

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

APRIL 1 THROUGH APRIL 30, 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

Bureau Operations and COVID-19

As of March 20, and continuing through the month of April, Bureau staff has been working remotely from home. As a result of COVID-19, all field inspections have been cancelled until further notice. The April Monthly Report Appendix A data shows the impact of COVID-19 with no machine source, school or mammography inspections. However, staff is rotating to the office to 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.

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

On April 7, 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 Webinar Training Activities

Bureau inspectors participated in the following Webinar training activities by the work-from-home remotely: The International Atomic Energy Agency, “COVID-19 and Chest CT: protocol and dose optimization” and “COVID-19 and Health Workers: Radiation Protection”; The American Association of Physicists in Medicine, “2020 Virtual AAPM Spring Clinical Meeting, April 4-7”; the Homeland Defense & Security Information Analysis Center, “Science and Technology of Radiation Detection”; and Aunt Minnie, “Frontline learnings from Infectious Diseases, Pulmonology, and Radiology”.

COVID-19 Advisory

On April 21, The DEP, Radiation Protection Element, Bureau of X-ray Compliance issued a COVID-19 Advisory on the guidance for X-Ray Machine Source Operators, Radiologic Technology Licensees and Educational Programs for compliance concerns due to the COVID-19 Pandemic. The Advisory is located on the Bureau’s website at www.xray.nj.gov

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
\$7,325.00	\$6,953.00	\$3,057,499.00	\$3,016,153.00	\$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%		
G-L	N/A	49%	73%	88%	97%	99%	99%	100%	100%	100%		
M-R	N/A	N/A	45%	75%	89%	94%	97%	99%	100%	100%		
S-Z	N/A	N/A	N/A	49%	74%	89%	94%	97%	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			181
Terminated Facilities	27	39	28	37	32	25	35	25	27	12			287
Net Change (Facilities)	1	-23	-9	-10	-16	-11	-13	-4	-17	-4	0	0	-106
New Registrations	156	124	147	156	145	122	194	147	158	83			1432
Stored Registrations	56	63	46	53	51	32	73	59	47	23			503
Disposed registrations	102	90	98	89	98	120	102	66	74	40			879
Net Change (Machines)	-2	-29	3	14	-4	-30	19	22	37	20	0	0	50

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 April 2020, IQ evaluations were performed on zero x-ray units with the following results:

- 0 units (0%) had excellent image quality scores.
- 0 units (0%) had good image quality scores.
- 0 unit (0%) 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.

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

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

- In April 2020, ESE measurements were calculated on zero dental x-ray units that used DR digital imaging. No units (0%) were measured as having extremely high ESE.
- In April 2020, ESE measurements were calculated on zero dental x-ray units that used CR (PSP) digital imaging. No units (0%) were measured as having extremely high ESE.
- In April 2020, ESE measurements were calculated on zero dental x-ray units that used D speed film. No units (0%) were measured as having extremely high ESE.
- In April 2020, ESE measurements were calculated on zero 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 April 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 April. Statistical information follows in Appendix A of this report. In addition to its regular business functions, the following highlights are reported:

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	\$160	\$640	\$640
Initial Licenses	\$1,180	\$600	\$56,840	\$57,200
Renewal Licenses	\$180	\$810	\$11,580	\$37,370
Totals	\$1,520	\$1,570	\$69,060	\$95,210

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 April. 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 April. 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 April 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
April 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	2	2	158

Administrative Orders	Closed	Effective	Pending	Total	YTD
	2	2	1	5	272

Notice of Prosecutions	Closed	Effective	Pending	Total	YTD
	0	3	1	4	258

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
	\$2,400.00	\$134,050.00	\$122,310.00	\$25,150.00	\$147,460.00

Contact : Arthur Robinson (609) 984-5634

Inspector: ALL
Discipline: ALL

Number of Inspections Performed

Inspection Type	<u>Inspection Description</u>	<u>Facilities Inspected</u>	<u>Machines Inspected</u>	<u>Machines Audited</u>	<u>Machines Uninspected</u>
	Total On-Site Inspections:	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
6	OFFICE VIOLATION RESPONSE REVIEW	4		4	
18	OFFICE QA VIOLATION RESPONSE REVIEW	8		9	
23	OFFICE TECH CERT INSPECTION	7		7	
30	DENTAL CBCT OFFICE REVIEW INSPECTION	2		3	
	Total Office Inspections:	<u>21</u>		<u>23</u>	<u>0</u>

Number of Enforcement Documents Issued

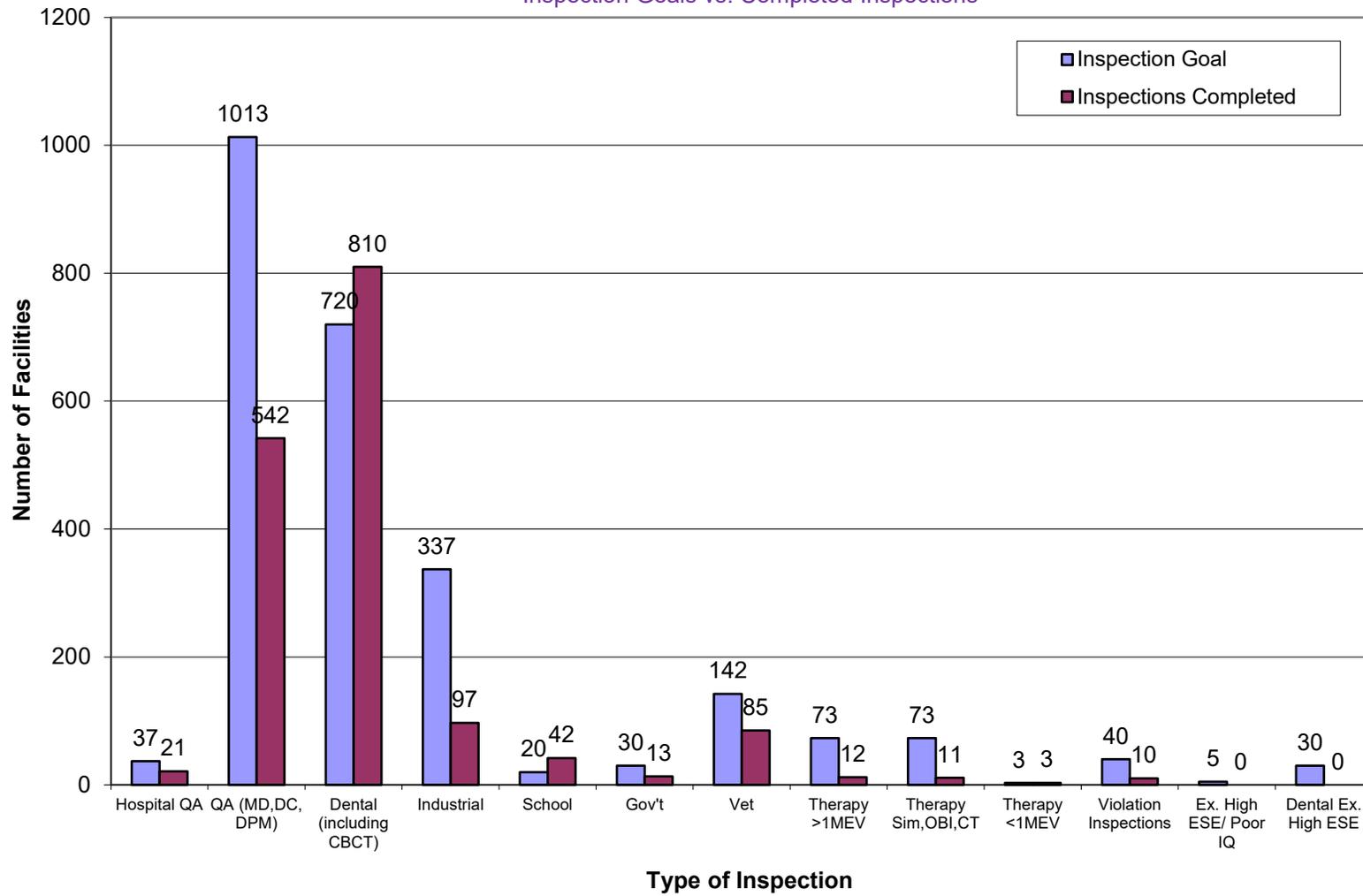
NOV	0
AO	7
NOP	7
Amount of Penalties	\$5,100

Inspector: ALL
Discipline: ALL

<u>Violation Code</u>	<u>Glossary Information</u>	<u>Description Non-Compliance</u>	<u>Number of Violations By Code</u>
Violations Cited Non-QA			
TC			
TC-001	19.3(c)	x-rayed humans without a valid NJ license	7
Total Violations Cited Non-QA			<u>7</u>
Total Violations			<u>7</u>

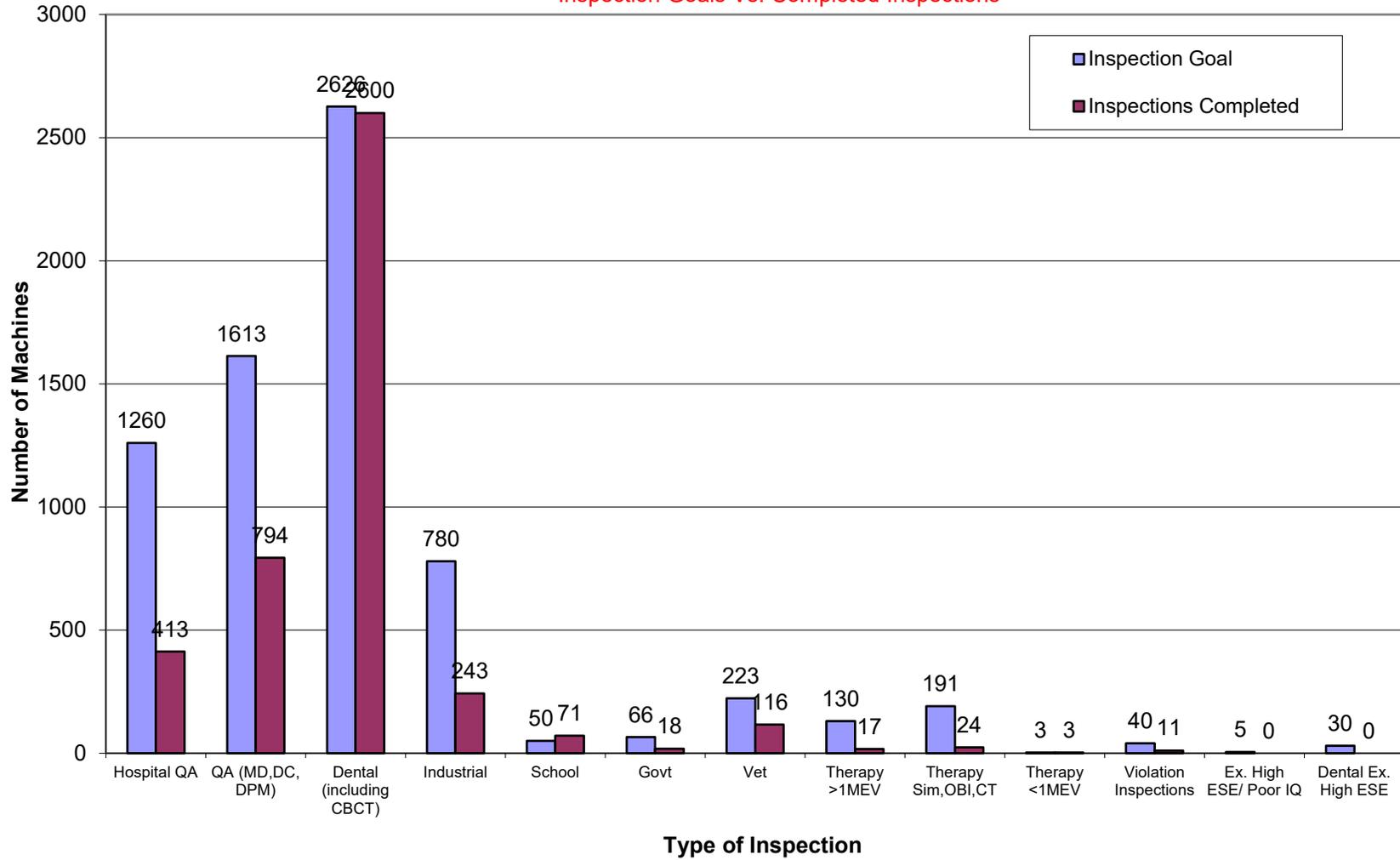
3rd Qtr Quarter FY20

Facilities Inspection Goals vs. Completed Inspections



3rd Quarter FY20

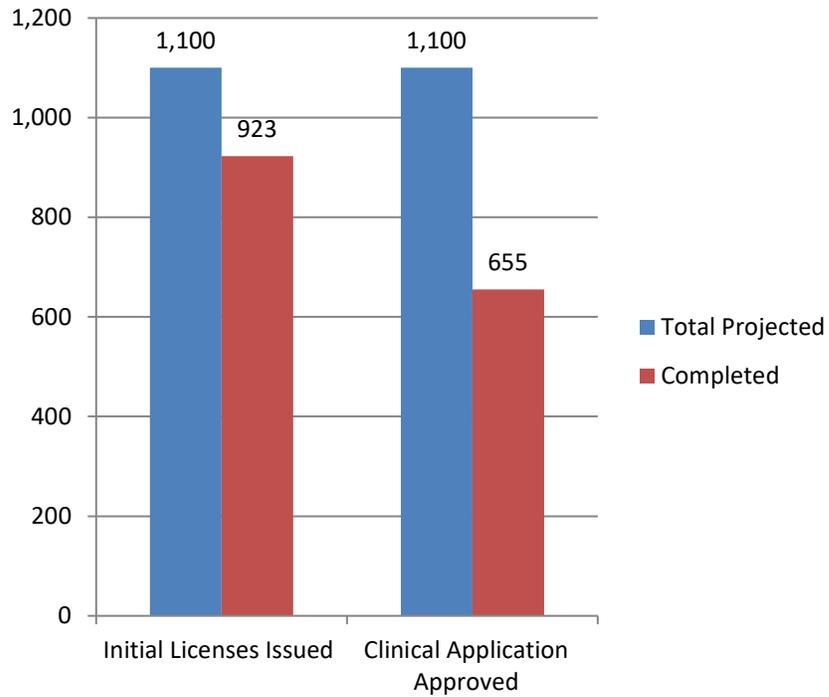
Machines Inspection Goals Vs. Completed Inspections

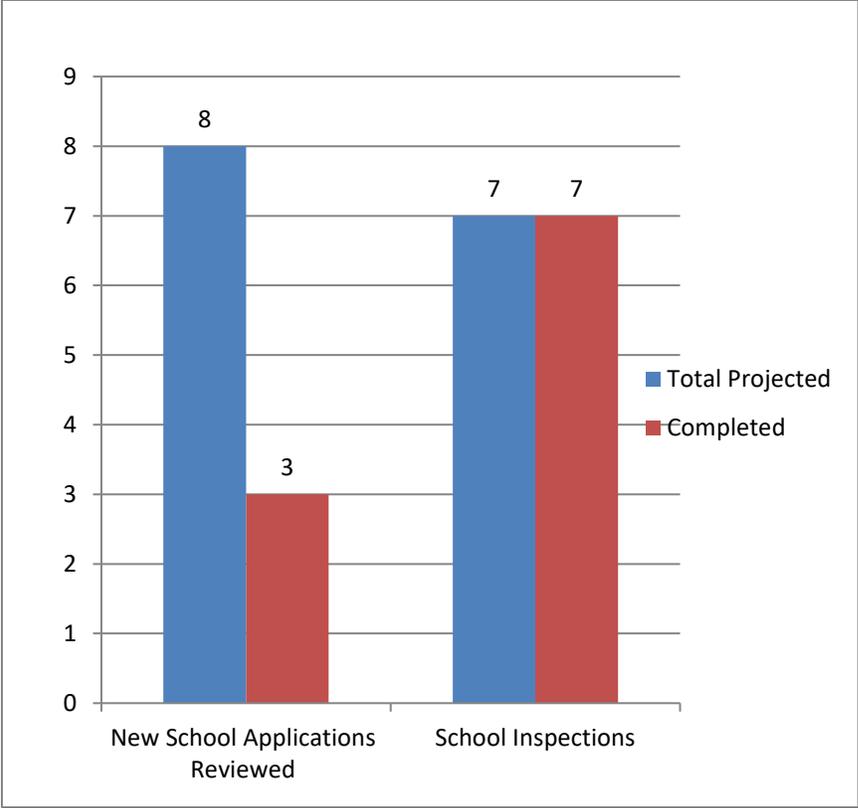


**APPENDIX A - TECHNOLOGIST EDUCATION AND LICENSING SECTION
MONTH OF APRIL 2020**

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	8	-	1	12	-	-	-	-	21	923	1,100
Licenses Renewed	4	-	4	6	-	-	-	-	14	383	N/A
Total Licensed	9,343	1,027	874	11,826	55	22	7	77	23,231	N/A	N/A
Exams Scheduled	1	-	-	-	-	-	-	-	1	3	N/A
Investigations Conducted	-	-	-	-	-	-	-	-	0	28	30
Licenses Verified	-	-	-	46	-	-	-	-	46	4,833	7,000
Expired Licenses	1	-	-	1	-	-	-	-	2	21	N/A
Unlicensed	1	-	-	3	-	-	-	-	4	46	N/A
Enforcement Documents Issued	8	-	-	16	-	-	-	-	24	188	N/A
NEAs Issued	-	-	-	-	-	-	-	-	0	0	N/A
Offer of Settlement	\$1,200	-	-	\$5,200	-	-	-	-	\$6,400	\$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	2	-	-	1	-	-	-	-	3	22	20
School Inspections Conducted	-	-	-	-	-	-	-	-	0	7	7
Total Schools Reviewed	2	-	-	1	-	-	-	-	3	32	27
Clinical Applications Approved	1	-	-	10	-	-	-	-	11	655	1,100

Technologist Education and Licensing Section 3rd Quarter

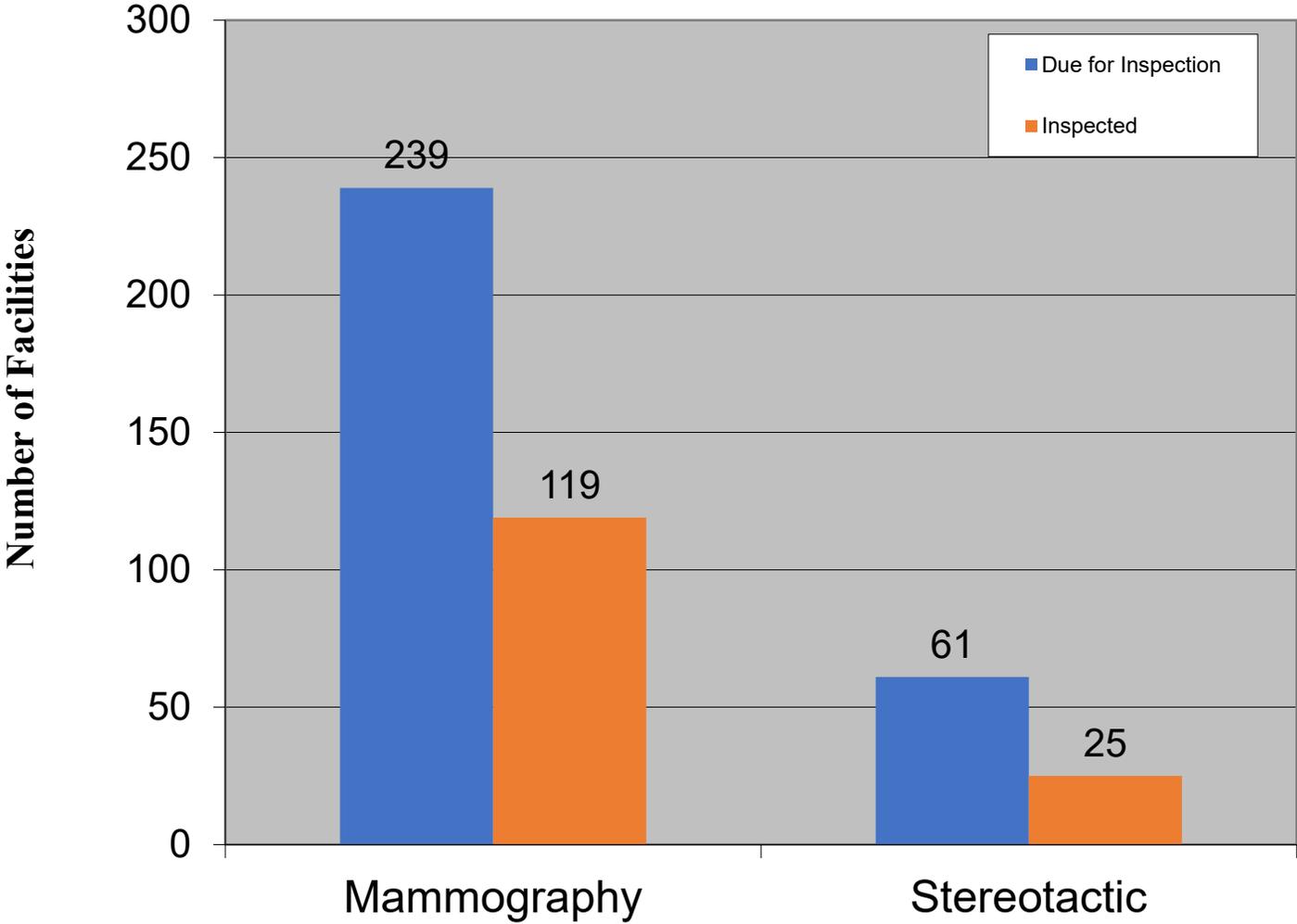




**Appendix A - Bureau of X-ray Compliance
Mammography Section
April 2020**

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	1	0	0	1	27	
Canceled	0	4	1	0	5	34	
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	1	0	0	1	9	

**Mammography Inspections FY2020
Inspection Goals vs. Completed Inspections - 3rd Qtr**



SECTION III - BUREAU OF ENVIRONMENTAL RADIATION (BER)

A. OFFICE OF THE BUREAU CHIEF

Staff of the BER have settled into working from home during the Public Health Emergency and have been able to accomplish most of our goals. The Radon Section staff have been processing applications and monthly reports, working with the Lung Cancer Task Force, and writing a rule proposal that will completely replace the current radon certification regulations. The Radioactive Materials program staff sent out a COVID-19 Advisory https://www.state.nj.us/dep/rpp/rms/agreedown/ber_covid19_compliance.pdf for licensees who have difficulty meeting any of our regulations. Staff have handled any requests on a case by case basis. So far there have been less than 5 requests for regulatory relief. Staff have been issuing new licenses, renewals, amendments, reciprocities and terminations without delay. They have developed a remote inspection procedure which includes video inspections for new, low risk applicants. Routine inspections are being performed over email and telephone but will include an on-site abbreviated visit when inspections can start. Staff of the Radiological and Environmental Assessment Section have been reviewing contaminated site submittals and managing drinking water licenses. Administrative staff continue to keep up with mailing correspondences, processing checks, purchasing, and training. Many BER staff are also taking on-line training. Virtual meetings and Teams chatting are replacing our old normal daily interactions. This smooth transition to working from home would have more difficult without Chuck Renaud (Radon Section), Rich Peros and Jodie Murl (Radioactive Materials Program), who go to the office routinely. Other staff have also gone in occasionally and we all appreciate their dedication and assistance in helping us continue to perform the BER's mission.

B. RADIOACTIVE MATERIALS PROGRAM

Medical, Industrial, and Reciprocity

During the month of April 2020, the Radioactive Materials Program responded to one (1) radiation incident:

Date	Type of Incident	Description	Status
4/2/20	Other	A portable gauge was crushed by a roller at a construction site in Edison, NJ. The RSO and Middlesex County HAZMAT responded to the scene. The gauge was able to be placed into the transport container and transported back to the licensee's facility where it is secured safely and is awaiting disposal. All required notifications were made.	Closed

Contact: Nancy Stanley (609) 984-5452

Training

Due to COVID-19 no training was conducted in April.

Contact: Nancy Stanley(609) 984-5452

C. ROUTINE ACTIVITIES

	This Month 41/1/20-4/30/20	FY-To-Date 7/1/19-4/30/20
Number of Amendments Processed:	21	182
Number of Renewals Processed:	1	19
Number of Initial Applications Processed:	1	10
Number of Active Licenses	581	581
Number of Terminations:	0	15
Number of Reciprocity Requests Received:	39	276
Number of Incidents:	1	17
Number of Inspections:	7	166

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. 27 sources on the databases were verified during April.

Staff continues to maintain entry of quarterly reports from manufacturers and distributors into the generally licensed database. 13 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 – April 2020

Bureau of Environmental Radiation – By Month (4/1/20 – 4/30/20)				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	1	0	0	1
Radon Section	0	0	3	3
Notice of Prosecutions				
	Closed	Effective	Pending	Total

Radioactive Materials Section	0	0	0	0
Radon Section	0	0	1	1
Notice of Violations				
	Closed	Effective	Pending	Total
Radioactive Materials Section	1	3	0	4
Radon Section	0	0	2	2
Bureau of Environmental Radiation – Fiscal Year to Date (7/1/19 - 4/30/20)				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	14	4	0	18
Radon Section	0	0	3	3
Notice of Prosecutions				
	Closed	Effective	Pending	Total
Radioactive Materials Section	1	1	0	2
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	\$1,250.00	\$1,250.00	\$ 6,505.00	\$ 7,755.00
Radon Section	\$ 0.00	\$ 0.00	\$87,000.00	\$87,000.00
Amount Assessed in Penalties = By Month				
	Total Amount Assessed for 4/1/20 - 4/30/20		Amount Collected from 4/1/20 - 4/30/20	
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). One initial license inspection was started remotely. BER was notified by Bureau of Water System

Engineering of two private wells that exceeded radionuclide MCLs. These systems will either need to install treatment, or connect to the public water supply.

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
- Kinder Morgan in Carteret
- City of Bordentown Lagoon Release
- Rustoleum in Newark
- Maywood FUSRAP Site
- Goethals Bridge Replacement Project
- Welsbach Superfund Site
- US Radium Superfund site
- Former PSEG Mercer Generating Station
- Former PSEG Hudson Generating Station

Meetings were conducted with representatives of National Lead, Maywood, and Rustoleum.

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

Historic Non-Military Radium Project

Staff are planning surveys necessary to address one historic radium company, located at six contiguous properties in Newark.

Contacts: James McCullough (609) 984-5480 or Jenny Goodman (609) 984-5498

F. RADON SECTION

Draft Radon Rule Proposal

On April 6, 2020, the Radon Section received comments for the first draft of the rule proposal from the Office of Legal Affairs. Staff are revising the summary and rule text based upon the extensive comments and feedback. The second draft will be submitted to the DEP Office of Legal Affairs, the DEP Office of Economic Analysis, and the Office of the Attorney General, Division of Law, in May when revisions are finalized.

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

Governor’s Task Force on Cancer Control & Prevention

A draft of the radon portion for the new comprehensive cancer plan was submitted to the Governor’s Task Force on Cancer Control & Prevention. New potential content includes multiple new Healthy New Jersey long term goals, an updated New Jersey radon potential tier map, and other infographics and information relevant to radon. Staff will stay in continued contact with the task force and aid or clarification with the new plan as needed.

Contact: Brian Giancola (609) 984-5434

Electrets

Two electrets were returned from a homeowner as part of a complaint investigation. The electrets have been analyzed and the homeowner has been notified.

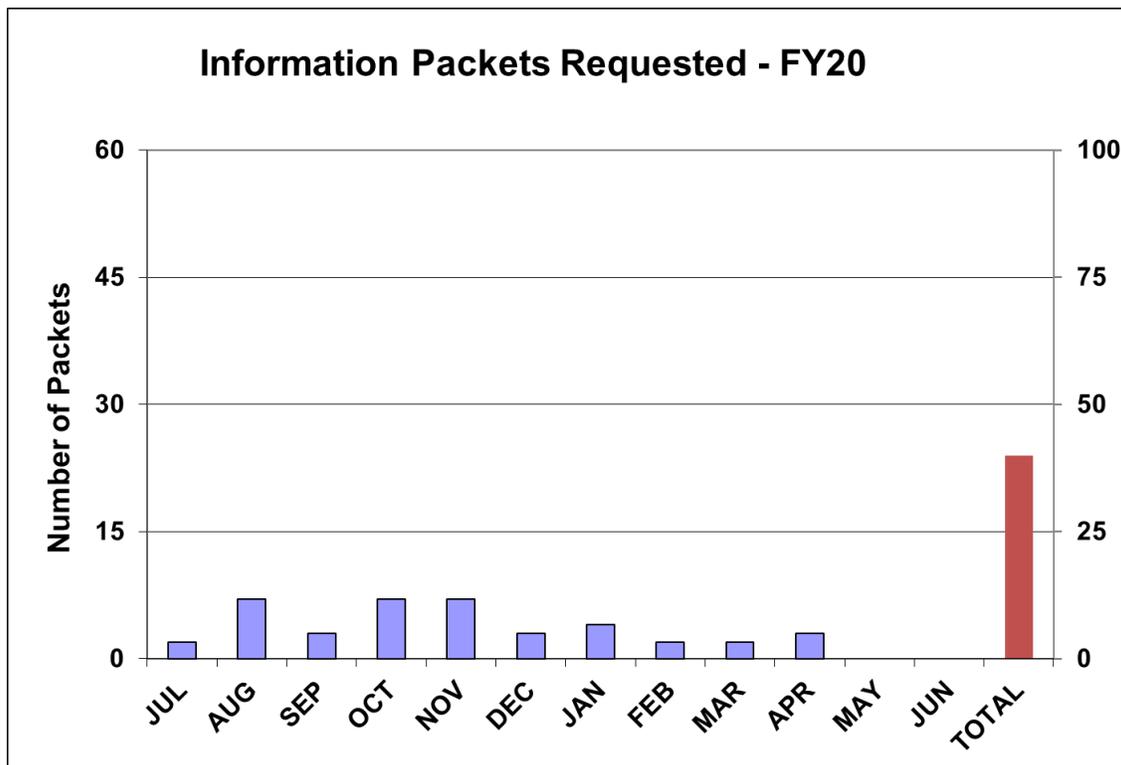
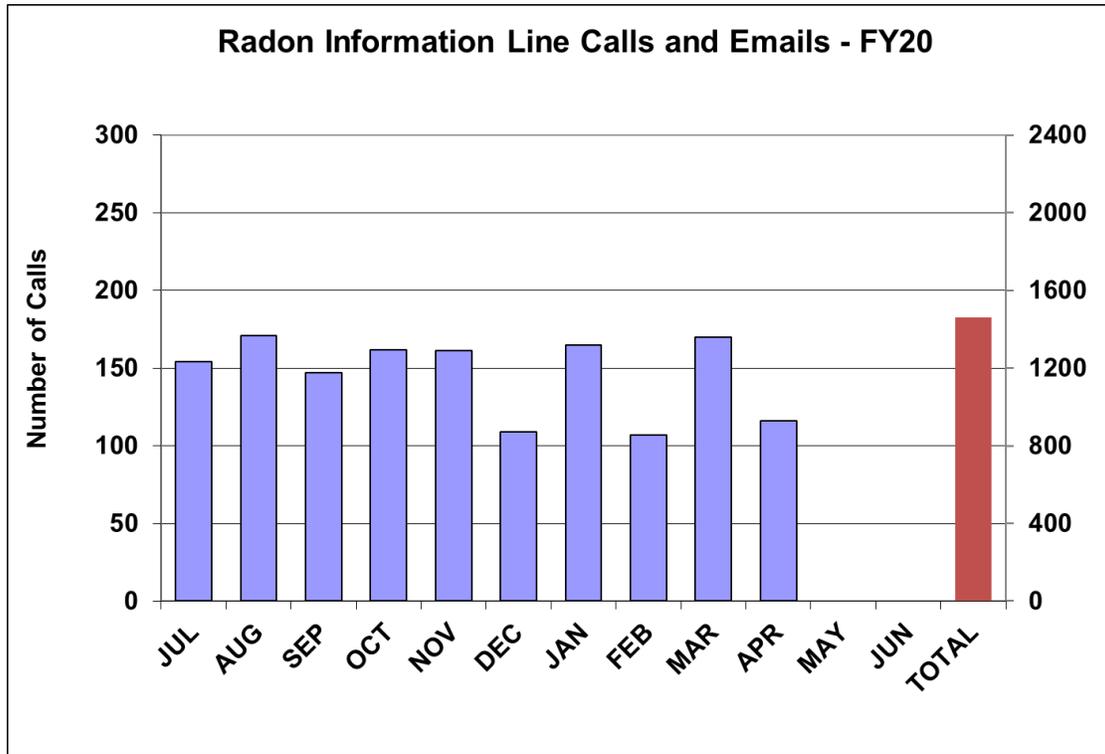
Contact: Charles Renaud (609) 984-5423

Measurement and Mitigation Radon Certifications

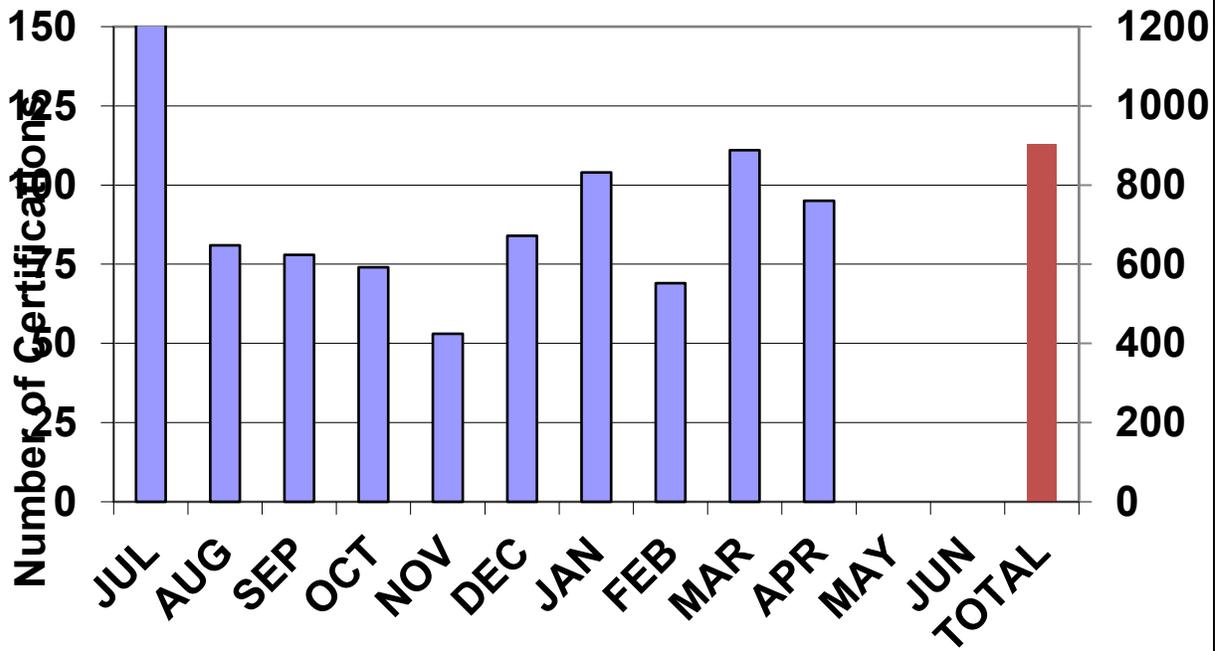
Certification Type	Initial	Renewal
MES		
MET	5	61
MIS	1	5
MIT		
Provisional to Full		14
MEB		2
MIB		7

Contact: Anita Kopera (609) 984-5543

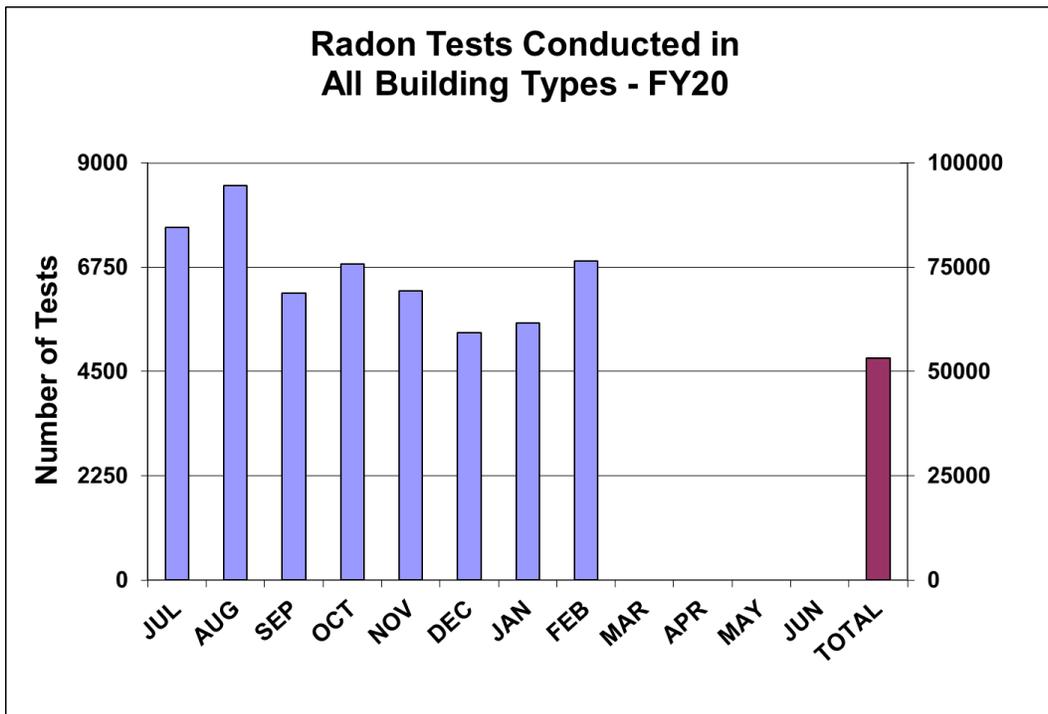
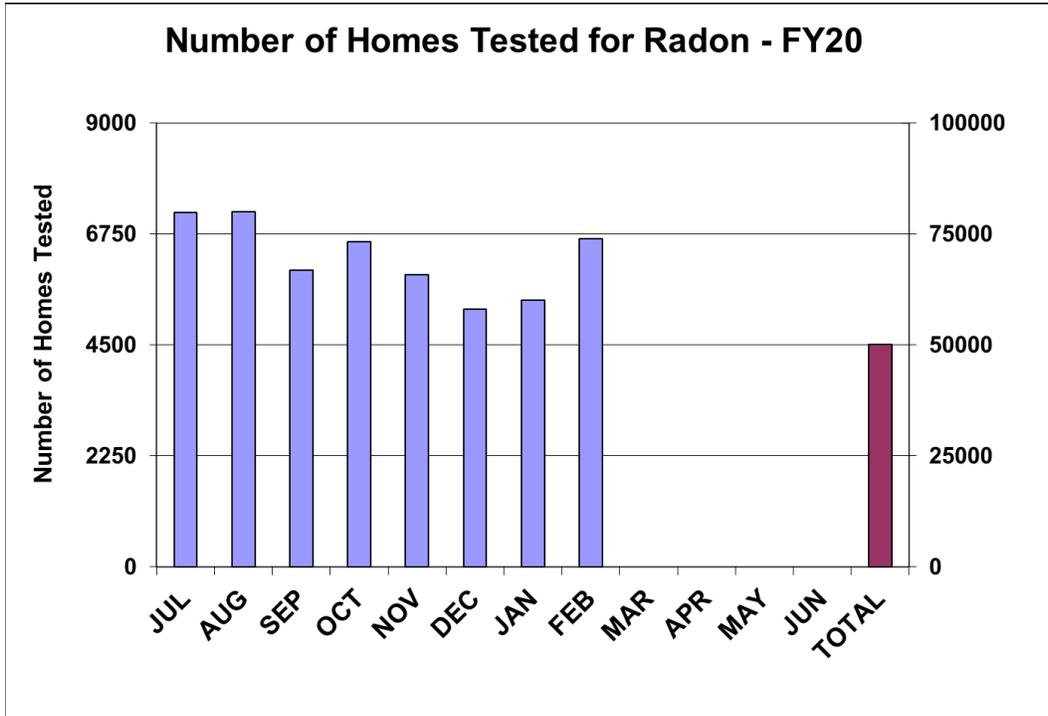
APPENDIX B: BUREAU OF ENVIRONMENTAL RADIATION SUMMARY OF STATISTICS

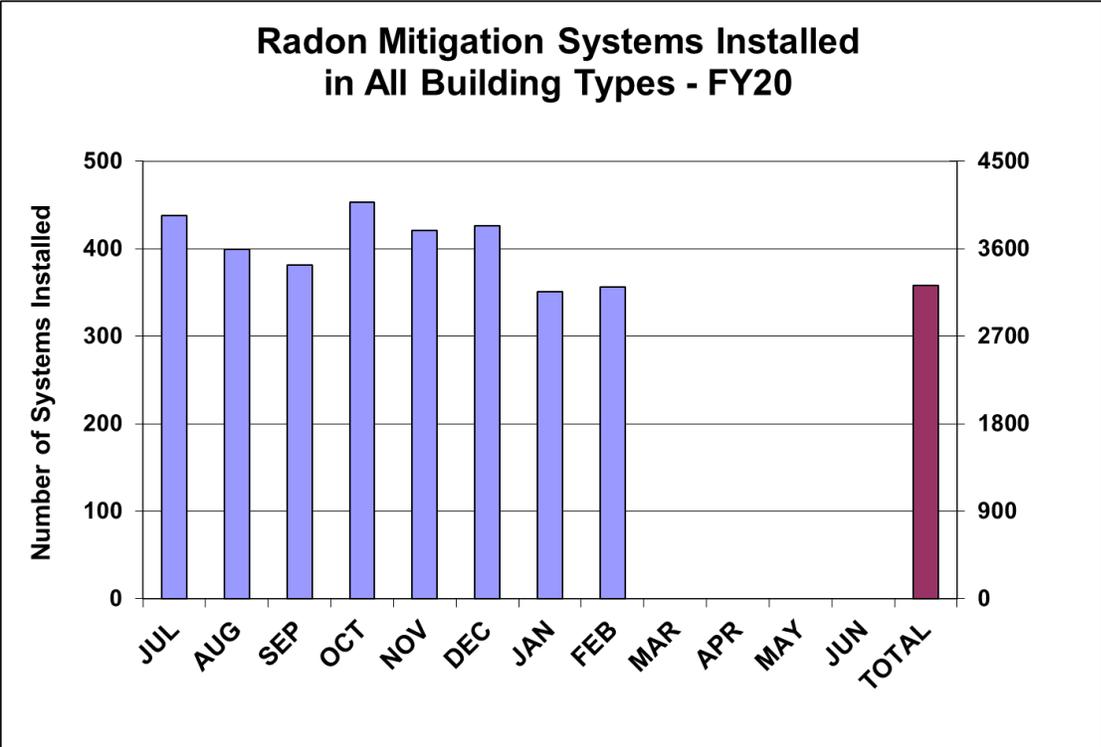
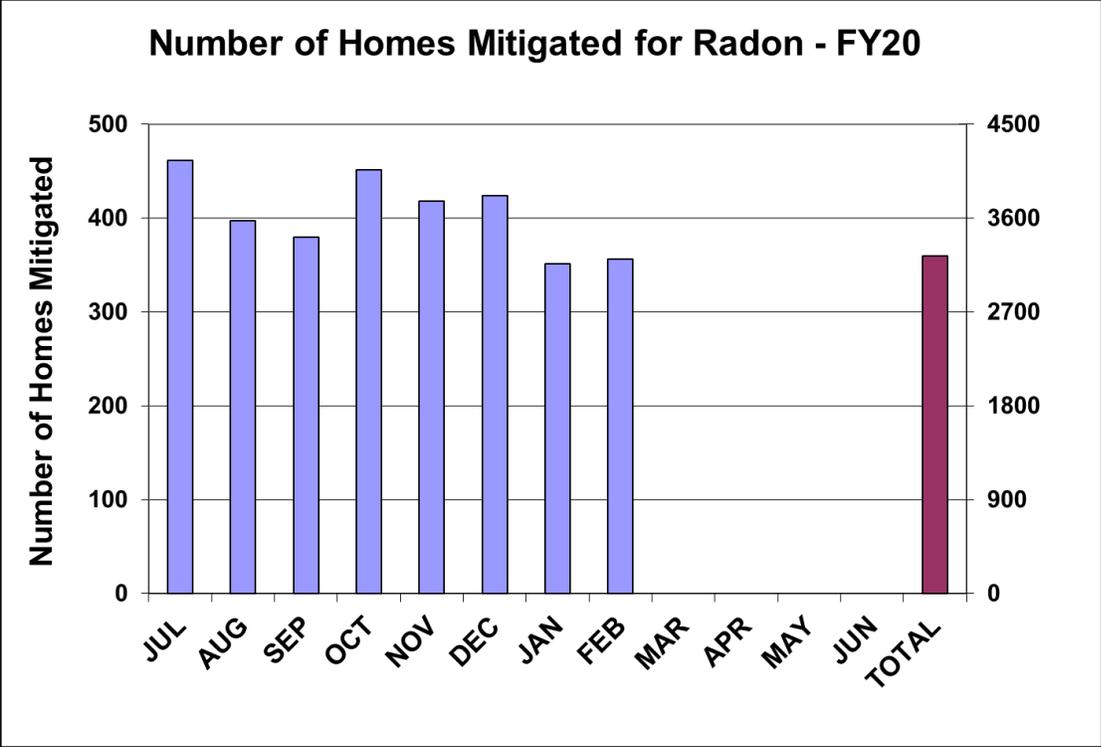


Radon Certifications Issued - FY20



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 February 2020 are due by April 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.

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 in preparation for the segmentation of the reactor vessel internal. Segmentation of the reactor vessel internals has commenced. The reactor steam dryer is the first reactor internal to be segmented, taking approximately four weeks to complete. The steam separator will follow and is also expected to take four weeks. The dismantling and decommissioning of the control rod hydraulic units in the reactor building are in progress.

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. Demolition of other outer buildings is expected to commence soon. Eight power transformers have been removed from the site. Two outer water tanks and an oil tank are soon 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

BNE Activities at Oyster Creek

There were no site visits in April due to COVID-19 concerns.

Contact: Veena Gubbi (609) 984-7457

Hope Creek

Hope Creek ran essentially at full power until April 18th at which time power was reduced to ~75% in response to the tripping of an offsite 500 KV transmission line. The electrical transient resulted in the trip of certain feedwater heaters along with other plant equipment. In response, Operations reduced power to ~75% in accordance with the abnormal operating procedures for loss of the feedwater heaters. The same 500 KV line had experienced a similar trip on April 17th with less impact on the plant. Following the completion of a review of the transient and resulting corrective actions, Hope Creek was returned to 100% power where it operated for the remainder of the month, with the exception of brief minor power reductions to perform reactor control rod pattern adjustments

Contact: Jerry Humphreys (609) 984-7469

Salem Unit 1

Salem Unit 1 ran at essentially full power throughout April.

Contact: Elliot Rosenfeld (609) 984-7548

Salem Unit 2

Salem Unit 2 began April in end-of-cycle coast-down operations at 96% power.

On April 10th, Salem Unit 2, with power at ~ 89%, Operations began manual shutdown of the reactor and disconnection of the main generator from the offsite power grid to begin its twenty-fourth Refueling Outage (S2R24) on April 11th. S2R24 is scheduled for 28 days. In addition to replacing fuel assemblies the major scope of the outage includes 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 is 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.

Salem Unit 2 remained shut down in its 24th Refueling Outage for the remainder of the month of April.

Contact: Elliot Rosenfeld (609) 984-7548

BNE Activities at Artificial Island

There were no site visits in April due to COVID-19 concerns.

On April 2nd one NES engineer met with the Salem Station Manager via teleconference. Among the topics discussed were the status of the Salem 2 S2R24 Refueling Outage start date and the effects of coronavirus on site operations and personnel.

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 and selected Governor press conferences.

Contact: Jerry Humphreys (609) 984-7469

NES Staff Attends NRC Teleconferences/Webinars while Working Remotely

A. Fitness for Duty Programs and COVID-19 Impacts

On April 2nd, the NRC held a public teleconference to discuss with the Nuclear Energy Institute (NEI) and nuclear industry representatives the regulatory impacts with respect to Title 10 of the Code of Federal Regulations Part 26 (10 CFR 26), “Fitness for Duty Programs,” and a recently issued NRC letter (dated March 28th, 2020). The purpose of the meeting was to discuss the exemption process for licensees who encounter challenges with work hour requirements resulting from the COVID-19 public health emergency.

10 CFR 26 prescribes requirements and standards for the establishment, implementation, and maintenance of fitness-for-duty programs. Operating power reactor licensees may request exemptions (temporary or permanent) from the NRC regulations pertaining to 10 CFR 26.

In the March 28th letter, the NRC provided guidance to the industry for the regulatory basis, including the specific requirements for granting these exemptions. The exemption requests should be submitted based on site-specific conditions related to COVID-19 impacts and in accordance with the March 28th letter. The exemption requests will be reviewed by the NRC on a case-by-case basis. If the requirements for an exemption are met, the NRC will provide written approval of an exemption for a period of 60 days. After the NRC approves the exemption, the licensee can then allow workers on longer shifts to deal with staffing problem during the COVID-19 pandemic.

After the meeting, NEI and the nuclear industry representatives were given an opportunity to ask questions and raise concerns about the exemption requests.

At the end of the meeting, the public was given the opportunity to speak. In general, the public’s concerns centered around maintaining the health and safety of the public.

Three NES engineers and the NES Supervisor participated in the teleconference.

B. Reactor Decommissioning Financial Assurance Working Group Draft Report

On April 14th, the NRC held a webinar to discuss the draft report issued by the reactor decommissioning financial assurance working group. The purpose of this meeting was to present the final recommendations developed by the Working Group to enhance the decommissioning reactor financial assurance licensing and inspection programs and allow interested stakeholders to identify factual errors or gaps in the draft final report.

Historically, decommissioning has been managed by the former operating company but in recent years, shutdown plant licenses have been transferred to other companies for decommissioning. The license transfer requires a financial qualification evaluation. The Working Group, formed in September 2019, was assigned to comprehensively document and evaluate whether the existing decommissioning financial assurance licensing and oversight process remains adequate with respect to how decommissioning is likely to be accomplished in the future.

The Working Group issued a draft report on April 6th, 2020. The objectives of this report are to 1) review the current decommissioning financial oversight processes; 2) identify potential regulatory gaps or policy issues; 3) identify potential enhancements to the reactor decommissioning program; 4) identify planning or resource considerations; and 5) make recommendations to address any identified gaps or enhancements.

After completing review of the applicable NRC regulations and policy statements, the Working Group determined that no regulatory gaps or policy issues exist. The existing regulatory framework provides an adequate means for NRC to determine whether there is reasonable assurance of sufficient funding for reactor decommissioning. The Working Group identified recommendations to guidance and procedures implementing the licensing and oversight processes, e.g, (1) Revise reporting guidance to allow more detail in annual reports for improved oversight of Decommissioning Trust Fund (DTF) expenditures; (2) Develop guidance for future periodic cost-baselining; (3) Revise reporting guidance to allow more detail in the 30-day pre-withdrawal notices for improved oversight of DTF expenditures; (4) Revise Inspection Procedures to integrate decommissioning activity inspections with the program office and financial analysts activities; (5) Develop guidance for a spot check program for power reactors in decommissioning; (6) Provide clarifications between the requirements for a site-specific cost estimate and formula cost estimate; and, (7) Provide updated training for inspectors, program office and financial analysts.

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

All comments on the draft report must be submitted to the NRC by April 21st, 2020. The Working Group's final report is due in May 2020.

Two NES engineers attended the teleconference.

C. Salem Units 1 & 2 License Amendment Request (LAR) Pre-Submittal Teleconference

On April 15th, two NES engineers and the NES Supervisor participated in a teleconference between the NRC and PSEG Nuclear LLC. This was a pre-submittal teleconference to discuss a proposed LAR pertaining to Leak Before Break (LBB) Analyses for Salem Units 1 and 2. This LAR would apply LBB methodology to Safety Injection (SI) lines, Accumulator lines, Residual Heat Removal lines, and Pressurizer Surge line. PSEG addressed how this LAR will address the two main aspects of an LBB analysis: fracture toughness of the pipes to resist a through-wall crack, and the capability

of the Reactor Coolant System leakage detection system to detect the leak early enough to allow operator action prior to pipe rupture.

D. NRC/Nuclear Industry Meeting to Discuss Potential 10 CFR 20 Licensing Needs due to the COVID-19 Public Health Emergency

On April 15th, the NRC held a teleconference with the Nuclear Energy Institute (NEI) and other industry members to discuss possible exemptions to requirements of 10 CFR 20 concerning respiratory protection. Under the NRC's regulations in 10 CFR 20.2301, "Applications for Exemptions," "The Commission may, upon application by a licensee or upon its own initiative, grant an exemption from the requirements of the regulations in this part if it determines the exemption is authorized by law and would not result in undue hazard to life or property." Under this section, individual licensees may request exemptions from medical evaluation frequency and fit-testing frequency requirements that are specified in 10 CFR 20.1703(c)(5)(iii) and 10 CFR 20.1703(c)(6) to ensure that respiratory protection program requirements do not result in licensees taking actions that may be contrary to the Center for Disease Control and Prevention (CDC) COVID-19 guidance¹. The NRC is considering the use of an expedited review process for these requests, under certain circumstances that would be specified in an NRC letter to the nuclear industry. The NRC discussed the process for applying for an exemption and what information the NRC would be expecting to see in an exemption request. One NES engineer attended this teleconference.

E. Indian Point Nuclear Power Plant Decommissioning

On April 21st, the NRC conducted a webinar for interested members of the public to discuss the decommissioning of the Indian Point Nuclear Power Plant. The purpose of the webinar was to provide key facts about the decommissioning process and explain the NRC's oversight activities throughout decommissioning.

The NRC provided an overview of the Indian Point Nuclear Power Plant history; initial decommissioning process; Post-Shutdown Decommissioning Activities Report (PSDAR) process; decommissioning options and timelines; oversight after shutdown; security changes and emergency planning changes; NRC inspection activities; spent fuel management; phases of decommissioning stages and public involvements during decommissioning.

Following the presentations, questions and concerns from the public were addressed by the NRC.

Three NES engineers and the NES Supervisor participated in the webinar.

F. Public Meeting Regarding Draft NUREG-1409, "Backfitting Guidelines," Revision 1

On April 28th, the NRC held a teleconference to discuss the draft NUREG-1409, Rev. 1, "Backfitting Guidelines". The meeting was held with stakeholders in order for the NRC

to explain the details of the draft. NUREG-1409 is used by the NRC to determine if backfitting/forwardfitting requirements on licenses are appropriate. The NUREG provides the requirements that the NRC must meet in order to backfit/forwardfit requirements. NUREG-1409 has not been revised since 1990. Many of the stakeholders represented licensees' licensing groups and licensees' legal representatives. The NRC reviewed all seven chapters and the three appendices, allowing the stakeholders to ask questions as the teleconference proceeded. In accordance with the Federal Register, comments concerning the NUREG are due to the NRC by May 22nd, 2020.

Contact: Jerry Humphreys (609) 984-7469

Community Engagement Panel at Southern California Edison's San Onofre Nuclear Generating Station Holds Public Webcast

On March 26th, San Onofre Nuclear Generating Station (SONGS) Decommissioning Community Engagement Panel (CEP) held a Skype meeting. One NES engineer watched the recording of the CEP meeting on April 16th. The SONGS CEP serves as a conduit for public information and encourages community involvement and communication with the SONGS co-owners on matters related to SONGS decommissioning. The CEP holds public meetings at least four times per year.

The CEP presenters provided an update on CEP's tasks and agenda for future meetings. Representatives from the Southern California Edison (SCE) provided information on the SONGS decommissioning plan; fuel transfer operations; Independent Spent Fuel Storage Installation (ISFSI); radiation monitoring; and liquid batch radiological releases. SCE has completed placing 55 of the 73 spent fuel casks into the dry cask storage system and is planning to move all fuel from the spent fuel pool to the dry cask storage system by the middle of 2020. Reactor vessel segmentation will be completed by 2024. Dismantling of the reactor building and other buildings and decontamination of the site will be completed in 8-10 years. Following the presentations, questions and concerns from the public were addressed by both the CEP and SCE.

Contact: Veena Gubbi (609) 984-7457

Review of the U.S. Nuclear Waste Technical Review Board report to address technical issues with transporting spent fuel

The U.S. Nuclear Waste Technical Review Board (NWTRB or Board) was established by Congress in the Nuclear Waste Policy Amendments Act of 1987 to perform an independent and ongoing evaluation of the technical and scientific validity of U.S. Department of Energy (DOE) activities related to the disposition of spent nuclear fuel. The exact destination is not considered in this report, nor are any potential transportation routes.

Before DOE can start a national transportation effort, it must determine whether it will accept only bare commercial SNF assemblies (i.e., SNF assemblies not sealed inside SNF canisters) from nuclear utilities or whether it will accept SNF assemblies pre-packaged in canisters.

The Board identified 30 technical issues that need to be addressed in preparing for SNF and HLW transportation. Based on the review, the board made 3 recommendations to DOE:

1. DOE continue its analyses and research for a nationwide waste management and transportation system and ensure they address all issues identified in the Board's report
2. DOE give higher priority to evaluating the removal of commercial SNF from shutdown nuclear power plant sites and to evaluate DOE sites that store DOE-managed SNF and HLW.
3. DOE should allow for a minimum of 10 years to develop new cask and canister designs for SNF and HLW storage and transportation, or DOE should conduct its own detailed evaluation of the time needed to complete the design, licensing, fabrication, and testing of new casks and canisters.

Contact: Veena Gubbi (609) 984-7457

NES Staff Attends Homeland Defense & Security Information Analysis Center (HDIAC) webinar on "Science and Technology of Radiation Detection"

On April 30th, HDIAC presented a public webinar to discuss the "Science and Technology of Radiation Detection". Two NES engineers attended the webinar.

Contact: Jacob Fakory (609) 984-7458 or Elliot Rosenfeld (609) 984-7548

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. Due to the COVID-19 pandemic, this year's meeting was cancelled. On April 9th and April 23rd, 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, 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

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 April 2020:

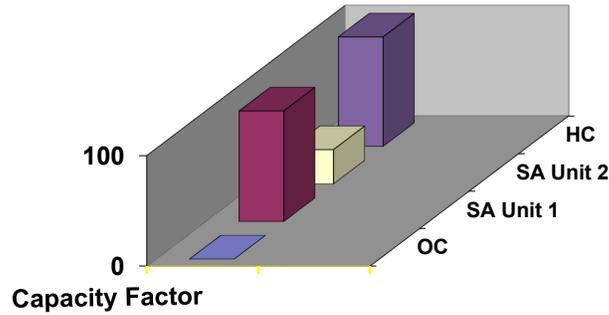
Spent Fuel and Nuclear Waste	Highway Route Control Quantity Shipments	Radionuclides of Concern
0	1	1

Contact: Jerry Humphreys (609) 984-7469

BUREAU OF NUCLEAR ENGINEERING

Plant Operating Performance – April 2020

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



STATISTICAL INFORMATION

EMERGENCY AND NON-EMERGENCY EVENT NOTIFICATIONS FOR APRIL 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.

	APRIL 2020		JAN - APR 2020		JAN - APR 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	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 78 samples during the month of April 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 APRIL 2020

SAMPLE MEDIUM	NUMBER OF SAMPLES
AIR FILTER	43
AIR IODINE	15
AIR COMPOSITE	14
MILK (Cow)	1
SURFACE WATER	5
TOTAL SAMPLES	78

Documents Reviewed

Quarterly Data Submission, First Quarter 2020, PSEG Nuclear, LLC, Salem Generating Station

United States Nuclear Regulatory Commission, NRC Inspection Report Number 05000219/2020001, Holtec Decommissioning International, LLC, Oyster Creek Generating Station, Forked River, New Jersey, April 20, 2020.

United States Nuclear Regulatory Commission, Inspection Procedure 71801, Decommissioning Performance and Status Review at Permanently Shut-down Reactors

United States Nuclear Regulatory Commission, Inspection Procedure 40801, Decommissioning Performance and Status Review at Permanently Shut-down Reactors

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

During the month of April 2020, eight (8) 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

Quarterly Thermoluminescent Dosimeter (TLD) Exchange

On April 15, 2020 and April 16, 2020, technicians from the BNE's subcontractor retrieved 1st quarter 2020 TLD badges and deployed 2nd quarter 2020 TLD badges in the surrounding environs and Independent Spent Fuel Storage Installations (ISFSI) of the Oyster Creek and Artificial Island nuclear power plant sites, as well as two background stations. BNE staff analyzed the retrieved TLD badges. Results will be reported in the BNE's Annual Environmental Surveillance and Monitoring Report tables, available for viewing on the DEP website at: <http://www.state.nj.us/dep/rpp/bne/esmr.htm>

Contact: Compton Alleyne (609) 984-7455

USNRC Sponsored Work-Related Webinar/Meetings

A staff member attended a webinar conducted by the United States Nuclear Regulatory Commission (USNRC) on April 2, 2020. The purpose of the meeting was to discuss the Code of Federal Regulations 10CFR20, Part 26 and a recently issued exemption process for licensees who encounter challenges with work hour requirements resulting from the COVID-19 public health emergency. Representatives from the Nuclear Energy Institute (NEI), nuclear power plant licensees, and the NRC were in attendance.

On April 15, 2020, a staff member attended a webinar sponsored by the USNRC on radiation safety. The purpose of the meeting was to discuss with NEI and nuclear power plant licensees the 10CFR Part 20 and other licensing needs resulting from the COVID-19 public health emergency including potential exemption requests for medical screening and respiratory fit tests. Information on the Standards for Protection Against Radiation, 10CFR Part 20, can be found at, <https://www.nrc.gov/reading-rm/doc-collections/cfr/part020/>

On April 21, 2020, two (2) staff members attended a webinar sponsored by the USNRC on the decommissioning of the Indian Point Nuclear power station. The purpose of the meeting was to provide an overview of how the USNRC oversees the decommissioning process.

On April 22, 2020 two (2) staff members attended a public webinar; the purpose of which was to discuss the Commission's Reactor Oversight Process (ROP) with the NEI and the nuclear industry.

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

Emergency Planning

A staff member participated in the “Federal Radiological Monitoring and Assessment (FRMAC) Assessment Scientist Continuing Education Seminar” series, sponsored by the Nuclear Incident Response Program (NIRP). The NIRP program provides research and technical solutions, expert analysis, and highly trained emergency response professionals to support the federal government's response to an accident or act of terrorism involving radiological, chemical, or biological material. The seminar focused on FRMAC laboratory analyses items including Data Quality Objectives. Additional information on NIRP can be found at <https://nirp.sandia.gov/Default.aspx>.

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

General Training

A staff member participated in State of New Jersey on-line training on (1) Working from Home: Strategies for Remote Employees and (2) Working Remotely. The courses were sponsored by the Civil Service Commission of the State of New Jersey.

On April 30, 2020, two (2) staff members attended a webinar entitled, “The Science and Technology of Radiation Detection”. The webinar sponsored by the Homeland Defense and Security Information Analysis Center (HDSIAC) provided an overview of the science and technology used in radiation detection and response. The presentation included an overview of basic radiation terminology, types of meters, and types of ionizing radiation before covering decontamination principles, techniques, and radiation dose understanding. Additional information on HDSIAC can be found at their website, <https://www.hdiac.org/>

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

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 March 2020 have been included in this report.

**PSEG Nuclear
Radioactive Effluent Releases¹
Nuclear Environmental Engineering Section
For the Period of 03-01-20 to 03-31-20**

**Hope Creek
Gaseous
Effluents**

<u>Effluent</u>		
Fission Gases	0	Ci
Iodines	.00005	Ci
Particulates	0	Ci
Tritium	10.9	Ci

**Hope Creek
Liquid Effluents**

<u>Effluent</u>		
Fission Products	.00085	Ci
Tritium	3.34	Ci

**Salem Unit 1
Gaseous Effluent**

<u>Effluent</u>		
Fission Gases	.00563	Ci
Iodines	0	Ci
Particulates	.000016	Ci
Tritium	22.7	Ci

**Salem Unit 1
Liquid Effluents**

<u>Effluent</u>		
Fission Products	.00718	Ci
Tritium	96.8	Ci

**Salem Unit 2
Gaseous Effluent**

<u>Effluent</u>		
Fission Gases	.0195	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	.0442	Ci

**Salem Unit 2
Liquid Effluents**

<u>Effluent</u>		
Fission Products	.00241	Ci
Tritium	84.0	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 03-01-20 to 03-31-20**

**Oyster Creek
Gaseous Effluents
Elevated Releases**

**Oyster Creek
Gaseous Effluents
Ground Releases**

<u>Effluent</u>			<u>Effluent</u>		
Fission Gases	0	Ci	Fission Gases	0	Ci
Iodines	0	Ci	Iodines	0	Ci
Particulates	0	Ci	Particulates	0	Ci
Tritium	0.061	Ci	Tritium	0	Ci

**Holtec Decommissioning International (HDI)
Radioactive Effluent Releases
Nuclear Environmental Engineering Section
For the Period of 03-01-20 to 03-31-20**

Oyster Creek Liquid Effluents²

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

Oyster Creek Liquid Effluent Groundwater Extraction³

<u>Effluent</u>		
Tritium	< MDA ⁴	Ci

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

² There were no routine liquid discharges during the month of March 2020.

³ 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.

⁴ 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' 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