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

JUNE 1 THROUGH JUNE 30, 2022

SECTION I- OFFICE OF THE ASSISTANT DIRECTOR

Original signed by:

Patrick Mulligan

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 June 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.

Radiation Protection of Patients in Nuclear Medicine Diagnostic Reference Levels and Accuracy of Activity Meters

On June 8, Bureau staff participated in the IAEA Webex: Radiation Protection of Patients in Nuclear Medicine Diagnostic Reference Levels and Accuracy of Activity Meters.

Commission on Radiation Protection Exemption- Virtua Health Voorhees Health and Wellness Center (Virtua Health) Exemption Request

On June 21, the Bureau prepared and issued a document based on the Commission on Radiation Protection (Commission) recommendations and Department approval of an exemption to Virtua Health Voorhees Health and Wellness Center (Virtua Health) for the Varian ProBeam360º Proton Therapy unit, which is used on adult patients to treat cancer.

Contact: Arthur Robinson (609) 984-5634

B. REGISTRATION SECTION

Machine Source Registration and Renewal Fees

The Registration Section has begun invoicing the registrants for FY2022 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 2022					
Monthly Invoiced	Monthly Collected	Fiscal YTD Invoiced	Fiscal YTD Collected	Fiscal YTD Adjustments	Percent Collected
$11,243.00	$10,613.00	$3,139,869.00	$3,128,950.00	$3,896.00	100%

Progress on Collection of FY 2022 Registration Renewal Fees

Renewal Groups	Paid 7/31/21	Paid 8/31/21	Paid 9/30/21	Paid 10/31/21	Paid 11/30/21	Paid 12/31/21	Paid 1/31/22	Paid 2/28/22	Paid 3/31/22	Paid 4/30/22	Paid 5/31/22	Paid 6/30/22
0-F	49%	77%	87%	96%	98%	99%	99%	99%	100%	100%	100%	100%
G-L	N/A	51%	76%	88%	96%	98%	99%	99%	100%	100%	100%	100%
M-R	N/A	N/A	50%	74%	87%	95%	97%	98%	99%	100%	100%	100%

S-Z	N/A	N/A	N/A	34%	73%	86%	94%	97%	99%	100%	100%	100%

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, 25% percent paid on-line.

Monthly Machine Source Registration Activity FY 2022

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	YTD
New Facilities	13	14	16	23	16	20	22	18	36	20	22	23	243
Terminated Facilities	25	18	26	39	29	38	23	33	45	21	17	24	338
Net Change (Facilities)	-12	-4	-10	-16	-13	-18	-1	-15	-9	-1	5	-1	-95
New Registrations	164	188	144	163	171	157	176	202	184	161	161	146	2017
Stored Registrations	62	34	37	53	59	79	47	59	100	42	23	39	634
Disposed registrations	84	88	82	95	85	85	79	90	113	78	92	74	1045
Net Change (Machines)	18	66	25	15	27	-7	50	53	-29	41	46	33	338

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: Lisa Brodbeck (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 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 June 2022, IQ evaluations were performed on 48 x-ray units with the following results:

- 29 units (60%) had excellent image quality scores.
- 19 units (40%) had good image quality scores.
- 0 units (0%) had fair image quality score.
- 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 June 2022, ESE measurements were calculated on thirty-four x-ray units that performed lumbo-sacral spine x-rays. Zero units (0%) had extremely high ESE measurements.

- In June 2022, ESE measurements were calculated on ten x-ray units that performed chest x-rays. Zero units (0%) had extremely high ESE measurements.

- In June 2022, ESE measurements were calculated on ten x-ray units that performed foot x-rays. Zero 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.

An analysis of the historical data from May to December 2015, the Bureau inspected two thousand eight hundred and twenty-one (2,821) intra oral dental units. 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 like 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 to100	101 to 285	286 to 350	≥351
E/F, F, Insight	0 to 50	51 to 150	151 to 205	≥206

- In June 2022, ESE measurements were calculated on one hundred and thirty-four dental x-ray units that used DR digital imaging. Eight units (6%) were measured as having extremely high ESE.

- In June 2022, ESE measurements were calculated on zero dental x-ray units that used CR (PSP) digital imaging. Zero units (0%) were measured as having extremely high ESE.

- In June 2022, ESE measurements were calculated on nine dental x-ray units that used D speed film. Zero units (0%) were measured as having extremely high ESE.

- In June 2022, ESE measurements were calculated on three dental x-ray units that used E/F, F, or Insight speed film. Zero 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 June 2022, 48 amalgam questionnaires were collected. The total dental amalgam questionnaires collected for FY2022 is 598.

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: Rachel McVeigh (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 June. Statistical information follows in Appendix A of this report. In addition to its regular business functions, the following highlights are reported:

Unapproved Dental Radiography School

On June 2, 2022, an Administrative Order and Notice of Prosecution were issued to a dental assistant school that included dental radiography in its curriculum. The school ceased the dental radiography portion of the curriculum until an application is submitted and the school is approved by the Radiologic Technology Board of Examiners.

Work Stoppage at a North Jersey Medical Center

On June 6th, 2022, there was a strike that affected hospital workforce in New Jersey and included radiologic technologists. In an effort to maintain a competent radiologic technology workforce and continuation of radiology services to patients, the Section processed 43 license applications from out-of-state technologists. Most applications were processed the same day or next day of receipt. The Section also provided license numbers so that hospital administration could verify the license status on-line instead of waiting for the license to be received in the mail.

Closed Dental Radiography School

On June14, 2022, an Administrative Order and Notice of Prosecution were issued to a Radiologic Technology Board of Examiners (Board) approved school for failing to maintain adequate educational resources to support enrolled students. Based on numerous complaints received by students, the school stopped teaching in May 2022. At least 24 students are affected by this stoppage. The Board, at its July meeting, will be considering alternative methods for students to complete their education.

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 2022 Invoiced & Collected				
Invoice Type	**Monthly Invoiced**	**Monthly Collected**	**Fiscal YTD Invoiced**	**Fiscal YTD Collected**
Examinations	$160	$160	$480	$480
Initial Licenses	$8,520	$6,600	$81,060	78,120
Renewal Licenses	$270	$2,160	$12,870	$43,650
Totals	$8,950	$8,920	$94,410	$112,250

Contact: Al Orlandi (609) 984-5890

E. MAMMOGRAPHY SECTION

Stereotactic Facilities Inspected

The Mammography Section inspected 5 facilities with a stereotactic/needle localization breast biopsy unit during the month of June. A total of 51 of the 57 planned stereotactic facility inspections have been performed since July 1, 2021.

FDA Joint Investigation

The Mammography Section was notified by the Food and Drug Administration (FDA) that a facility was operating without American College of Radiology (ACR) accreditation. On June 15, 2022, Ms. Mary Kanewski performed a joint investigation with an FDA inspector at Advanced Women Imaging in West New York, NJ. Ms. Kanewski and FDA inspector verified that the unit was not located at the ACRs provisionally approved Bergenline Avenue location. The unit was located at their 60th Street location where they were performing mammography procedures. As a result of the investigation, the Bureau embargoed the mammography equipment for failure to have ACR accreditation. The facility representative was issued an Administrative Order and a Notice of Prosecution. The facility representative cannot operate unit ACR accreditation is received.

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, and the facility has thirty days from the date of the inspection to respond to the FDA detailing the corrective actions they have taken.

The Mammography Section inspected 18 facilities in June. A total of 226 of the 233 facilities scheduled to be inspected under the contract that expires on August 20, 2022. There was one facility found to have non-compliance issues.

Facility Non-compliance Discovered

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

There was one facility with **Level 2** non-compliances:

- No documentation of 8 hours of training for the radiologic technologist in each mammography modality for which mammograms were performed.

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 June 2022

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
June 2022

Bureau of X-Ray Compliance		
	Month	YTD
Compliance Inspections entered into NJEMS	49	391
Dental/CBCT Inspections entered into NJEMS	41	511

Notice of Violations	Closed	Effective	Pending	Total	YTD
	10	2	5	17	150

	Closed	Effective	Pending	Total	YTD

Administrative Orders	1	0	12	13	194

Notice of Prosecutions	**Closed**	**Effective**	**Pending**	**Total**	**YTD**
	0	0	12	12	182

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**
	$9,850	$94,200.00	$89,650.00	$19,450.00	$109,100.00

Contact: Ramona Chambus (609) 984-5370

INSPECTOR ACTIVITY REPORT

06/01/2022 THROUGH 06/30/2022

Inspector: ALL
Discipline: ALL

Number of Inspections Performed

Inspection Type	Inspection Description	Facilities Inspected	Machines Inspected	Machines Audited	Machines Uninspected
1	ROUTINE INSPECTION	65	176		13
2	VIOLATION INSPECTION ON SITE	1	4		
10	EMBARGO	2	1		6
11	INVESTIGATION	7			
12	STEREOTACTIC INSPECTION	2	2		
15	QA INSPECTION ROUTINE LEVEL 1	41	53	81	5
17	QA VIOLATION INSPECTION ON SITE	1	1		
22	NON-QA INSPECTION - HOSPITALS	2	17		1
28	DENTAL CBCT INSPECTION	10	54		2
	Total On-Site Inspections:	**131**	**308**	**81**	**27**
6	OFFICE VIOLATION RESPONSE REVIEW	21		38	
18	OFFICE QA VIOLATION RESPONSE REVIEW	8		23	
30	DENTAL CBCT OFFICE REVIEW INSPECTION	8		8	
	Total Office Inspections:	**37**		**69**	**0**

Number of Enforcement Documents Issued

NOV	17
AO	10
NOP	10
Amount of Penalties	$8,800

06/01/2022 THROUGH 06/30/2022

Inspector: ALL
Discipline: ALL

Violation Code	Glossary Information	Description Non-Compliance	Number of Violations By Code
Violations Cited Non-QA			
Analytical			
A-001	8.1(g)	personnel monitoring records or true copy of same not available upon request.	**1**
A-002	21.6(a)1	Testing safety devices every six months.	**9**
A-006	8.1	Personnel monitoring records not available.	**4**
Cabinet			
C-006	17.7(c)	Requirements for film badges not met.	**2**
CB			
CB-001	22.3(i)	No Alternate QA program for CBCT	**3**
CB-003	22.7(a)3	CBCT No MPQCS	**2**
Dental			
D-002	16.8(a)1	Survey of environs not available or not performed	**2**
D-025	16.3(a)16	Timer accuracy exceeds manufacture'rs specifications (certified units).	**2**
RA			
RA-200	15.4(e)	Operating federally regulated mammography equipment with no accreditation by the American College of Radiology.	**1**
Registration			
REG1	3.1 (a) and (b)	Failed to register the ionizing radiation producing machine within 30 days of acquisition.	**2**
Therapy 1 Mev and Above			
TA-101	14.4(u)1	Requirements for calibration of unit not met:	**1**
Therapy Below 1 Mev			
TB-005	14.3(a)1vi	Pursuant to N.J.A.C. 7:28-14.3(a)1vi for therapeutic x-ray systems with energies less than one MeV, records of leakage radiation shall be maintained at the facility for at least five years and shall be made	**2**

06/01/2022 THROUGH 06/30/2022

Inspector: ALL
Discipline: ALL

Violation Code	Glossary Information	Description Non-Compliance	Number of Violations By Code
Violations Cited Non-QA			
Therapy Below 1 Mev			
TB-008	14.3(d) 1, 2	Pursuant to N.J.A.C. 7:28-14.3(d) for therapeutic x-ray systems, spot checks shall be performed on therapeutic x-ray systems with energies greater than 0.018 MeV and less than one MeV and shall meet the following requirements: 1. The qualified radiological physicist will determine those parameters to be spot-checked and the procedure to be used when performing those spot checks. The spot check procedure shall be in writing and specify the frequency at which tests, or measurements are to be performed, not to exceed one month, and the acceptable tolerance for each parameter measured in the spot-check. A qualified radiological physicist need not actually perform the spot-check measurement. If a qualified radiological physicist does not perform the spot-check measurement, the results of the spot-check measurement shall be reviewed by a qualified radiological physicist within 15 days. 2. The measurements taken during spot checks shall demonstrate the degree of consistency of the operating characteristics which can affect the radiation output of the system or the radiation delivered to a patient during a therapy procedure:	**2**
Total Violations Cited Non-QA			**33**
Violations Cited QA			
Quality Assurance			
QA-011	22.5(a)2	QC tests from Table 1 (Radiographic) not performed at the required intervals.	**2**
QA-012	22.5(a)3	Medical Physicist's QC Survey not performed at required interval or all tests not performed.	**1**
QA-037	22.6(a)2	QC tests from Table 2 (Fluoroscopic) not performed at the required intervals.	**1**
QA-063	22.7(a)2	QC tests from Table 3 (CT) not performed at the required intervals.	**2**
QA-064	22.7(a)3	No Med Phys QC Survey for CT	**1**
QA-141	22.10(e)2	Registrant failed to immediately initiate corrective action.	**1**
QA-157	22.11(c)	QC program test procedures not carried out.	**1**
QA-174	22.5(j)3	All images for QC tests for items 8, 11, 12 & 13 maintained for 1 year	**10**
Total Violations Cited QA			**19**
Total Violations			**52**

APPENDIX A - TECHNOLOGIST EDUCATION AND LICENSING SECTION

MONTH OF JUNE 2022

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	67	8	2	64	-	-	-	3	144	1,354	1,100
Licenses Renewed	12	-	-	16	-	-	-	-	28	501	N/A
Total Licensed	9,545	978	867	11,714	48	16	5	101	23,274	23,274	N/A
Exams Scheduled	1	-	-	-	-	-	-	-	1	4	N/A
Investigations Conducted	1	-	-	1	-	-	-	-	2	34	30
Licenses Verified	55	10	2	209	-	-	-	-	276	5,160	7,000
Expired Licenses	-	-	-	2	-	-	-	-	2	10	N/A
Unlicensed	-	-	-	1	-	-	-	-	1	15	N/A
Enforcement Documents Issued	-	-	-	12	-	-	-	-	12	102	N/A
NEAs Issued	-	-	-	-	-	-	-	-	0	0	N/A
Offer of Settlement	-	-	-	$2,200	-	-	-	-	$2,200	$31,000	N/A
Licenses Sanctioned	-	-	-	-	-	-	-	-	0	3	N/A
Approved Educational Schools	15	2	3	26	-	-	-	-	46	46	N/A
New School Application Evaluated	-	-	-	1	-	-	-	-	1	14	8
School Inspections Conducted	-	-	-	-	-	-	-	-	0	3	4
Total Schools Reviewed	-	-	-	1	-	-	-	-	3	19	12
Curriculum Modifications Evaluated	2	-	-	2	-	-	-	-	4	26	20
Clinical Applications Approved	4	-	-	90	-	-	-	-	94	1,448	1,100

Appendix A - Bureau of X-ray Compliance
Mammography Section
June 2022

Type of Facility	INDUSTRY	PHYSICIAN	HOSPITAL	GOVERNMENT	TOTAL MONTH	FY TO DATE	TOTAL DUE THIS FY
MQSA							
Facilities Inspected	0	15	3	0	18	226	
Machines Inspected	0	25	5	0	30	365	**233**
FDA Violations Level 1	0	0	0	0	0	1	
FDA Violations Level 2	0	1	0	0	1	22	
Registered	0	3	1	0	4	32	
Canceled	0	2	1	0	3	45	
Stereotactic							
Facilities Inspected	0	4	3	0	7	51	**57**
Machines Inspected	0	4	3	0	7	52	
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	7	
Canceled	0	0	0	0	0	6	

SECTION III - BUREAU OF ENVIRONMENTAL RADIATION (BER)

A. OFFICE OF THE BUREAU CHIEF

The Organization of Agreement States meeting is taking place from August 15-18 in Fort Worth, TX. Karen Flanigan will be a member on the Health Physics Pipeline and Recruiting Efforts panel discussion. She will be providing a presentation on the BERs initiative to promote awareness about health physics as a career through outreach to colleges and universities in the state. Brooke Richards, the BERs first intern hired as a result of the outreach program, will be preparing a poster on her experiences and accomplishments. She will be recording a short presentation for the poster.

B. RADIOACTIVE MATERIALS PROGRAM

During the month of June 2022, the Radioactive Materials Program responded to four (4) radiation incidents:

- On Friday night June 3, 2022, the Radioactive Materials Program (RMP) was informed that a unit dose of Cu-64 calibrated for 4.4 mCi at 15:00 on 6/3/2022 was discovered missing at a licensee in Hackensack. The licensee followed up with their isotope suppliers to determine what might have happened to the dose. Video surveillance footage confirmed that the dose, in its Type A package, was delivered by the radiopharmaceutical supplier to the licensee's Nuclear Medicine PET/CT Department at 5:00 a.m. on 6/3/2022. The driver was recorded on video leaving the Nuclear Medicine Department with a security guard and one black Type A package as expected. At 10:20 a.m., a driver from a delivery service used by the radiopharmaceutical supplier was recorded delivering 1 Type A package and then leaving at 10:22 a.m. with 3 Type A packages, one of which bore the Yellow II label indicating it was not "empty." The supplier interviewed the driver who stated that he only picked up 2 packages, counter to what the video footage portrays. The driver has been suspended while the supplier continues to attempt to locate the package.

- On June 9, 2022, the RMP received notification from a licensee involving the loss of two H-3 (tritium) exit signs. It was confirmed on 5/27/2022 that the two signs were lost. The Radiation Safety Officer believes the signs were improperly disposed of during renovations.

- On June 27, 2022, BER was notified that a load of municipal solid waste was rejected at an incinerator in Camden. The load originated from a facility in Philadelphia, PA. The load was rejected and was secured at the hauler's facility to allow the radioactive material to decay. It subsequently passed through the incinerator's radiation monitors and was processed without incident.

- On June 28, 2022, Trenton Dispatch informed the RMP that a load of scrap from a scrap yard in Pittsburgh set off the radiation alarm at steel yard in Sayreville. The load was

rejected and was returned to the facility in Pittsburgh. Pennsylvania DEP officials were notified.

Contact: Nancy Stanley (609) 984-5452

C. ROUTINE ACTIVITIES

	This Month 6/1/22-6/30/22	**FY-To-Date 7/1/22-6/30/22**
Number of Amendments Processed	12	251
Number of Renewals Processed	5	70
Number of Initial Applications Processed	1	14
Number of Active Licenses	553	553
Number of Terminations	6	13
Number of Reciprocity Requests Received	25	301
Number of Incidents	3	34
Number of Inspections	7	124

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. No 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 48 registrations are currently active.

Contact: Sarah Sanderlin (609) 984-5466

D. SUMMARY OF ENFORCEMENT – JUNE 2022

Bureau of Environmental Radiation – By Month (6/1/2022 -6/30/2022)				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	2	0	1	3
Radon Section	0	0	4	4
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	4	4
Radon Section	0	0	2	2
Bureau of Environmental Radiation – Fiscal Year to Date 7/1/2021 - 6/30/2022				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	13	0	1	13
Radon Section	0	1	4	5
Notice of Prosecution				
	Closed	Effective	Pending	Total
Radioactive Materials Section	4	1	0	5
Radon Section	1	0	4	5
Notice of Violations				
	Closed	Effective	Pending	Total
Radioactive Materials Section	8	3	4	15
Radon Section	0	0	2	2
Amount Assessed in Penalties = FY				
	Total Amount Assessed for FY22	Amount Collected from Current FY22	Amount Collected from FY21	Total Amount Collected (FY21+FY22)
Radioactive Materials Section	$6,250.00	$6,875.00	$0.00	$6,875
Radon Section	$300.00	$300.00	$400.00	$400.00
Amount Assessed in Penalties = By Month				
	Total Amount Assessed for 6/1/2022 - 6/30/2022		Amount Collected from 6/1/2022 - 6/30/2022	
Radioactive Materials Section	$0.00		$0.00	
Radon Section	$0.00		$0.00	

Contact: Jack Tway (609) 984-5462 or Anita Kopera (609) 984-5543

E. RADIOLOGICAL AND ENVIRONMENTAL ASSESSMENT SECTION (REAS)

Water Treatment

There are currently 23 active specific licenses for water treatment systems and 18 active general license registrations for water treatment systems (13 radium systems and 5 uranium systems). Staff completed review of 4 routine submittals of dosimetry/discharge/resin analysis data per specific license conditions.

Contact: Joseph Power (609) 777-4252

Decommissioning and Contaminated Site Reviews

Staff completed review of 13 technical reports/referrals. Staff worked on the following sites/projects:

- City of Vineland Water Utility
- EPEC Polymers site in Fords
- FMC Site in Elizabeth
- Heritage Minerals site in Manchester
- Howmet site in Dover
- Hudson County Chromate Site 41
- National Lead site in Sayreville
- Oyster Creek
- PSEG Fossil Mercer Generating Station
- PSEG Hudson Generating Station
- Rutgers Camden License Termination
- Sumitomo Machinery Corporation

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

F. RADON SECTION

Radon Rule

The regulations for Radon Testing and Mitigation at N.J.A.C. 7:28-27A were adopted on June 6, 2022.

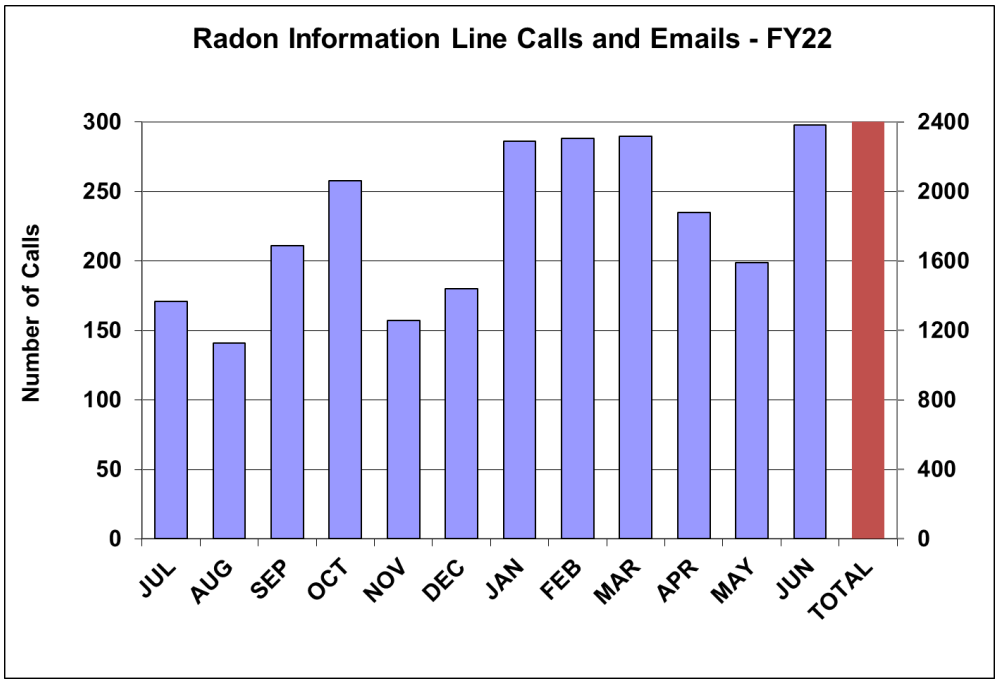
Contact: Anita Kopera (609) 984-5543 or Charles Renaud (609) 984-5423

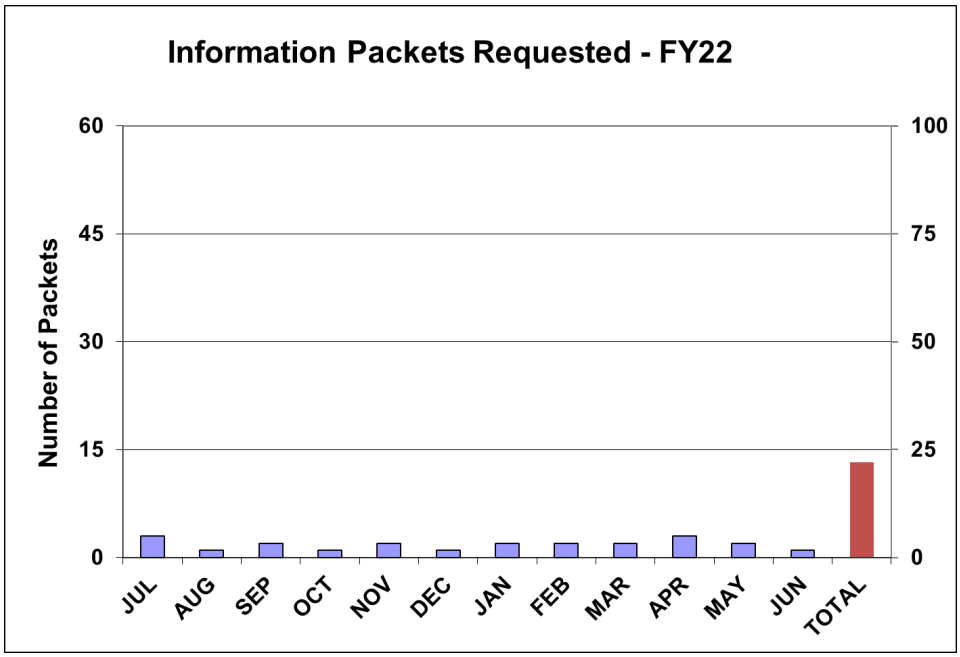
Electrets

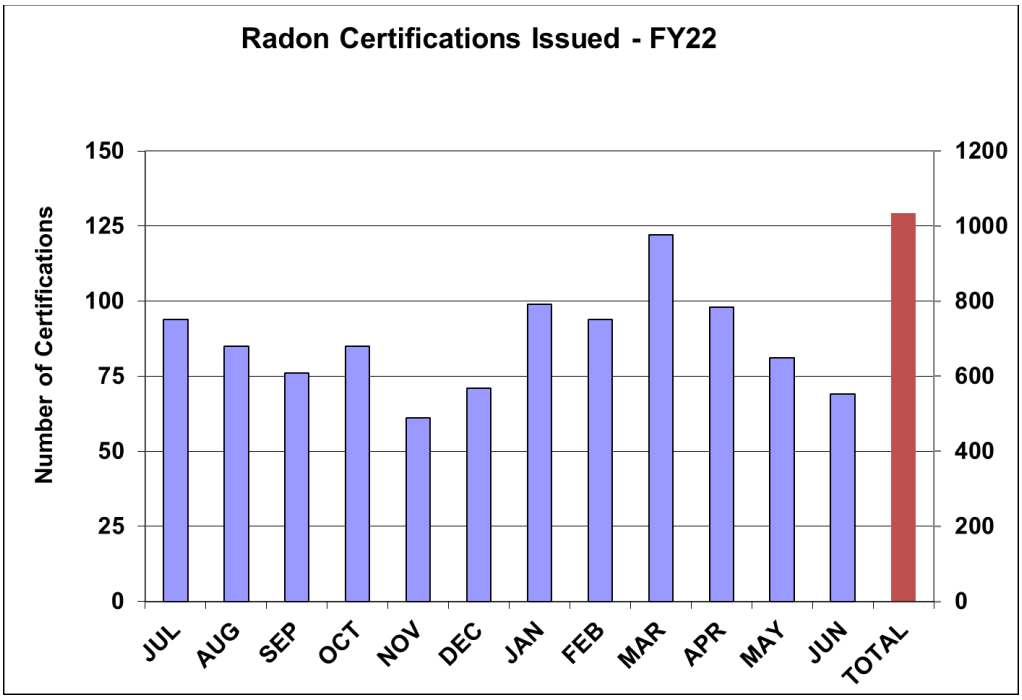
Proficiency testing was completed for long-term electrets and was passed. Post-mitigation testing and confirmatory testing can now be performed once again.

Contact: Charles Renaud (609) 984-5423

APPENDIX B: BUREAU OF ENVIRONMENTAL RADIATION SUMMARY OF STATISTICS






Radon Certifications Issued - FY22
Number of Certifications
150
125
100
75
50
25
0
1200
1000
800
600
400
200
0
JUL
AUG
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
TOTAL

SECTION IV – BUREAU OF NUCLEAR ENGINEERING (BNE)

A. OFFICE OF THE BUREAU CHIEF

Significant Events

None

B. NUCLEAR ENGINEERING SECTION

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. Segmentation of the reactor steam dryer and steam separator is complete. Packaging of the steam separator into different containers is complete. Phase 1 of the reactor vessel internals is complete. Segmentation of the top guide tubes is complete. Removal of the reactor vessel internal piping is complete. Segmentation of the upper shroud is complete. Cleanup of the spent fuel pool in preparation for removal of the spent fuel racks is complete. All spent fuel racks have been removed from the pool. Removal of the control rod guide tubes has been completed. Segmentation of the control rod guide tubes is in progress. Removal of the lower core plate for segmentation is underway. Cleaning of the lower core plate is complete. Segmentation of the reactor head is complete.

After CDI withdrew the construction permit application from Lacey Township for the expansion of the Independent Spent Fuel Storage Installation (ISFSI) concrete pad, the dry runs to demonstrate the spent fuel loading/transfer operations of the dry storage system were completed in December 2020. On December 14, 2020, Oyster Creek began its final spent fuel dry cask storage campaign. The campaign consisted of loading spent nuclear fuel from the Oyster Creek spent fuel pool into multi-purpose canisters, installing the canisters into dry cask storage casks, and transporting the casks to the ISFSI. On May 21, 2021, the last dry spent fuel storage cask was placed on the ISFSI pad, which safely completed Oyster Creek's final spent fuel campaign. Oyster Creek loaded and placed a total of 33 casks on the ISFSI pad in 21 weeks, thus setting a world record by completing the fastest transfer of all spent nuclear fuel from a plant's spent fuel pool to its dry storage facility. All of Oyster Creek's spent fuel assemblies are now safely stored in robust dry storage casks at the ISFSI awaiting transport to either an interim storage or permanent disposal location.

As a result of having transferred all the spent nuclear fuel from the spent fuel pool to the ISFSI, Oyster Creek, on August 12, 2021, moved its security classification from a nuclear security facility to an ISFSI only/industrial security facility. Since Oyster Creek is now an ISFSI only facility, entry and exit to the ISFSI will remain under NRC security regulations. Access to the general site will be done via Holtec industrial security requirements

Oyster Creek has completed moving the fourth and final Greater-Than-Class-C (GTCC) storage cask to the ISFSI. Oyster Creek's GTCC campaign is now complete. GTCC radioactive waste

is waste generated at nuclear reactors which has concentrations of certain radionuclides above the Class C limits as stated in 10 CFR 61.55. In accordance with the regulations, GTCC waste is considered a form of low-level radioactive waste that is not suitable for near-surface disposal. Therefore, it must be packaged, stored, and disposed of in a manner similar to spent nuclear fuel.

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. The original site water tank and a demineralized water storage tank have been dismantled and shipped offsite. A lube oil tank has also been removed and transported offsite.

Demolition of the old north guard house, the abandoned torus water storage tank, the new maintenance building, the radwaste surge tank, the augmented off gas building, nitrogen tank, condensate storage tank, chlorination tank, radwaste sample tanks, site heating boiler and security buildings is complete. Core bore layout for new radwaste building is complete. Core boring in preparation for demolition is in progress at the new radwaste building.

Contact: Veena Gubbi (609) 984-7457

BNE Activities at Oyster Creek

One (1) NES Engineer was onsite on June 27th to discuss decommissioning activities with HDI personnel.

Contact: Veena Gubbi (609) 984-7457

Hope Creek

Hope Creek ran at 100% power until June 3rd at which time power was reduced to 96% for performing scheduled reactor control rod pattern adjustments. Power returned to 100% on the same day. On June 8th, power was allowed to coast down in preparation for a scheduled maintenance outage. Hope Creek was taken offline on June 10th in order to perform planned maintenance on the seals for both reactor recirculation pumps and to replace the pilot valves on two main steam relief valves. Hope Creek returned to 100% power on June 17th where it remained with the following exceptions in order to perform scheduled reactor control rod pattern adjustments: June 17th (85%) and June 25th (95%).

Contact: Veena Gubbi (609) 984-7457

Salem Unit 1

Salem Unit 1 ran at essentially full power throughout June.

Contact: Jacob Fakory (609) 984-7458

Salem Unit 2

Salem Unit 2 ran at essentially full power throughout June.

Contact: Jacob Fakory (609) 984-7458

BNE Activities at Artificial Island

The NES Staff and NES Supervisor virtually attended various Hope Creek Outage Control Center (OCC) briefings every day in order to be aware of the ongoing status of the Hope Creek planned maintenance outage.

Contact: Jerry Humphreys (609) 984-7469

NRC Performs Security Inspection at Artificial Island

On June 6th to 9th, the NRC performed a security inspection at Artificial Island. Due to the security nature of the inspection, details are not included in this report. One (1) NES Engineer remotely followed the inspection.

Contact: Veena Gubbi (609) 984-7457

NRC Workshop on Vendor Oversight

On June 1st and 2nd, the NRC held its 8th workshop on Vendor Oversight. The purpose of the virtual workshop was to bring together NRC staff, regulated utilities, vendors of nuclear components, and other interested stakeholders to discuss vendor oversight issues related to operating reactors. Some of the topics that were discussed were: NRC staff's response to the Office of Inspector General's report on Counterfeit, Fraudulent, and Suspect Items; NUPIC audit team & supplier interface before, during, and after the audit; required assessment by licensees, applicants and suppliers of laboratories owned by the U.S. Department of Energy; ask the regulator; commercial-grade dedication inspections at licensees; lessons learned from inspecting during a pandemic; implementation and lesson learned from implementation of the EPRI guidance on hybrid and remote assessments. After each session, questions and concerns from the participants were addressed by the presenters. One (1) NES Engineer attended the workshop.

Contact: Veena Gubbi (609) 984-7457

NRC Joint Annual Assessment Meeting for PA/MD/NJ/NY Nuclear Power Plants

On June 8th, the NRC hosted a public webinar to present its assessment of the safety performance of ten (10) nuclear generating stations in NRC Region I, including Salem and Hope Creek. The NRC provided background concerning the ROP and the inspection activities and other information that the ROP uses to assess the performance of a nuclear generating station. The

NRC's COVID response for onsite inspection activities and licensing activities during 2021 was discussed. The NRC's 2021 assessment of the performance of each station was presented by either the NRC Senior Resident or Resident Inspector for that site. After the NRC presentation, public comments were addressed by the NRC staff. Two (2) NES Engineers attended the meeting.

Contact: Veena Gubbi (609) 984-7457 or Jacob Fakory (609) 984-7458

Advisory Committee on Reactor Safeguards (ACRS) – Meeting of the Subcommittee on Future Plant Designs: Preliminary Regulation 10 CFR Part 53 – "Licensing and Regulation of Advanced Nuclear Reactors"

The ACRS is independent of the NRC staff and reports directly to the NRC Commission. One of the functions of the ACRS is to review and report on safety studies and reactor facility licenses. On June 23rd and 24th, the ACRS Future Plant Designs Subcommittee held a teleconference to discuss the preliminary rule for 10 CFR Part 53, "Risk-Informed, Technology-Inclusive Regulatory Framework for Commercial Nuclear Plants". The NRC staff provided an overview on the draft requirements of Part 53 Framework B, Subparts N through U. In addition, the NRC staff also discussed the Alternate Evaluation for Risk Insights (AERI) approach included in Framework B. One (1) NES Engineer attended the teleconference.

Contact: Veena Gubbi (609) 984-7457

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

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

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

NTSF Planning Committee Meeting

On June 15th, the NTSF Planning Committee held a virtual meeting. Lessons learned from the recently held 2022 Annual NTSF Meeting in Philadelphia were discussed along with the results of the attendee survey. Discussions for the preparation for 2023 annual meeting continued. The Midwestern Radioactive Materials Transportation Committee (MRMTC) will host the 2023 meeting.

The NES Supervisor attended the meeting.

Contact: Jerry Humphreys (609) 984-7469

2022 Annual Meeting of the NTSF

From June 6th through the 9th, the NES Supervisor attended the 2022 Annual Meeting of the National Transportation Stakeholders Forum (NTSF) in Philadelphia, PA. Representatives from state, federal and tribal governments as well as private enterprises were in attendance. The NES Supervisor attended as a member of the CSG/ERC NE Task Force. The NES Supervisor is a co-chair of the NE Task Force.

The NES Supervisor attended various NTSF presentations and meetings: NTSF Planning Committee meeting; Spent Fuel Transportation Materials Ad Hoc Working Group (AHWG) meeting; Section 180(c) AHWG meeting; Update on the Waste Isolation Pilot Plant (WIPP) in New Mexico; New Direction for DOE-NE Consent-Based Siting; State of the Forum – Past Successes and Future Challenges; Progress on Rail Transport of Spent Nuclear Fuel; Safety and Security Considerations for Shipping Radioactive Materials; sustaining Partnerships for DOE Transport of Spent Nuclear Fuel.

In addition, on June 7th, the NES Supervisor attended the CSG/ERC NE Task Force semi-annual meeting. Each of the attending northeastern states provided a report of the activities pertaining to radioactive shipments and commercial nuclear power in the respective state. Updates were provided concerning the Yankee plants in New England that have permanently shut down. The Senior Project Manager for Orano provided an update on the Vermont Yankee Radwaste Container (RWC) Transportation Campaign. The DOE contractor for the DOE's Transportation Emergency Preparedness Program (TEPP) provided an update on the past year's training and a review of future training in 2022-2023. Representatives from the DOE's Carlsbad Field Office provided an update of the activities at the WIPP site in New Mexico.

Contact: Jerry Humphreys (609) 984-7469

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

On May 19th, the SONGS CEP held a virtual meeting. A representative from Southern California Edison provided an overview on the dismantlement milestones, Unit 3 turbine component removal, demolition update, GTCC waste project and completion of the rail yard installation. A representative from the SONGS Environmental Stewardship discussed environmental monitoring at SONGS and an overview of the liquid batch release. Representatives from the Action for Spent Fuel Solutions Now Update (ASFSN) provided an update on the recent growth of the coalition and actions; discussed their recent response to DOE's request for information for consent-based siting for spent nuclear fuel; and the DOE Secretary's visit to SONGS. A representative from the Wheeler North Reef and San Dieguito Wetland Restoration provided an overview of the SONGS Marine Mitigation program for the Wheeler North artificial kelp reef and the San Dieguito Wetlands restoration projects. Following the presentations, questions from the panel members were addressed by all the presenters. After the panel discussion, questions from the public were addressed by the various organization representatives. One (1) NES Engineer watched the recording of the meeting on June 2nd.

Contact: Veena Gubbi (609) 984-7457

Pilgrim Nuclear Power Station Nuclear Decommissioning Citizens Advisory Panel (NDCAP) Holds Public Meeting

On May 23rd, the Pilgrim NDCAP held a virtual public meeting. The NDCAP advises the Massachusetts Governor and educates citizens across the state on activities related to the shut down and decommissioning of the Pilgrim Nuclear Power Station. The NDCAP holds public meetings at least four times per year.

A representative from Senator Markey's office provided an overview of the US Senate hearing on issues communities are facing with decommissioning of the nuclear power plant and Holtec's commitments for Pilgrim nuclear power plant. A representative of Holtec provided an update on the current decommissioning activities at the Pilgrim site (fuel rack removal; building demolition; reactor segmentation; liquid radiological waste disposal; site characterization and waste update). A representative of the Commonwealth's Interagency Working Group (IWG) provided an update on the IWG activities and an update on the decommissioning activities, environmental work plan, and a review of Holtec's waste management plans and permits. Following the presentations, questions and concerns from the panel members were addressed by the presenters. After the panel question and answer session, questions and concerns from the members of the public were heard. One (1) NES Engineer watched the recording of the meeting on June 24th.

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. Following is a table representing the number of shipments completed in June 2022:

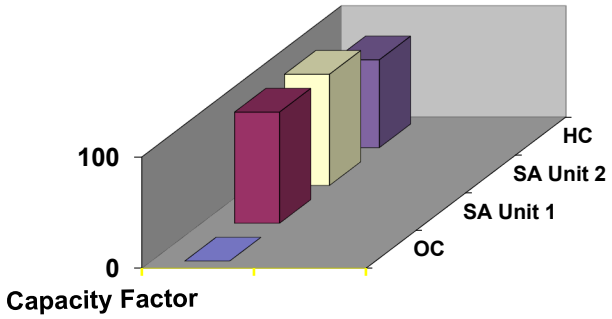
Spent Fuel and Nuclear Waste	Highway Route Control Quantity Shipments	Radionuclides of Concern
0	5	0

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

BUREAU OF NUCLEAR ENGINEERING

Plant Operating Performance – June 2022

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



STATISTICAL INFORMATION

EMERGENCY AND NON-EMERGENCY EVENT NOTIFICATIONS FOR JUNE 2022

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.

	JUNE 2022		JAN - JUNE 2022		JAN - DEC 2021	
	EE	NEE	EE	NEE	EE	NEE
OYSTER CREEK	0	0	0	0	0	0
SALEM 1	0	0	0	0	0	0
SALEM 2	0	0	0	0	0	0
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 Bureau of Nuclear Engineering (BNE) conducts a comprehensive Radiological Environmental Monitoring Program (REMP) in the environs surrounding New Jersey's four nuclear generating stations. The program collected 59 samples during the month of June 2022. 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 review 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 at (609) 984-7443. Results of specific analyses can be obtained by request.

COUNT OF SAMPLES COLLECTED IN JUNE 2022

SAMPLE MEDIUM	NUMBER OF SAMPLES
AIR FILTER	28
AIR IODINE	12
MILK (Cow)	3
SURFACE WATER	8
AQUATIC BIOTA	4
AQUATIC SEDIMENT	4
TOTAL SAMPLES	59

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

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

During the month of June 2022, two (2) groundwater monitoring well samples were collected and shipped to the BNE's contract laboratory, GEL Laboratories, for radiological analysis.

NEES staff reviewed PSEG's Site-wide Tritium Management Program Quarterly Data Report for the first quarter of 2022. Trending graphs and tables were prepared for tritium results from seventy-nine (79) monitoring wells, monthly Seismic Gap drain tritium and gamma results for Salem Units 1 & 2, and weekly Spent Fuel Pool tritium results for Salem Units 1 & 2.

Contact: Jay Vouglitois (609) 984-7514

Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) Workgroup Meeting

Several staff members participated in a MARSSIM Workgroup meeting with the Bureau of Environmental Radiation and the U.S. EPA on June 29, 2022. The MARSSIM Workgroup was seeking additional background and context on comments submitted on MARSSIM, Revision 2. A copy of this document is available at: https://www.epa.gov/radiation/multi-agency-radiation-survey-and-site-investigation-manual-marssim. Comments on MARSSIM, Revision 2 can be obtained at: https://www.regulations.gov/search/comment?filter=EPA-HQ-OAR-2021-0276.

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

Holtec / Oyster Creek Plant Access Training

On June 8, 2022, a staff member completed Annual Site Access (Fitness for Duty / Access Authorization, Site Access, and Part 37 Radiation Worker) training at Oyster Creek. This allows the Nuclear Engineer unescorted access to the site.

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

Environmental Reports for Salem and Hope Creek Nuclear Generating Stations

NEES Staff performed technical reviews of the 2021 Annual Radioactive Effluent Release Report and the 2021 Radiological Groundwater Protection Program Report prepared by PSEG Nuclear for the Salem 1 & 2 and Hope Creek Nuclear Generating Stations. These reports are submitted to the U.S. Nuclear Regulatory Commission each year to document the results of PSEG Nuclear's radioactive effluent and radiological groundwater monitoring programs.

Contact: James J. Vouglitois (609) 984-7514

Oyster Creek Decommissioning Quarterly Update Meeting

On June 28, 2022, staff members from the Bureau of Nuclear Engineering (BNE) and the Bureau of Environmental Radiation (BER) participated in a tour of the Oyster Creek site hosted by the site owner, Holtec, regarding an update of the Industrial Site Recovery Act (ISRA) project at the Oyster Creek site in support of Decommissioning. The tour included a site walkdown of buildings already razed or in the process of being demolished. The BER is the lead agency regarding the NJDEP's decommissioning activities at the Oyster Creek site.

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 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, Oyster Creek ceased to generate power leading to a reduction in gaseous effluents. On September 25, 2018, the plant officially entered decommissioning.

In prior monthly reports, the BNE reported tritium results for a remedial pumping well that was part of the Oyster Creek liquid effluent groundwater extraction. In accordance with a NJDEP Directive and Notice to Insurers issued to Oyster Creek, former Oyster Creek owner Exelon Generation Corporation was required to clean up and remove tritium discharges released onsite from underground pipe leaks that occurred during 2009. 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. In a letter from the NJDEP to the HDI (current owner of Oyster Creek) Plant Manager of Oyster Creek on January 9, 2020, the DEP concurred that the Oyster Creek site had complied with the requirements outlined in paragraph 41 of the Directive and Notice to Insurers, thereby closing it out. Pumping Well MW-73 was placed out of service (Idle) and monitoring of this well was discontinued. Pumping has been terminated unless tritium activity is identified that would require restoration of groundwater extraction by returning MW-73 to service. Therefore, tritium results for pumping well MW-73 will no longer be reported by the BNE.
While the pump and treat remediation of tritium has been completed, HDI continues onsite groundwater monitoring as part of their Radiological Groundwater Protection Program. Additional information on the Oyster Creek tritium leak is available at the DEP website, http://www.state.nj.us/dep/rpp/bne/octritium.htm.

In addition to groundwater monitoring, it is necessary for Oyster Creek to process and discharge liquid effluents as a necessary activity during decommissioning of the site and eventual license termination. Radioactive liquid effluent discharged due to decommissioning activities will be monitored by HDI and reported in the licensee's "Annual Radiological Effluent Release Report". This report can be found on the USNRC website at: https://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html.

There were no controlled liquid effluent releases from Oyster Creek during the month of May 2022. Beginning in 2022, gaseous effluent data from Oyster Creek are reported by the licensee on a quarter-annual basis. The gaseous effluent data for the period from January through May 2022 were not available at the drafting of this report. However, the data shall be included in the BNE's July 2022 monthly report.

The May 2022 gaseous and liquid effluent release data for the Salem and Hope Creek nuclear plants have been included in this report.

Contact: Karen Tuccillo (609) 984-7443

PSEG Nuclear
Radioactive Effluent Releases[1]
Nuclear Environmental Engineering Section
For the Period of 05-01-22 to 05-31-22

Hope Creek Gaseous Effluents

Effluent		
Fission Gases	0	Ci
Iodines	0.00051	Ci
Particulates	0.000019	Ci
Tritium	27.0	Ci

Hope Creek Liquid Effluents

Effluent		
Fission Products	0.00057	Ci
Tritium	8.91	Ci

Salem Unit 1 Gaseous Effluents

Effluent		
Fission Gases	0.0065	Ci
Iodines	0	Ci
Particulates	0.000018	Ci
Tritium	28.6	Ci

Salem Unit 1 Liquid Effluents

Effluent		
Fission Products	0.00039	Ci
Tritium	118.0	Ci

Salem Unit 2 Gaseous Effluents

Effluent		
Fission Gases	.05310	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	17.0	Ci

Salem Unit 2 Liquid Effluents

Effluent		
Fission Products	0.00065	Ci
Tritium	135.0	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[2]
Nuclear Environmental Engineering Section
For the Period of 05-01-22 to 05-31-22[3]

Oyster Creek Liquid Effluents

Effluent		
Fission Products	No Release	Ci
Tritium	No Release	Ci

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

[2] 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.
[3] There were no scheduled controlled liquid discharges during the month of May 2022

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 June:

Artificial Island CREST System Ambient Radiation Levels June 2022 Derived From One Minute Averages UNITS = mR/Hr				
AI1	AI2	AI3	AI4	AI5
.0063	.0064	.0070	.0063	.0065
AI6	AI7	AI8	AI9	AI10
.0066	.0055	.0054	.0073	.0051

Oyster Creek CREST System Ambient Radiation Levels June 2022 Derived From One Minute Averages UNITS = mR/Hr			
OC1	OC2	OC3	OC4
.0039	.0054	.0057	.0048
OC5	OC6	OC7	OC8
.0054	.0055	.0046	.0050
OC9	OC10	OC11	OC12
.0057	.0082	.0055	.0055
OC13	OC14	OC15	OC16
.0054	.0053	.0050	.0054

**** indicates insufficient valid data

Contact: Ann Pfaff (609) 984-7451

Meeting with New Jersey Office of Emergency Management

On June 6, 2022, Assistant Director Mulligan and Manager Pfaff met with New Jersey Office of Emergency Management's Radiological Emergency Planning and Technical Unit to consider multiple topics of shared interest. Included in the discussions were the Memorandum of Understanding with NJ Department of Health on the use and distribution of potassium iodide (KI) during a nuclear emergency; State Police's SOP 201 for Notification; Oyster Creek Nuclear Generating Station notifications and drills; Cumberland County Reception Center exercise on June 29, 2022; drill for training purposes; wind port project; scenario development parameters and expectations; emergency worker dose racking and limit extension; post-plume planning.

Contact: Ann Pfaff (609) 984-7451

NRC Webinar on Annual Assessment of Salem 1&2 and Hope Creek

On June 8th, 2022, staff attended a public webinar hosted by the NRC to present its assessment of the safety performance of ten (10) nuclear generating stations in NRC Region I for 2021, including Salem and Hope Creek. The NRC provided background concerning the Reactor Oversight Process (ROP) and the inspection activities and other information that the ROP uses to assess the performance of a nuclear generating station. The NRC determined the performance at Salem and Hope Creek were within the Licensee Response Column of the Reactor Oversight Process because all inspection findings had very low safety significance (i.e., Green), and all Performance Indicators (PI) were within the expected range (i.e., Green). A plant in the Licensee Response Column requires the least amount of NRC oversight.

Contact: Ann Pfaff (609) 984-7451

Licensee EP Meeting

On June 13, 2022, NEPS staff held their monthly emergency preparedness meeting with Holtec/CDI, PSEG and NJOEM on Microsoft Teams. Discussion topics included: updates on the decommissioning of Oyster Creek; planning for the 2024 Hostile Action Based exercise; electronic transmission of Initial Contact Messages Forms (ICMFs); siren upgrades; stakeholder calendar review; needed training courses, including hosting of the FEMA Radiation Accident Assessment Course (RAAC).

Contact: Ann Pfaff (609) 984-7451

Cumberland County Reception Center Exercise

On the evening of June 29, 2022, Assistant Director Mulligan, Manager Pfaff and Nancy Stanley of the Bureau of Environmental Radiation supported the New Jersey Office of Emergency Management's Radiological Emergency Planning and Technical Unit's participation in an exercise of the Cumberland County's Community Reception Center. Recently combined with its Emergency Worker Decontamination Center, this is the first in-person full scale exercise since 2019. More than one hundred volunteers from local fire departments and law enforcement

offices worked through the Standard Operating Procedures for welcoming, scanning, decontaminating and registering members of the public as well as emergency workers during a postulated accident at Salem/Hope Creek Nuclear Generating Stations. New Jersey Office of Emergency Management staff from across the state supported as evaluators while County HazMat staff provided technical support and Department of Corrections staff served as members of the public. DEP's radiation Protection Program staff served as subject matter experts to offer guidance and feedback on improving the SOPs and response.

Contact: Ann Pfaff (609) 984-7451