\$1,750	\$11,850	\$39,300*
Totals	\$1,930	\$2,570	\$70,990	\$98,800

*Fiscal collected YTD includes 300 renewal payments collected from FY 19 invoicing as a result of prior inspections.

Contact: Al Orlandi (609) 984-5890

E. MAMMOGRAPHY SECTION

Stereotactic Facilities Inspected

The Mammography Section inspected zero facilities with stereotactic/needle localization breast biopsy unit during the month of May. 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.

Due to COVID-19 and the work stoppage issued by the FDA, no mammography inspections were performed in the month of May. 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 May 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.

Inspections and Enforcement Documents Issued
May 2020

Bureau of X-Ray Compliance			
		Month	YTD
	Compliance Inspections entered into NJEMS	0	591
	Dental/CBCT Inspections entered into NJEMS	0	584

Notice of Violations	Closed	Effective	Pending	Total	YTD
	0	0	0	0	158

Administrative Orders	Closed	Effective	Pending	Total	YTD
	0	2	4	6	278

Notice of Prosecutions	Closed	Effective	Pending	Total	YTD
	0	0	2	2	260

Amount Assessed in Penalties	Amount Assessed for Month	Total amount assessed for FY	Amount Collected from current FY	Amount Collected from previous FY	Total amount collected
	\$2,600.00	\$136,650.00	\$134,060.00	\$25,150.00	\$159,210.00

Contact: Arthur Robinson (609) 984-5634

Inspector: ALL

Discipline: ALL

Number of Inspections Performed

Inspection Type	Inspection Description	Facilities Inspected	Machines Inspected	Machines Audited	Machines Uninspected
Total On-Site Inspections:		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
6	OFFICE VIOLATION RESPONSE REVIEW	3		5	
18	OFFICE QA VIOLATION RESPONSE REVIEW	9		11	
30	DENTAL CBCT OFFICE REVIEW INSPECTION	2		3	
Total Office Inspections:		<u>14</u>		<u>19</u>	<u>0</u>

Number of Enforcement Documents Issued

NOV

AO

NOP

Amount of Penalties

Inspector: ALL
Discipline: ALL

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

None for May 2020

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

License Category	Diagnostic Rad	Nuc Med	Rad Therapy	Dental Rad	Chest Rad	Podiatric Rad	Orthopedic Rad	Fusion Imaging CT	Monthly Total	FY to Date	FY Projected
Initial Licenses Processed	13	1	1	16	-	-	-	-	31	954	1,100
Licenses Renewed	9	1	5	15	-	-	-	-	30	413	N/A
Total Licensed	9,359	1,029	876	11,843	55	22	7	77	23,268	N/A	N/A
Exams Scheduled	1	-	-	-	-	-	-	-	1	4	N/A
Investigations Conducted	-	-	-	1	-	-	-	-	1	29	30
Licenses Verified	-	-	-	158	-	-	-	-	158	4,991	7,000
Expired Licenses	-	-	-	-	-	-	-	-	0	21	N/A
Unlicensed	-	-	-	-	-	-	-	-	0	46	N/A
Enforcement Documents Issued	-	-	-	1	-	-	-	-	1	189	N/A
NEAs Issued	-	-	-	-	-	-	-	-	0	0	N/A
Offer of Settlement	-	-	-	-	-	-	-	-	0	\$40,000	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	-	-	-	-	-	-	-	-	0	22	20
School Inspections Conducted	-	-	-	-	-	-	-	-	0	7	7
Total Schools Reviewed	-	-	-	-	-	-	-	-	0	32	27
Clinical Applications Approved	-	-	1	55	-	-	-	-	56	711	1,100

**Mammography Section
May 2020**

Type of Facility	INDUSTRY	PHYSICIAN	HOSPITAL	GOVERNMENT	TOTAL MONTH	FY TO DATE	TOTAL DUE THIS FY
MQSA							
Facilities Inspected	0	0	0	0	0	119	239
Machines Inspected	0	0	0	0	0	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	4	1	0	5	32	
Canceled	0	2	1	0	3	37	
Stereotactic							
Facilities Inspected	0	0	0	0	0	25	61
Machines Inspected	0	0	0	0	0	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	0	0	0	0	8	
Canceled	0	0	1	0	1	10	

SECTION III - BUREAU OF ENVIRONMENTAL RADIATION (BER)

A. OFFICE OF THE BUREAU CHIEF

Every month, BER staff provide a report on the inventory of general licenses (Section C). A general license was established under NRC regulations and is administered by Agreement State Programs. It allows individuals to purchase a device containing radioactive material. Some devices contain higher amounts of radioactivity that requires registration with the state. For these registered devices, there is more accountability and BER staff have inspected all of them in New Jersey. For other devices, such as tritium exit signs, they generally licensed and do not require registration. The only requirement for making the purchase is that the individual read a few regulations. There is no paperwork associated with them and therefore, they are difficult to track. In fact, the BER continues to work toward reconciliation of the generally licensed materials database inherited from the NRC eleven years ago. Occasionally these generally licensed devices are lost. Some are reported to the state, but others are not reported. For example, tritium exit signs found in demolition sites is not uncommon. The health consequences associated with exposure to generally licensed devices is minimal and the impact of lost devices on public health and safety is very low.

The Organization of Agreement States (OAS) formed a work group to evaluate the best practices related to generally licensed materials. The goal of the working group is to develop a better way to manage generally licensed devices that reduces the frequency of unreported, lost devices. Joe Power was a work group member for about eighteen months. He assisted in the development of a survey, provided to agreement states, to determine inventories of generally licensed materials and how they are managed in each state. Sarah Adkisson is now on the work group whose current task is to explore different options to better manage generally licensed materials and devices. The work group just sent out a survey to the Agreement States to solicit opinions on different ways to reform the generally licensed materials regulations. We are excited to be part of this process and look forward to working with the OAS to develop a much-needed reform of the regulations.

B. RADIOACTIVE MATERIALS PROGRAM

Medical, Industrial, and Reciprocity

During the month of May 2020, the Radioactive Materials Program responded to two (2) radiation incidents:

Date	Type of Incident	Description	Status
5/21/20	Scrap	A load of scrap was rejected at a facility in Indiana and returned to its origin at a dealer in NJ. A consulting company has been contacted to assist in identification and potential disposition of the load.	Pending
5/28/20	Scrap	A railcar load of scrap was rejected at a NJ facility and was returned to the origin dealer in VA.	Closed

Contact: Nancy Stanley (609) 984-5452

Training

Due to the COVID-19 Public Health Emergency, no training was conducted in May.

Contact: Nancy Stanley (609) 984-5452

C. ROUTINE ACTIVITIES

	This Month 51/1/20-5/31/20	FY-To-Date 7/1/19-5/31/20
Number of Amendments Processed:	12	194
Number of Renewals Processed:	1	20
Number of Initial Applications Processed:	0	10
Number of Active Licenses	593	593
Number of Terminations:	3	18
Number of Reciprocity Requests Received:	38	314
Number of Incidents:	2	27
Number of Inspections:	6	172

Contact: Debbie Wenke (609) 984-5509

General Licensing

Reconciliation of the Generally Licensed and Tritium Databases that were inherited from the NRC in 2009 continues. No sources on the databases were verified during May. Staff continues to maintain entry of quarterly reports from manufacturers and distributors into the generally licensed database. No reports were 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 – May 2020

Bureau of Environmental Radiation – By Month (5/1/20 – 5/31/20)				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	0	1	1	2
Radon Section	0	0	3	3
Notice of Prosecutions				
	Closed	Effective	Pending	Total
Radioactive Materials Section	0	1	1	2

Radon Section	0	0	1	1
Notice of Violations				
	Closed	Effective	Pending	Total
Radioactive Materials Section	0	0	0	0
Radon Section	0	0	2	2
Bureau of Environmental Radiation – Fiscal Year to Date (7/1/19 - 5/31/20)				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	14	5	1	20
Radon Section	0	0	3	3
Notice of Prosecutions				
	Closed	Effective	Pending	Total
Radioactive Materials Section	2	2	1	5
Radon Section	0	0	1	1
Notice of Violations				
	Closed	Effective	Pending	Total
Radioactive Materials Section	6	5	0	11
Radon Section	0	0	2	2

Amount Assessed in Penalties = FY

	Total Amount Assessed for FY20	Amount Collected from Current FY20	Amount Collected from FY19	Total Amount Collected (FY19+FY20)
Radioactive Materials Section	\$3,750.00	\$3,125.00	\$ 6,505.00	\$ 9,630.00
Radon Section	\$ 0.00	\$ 0.00	\$87,000.00	\$87,000.00

Amount Assessed in Penalties = By Month

	Total Amount Assessed for 5/1/20 - 5/31/20	Amount Collected from 5/1/20 - 5/31/20
Radioactive Materials Section	\$2,500.00	\$1,875.00
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
- EPEC site in Fords
- City of Bordentown Lagoon Release
- Rustoleum in Newark
- FMC in Carteret
- Maywood FUSRAP Site
- Welsbach FUSRAP site in Camden
- PSEG Hudson Generating Station
- PSEG Mercer Generating Station
- Goethals Bridge
- Picatinny Arsenal
- Hudson County Chromate Site 41 and 168
- Middlesex Sampling Plant FUSRAP Site
- US Radium Superfund Site
- Pantasote

Teleconference meetings were conducted with representatives of National Lead, Maywood Bristol Myers Squibb, and Absolute Auto (Middlesex Sampling Plant vicinity property).

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

Historic Non-Military Radium Project

Staff commented on data regarding the remediation of one residential property, and a final report was received at the end of the month.

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

F. RADON SECTION

Measurement and Mitigation Radon Certifications

Certification Type	Initial	Renewal
MES		6
MET	2	78
MIS		5
MIT		1
Provisional to Full		5
MEB		1
MIB	1	2

Contact: Maxine Williams (609) 984-5425

Electrets

Four electrets were sent to two homeowners as part of the post-mitigation testing program. Two devices were returned. The electrets have been analyzed and the homeowner has been notified.

Contact: Charles Renaud (609) 984-5423

Mitigation Standard Changes

The American National Standards Institute/American Association of Radon Scientists and Technologists (ANSI/AARST) has proposed changes to their radon mitigation standards for single-family homes, multifamily homes, and schools/large buildings. These updates and revisions seek identical text for equal tasks across all three standards. Since New Jersey mitigators will reference these standards, staff reviewed all changes and submitted relevant comments to the organization for further review.

Contact: Brian Giancola (609) 984-5434

Mitigation Checklist

A new mitigation checklist was drafted based on the ANSI/AARST mitigation standards. This checklist is to be used when staff goes into the field to inspect mitigation systems that have been previously installed in New Jersey residences. It will be implemented in conjunction with the new DEP radon certification rule that is currently undergoing review before it is proposed in the New Jersey Register.

Contact: Brian Giancola (609) 984-5434

Website updates

In order to keep the public informed with the most up-to-date information on COVID-19's impact on radon, staff have been consistently updating the section's website at www.njradon.org. The purpose is to notify individuals of any possible hurdles that could arise with radon testing, mitigation, or certification procedures due to the shutdown of businesses as a result of the pandemic.

Contact: Brian Giancola (609) 984-5434

Radon Rule

The second draft of the radon rule was submitted to the DEP Office of Legal Affairs, the DEP Office of Economic Analysis, and the Office of the Attorney General, Division of Law, for review and comment on May 14, 2020. Comments were received from the Office of Economic Analysis on May 15, 2020 and from the Office of Legal Affairs on May 28, 2020. The rule was revised base upon all comments.

Work has begun on the new applications, checklists, and procedures that will be needed to implement the new rules when they are published. Although there will be a public comment period, these documents can be developed and revised as needed after comments are addressed.

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

Radon Hazard Subcode

On May 28, 2020, an email was received from the Department of Community Affairs notifying the Radon Section that the Governor's Office had provided comments on the Radon Hazard Subcode rule revision proposal. The Radon Hazard Subcode sets forth minimum radon hazard protective features required to be incorporated into the construction of buildings in Use Groups R (residential) and E (educational). These requirements are applicable to residential buildings and do not include adequate guidance for school buildings. The proposed amendments to the building subcode, developed by EPA, radon professionals, and radon section staff, provide specifications for school buildings.

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

CDC National Radon Database

The 2018 data set for all radon tests conducted in New Jersey was successfully submitted to the CDC. With the assistance of the DEP IT staff and DOH staff, data sets have been submitted over the last 3 years for all tests conducted in New Jersey from 2009 – 2018. The national database is being developed after more than ten years of effort by EPA and CDC workgroups comprised of multiple states including New Jersey. Radon data submissions are accepted by CDC once a year and the data must meet specific criteria in order to be accepted into the CDC database.

Contact: Anita Kopera (609) 984-5543

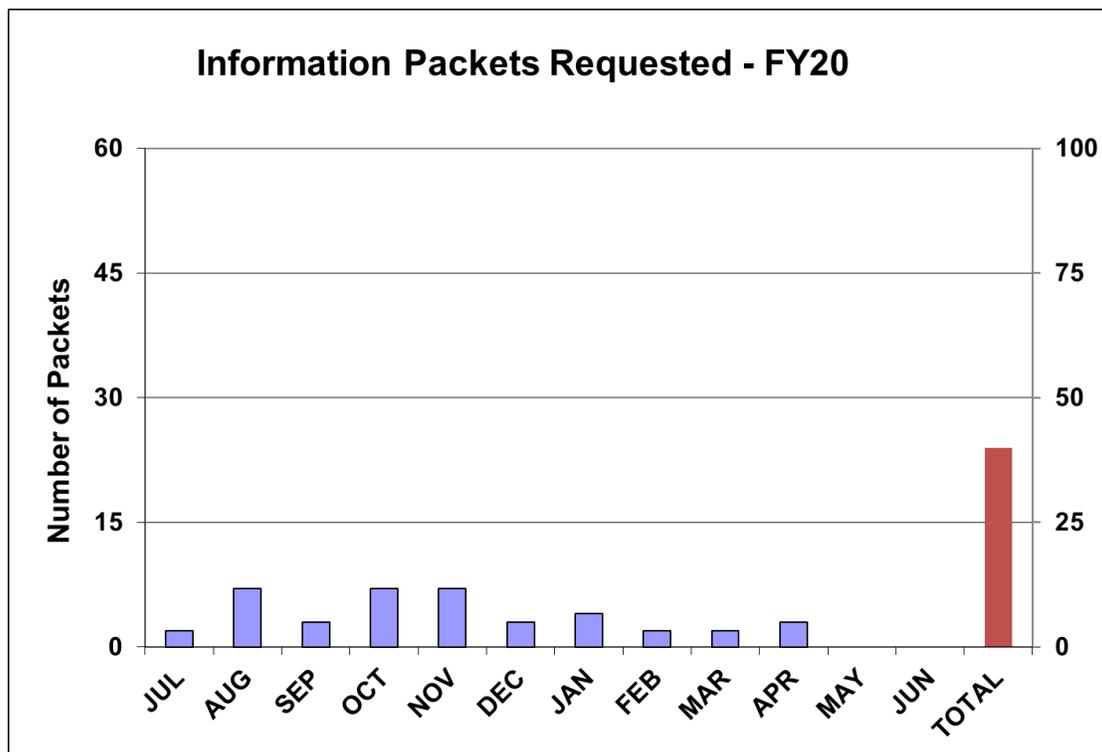
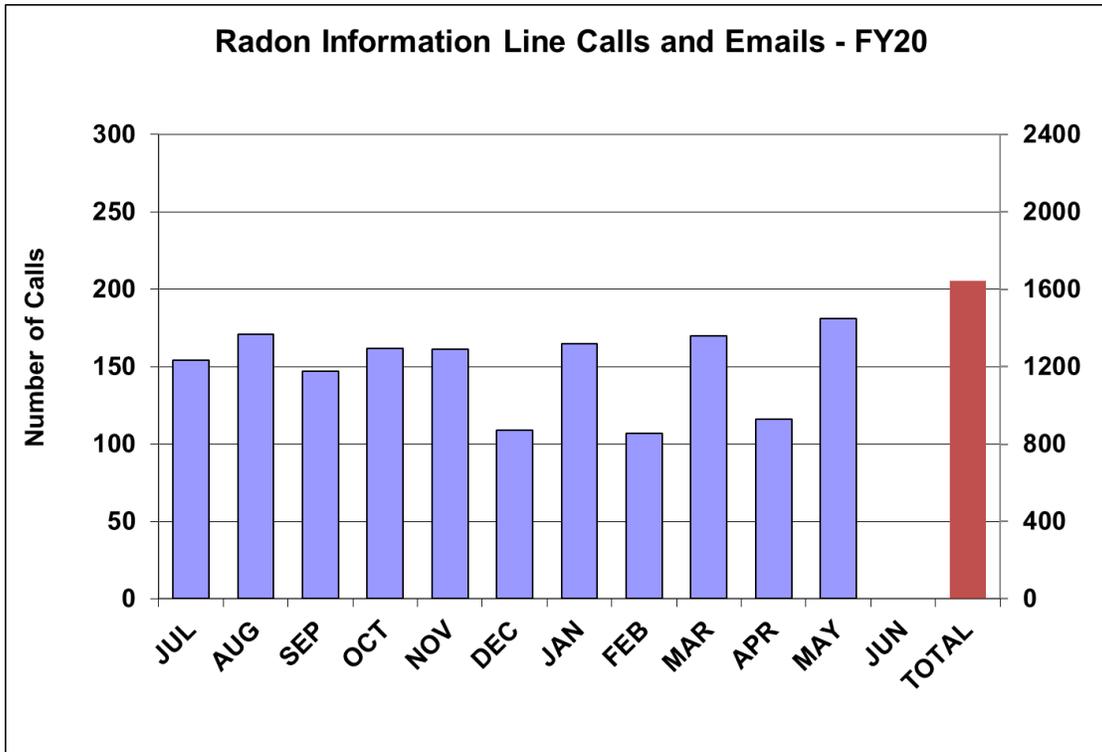
Radon Database

Staff met via video conference on May 27, 2020, with the radon database contractor from SystemetriX to discuss multiple projects including the data sent to CDC, merging of address records into a single record per address, and development of an updated radon potential map. The address merge over the last 10 years has been completed via a manual method. SystemetriX is programming the database to allow automatic merging of existing data as well as incoming data, with minimal manual assistance. Likewise, the preparation of the radon potential map was a labor-intensive process. SystemetriX will completely automate the development of the map so that a new one will be generated with the push of one button. These projects are expected to be completed within the next two to three months.

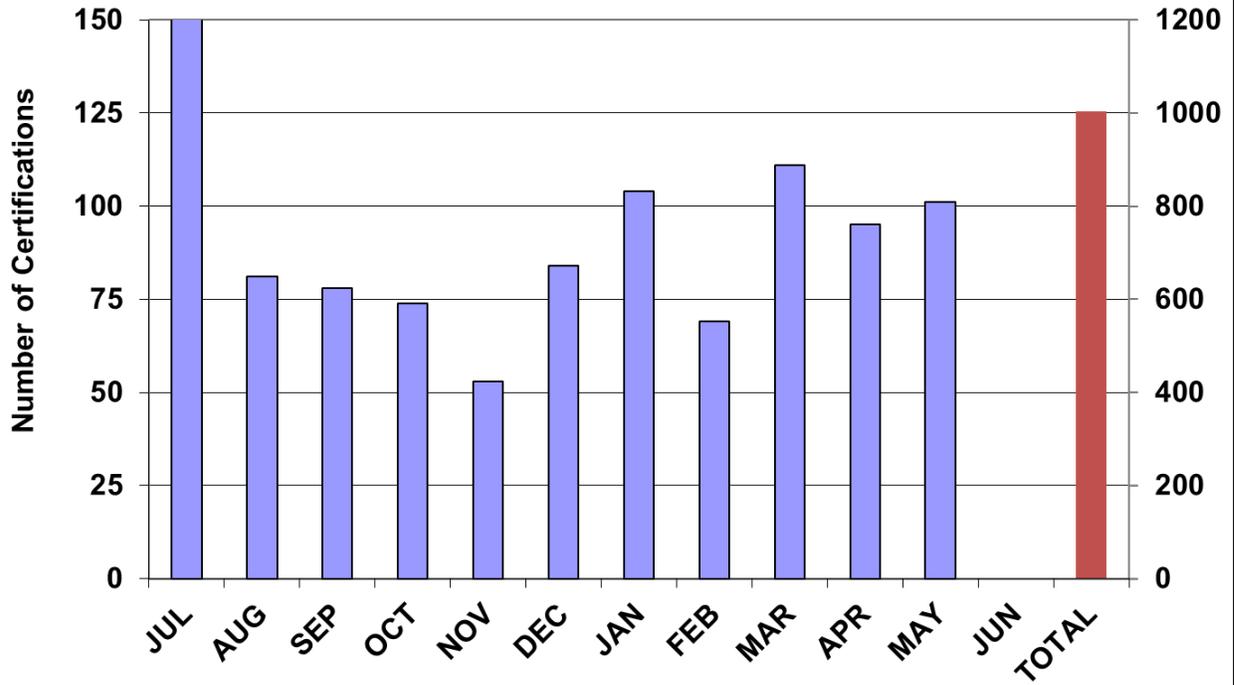
Staff will begin to assess the changes that need to be made to the database in order to implement the new radon certification rules. SystemetriX will be provided with a list of those changes in the next month or two and all projects will be prioritized appropriately.

Contact: Anita Kopera (609) 984-5543

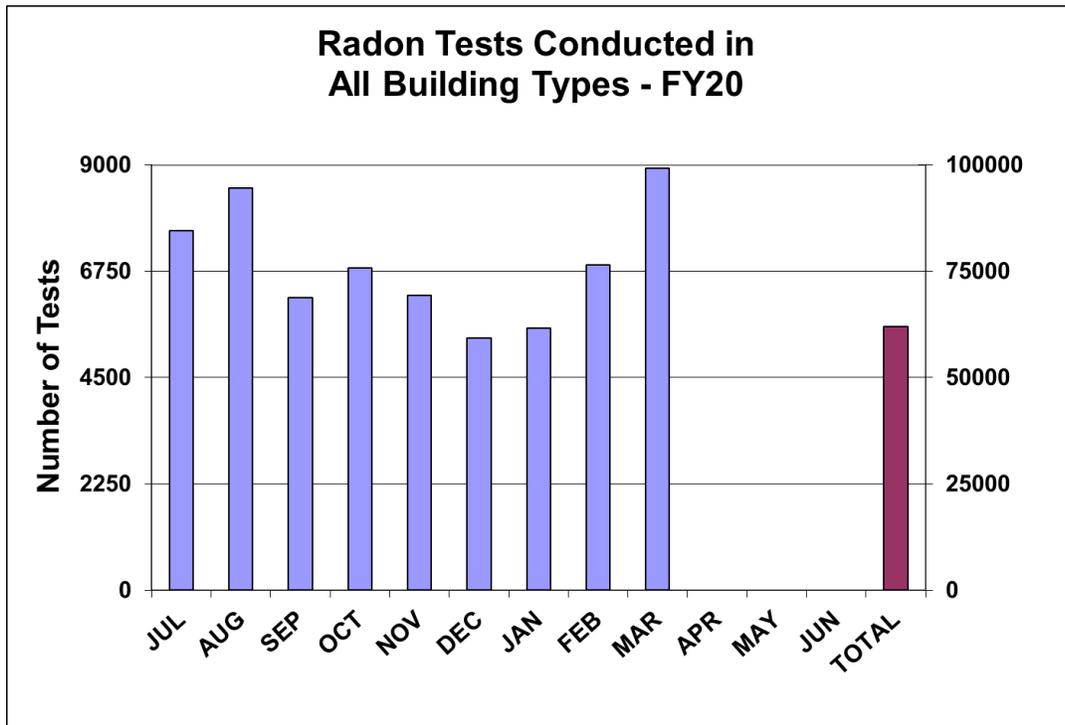
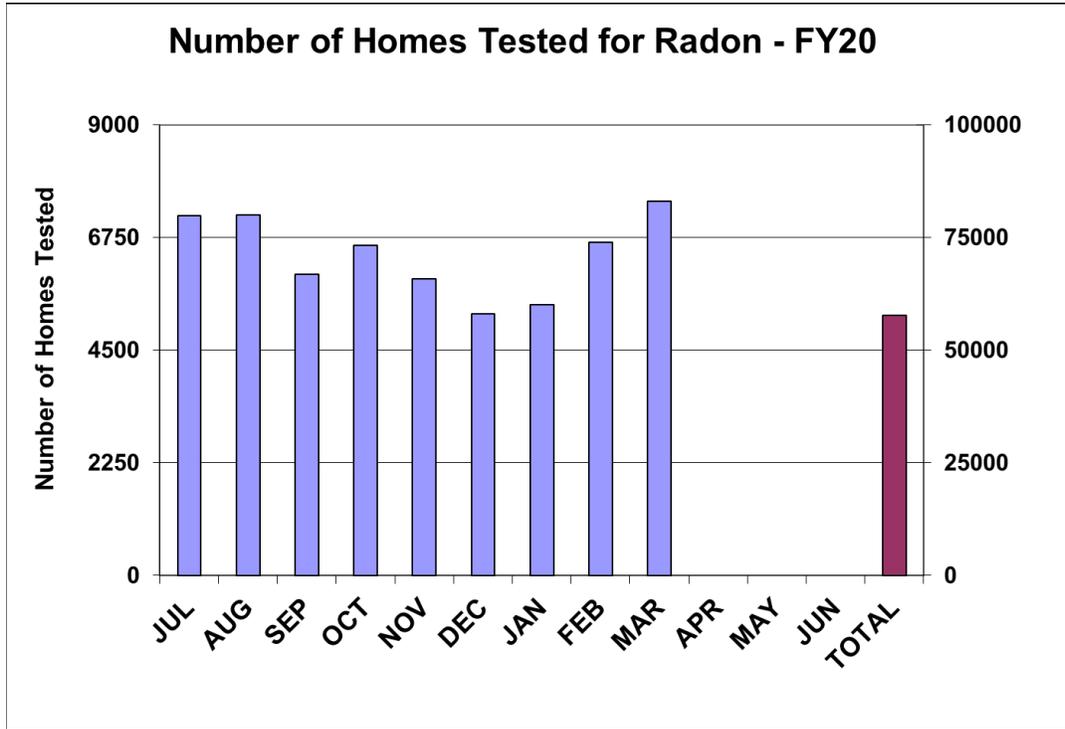
APPENDIX B: BUREAU OF ENVIRONMENTAL RADIATION SUMMARY OF STATISTICS

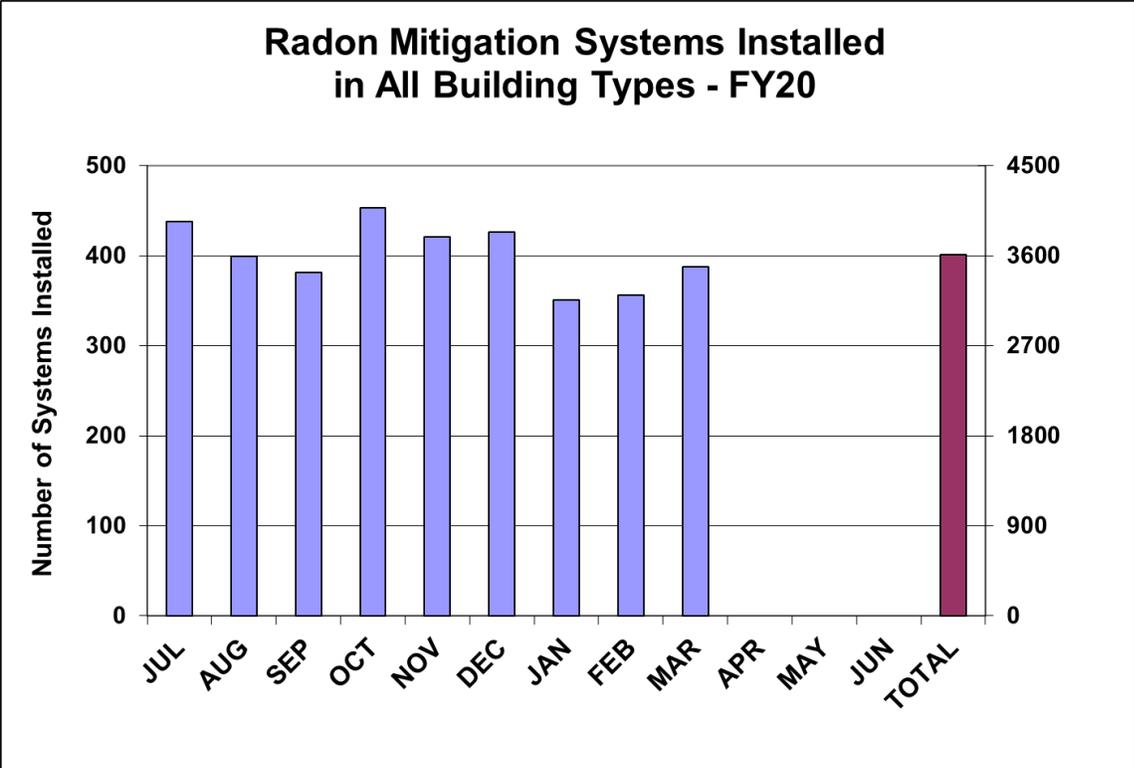
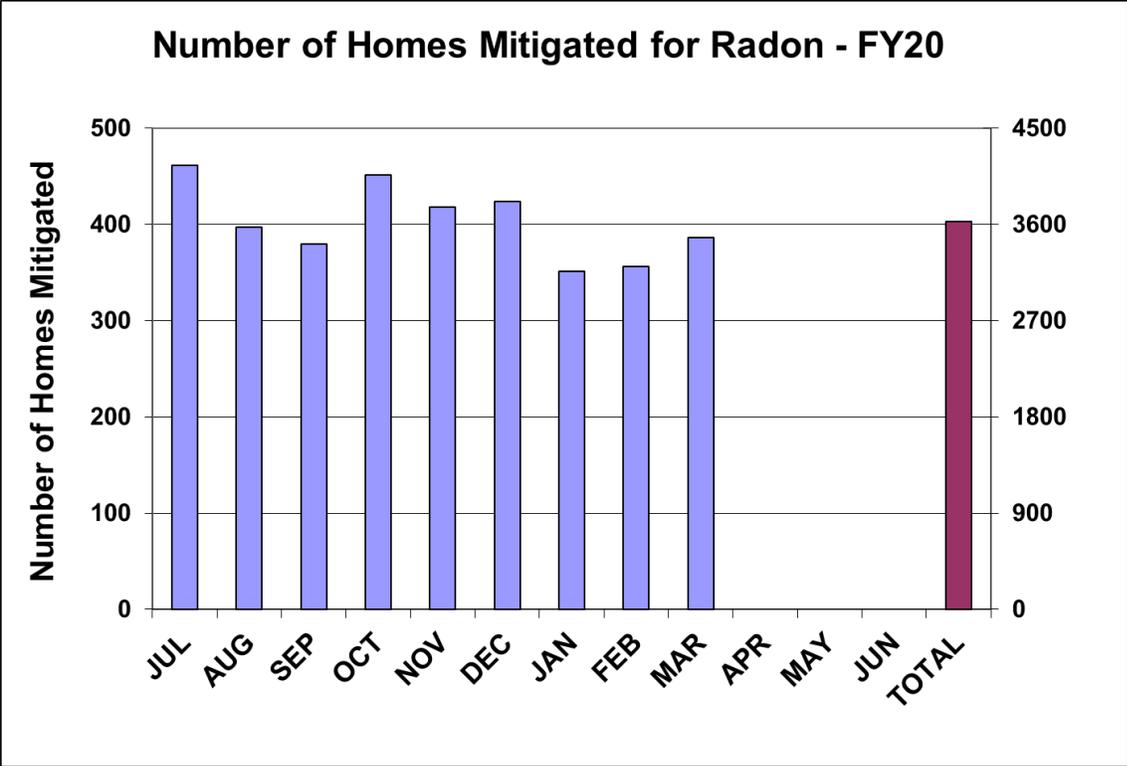


Radon Certifications Issued - FY20



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 March 2020 are due by May 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 16th.

B. NUCLEAR ENGINEERING SECTION

Oyster Creek – Permanently Shutdown

Exelon permanently ceased power operations at Oyster Creek on September 17th, 2018. Oyster Creek immediately began the process of defueling the reactor which was completed on September 25th, 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

Removal and segmentation of the reactor vessel head heat shield, reactor vessel head, drywell head and the drywell concrete shield plugs have been completed. Training of personnel, installation of tooling and filling of the reactor cavity have been completed to support segmentation of the reactor vessel internals. The reactor steam dryer segmentation is in progress. The steam separator will follow and is scheduled to proceed through July.

CDI has withdrawn the construction permit application from Lacey Township for the expansion of the Independent Spent Fuel Storage Installation (ISFSI) concrete pad. CDI is preparing a new engineering analysis for placing all the required casks on the present pad. Excavation of the cask transfer pit at the ISFSI pad continues. The present CDI schedule indicates that 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. All reactor control rod hydraulic control units (HCU) and associated components have been dismantled. A maintenance building and a previously abandoned water tank are next to be demolished and removed.

Social distancing (six-foot separation, masks, gloves, increased cleaning, working from home when possible, etc.) is being observed in accordance with Governor Murphy's executive orders and the Centers for Disease Control and Prevention guidelines.

Contact: Veena Gubbi (609) 984-7457

Hope Creek

Hope Creek ran at essentially full power throughout May, with the exceptions of brief periods when power was reduced by ~5% to ~6% for reactor control rod testing and main condenser tube plugging.

Contact: Jerry Humphreys (609) 984-7469

Salem Unit 1

Salem Unit 1 ran at essentially full power throughout May.

Contact: Elliot Rosenfeld (609) 984-7548

Salem Unit 2

Salem Unit 2 was shut down in its twenty-fourth Refueling Outage (S2R24) at the beginning of May.

In addition to replacing fuel assemblies the major scope of the outage included: replacement of shutdown seals on two Reactor Coolant Pumps; replacement of a Reactor Coolant Pump Motor; capital upgrades of a Service Water System Header; and, the overhaul of a Steam Generator Feed Pump. Removal of safety-related mechanical and electrical equipment from service for refueling, maintenance and modification activities was done in accordance with the approved refueling outage schedule which incorporates the requirements of the operating license and reflects the risk assessment as determined by PSEG's Probabilistic Risk Assessment (PRA) Program.

The refueling outage concluded at 1:39 PM on May 12th when the unit was returned to service. On May 14th, with the plant at 76% power, a steam generator feedwater regulating valve failed and the unit was manually shutdown. During the forced outage, maintenance was performed on the regulating valve and a feedwater heater. The forced outage concluded on May 18th when the unit was returned to service. On May 19th, power was held at 60% to perform maintenance on a

steam generator feed pump. Salem 2 returned to full power on May 24th and ran at essentially full power for the remainder of May.

Contact: Elliot Rosenfeld (609) 984-7548

NES Maintains Contact with PSEG, Holtec, NRC and NJ State Management 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.

The NES 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.

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, via video, the weekly updates from the DEP Commissioner.

Contact: Jerry Humphreys (609) 984-7469

NRC Performs Problem Identification and Resolution (PIR) Sample Inspection at Hope Creek

In May, an NRC inspector from Region I completed a PIR sample inspection at Hope Creek in accordance with NRC Inspection Procedure 71152, "Problem Identification and Resolution". The sample involved follow-up of the corrective actions concerning a main steam relief valve quenching mechanism that was found damaged during the last refueling outage (H1R22) in Fall 2019. Due to COVID-19 concerns, the inspection was performed remotely. Daily teleconferences were held between the NRC inspector, PSEG staff and NES staff. The results of the inspection will be included in the NRC Second Quarter 2020 Integrated Inspection Report for Hope Creek (2020-002). One NES engineer and the NES Supervisor were involved in the teleconferences and were able to review selected documents pertaining to the inspection.

Contact: Jerry Humphreys (609) 984-7469

NRC Performs Inspection of Salem 2's Inservice Inspection (ISI) Program

During Salem 2's twenty-fourth refueling outage (S2R24) which ended on May 12th, the NRC performed an inspection of the S2R24 in-service inspection (ISI) activities being performed by

PSEG. This inspection was performed in accordance with NRC Inspection Procedure 71111.08, "Inservice Inspection Activities". Due to COVID-19 concerns, the inspection was performed remotely. Daily teleconferences were held between the NRC inspector, PSEG staff and NES staff. The inspection assessed the effectiveness of the licensee's program for monitoring degradation of the reactor coolant system boundary, risk-significant piping system boundaries, and the containment boundary. The results of the inspection will be included in the NRC Second Quarter 2020 Integrated Inspection Report for Salem 2 (2020-002). One NES engineer and the NES Supervisor were involved in the teleconferences and were able to review selected documents pertaining to the inspection.

Contact: Jerry Humphreys (609) 984-7469

NES Staff Attends NRC Teleconferences/Webinars while Working Remotely

A. Hope Creek (HC) License Amendment Request (LAR) for 10 CFR 50.69 Implementation Teleconference

In accordance with the provisions of 10 CFR 50.69 & .90, PSEG Nuclear submitted a LAR for HC to the NRC on November 25th, 2019. The proposed amendment would modify the HC licensing basis, by the addition of a license condition, to allow for the implementation of the provisions of 10 CFR 50.69, "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors." The provisions of 10 CFR 50.69 allow adjustment of the scope of equipment subject to special treatment controls (e.g., quality assurance, testing, inspection, condition monitoring, assessment, and evaluation). For equipment determined to be of low safety significance, alternative treatment requirements can be implemented in accordance with this regulation. For equipment determined to be of high safety significance, requirements will not be changed or will be enhanced. This allows improved focus on equipment that has safety significance resulting in improved plant safety.

On May 4th, the NRC held a teleconference with PSEG to discuss the NRC's request for additional information regarding seismic risk relative to HC's 10 CFR 50.69 LAR. The purpose of the meeting was for NRC to explain what information it needs concerning seismic risk in order to review the 50.69 LAR. The NRC provided a presentation discussing its approach to the seismic review in 50.69 LARs. PSEG, as well as other interested utilities and industry groups (e.g., Nuclear Energy Institute (NEI)), were provided the opportunity to ask questions and make comments concerning the approach to seismic risk in 50.69 LARs. With the information provided by the NRC, PSEG can develop its response to the NRC's request for information.

Contact: Jerry Humphreys (609) 984-7469

B. NRC Independent Spent Fuel Installation (ISFSI) Licensees and COVID-19 Impacts

On May 8th, the NRC held a public teleconference to discuss with the Nuclear Energy Institute (NEI), the Decommissioning Plant Coalition (DPC) and nuclear industry

representatives, the regulatory relief pathways for NRC ISFSI licensees during the COVID-19 public health emergency (PHE). The purpose of the meeting was for the NRC to: 1) describe the applicable relief pathways; 2) discuss the process by which licensees may submit requests for regulatory relief; 3) hear from ISFSI licensees on the types of regulatory relief they expect they might need; and, 4) answer questions from the public on the relief request process.

On April 7th, the NRC issued a letter (“U.S. Nuclear Regulatory Commission Methods for Providing Regulatory Relief During the Coronavirus Disease 2019 Public Health Emergency”) to the nuclear industry. The April 7th letter stated that during the current COVID-19 PHE, licensees may experience challenges in meeting certain regulatory requirements. The NRC has multiple methods of providing relief from regulatory requirements while continuing to maintain safety and security. These methods fall broadly into different categories, which include exemptions from regulatory requirements, amendments to license conditions or technical specifications, and enforcement discretion. Each method has specific requirements and is appropriate under certain circumstances. Of particular interest in a relief request will be contingency plans and the amount of time that the licensee foresees will be required for the exemption to be in effect. The NRC encourages licensees to contact their NRC project manager or appropriate point of contact upon identifying any potential compliance issues resulting from the COVID-19 PHE.

During the May 8th meeting, the NRC made a presentation to the nuclear industry describing the above methods of temporary relief and the processes for applying for and getting any needed relief. In addition, the expected content of any relief requests was discussed. The NRC emphasized that any licensees that suspect that they might need relief should contact the NRC respective project manager as soon as possible in order to provide the NRC with a heads-up that a request may be imminent. This will allow the NRC to prepare for the review and will help to speed up the process while maintaining nuclear safety. As of May 8th, the NRC had not received any relief requests.

The nuclear industry representatives stated that the industry’s efforts have so far dovetailed the NRC efforts. The industry doesn’t foresee a need for enforcement discretion. Physical exams and offsite training may need exemptions. In both cases, social distancing may be difficult. Video exams and training may be necessary. The industry believes that the NRC may see relief requests in the next two to three weeks.

At the end of the meeting, the public was given the opportunity to speak.

Contact: Jerry Humphreys (609) 984-7469

C. NRC/Nuclear Industry Meeting to Discuss Potential Licensing Needs for Fall 2020 Refueling Outages Due to the COVID-19 Public Health Emergency

On May 27th, the NRC held a teleconference with the Nuclear Energy Institute (NEI) and nuclear industry representatives to discuss potential licensing needs for Fall 2020

refueling outages resulting from the COVID-19 public health emergency. The NRC held a similar teleconference in March to discuss industry needs for the Spring 2020 refueling outages. The NRC has various processes in place to provide temporary relief if needed. Some require formal license amendment requests, others do not as the regulations have relief processes already incorporated into them.

The NRC, as well as the industry, is very interested in applying the lessons-learned from the approximately twenty (20) temporary requests in the Spring. In the case of Fall refueling outages, there is additional time for the NRC to review the requests, but the NRC emphasized that the requests should be submitted in a timely manner. One of the lessons-learned is that communication between the NRC and the licensee is key and the NRC encouraged the industry to maintain verbal communication before and during the temporary relief process. 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 will be interested in what steps that the licensees have taken to mitigate the need for the relief (e.g., use of remote testing and/or inspection technology, etc.). The industry foresees that relief will be necessary in the same areas as those in the Spring outages.

At the end of each meeting, the public was given the opportunity to speak. No one from the public had questions or comments.

Contact: Jerry Humphreys (609) 984-7469

Review of the Draft Environmental Impact Statement (EIS) Report for Interim Storage Partner's (ISP) Consolidated Interim Storage Facility (CISF)

The NRC issued the Draft EIS report for ISP's CISF on May 6th. ISP is pursuing a license to construct a CISF for spent nuclear fuel at the existing Waste Control System's disposal site in Andrews County, Texas. The NRC is seeking public comments on the draft EIS report for ISP's application for a license to construct and operate the CISF. The NRC will publish the notice via the Federal Register. Publication of that notice will begin the public comment period, which will run for 120 days. The NRC staff is planning several public meetings in Texas during the comment period.

ISP proposed an initial 40-year license to consolidate and store up to 5,000 metric tons of uranium (MTUs) at the CISF. ISP's plan is to request amendments to the license, that, if approved, would authorize ISP to store an additional 5,000 MTUs for each of seven planned expansion phases of the proposed CISF (a total of eight phases) to be completed over the course of 20 years. ISP will eventually be able to store up to 40,000 MTUs of SNF 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 May 2021.

Three NES engineers reviewed the draft report and provided comments to the NES Supervisor.

Contact: Veena Gubbi (609) 984-7457

Review of the NRC's Proposed Rule for Emergency Preparedness for Small Modular Reactors (SMR) and Other New Technologies

The NRC issued a proposed rule and associated draft regulatory guide on emergency preparedness requirements for small modular reactors and other new technologies on May 12th in the Federal Register.

The NRC's existing emergency preparedness program for nuclear power plants is focused on large, light-water cooled reactors. This rulemaking would amend the NRC's regulations to add new emergency preparedness requirements for small modular reactors and other new technologies. This rulemaking would affect applicants for new NRC licenses and reduce regulatory burden related to the exemption process. NRC is seeking comments on specific questions in its proposal, including: should the proposed alternative framework be expanded to include existing light-water reactors; is an eight-year emergency drill and exercise cycle appropriate for SMRs and other technologies; and if federal, state, local, and tribal authorities have the capabilities to successfully interdict contaminated food supplies, is an ingestion Emergency Planning Zone (EPZ) necessary? All comments to the NRC are due by July 27th.

Three NES engineers reviewed the proposed rule and provided comments to the NES Supervisor. Those comments will be provided to BNE management.

Contact: Jerry Humphreys (609) 984-7469

PSEG Holds Meeting to Discuss a Proposed Marine Port at Artificial Island

The New Jersey Board of Public Utilities (BPU) has chosen Ocean Wind (combined effort by Danish energy company Ørsted and supported by PSEG Power) to develop a 1,110-megawatt offshore wind farm. Ocean Wind was selected from among three projects. Construction of the energy farm is expected to start in 2022 or 2023. The first phase would come online in 2024. Construction of the farm will require a marine port which can support the assembly of the wind turbine supports. The supports, turbines and turbine blades would then be loaded onto installation ships and taken to the wind farm location for final assembly and installation. Due to the height of the supports, the marine port must be located where there are no overhead interferences (e.g., bridges). PSEG is proposing to build an offshore wind support marine terminal facility (MTF) on Artificial Island, Lower Alloways Creek Township, Salem County, north of the Hope Creek site.

On May 5th, PSEG and the New Jersey Department of Environmental Protection (DEP) held a pre-application meeting via teleconference to discuss PSEG's proposed offshore wind support MTF. The purpose of the meeting was for PSEG to comprehensively review the scope of the proposed MTF with the NJDEP. The meeting was intended to define permitting expectations and needs. The objectives were to: 1) familiarize the DEP team with the MTF design,

construction process, location, extent of current/existing data, alternatives considered, and purpose and need; 2) define dredging related requirements; 3) review current impact assessment results and mitigation strategy; 4) align on process and schedules related to submittals, reviews and approvals. Following the discussions, questions and comments with various DEP sections, PSEG stated that it intends on beginning the permitting process by the end of May. It is PSEG's desire to have all the required permits approved by the end of 2020, initiate field work at Artificial Island the first quarter of 2021 with the development work complete by first quarter of 2023.

Contact: Jerry Humphreys (609) 984-7469

NES Staff Attends Department of Energy (DOE) National Transportation Stakeholders Forum (NTSF) Teleconferences/Webinars

The DOE 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.

A. NES Supervisor Attends NTSF Planning Committee Teleconferences

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. The 2020 meeting was scheduled for May 18 – 21 in Scottsdale, AZ. Due to the COVID-19 pandemic, this year's meeting was cancelled. On May 7th and May 21st, the Planning Committee for annual meetings met via teleconference. The NES Supervisor is a member of the committee and attended both teleconferences. At these teleconferences, updates concerning webinars to replace the Annual Meeting sessions were discussed. The NTSF will be providing webinars for selected sessions throughout May and June. The Planning Committee continued its initial plans for the 2021 National Meeting.

Contact: Jerry Humphreys (609) 984-7469

B. NES Staff Attends NTSF Webinars Resulting from 2020 Annual Meeting Cancellation

As described above, the NTSF opted to present webinars for selected sessions that would have occurred at the annual meeting that was cancelled.

The first webinar of the series, "Federal Agency Updates" was held on May 19th. DOE's Office of Environmental Management (EM), Office of Nuclear Energy (NE), the

Department of Transportation's (DOT) Federal Railroad Administration (FRA), the Waste Isolation Pilot Plant (WIPP), and the NRC provided updates on agency's current and future projects, priorities and staff changes as they pertain to the transportation of high-level radioactive materials and spent nuclear fuel. Three (3) NES engineers and the NES Supervisor attended the webinar.

The second webinar, "Radiation 101" was held on May 27th. The DOE Office of Environment, Health, Safety, and Security presented a beginner-level overview of several radiation topics (basics of radiation, radiation protection, radiobiology, and radiation detection). The NES Supervisor attended the webinar.

Contact: Jerry Humphreys (609) 984-7469

C. NES Staff Attends Council of State Governments/Eastern Regional Conference (CSG/ERC) Northeast High-Level Radioactive Waste Transportation Task Force (NE Task Force) Spring Meeting

As part of the national Council of State Governments, the CSG/ERC supports legislative and executive branch state officials from the Northeastern States from Maine to Maryland, Puerto Rico, U.S. Virgin Islands and the Canadian provinces of Quebec, New Brunswick, Ontario, Nova Scotia and Prince Edward Island. This support is in areas relating to agriculture, criminal justice, U.S./Canada relations, education, energy and environment, fiscal affairs, health, international trade and transportation.

The CSG/ERC NE Task Force assists the ten northeastern states in planning and preparing for the transportation of spent nuclear fuel and high-level radioactive materials with the goal of the safe, secure and uneventful transportation of such materials. The task force also facilitates communication and discussion of information, comments and policies among the northeastern states and between those states and relevant offices and programs of the DOE and other federal entities (e.g., NRC, DOT, FRA, etc.). An NES engineer and the NES Supervisor are governor-appointed members of the NE Task Force. The NES Supervisor is a co-chair for the NE Task Force.

Normally the Spring meeting of the NE Task Force occurs in conjunction with the NTSF annual meeting. As a result of the cancellation of the annual meeting, the NE Task Force held a virtual Spring 2020 Meeting on May 20th.

Each of the attending northeastern states provided a report of the activities pertaining to radioactive shipments and commercial nuclear power in the respective state. Updates were provided concerning the Yankee plants in New England that have permanently shut down, have been demolished and now only have dry cask spent fuel storage facilities at the former plant sites. Representatives from the DOE, Southern States Energy Board, Midwestern Radioactive Materials Transportation Committee and Western Interstate Energy Board provided a brief overview of activities in their organizations and/or regions.

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 May 2020:

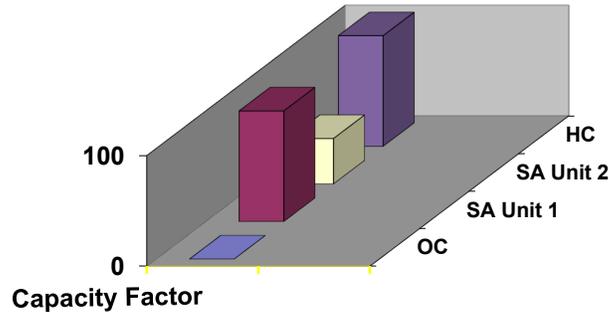
Spent Fuel and Nuclear Waste	Highway Route Control Quantity Shipments	Radionuclides of Concern
0	0	0

Contact: Jerry Humphreys (609) 984-7469

BUREAU OF NUCLEAR ENGINEERING

Plant Operating Performance – May 2020

Note: On September 17th, 2018 Oyster Creek permanently ceased operation.



STATISTICAL INFORMATION

EMERGENCY AND NON-EMERGENCY EVENT NOTIFICATIONS FOR MAY 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.

	MAY 2020		JAN - MAY 2020		JAN – MAY 2019	
	EE	NEE	EE	NEE	EE	NEE
OYSTER CREEK	0	0	0	0	0	1
SALEM 1	0	0	0	1	0	0
SALEM 2	0	0	0	0	0	1
SALEM SITE	0	1	0	1	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 54 samples during the month of May 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 MAY 2020

SAMPLE MEDIUM	NUMBER OF SAMPLES
AIR FILTER	28
AIR IODINE	10
MILK (Cow)	1
SURFACE WATER	6
AQUATIC BIOTA	6
VEGETABLE	3
TOTAL SAMPLES	54

Documents Reviewed

Holtec Decommissioning International, Annual Radioactive Effluent Release Report (ARERR), 2019, Oyster Creek Nuclear Station, May 2020.

Holtec Decommissioning International, Annual Radiological Environmental Operating Report (AREOR) and Radiological Groundwater Protection Program (RGPP), 2019, Oyster Creek Nuclear Station, May 2020.

PSEG Nuclear LLC, Annual Radiological Environmental Operating Report (AREOR) and Radiological Groundwater Protection Program (RGPP), January 1 through December 31, 2019, May 2020.

PSEG Nuclear LLC, 2019 Annual Radioactive Effluent Release Report (ARERR) for Salem and Hope Creek Generating Stations, May 2020

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

During the month of May 2020, nine (9) groundwater monitoring well samples were collected and shipped to the BNE's contract laboratory, GEL Laboratories, for radiological analysis.

Contacts: Karen Tuccillo (609) 984-7443

Update on Oyster Creek Tritium Monitoring

During the month of May 2020, 19 groundwater monitoring well samples and one (1) surface water sample were collected and shipped to the BNE's contract laboratory, GEL Laboratories, for radiological analysis. Results are available on the State of New Jersey Bureau of Nuclear Engineering's website at, <https://www.state.nj.us/dep/rpp/bne/bnedown/FinalOCH3.pdf>

Contacts: Karen Tuccillo (609) 984-7443

Impingement of Endangered Atlantic Sturgeon at Salem Nuclear Generating Station

NEES staff consulted with the National Marine Fisheries Service (NMFS) and PSEG Nuclear regarding the circumstances surrounding the recent increase in the impingement of Atlantic sturgeon on the intake screens at PSEG's Salem Nuclear Generating Station (Salem). This species is listed as Endangered under the Federal Endangered Species Act, and the impingement of these fish at Salem is regulated by NMFS. A Biological Opinion and Incidental Take Statement issued by NMFS limits the numbers of Atlantic sturgeon, and other endangered species, that may be impinged or killed at Salem. PSEG Nuclear recently exceeded the limit for the number of Atlantic sturgeons that may be killed as a result of impingement (18). As of May 13, NMFS reports that as many as 44 fish have died on the intake screens. PSEG, NMFS and the Nuclear Regulatory Commission are in the process of evaluating possible causes for the recent increase in the occurrence of these fish at Salem, as well as possible methods to mitigate the impact.

Contacts: Karen Tuccillo (609) 984-7443

Participation in Webinars

On May 13, 2020, staff members attended a webinar conducted by the Social Sciences and Humanities (SHARE) on "Key Challenges for Managing a Transition Phase: Lessons from Chernobyl and Fukushima Accidents". Additional information on SHARE can be found on their website at <https://www.ssh-share.eu/>

On May 28, 2020, staff members participated in a webinar on Combined Emergencies conducted by the International Atomic Energy Agency. Events included radiological and non-radiological

events, coordination of participants, and socio-economic issues during an event. Additional information on the IAEA can be found on their website at, <https://www.iaea.org/>

On May 28, 2020, a staff member attended an NRC-sponsored webinar on the Scope of the Generic Environmental Impact Statement for Advanced Nuclear Reactors. The purpose of the meeting was for the USNRC to seek input on parameters which may be used to evaluate the environmental impacts of constructing and operating a small-scale advanced reactor and on issues that may be resolved generically or require a site-specific evaluation. The scoping process for the GEIS is through June 30, 2020, the draft GEIS shall be released on May 1, 2021, and the final will be released by May 1, 2022. Comments can be submitted via the website, <https://www.regulations.gov> and search for Docket ID NRC-2020-0101. Additional information can be found on the USNRC website at, <https://www.nrc.gov/pmns/mtg?do=details&Code=20200500>.

Contacts: Karen Tuccillo (609) 984-7443

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

**PSEG Nuclear
Radioactive Effluent Releases¹
Nuclear Environmental Engineering Section
For the Period of 04-01-20 to 04-30-20**

**Hope Creek
Gaseous
Effluents**

<u>Effluent</u>		
Fission Gases	0	Ci
Iodines	0.00016	Ci
Particulates	0	Ci
Tritium	8.63	Ci

**Hope Creek
Liquid Effluents**

<u>Effluent</u>		
Fission Products	0.0002	Ci
Tritium	2.76	Ci

**Salem Unit 1
Gaseous Effluent**

<u>Effluent</u>		
Fission Gases	0.0122	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	20.5	Ci

**Salem Unit 1
Liquid Effluents**

<u>Effluent</u>		
Fission Products	0	Ci
Tritium	0.0027	Ci

**Salem Unit 2
Gaseous Effluent**

<u>Effluent</u>		
Fission Gases	0.037	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	21.5	Ci

**Salem Unit 2
Liquid Effluents**

<u>Effluent</u>		
Fission Products	0.0017	Ci
Tritium	0	Ci

¹ 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 1st of the following calendar year.

**Holtec Decommissioning International (HDI)
Radioactive Effluent Releases
Nuclear Environmental Engineering Section
For the Period of 04-01-20 to 04-30-20**

**Oyster Creek
Gaseous Effluents
Elevated Releases**

<u>Effluent</u>		
Fission Gases	0	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	0.168	Ci

**Oyster Creek
Gaseous Effluents
Ground Releases**

<u>Effluent</u>		
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 04-01-20 to 04-30-20**

Oyster Creek Liquid Effluents

<u>Effluent</u>		
Fission Products	0.0001	Ci
Tritium	0.097	Ci

Oyster Creek Liquid Effluent Groundwater Extraction²

<u>Effluent</u>		
Tritium	< MDA ³	Ci

Contact: Paul E. Schwartz (609) 984-7539

² 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.

³ 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-three 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 April:

Artificial Island CREST System Ambient Radiation Levels April 2020 Derived From One Minute Averages UNITS = mR/Hr				
AI1	AI2	AI3	AI4	AI5
.0063	.0064	.0058	.0064	.0066
AI6	AI7	AI8	AI9	AI10
.0064	.0056	.0055	.0073	.0053

Oyster Creek CREST System Ambient Radiation Levels April 2020 Derived From One Minute Averages UNITS = mR/Hr			
OC1	OC2	OC3	OC4
.0043	.0056	.0039	.0049
OC5	OC6	OC7	OC8
.0054	.0057	.0049	.0051
OC9	OC10	OC11	OC12
.0059	.0054	.0054	.0055
OC13	OC14	OC15	OC16
.0049	.0055	.0051	.0054

**** indicates insufficient valid data

Contact: Ann Pfaff (609) 984-7451

Nuclear Emergency Preparedness State of Readiness

NEPS staff have diligently worked to ensure NEPS is in a continued State-of-Readiness under current social distancing and work-from-home conditions. NEPS operating in a State-of-Readiness means that the section is ready to respond to a nuclear emergency under current conditions. To ensure a continued State-of-Readiness, NEPS staff have at least one staff person come into the office one to two days per weeks in order to complete a checklist of items pertaining to the proper maintenance and operation of emergency response vehicles, radiation detection instruments, and facility communication equipment.

Contact: Ann Pfaff (609) 984-7451

Licensee Meeting

On April 13, 2020, NEPS staff hosted an online licensee meeting with State Police Office of Emergency Management and PSEG Nuclear. Discussion topics included updates on each organization's COVID-19 response, how a nuclear power plant accident response would look during COVID-19, and updates on the re-scheduling of the May 19, 2020 FEMA/NRC Graded Exercise.

Contact: Ann Pfaff (609) 984-7451

HDAIC Training

On April 30, 2020, NEPS staff participated in an online training webinar hosted by Homeland Defense Security Information Analysis Center which provided an overview of science and technology used in radiation detection and response.

Contact: Ann Pfaff (609) 984-7451

NRC Meeting

On April 30, 2020, NEPS staff participated in an online NRC meeting with the nuclear industry and interested parties regarding potential emergency preparedness enforcement guidance and exemption requests due to the COVID-19 public health emergency. Guidance concerning re-scheduling of biennial exercises will be forthcoming in the next several weeks. Exercises can be re-scheduled within the same calendar year by agreement. If an exercise is pushed into the following calendar year, an official exemption must be requested by the licensee and approved by the NRC.

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 Waiver of Advertising Contract was submitted and is now approved to cover the purchase and award Teletrix Corporation as Sole Source Vendor. Teletrix will provide the upgrade to the Bureau of Nuclear Engineering's radiation simulation equipment used for nuclear emergency response training. Teletrix Corporation is the only vendor that provides this equipment.

Contact: Ann Pfaff (609) 984-7451

Continuous Radiological Environmental Surveillance Telemetry System

Thirty-three 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 May:

Artificial Island CREST System Ambient Radiation Levels May 2020 Derived From One Minute Averages UNITS = mR/Hr				
AI1	AI2	AI3	AI4	AI5
.0063	.0064	.0057	.0063	.0065
AI6	AI7	AI8	AI9	AI10
.0064	.0055	.0054	.0073	.0052

Oyster Creek CREST System Ambient Radiation Levels May 2020 Derived From One Minute Averages UNITS = mR/Hr			
OC1	OC2	OC3	OC4
***	.0055	.0035	.0048
OC5	OC6	OC7	OC8
.0053	.0056	.0047	.0050
OC9	OC10	OC11	OC12
.0058	.0054	.0053	.0054

OC13	OC14	OC15	OC16
.0049	.0054	.0050	.0053

**** indicates insufficient valid data

Contact: Ann Pfaff (609) 984-7451

Hope Creek FEMA Graded Exercise

The Hope Creek full scale biennially evaluated exercise scheduled for May 19, 2020 was officially postponed due to the current public health emergency. In conjunction with State Police Office of Emergency Management, Salem and Cumberland Counties, Delaware Emergency Management Agency and PSEG Nuclear LLC, the request was made to FEMA and NRC to postpone the exercise as response to the COVID-19 pandemic was paramount, the exercise potentially could put participants at increased risk for contracting the virus and the current response demonstrated the ability to protect the public in real-time. The exercise likely will be re-scheduled for the early part of 2021, following the urgency of the pandemic and allowing each organization training and preparation time around other previously scheduled commitments. In compliance with the New Jersey Radiological Accident Response Act, the February 26, 2020 full-scale exercise fulfills the State’s requirement for an annual testing of the Radiological Emergency Response Plan.

Contact: Ann Pfaff (609) 984-7451

Nuclear Emergency Preparedness State of Readiness

NEPS staff have diligently worked during the month of May 2020 to ensure NJDEP is in a continued State-of-Readiness under current social distancing and work-from-home conditions. Operating in a State-of-Readiness means that the NEPS is ready to respond to a nuclear emergency under current conditions. To ensure a continued State-of-Readiness, NEPS staff have at least one staff person come into the office one to two days per weeks in order to complete a checklist of items pertaining to the proper maintenance and operation of emergency response vehicles, radiation detection instruments, and facility communication equipment.

Contact: Ann Pfaff (609) 984-7451

Licensee EP Meeting

On May 11, 2020, NEPS staff hosted an online licensee Emergency Preparedness meeting. Discussion topics included updates on the re-scheduling of the May 19, 2020 FEMA Graded Exercise – including an official request from NJ OEM to FEMA Region II for the postponement of the exercise. The meeting also included discussion on the Annual Public Hearings scheduled for July and the move to virtual public hearings.

Contact: Ann Pfaff (609) 984-745

Receipt of Upgraded 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. After receiving approval for a \$97,000 Waiver of Advertising contract, NEPS has received the new simulator instruments and is in the process of working with Teletrix Corporation to set-up the equipment for use with our field team exercise kits. The upgraded simulation radiation detectors will provide significant improvements in training and exercise capabilities for the Bureau of Nuclear Engineering.

Contact: Ann Pfaff (609) 984-7451

SHARE-NERIS Webinar on Managing Transition Phase

On May 13, 2020, NEPS staff participated in an online training webinar hosted by SHARE and NERIS which focused on lessons from Chernobyl and Fukushima on the transition phase emergency management response. The ultimate goal of the transition phase response is to restore social and economic activity in the affected areas to whatever extent possible following a nuclear or radiological emergency, as well as to mitigate the impacts of the emergency and transition on the population, infrastructure, and environment.

Contact: Ann Pfaff (609) 984-7451

Webinar on Combined Emergencies

On May 28, 2020, NEPS staff participated in an online training webinar hosted by IAEA's Incident and Emergency Centre which sought to raise awareness to potential challenges in preparedness and response for a nuclear or radiological emergency initiated and/or affected by conventional emergencies, natural events, security events, and/or national/global health crises.

Contact: Ann Pfaff (609) 984-7451