

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

AUGUST 1 THROUGH AUGUST 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 August 4, 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.

FY 2021-2022 Technologist Licensing Renewal

In August, 23,344 radiologic technologists were invoiced for their state license renewal. Payments are due by December 31, 2020.

Contact: Arthur Robinson (609) 984-5634

B. REGISTRATION SECTION

Machine Source Registration and Renewal Fees

The Registration Section has begun generating invoices for the FY2021 registration renewals. In addition, new equipment is invoiced according to prorated registration fees when they are installed. The table below represents monthly and year to date activities. In August, facilities in the G-L group were invoiced their FY 2021 annual registration fees.

Machine Source Fees Invoiced and Collected for FY 2021					
Monthly Invoiced	Monthly Collected	Fiscal YTD Invoiced	Fiscal YTD Collected	Fiscal YTD Adjustments	Percent Collected
\$563,367.00	\$576,955.00	\$1,523,189.00	\$905,086.00	\$95.00	59%

Progress on Collection of FY 2021 Registration Renewal Fees

Renewal Groups	Paid 7/31/20	Paid 8/31/20	Paid 9/30/20	Paid 10/31/20	Paid 11/30/20	Paid 12/31/20	Paid 1/31/21	Paid 2/28/21	Paid 3/31/21	Paid 4/30/21	Paid 5/31/21	Paid 6/30/21
0-F	37%	69%	0	0	0	0	0	0	0	0	0	0
G-L	N/A	43%	0	0	0	0	0	0	0	0	0	0
M-R	N/A	N/A	0	0	0	0	0	0	0	0	0	0
S-Z	N/A	N/A	N/A	0	0	0	0	0	0	0	0	0

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, 18% percent paid on-line.

Monthly Machine Source Registration Activity FY 2021

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	YTD
New Facilities	13	20	0	0	0	0	0	0	0	0	0	0	33
Terminated Facilities	29	30	0	0	0	0	0	0	0	0	0	0	59
Net Change (Facilities)	-16	-10	0	0	0	0	0	0	0	0	0	0	-26
New Registrations	128	140	0	0	0	0	0	0	0	0	0	0	268
Stored Registrations	43	45	0	0	0	0	0	0	0	0	0	0	88
Disposed registrations	94	99	0	0	0	0	0	0	0	0	0	0	193
Net Change (Machines)	-9	-4	0	0	0	0	0	0	0	0	0	0	-13

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.

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

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 than D speed. No changes in equipment or processing are necessary to use a faster speed film.

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

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 August 2020, ESE measurements were calculated on 195 dental x-ray units that used DR digital imaging. Twenty units (10%) were measured as having extremely high ESE.
- In August 2020, ESE measurements were calculated on 10 dental x-ray units that used CR (PSP) digital imaging. No units (0%) were measured as having extremely high ESE.
- In August 2020, ESE measurements were calculated on 4 dental x-ray units that used D speed film. No units (0%) were measured as having extremely high ESE.
- In August 2020, ESE measurements were calculated on 8 dental x-ray units that used E/F, F or Insight speed film. Two units (25%) 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 August 2020, 72 amalgam questionnaires were collected. The total dental amalgam questionnaires collected for FY2021 is 93.

Inspection Activity and Items of Non-compliance

A two-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 August. 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 2021 Invoiced & Collected				
Invoice Type	Monthly Invoiced	Monthly Collected	Fiscal YTD Invoiced	Fiscal YTD Collected
Examinations	\$0	\$0	\$0	\$0
Initial Licenses	\$6,840	\$6,660	\$11,820	\$10,420
Renewal Licenses*	\$3,240	\$4,140	\$2,107,350	\$5,490
Totals	\$10,080	\$10,800	\$2,119,170	\$15,910

Contact: Al Orlandi (609) 984-5890

E. MAMMOGRAPHY SECTION

Stereotactic Facilities Inspected

The Mammography Section inspected 6 facilities with stereotactic/needle localization breast biopsy unit during the month of August. A total of 11 of the 61 planned stereotactic facility inspections have been performed since July 1, 2020.

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 two categories: Level 1 and Level 2. 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 non-compliances are considered serious. The facility must respond with their corrective actions within thirty days.

The Mammography Section inspected 30 facilities in August. A total of 166 of the 239 facilities scheduled to be inspected under the contract that expired on August 20, 2020. There were 3 facilities found to have non-compliance issues. The Section has received its new contract from the FDA (effective August 21, 2020) for the inspection of 234 facilities in FY2021.

Facility Non-compliance Discovered

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

There were three facilities with **Level 2** non-compliances.

- The time period between the previous and current survey exceeds 14 months.
- Contrast to noise ratio QC testing is not adequate because corrective actions for QC failures were not documented.
- Failed to produce documents verifying that the interpreting physician met the continuing experience requirement of having interpreted or multiread 960 mammograms in 24 months. (2 facilities)
- There was no documentation of 8 hours of training for the interpreting physician in each mammographic modality for which mammograms were read and interpreted.
- One out of six random reports reviewed did not contain an acceptable assessment category.
- Medical audit and outcome analysis was not performed annually.
- There was no system in place that includes a mechanism for providing ongoing IP feedback on image quality when clinical images are of poor quality.
- There was no system in place that includes a mechanism for documenting any needed corrective action and the effectiveness of any corrective action taken when clinical images are of poor quality.

- There was no mechanism in place for regular reviews of image quality attributes of a sample of mammograms performed by each active RT and a sample of mammograms accepted for interpretation by each active IP.

Contact: Mary Kanewski (609) 984-5370

F. BUREAU ENFORCEMENT SERVICES SECTION

Enforcement Actions for August 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 Departments 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					
August 2020					
Bureau of X-Ray Compliance					
		Month	YTD		
	Compliance Inspections entered into NJEMS	2	2		
	Dental/CBCT Inspections entered into NJEMS	61	69		
Notice of Violations	Closed	Open	Pending	Total	YTD
	2	0	4	6	9
Administrative Orders	Closed	Open	Pending	Total	YTD
	0	0	9	9	10
Notice of Prosecutions	Closed	Open	Pending	Total	YTD
	0	0	8	8	9
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
	\$0.00	\$0.00	\$0.00	\$10,240.00	\$10,240.00

Contact: Ramona Chambus (609) 984-5370

Inspector: ALL
Discipline: ALL

Number of Inspections Performed

Inspection Type	Inspection Description	Facilities Inspected	Machines Inspected	<u>Machines Audited</u>	<u>Machines Uninspected</u>
1	ROUTINE INSPECTION	63	218		15
11	INVESTIGATION	5			
12	STEREOTACTIC INSPECTION	6	7		
28	DENTAL CBCT INSPECTION	8	36		1
Total On-Site Inspections:		<u>82</u>	<u>261</u>	<u>0</u>	<u>16</u>
6	OFFICE VIOLATION RESPONSE REVIEW	3		3	
18	OFFICE QA VIOLATION RESPONSE REVIEW	2		2	
30	DENTAL CBCT OFFICE REVIEW INSPECTION	1		1	
Total Office Inspections:		<u>6</u>		<u>6</u>	<u>0</u>

Number of Enforcement Documents Issued

NOV	6
AO	6
NOP	5
Amount of Penalties:	\$2,900

Inspector: ALL
Discipline: ALL

Violation Code	Glossary Information	Description Non-Compliance	Number of Violations By Code
Violations Cited Non-QA			
CB			
CB-001	22.3(i)	No Alternate QA program for CBCT	2
CB-003	22.7(a)3	CBCT No MPQCS	1
Dental			
D-002	16.8(a)1	Survey of environs not available or not performed	4
D-016	16.3(a)7	kVp exceeds manufacturer's specifications (certified unit).	3
D-025	16.3(a)16	Timer accuracy exceeds manufacturer's specifications (certified units).	4
Registration			
REG1	3.1 (a) and	Failed to register the ionizing radiation producing machine within 30 days of acquisition.	4
Total Violations Cited Non-QA:			<u>18</u>
Total Violations:			<u>18</u>

**APPENDIX A - TECHNOLOGIST EDUCATION AND LICENSING SECTION
MONTH OF AUGUST 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	120	9	7	66	-	-	-	2	204	297	1,100
Licenses Renewed	19	4	2	17	-	-	-	-	42	52	N/A
Total Licensed	9,542	1,039	882	11,940	55	22	7	80	23,567	N/A	N/A
Exams Scheduled	-	-	-	-	-	-	-	-	0	0	N/A
Investigations Conducted	1	-	-	1	-	-	-	-	2	3	30
Licenses Verified	93	-	-	431	-	-	-	-	524	884	7,000
Expired Licenses	-	-	-	-	-	-	-	-	0	0	N/A
Unlicensed	-	-	-	1	-	-	-	-	1	1	N/A
Enforcement Documents Issued	-	-	-	4	-	-	-	-	4	4	N/A
NEAs Issued	-	-	-	-	-	-	-	-	0	0	N/A
Offer of Settlement	-	-	-	\$1,300	-	-	-	-	\$1,300	\$1,300	N/A
Licenses Sanctioned	-	-	-	-	-	-	-	-	0	0	N/A
Approved Educational Schools	15	2	3	23	-	-	-	-	43	43	N/A
New School Application Evaluated	-	-	-	-	-	-	-	-	0	0	8
Curriculum Modifications Evaluated	-	-	-	-	-	-	-	-	0	0	20
School Inspections Conducted	-	-	-	-	-	-	-	-	0	0	7
Total Schools Reviewed	-	-	-	-	-	-	-	-	0	0	27
Clinical Applications Approved	-	-	-	145	-	-	-	-	145	273	1,100

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

Type of Facility	INDUSTRY	PHYSICIAN	HOSPITAL	GOVERNMENT	TOTAL MONTH	FY TO DATE	TOTAL DUE THIS FY
MQSA							
Facilities Inspected	0	23	7	0	30	166	239
Machines Inspected	0	27	17	0	44	230	
FDA Violations Level 1	0	0	0	0	0	0	
FDA Violations Level 2	0	1	2	0	3	16	
Registered	0	1	0	0	1	1	
Canceled	0	4	0	0	4	4	
Stereotactic							
Facilities Inspected	0	2	4	0	6	11	61
Machines Inspected	0	2	5	0	7	12	
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	0	
Canceled	0	0	1	0	1	2	

FDA Contract Aug 2019 through Aug 2020

SECTION III - BUREAU OF ENVIRONMENTAL RADIATION (BER)

A. OFFICE OF THE BUREAU CHIEF

Shieldalloy Metallurgical Corporation (SMC) in Newfield, Gloucester County is Superfund Site (metals) and has a radioactive materials license from the NJDEP's Bureau of Environmental Regulation (BER). Previous production activities (since the 1950's) licensed by the US Nuclear Regulatory Commission resulted in huge stockpiles of low-level radioactive slags and baghouse dust (from air pollution control equipment) on site as well as some off-site impacts to sediments of the Hudson Branch. NJDEP BER assumed regulatory authority over the site in 2009 and reengaged the site regarding decommissioning in accordance with NJDEP Remediation Standards for Radioactive Materials.

A significant milestone was recently surpassed when more than half of significant waste stockpiles were shipped for disposal. The waste is comprised of approximately 110,873 tons of radioactively contaminated soil, debris, baghouse dust, slag and sediments. The current schedule is for the slag to be safely disposed at a licensed low-level radioactive waste disposal site by the first quarter of 2021.

B. RADIOACTIVE MATERIALS PROGRAM

Medical, Industrial, and Reciprocity

During the month of August 2020, the Radioactive Materials Program responded to four (4) radiation incidents:

Date	Type of Incident	Description	Status
8/12/20	Other	A load of construction waste was rejected for elevated radiation readings at a facility in PA and returned to its origin in NJ. The item was identified, and subsequently disposed of properly.	Closed
8/24/20	Other	Two radioactive sources destined for a facility in NJ were reported missing by a vendor. The sources were reported as never received by the NJ facility. An investigation by the shipper and BER staff is ongoing.	Pending
8/26/20 (2 calls)	Trash	A load of MSW was rejected at a NJ incinerator facility and was held for decay at one of the hauler's facilities. The load was subsequently sent to one of the hauler's transfer stations in Philadelphia and processed without incident.	Closed
8/28/20	Trash	A load of MSW was rejected at a NJ incinerator facility and is being held for decay at one of the hauler's facilities.	Pending

Contact: Nancy Stanley (609) 984-5452

C. ROUTINE ACTIVITIES

	This Month 8/1/20-8/31/20	FY-To-Date 7/1/20-8/31/20
Number of Amendments Processed:	7	19
Number of Renewals Processed:	3	7
Number of Initial Applications Processed:	0	1
Number of Active Licenses	560	560
Number of Terminations:	0	2
Number of Reciprocity Requests Received:	16	42
Number of Incidents:	4	8
Number of Inspections:	5	10

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. 28 sources on the databases were verified during June. 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 – August 2020

Bureau of Environmental Radiation – By Month (8/1/2020 - 8/31/2020)				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	0	0	0	0
Radon Section	0	0	3	3
Notice of Prosecution				
	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	0	0	0	0
Radon Section	0	0	2	2

Bureau of Environmental Radiation – Fiscal Year to Date				
8/1/2020 - 8/31/2020				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	0	0	0	0
Radon Section	0	0	3	3
Notice of Prosecution				
	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	0	0	0	0
Radon Section	0	0	2	2
Amount Assessed in Penalties = FY				
	Total Amount Assessed for FY21	Amount Collected from Current FY21	Amount Collected from FY20	Total Amount Collected (FY20+FY21)
Radioactive Materials Section	\$0.00	\$0.00	\$3,750	\$3,750
Radon Section	\$0.00	\$0.00	\$ 0.00	\$ 0.00
Amount Assessed in Penalties = By Month				
	Total Amount Assessed for: 8/1/2020 - 8/31/2020		Amount Collected from 8/1/2020 - 8/31/2020	
Radioactive Materials Section	\$0.00		\$0.00	
Radon Section	\$0.00		\$0.00	

E. RADIOLOGICAL AND ENVIRONMENTAL ASSESSMENT SECTION (REAS)

Water Treatment

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

Contact: Joseph Power (609) 777-4252

Decommissioning and Contaminated Site Reviews

A significant milestone was surpassed by the Shieldalloy Metallurgical Corporation having shipped for disposal more than half of significant waste stockpiles comprised of approximately 110,873 tons of radioactively contaminated soil, debris, baghouse dust, slag and sediments.

A site visit and survey were conducted on two vicinity parcels impacted from the Middlesex Sampling Plant FUSRAP site.

Staff worked on the following sites/projects:

- National Lead site in Sayreville
- EPEC site in Fords
- Pantasote site in Passaic
- FMC Corporation in Carteret
- Shieldalloy in Newfield
- Heritage Minerals site in Manchester
- Rustoleum in Newark
- Bristol-Myers Squibb in Hopewell
- Absolute Auto in Middlesex
- Hickory Manor Apartments
- Middlesex Sampling Plant (FUSRAP site)
- Maywood Chemical (FUSRAP & Superfund)

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		4
MET	7	46
MIS	1	
MIT		1
Provisional to Full		7
MEB		2
MIB	1	

Contact: Maxine Williams (609) 984-5628

Mitigation Standard Changes

ANSI / AARST has proposed changes to their radon mitigation standards for single family homes, multifamily homes, and schools. Staff had previously submitted relevant comments to the organization for review. The committee has since reviewed the comments and a combination of the staff’s editorial changes and major items have been addressed. Further public review is required before finalizing any changes.

Contact: Brian Giancola (609) 984-5434

Website updates

In order to keep the public informed with the most up to date information on the impacts of the national public health emergency on the radon sector, staff have been consistently updating the section's website at www.njradon.org. The purpose is to notify 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.

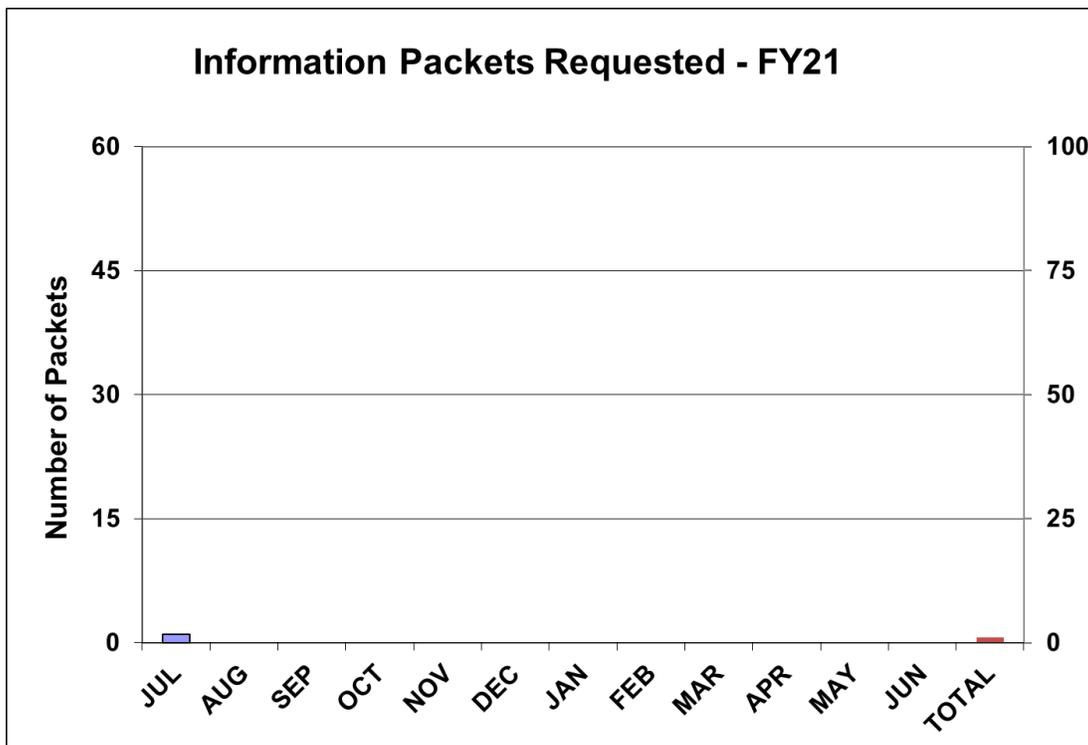
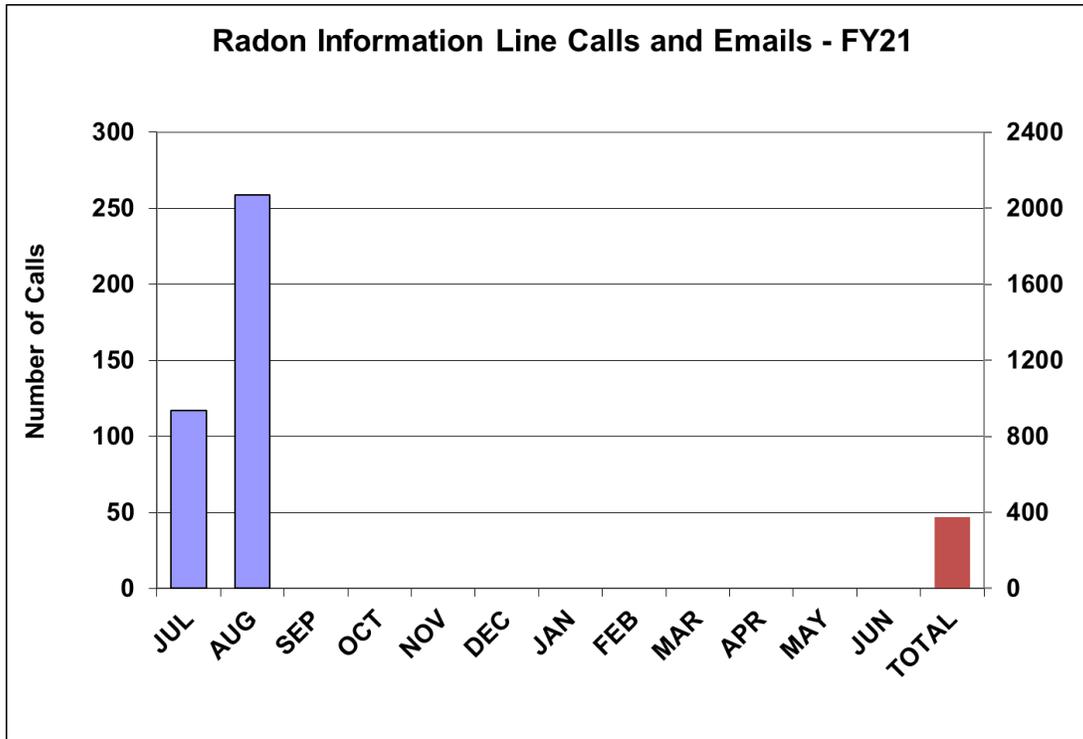
Contact: Brian Giancola (609) 984-5434

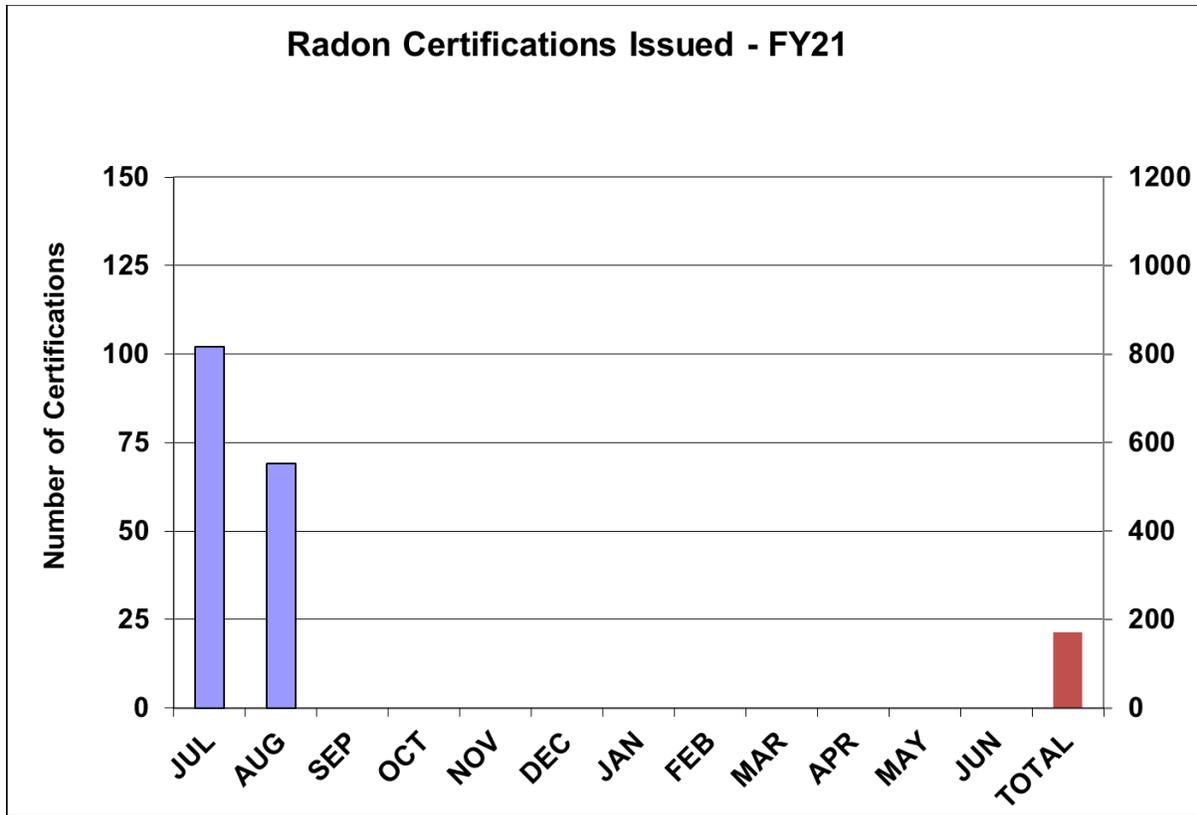
Electrets

Four electrets were sent out to two homeowners as part of the post mitigation testing program. Two of the devices have not yet been returned. The other two were returned and the homeowner was notified appropriately.

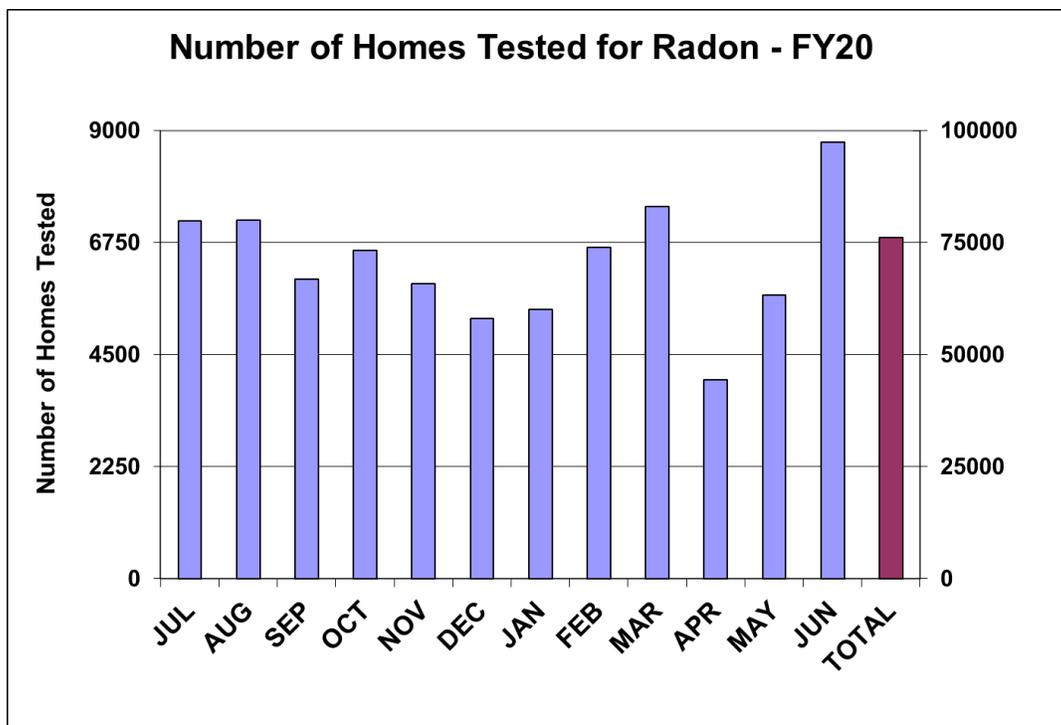
Contact: Charles Renaud (609) 984-5423

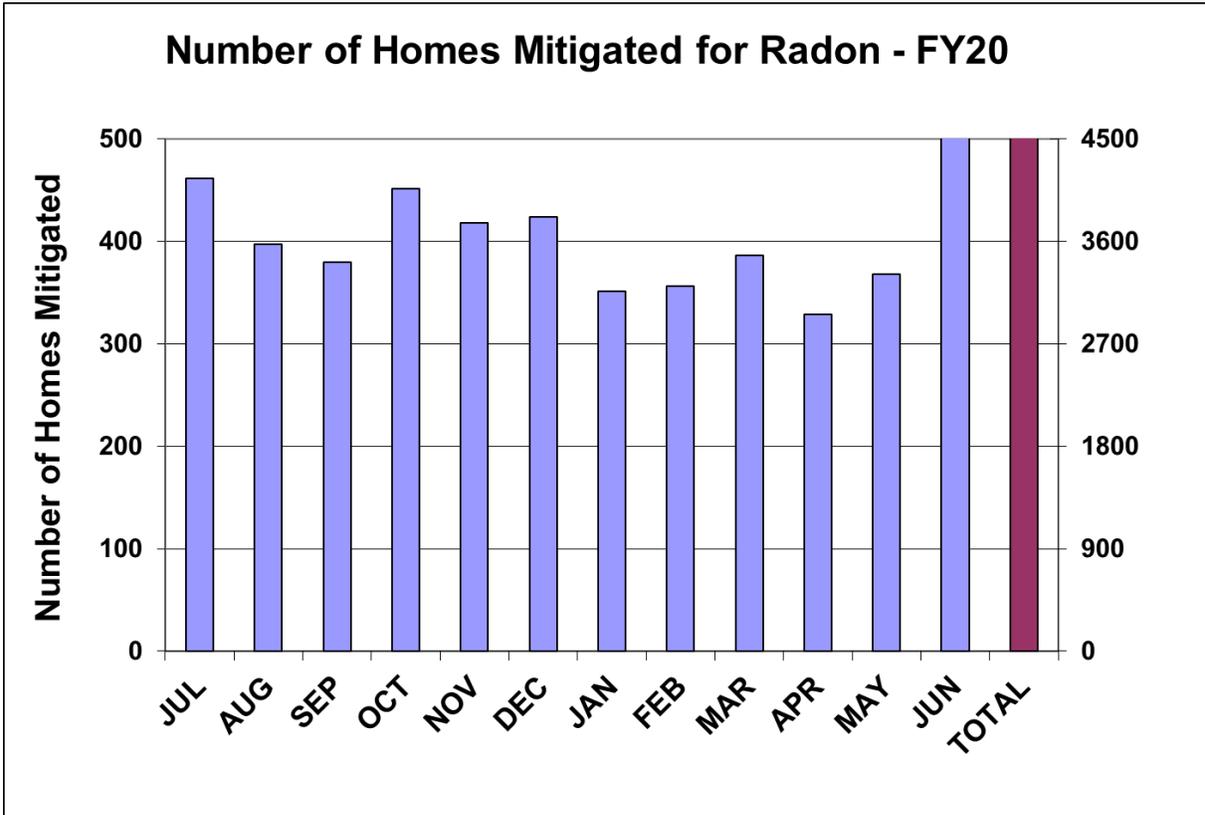
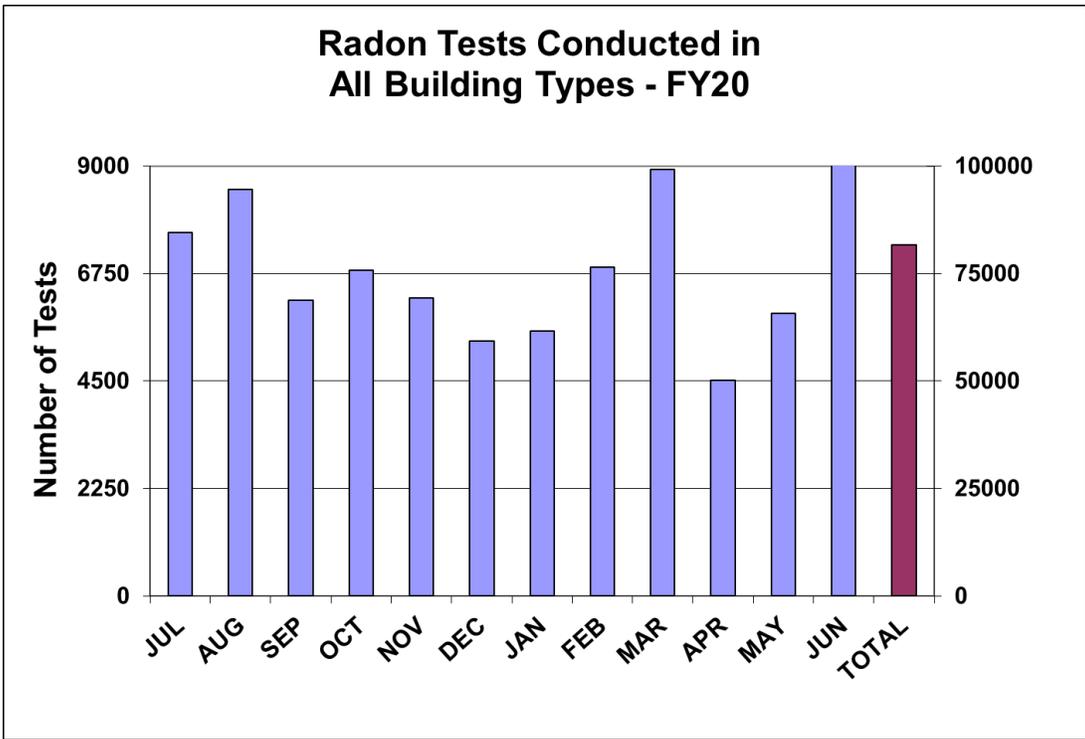
APPENDIX B: BUREAU OF ENVIRONMENTAL RADIATION SUMMARY OF STATISTICS



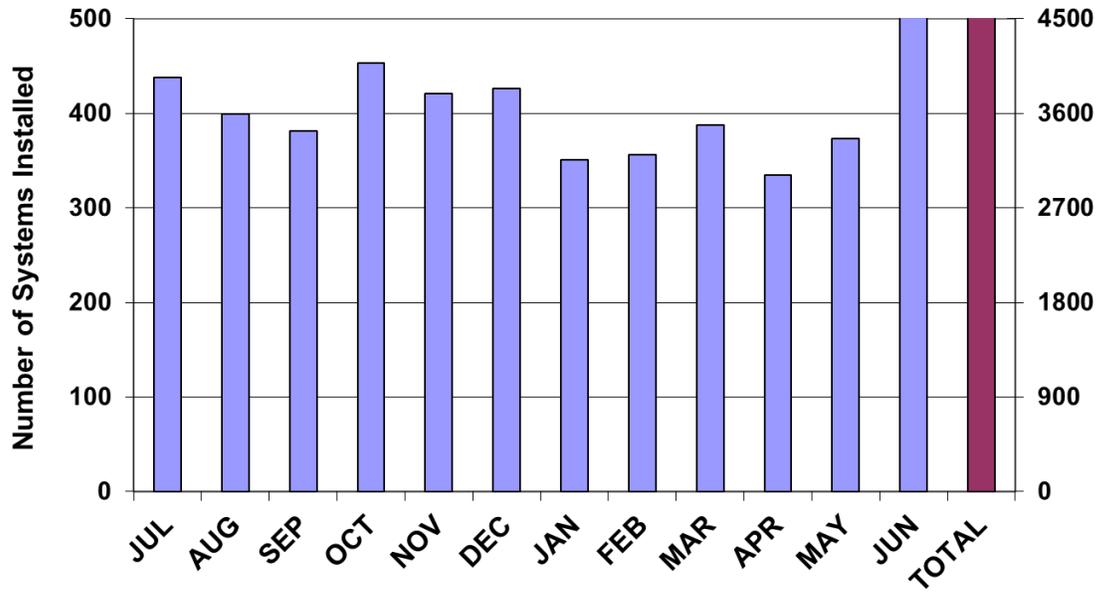


Radon testing and mitigation data is submitted to the Radon Section monthly by all certified radon businesses. This data has been collected for all building types since the implementation of the radon certification regulations in 1991. According to N.J.A.C. 7:28-27.28 (a) and (e), Radon test results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





Radon Mitigation Systems Installed in All Building Types - FY20



SECTION IV – BUREAU OF NUCLEAR ENGINEERING (BNE)

A. OFFICE OF THE BUREAU CHIEF

Significant Events

None.

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. Segmentation of the reactor vessel internals has commenced. The steam dryer segmentation is complete. Segmentation of the steam separator is in progress and is scheduled to be completed in September.

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 necessary casks on the present pad. Excavation of the cask transfer pit is complete. 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.

Contact: Veena Gubbi (609) 984-7457

Hope Creek

Hope Creek ran at essentially full power throughout August, with the following exceptions: On August 2nd and 27th power was reduced by approximately 2% or less due to reductions in main condenser back pressure resulting from outside environmental conditions affecting cooling tower efficiency. Power was returned to 100% following improvement in environmental conditions. On August 7th, an ~1% power reduction occurred due to a feedwater system disturbance which was quickly resolved, allowing power to return to 100%. On August 28th, power was reduced to ~70% to perform scheduled reactor control rod pattern adjustments and selected maintenance activities. Power was returned to 100% on August 29th. On August 30th, power was reduced to ~95% to complete the reactor control rod pattern adjustment series. Hope Creek returned to 100% power where it operated for the remainder of the month

In August, Hope Creek completed its Independent Spent Fuel Storage Installation (ISFSI) 2020 campaign that was started in July. This campaign consisted of loading spent fuel from the Hope Creek spent fuel pool into five (5) Multi-Purpose Canisters (MPC's), preparing the MPC's for storage in the HI-STORM containers and transferring the MPC/HI-STORM assemblies from Hope Creek to the ISFSI. With the completion of the transfer of the five (5) MPC/HI-STORM assemblies in August, there are now sixty-nine (69) MPC/HI-STORM assemblies stored at the ISFSI.

Contact: Jerry Humphreys (609) 984-7469

Salem Unit 1

Salem Unit 1 ran at essentially full power throughout August.

Contact: Elliot Rosenfeld (609) 984-7548

Salem Unit 2

Salem Unit 2 ran at essentially full power throughout August, with the following exceptions: On August 5th, power was reduced to ~90% for a short period due to degraded main condenser backpressure and was returned to full power after the degraded backpressure was resolved. On August 28th, power was reduced to ~55% to correct vibrations on the main generator bus cooling fan. The unit returned to full power on August 30th and ran at essentially full power for the remainder of August.

Contact: Elliot Rosenfeld (609) 984-7548

BNE Activities at Artificial Island

On August 11th, a NES Engineer had a teleconference meeting with the Salem Plant Manager. Among the items discussed were the operating status/challenges for the two Salem units; the preparations for the upcoming 27th refueling outage at Salem Unit 1 (scheduled for 60 days); and the status of the Salem organization.

Contact: Elliot Rosenfeld (609) 984-7548

NES Maintains Contact with PSEG, Holtec, NRC and NJ State Management While Working Remotely

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 in order to determine if the NRC has any concerns about the stations. The NRC inspectors are primarily working remotely, although they do make periodic visits to the sites. If any events or concerns would occur, the NES staff would be available to visit the stations while maintaining safety protocols established at the site.

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 daily 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

BNE and Holtec/CDI Remotely Meet to Discuss the Oyster Creek Decommissioning Status

On August 10th, the Assistant Director of the Radiation Protection Element, NES Supervisor, and one NES Engineer participated in a “Teams” meeting with the Holtec/CDI Oyster Creek Decommissioning Team to discuss the ongoing decommissioning activities. CDI provided an overall summary of the ongoing decommissioning activities at the site as well as those which are scheduled in the near future.

Contact: Veena Gubbi (609) 984-7457

NES Staff Attends NRC Teleconferences/Webinars while Working Remotely

A. NRC's Atomic Safety and Licensing Board (ASLB) Holds Teleconference Meeting Regarding the Holtec's Proposed Consolidated Interim Storage Facility (CISF) in New Mexico

On August 5th, the ASLB heard oral arguments concerning Fasken Land and Minerals Ltd. and Permian Basin Land and Royalty Owners' (Fasken) motion to reopen the record and Fasken's motion for leave to file an amended Contention for the proposed CISF. The factual background and prior proceedings before the ASLB were set forth in a Memorandum and Order of May 7, 2019, in which the ASLB denied all hearing requests. On May 11, 2020, Fasken moved to reopen the record to allow consideration of an amended version of Fasken Contention 2 that is based on the NRC Staff's March 2020 Draft Environmental Impact Statement. During the meeting, Fasken explained its reasoning requesting the ASLB to reopen the case against Holtec's CISF. Following the Fasken arguments, Holtec and the NRC Staff provided their reasoning to show that Fasken's case to reopen the record is not valid. The ASLB did not rule on the motion during the meeting.

One (1) NES Engineer attended the teleconference meeting.

Contact: Veena Gubbi (609) 984-7457

B. NRC Webinar of Draft Environmental Impact Statement (EIS) Report for Holtec's Proposed Consolidated Interim Storage Facility (CISF) in New Mexico

The NRC issued the Draft EIS report for Holtec's proposed CISF in New Mexico on March 10th. The NRC is conducting four public online webinars for the Draft EIS for Holtec's proposed CISF. On August 25th, the NRC held its second meeting via teleconference to present the results of the NRC's review of the draft EIS for storing spent nuclear fuel and receive the public's comments on the draft report. During the meeting, the NRC explained that its review process for granting a license to build and operate the CISF includes both a safety review and an environmental review. Holtec proposes to store 500 canisters containing spent nuclear fuel and high-level radioactive waste during Phase 1. When completed, the project will be comprised of 20 phases, holding up to 173,000 metric tons of waste. The canisters would be transported mainly by rail from operating, decommissioning, and decommissioned commercial nuclear power plants around the country.

All comments to the NRC are due by September 22nd. The NRC staff will review the public comments and prepare the final EIS report, which is scheduled to be published in March 2021.

One (1) NES Engineer attended the teleconference.

Contact: Veena Gubbi (609) 984-7457

NES Supervisor 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. NTSF Planning Committee Teleconference

Each year the NTSF holds a national meeting bringing together the four (4) state regional groups (SRG) (Northeast, Midwest, Southern and Western) and the Tribal Radioactive Materials Transportation Committee (TRMTC) and participants from the DOE, NRC and the nuclear industry. Planning for the 2021 meeting is in progress. On August 10th, the Planning Committee for annual meetings met via teleconference. The NES Supervisor is a member of the committee and attended the teleconference. Updates concerning the proposed location and logistics for the 2021 meeting were presented by the representative from the Southern regional group.

Contact: Jerry Humphreys (609) 984-7469

B. Transportation Core Group Teleconference

On August 6th, the DOE held a teleconference meeting with the four (4) state regional groups (SRG) (Northeast, Midwest, Southern and Western) and the Tribal Radioactive Materials Transportation Committee (TRMTC). The chairs/cochairs and directors of the SRGs and TRMTC, and the DOE staff that maintains and supports the cooperative agreements between the SRGs and the TRMTC were in attendance. The DOE presented updates concerning: the management and goals of its Office of Nuclear Energy; transportation of DOE nuclear wastes (including Integrated Safety System Monitoring System for rail cars and START computer tool for transportation routing); ATLAS railcar project for transporting spent nuclear fuel; DOE site inspections similar to that performed at Oyster Creek in May 2019; DOE Knowledge Management Plan for preserving past and present knowledge as retirements occur; etc. Following the DOE updates, the SRG and TRMTC representatives were able to ask questions and express any concerns.

Contact: Jerry Humphreys (609) 984-7469

Community Engagement Panel (CEP) at Southern California Edison’s (SCE) San Onofre Nuclear Generating Station (SONGS) Holds Public Webcast

On August 20th, the SONGS Decommissioning CEP held a Skype meeting. 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 future meetings. Representatives from SCE provided information on the ongoing decommissioning activities, inspection and maintenance program and future decommissioning activities at SONGS. SCE has completed placing all 73 spent fuel casks into the dry cask storage system. Reactor vessel segmentation will be completed by 2024. A SCE representative also provided information on the low-level radiological waste shipments and liquid batch releases. Following the presentations, questions and concerns from the public were addressed by both the CEP and SCE.

One NES Engineer watched the recording of the CEP meeting on August 27th.

Contact: Veena Gubbi (609) 984-7457

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 August 2020:

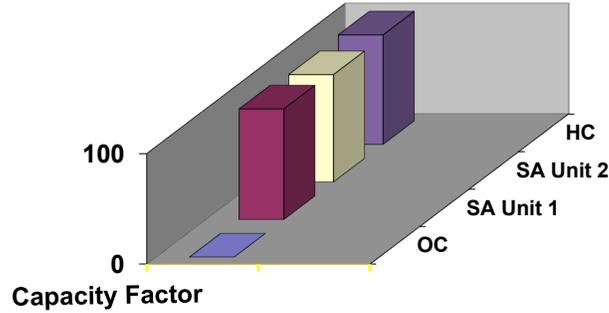
Spent Fuel and Nuclear Waste	Highway Route Control Quantity Shipments	Radionuclides of Concern
0	0	0

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

BUREAU OF NUCLEAR ENGINEERING

Plant Operating Performance – August 2020

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



STATISTICAL INFORMATION

EMERGENCY AND NON-EMERGENCY EVENT NOTIFICATIONS FOR AUGUST 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.

	AUGUST 2020		JAN - AUG 2020		JAN - AUG 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	2
SALEM SITE	0	0	0	1	0	0
HOPE CREEK	0	0	0	0	0	1

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 66 samples during the month of August 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 AUGUST 2020

SAMPLE MEDIUM	NUMBER OF SAMPLES
AIR FILTER	40
AIR IODINE	15
MILK (Cow)	3
SURFACE WATER	8
TOTAL SAMPLES	66

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

During the month of August 2020, four (4) 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

Update on Oyster Creek Radiological Groundwater Protection Program

During the month of August 2020, fourteen (14) onsite groundwater monitoring wells and one (1) surface water sample were collected and shipped to the BNE's contract laboratory, GEL Laboratories, for radiological analysis.

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

NEES Staff Support in the Review of Post Remedial Action Reports for Radiologically Contaminated Sites

Two (2) NEES staff members are assisting the Bureau of Environmental Radiation (BER) with the review of backlogged Post Remedial Action Reports (PRAR) for the radiological review of the “Formally Utilized Sites Remedial Action Plan (FUSRAP) Maywood Superfund Site”. The reviews include verification of compliance with N.J.A.C. 7:28-12: Remediation Standards for Radioactive Materials and with federal regulatory guidance (USEPA drinking water requirements). To date, three (3) PRAR reviews have been completed by NEES staff.

Contacts: Karen Tuccillo (609) 984-7443

Quarterly Thermoluminescent Dosimeter (TLD) Exchange

On August 12 and August 13, 2020 technicians from the BNE’s subcontractor retrieved 2nd quarter 2020 TLD badges and deployed 3rd 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

Oyster Creek Radiological ISRA Meeting

On August 5, 2020, NEES staff members participated in a MS Teams meeting regarding the Industrial Site Recovery Act (ISRA) and the decommissioning of the Oyster Creek Nuclear Generating Station (OCNGS). Participants included staff from Holtec Decommissioning International (HDI), Comprehensive Decommissioning International (CDI), the NJDEP’s Bureau of Environmental Radiation (BER) and Holtec/CDI contractors. Discussions included introducing Holtec/CDI’s ISRA team, the boundaries of the Radiological ISRA site at the OCNGS, ISRA versus NRC’s MARSSIM requirements, and Holtec/CDI’s decommissioning strategy and schedule as it relates to New Jersey’s ISRA requirements.

Contacts: Karen Tuccillo (609) 98407443

Lacey Township Planning Board Meeting

On August 24, 2020, a staff member attended the monthly Lacey Township Planning Board meeting. The Planning Board meets once a month and is responsible for the review of any zoning ordinances in town. At this meeting, Holtec, owner of the Oyster Creek Nuclear Generating Station, presented plans for the expansion of the interim spent fuel storage area (ISFSI). Comments/concerns from residents regarding spent fuel storage at the site were taken.

Additional information and discussion on the meeting can be found at the following website, <https://www.tapinto.net/articles/lacey-board-denies-holtec-plan-to-expand-spent-fuel-storage-area>

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

Holtec Hi-Store Consolidated Interim Storage Facility Draft EIS

On August 25, 2020, a staff member participated in a Nuclear Regulatory Commission (NRC) webinar regarding the Holtec Hi-Store Consolidated Interim Storage Facility Draft Environmental Impact Statement (EIS). The purpose of the webinar was for NRC to receive public comments on the draft EIS for Holtec's application to construct and operate a consolidated interim storage facility (CISF) for spent nuclear fuel and Greater-Than Class C waste. Information on the public comment meetings and draft EIS can be obtained at <https://www.federalregister.gov/documents/2020/08/13/2020-17536/holtec-international-hi-store-consolidated-interim-storage-facility-project>.

Contact: 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 July 2020 gaseous data for the Oyster Creek, Salem and Hope Creek nuclear plants have been included in this report. During the month of July there were no monitored liquid releases from the Oyster Creek station.

**PSEG Nuclear
Radioactive Effluent Releases¹
Nuclear Environmental Engineering Section
For the Period of 07-01-20 to 07-31-20**

**Hope Creek
Gaseous
Effluents**

Effluent

Fission Gases	0	Ci
Iodines	0.00016	Ci
Particulates	0	Ci
Tritium	12.5	Ci

**Hope Creek
Liquid Effluents**

Effluent

Fission Products	0.00082	Ci
Tritium	5.52	Ci

**Salem Unit 1
Gaseous Effluent**

Effluent

Fission Gases	0.0151	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	3.57	Ci

**Salem Unit 1
Liquid Effluents**

Effluent

Fission Products	0.00005	Ci
Tritium	4.8	Ci

**Salem Unit 2
Gaseous Effluent**

Effluent

Fission Gases	0.0169	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	3.91	Ci

**Salem Unit 2
Liquid Effluents**

Effluent

Fission Products	0.00044	Ci
Tritium	23.2	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 07-01-20 to 07-31-20**

**Oyster Creek
Gaseous Effluents
Elevated Releases**

**Oyster Creek
Gaseous Effluents
Ground Releases**

Effluent

Fission Gases	0	Ci
Iodines	0	Ci
Particulates	0.000007	Ci
Tritium	0.145	Ci

Effluent

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

**Holtec Decommissioning International (HDI)
Radioactive Effluent Releases
Nuclear Environmental Engineering Section
For the Period of 07-01-20 to 07-31-20**

Oyster Creek Liquid Effluents²

Effluent

Fission Products	No Release	Ci
Tritium	No Release	Ci

Oyster Creek Liquid Effluent Groundwater Extraction³

Effluent

Tritium	Not in Service	Ci
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Contact: Paul E. Schwartz (609) 984-7539

² There were no monitored liquid releases during the month of July 2020.

³ On November 4, 2019, Pumping Well MW-73 failed and was placed out of service (Idle). The current plan is to discontinue 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.

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 August:

Artificial Island CREST System Ambient Radiation Levels August 2020 Derived From One Minute Averages UNITS = mR/Hr				
AI1	AI2	AI3	AI4	AI5
.0064	.0064	.0061	.0064	.0065
AI6	AI7	AI8	AI9	AI10
.0065	.0056	.0055	.0074	.0052

Oyster Creek CREST System Ambient Radiation Levels August 2020 Derived From One Minute Averages UNITS = mR/Hr			
OC1	OC2	OC3	OC4
.0042	.0054	.0042	.0049
OC5	OC6	OC7	OC8
.0059	.0056	.0047	.0051
OC9	OC10	OC11	OC12
.0059	.0064	.0055	.0056
OC13	OC14	OC15	OC16
.0057	.0054	.0051	.0054

**** indicates insufficient valid data

Contact: Ann Pfaff (609) 984-7451

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 week 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

REP Disaster Initiated Review FEMA Training

On August 5, 2020, NEPS staff took part in a Radiological Disaster Initiated Review (RDIR) Virtual Instructor-Led Training Course offered online through ZoomGov Meeting by FEMA. The purpose of the course was to provide fundamental knowledge of the Disaster Initiated Review (DIR) Standard Operating Guide and Post Disaster Assessment of Offsite Capabilities Checklists. The course had a focus on encouraging emergency planning coordination and collaboration between different agencies by using RadResponder to assist with investigation and collection of field data. The course included a written final exam, which all staff successfully passed.

Contact: Ann Pfaff (609) 984-7451

FEMA REVISION 2 REP Planning Workshop

On August 12, 2020, NEPS staff took part in a FEMA Radiological Emergency Preparedness (REP) Planning workshop hosted through ZoomGov Meeting by FEMA Headquarters. The goal of the workshop was to help offsite response organizations (OROs) with the integration of guidance found in NUREG-0654/FEMA-REP-1, Rev. 2 and the new 2019 REP Program Manual (RPM). FEMA provided OROs with insights and tools to review their plans and incorporate the new guidance, as appropriate.

Contact: Ann Pfaff (609) 984-7451

Oyster Creek Tabletop Exercise Planning Meeting

On August 12, 2020, NEPS Supervisor and Assistant Director of the Radiation Protection Element met with State Police Office of Emergency Management staff to plan for the Oyster Creek Nuclear Emergency Response Tabletop Exercise scheduled for October 15, 2020. Since the plant was permanently defueled in September 2018, the highest possible emergency classification is an Alert. Planning discussions focused on scenario, logistics and participants. While Oyster Creek Nuclear Generating Station no longer falls under FEMA's review, annual exercises are required by the Post-Shutdown Response Plan until all fuel is in the Independent Spent Fuel Storage Facility. Exercises are State-evaluated for performance capability.

Contact: Ann Pfaff (609) 984-7451

RadResponder/CBRNResponder Training

On August 12, 2020, NEPS staff attended a RadResponder/CBRNResponder Webinar on Getting Started with CBRNResponder. As Nuclear Emergency Responders, we are familiar with RadResponder and this course provided a refresher for some of the basic features of RadResponder.

On August 25, 2020, NEPS staff attended a RadResponder/CBRNResponder Webinar highlighting Nuclear Power Plant Layers and Features (NPP Map). The webinar focused on how to utilize these features in conjunction with USNRC pre-uploaded GIS files, creating NPP facilities and sampling locations, and viewing the NPP Map via the mobile application. As Nuclear Emergency Responders, these particular tools are utilized on a regular basis within RadResponder. This course provided more context for how these tools can be used on a power-user level.

Contact: Ann Pfaff (609) 984-7451

Salem Off-Site Nuclear Emergency Responder Facilities Quarterly Inspections

On August 18, 2020, NEPS staff resumed field inspections by visiting BNE's nuclear emergency response facilities in Salem County. Staff completed quarterly inspections of the following off-site facilities in Salem County:

- Salem EOF
- Woodstown FCP

Contact: Ann Pfaff (609) 984-7451