

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

MAY 1 THROUGH MAY 31, 2022

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

FDA Office of Regulatory Affairs (ORA) RFP Question and Answer Session

On May 10, Bureau staff participated in FDA Office of Regulatory Affairs (ORA) RFP Question and Answer Session on the Solicitation & Request for Proposal 5-yr Contract.

Hope Creek FEMA Graded Exercise

On May 10, Bureau staff participated in the Hope Creek FEMA Graded Exercise at the Field Command Center.

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
\$11,623.00	\$18,488.00	\$3,128,905.00	\$3,114,767.00	\$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%	0
G-L	N/A	51%	76%	88%	96%	98%	99%	99%	100%	100%	100%	0
M-R	N/A	N/A	50%	74%	87%	95%	97%	98%	99%	100%	100%	0
S-Z	N/A	N/A	N/A	34%	73%	86%	94%	97%	99%	100%	100%	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, 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	0	220
Terminated Facilities	25	18	26	39	29	38	23	33	45	21	17	0	314
Net Change (Facilities)	-12	-4	-10	-16	-13	-18	-1	-15	-9	-1	5	0	-94
New Registrations	164	188	144	163	171	157	176	202	184	161	161	0	1871
Stored Registrations	62	34	37	53	59	79	47	59	100	42	23	0	595
Disposed registrations	84	88	82	95	85	85	79	90	113	78	92	0	971
Net Change (Machines)	18	66	25	15	27	-7	50	53	-29	41	46	0	305

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 in order to achieve high quality diagnostic x-ray images while simultaneously maintaining/reducing patient radiation exposure to acceptable levels. As part of the Bureau's inspections, image quality and patient radiation exposure metrics are gathered and evaluated as an indicator of facility performance. These measurables are reported to the facility along with the results of similar facilities performing similar x-ray studies.

Image Quality

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

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

In May 2022, IQ evaluations were performed on 69 x-ray units with the following results:

- 55 units (80%) had excellent image quality scores.
- 14 units (20%) 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 May 2022, ESE measurements were calculated on thirty-nine x-ray units that performed lumbo-sacral spine x-rays. Zero units (0%) had extremely high ESE measurements.
- In May 2022, ESE measurements were calculated on twenty-eight x-ray units that performed chest x-rays. Zero units (0%) had extremely high ESE measurements.
- In May 2022, ESE measurements were calculated on three 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 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 May 2022, ESE measurements were calculated on sixty-two dental x-ray units that used DR digital imaging. Seven units (11%) were measured as having extremely high ESE.
- In May 2022, ESE measurements were calculated on fifteen dental x-ray units that used CR (PSP) digital imaging. One unit (7%) was measured as having extremely high ESE.
- In May 2022, ESE measurements were calculated on five dental x-ray units that used D speed film. Zero units (0%) were measured as having extremely high ESE.
- In May 2022, ESE measurements were calculated on ten 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 May 2022, 24 amalgam questionnaires were collected. The total dental amalgam questionnaires collected for FY2022 is 550.

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

Radiologic Technology Board of Examiners Meeting - Major Outcomes:

The Board met remotely via Microsoft TEAMS on May 12, 2022. Minutes of the meeting will be made available on the Bureau website once accepted by the Board at a future meeting. This meeting resulted in 104 activities and letters/reports to be written. A full summary of the meeting is available upon request. The following are highlights of some major issues discussed at this meeting:

- Reviewed 2021 American Registry of Radiologic Technologists (ARRT) diagnostic general radiography examination results. There were 253 first-time examinees from NJ programs. New Jersey's mean score was 83.2 and the passing percentage was 87.4%. New Jersey's first-time mean score and passing percentage continue to be above the ARRT's national values. One school had a passing percentage below the Board's Standard of 75%. Additional examination analysis is available upon request.
- Reviewed 2021 ARRT radiation therapy examination results. There were 24 first-time examinees from NJ programs. New Jersey's mean score was 84.5 and the passing percentage was 95.8%. New Jersey's first-time mean score and passing percentage continue to be above the ARRT's national values. No school had a passing percentage below the Board's Standard of 75%. Additional examination analysis is available upon request.
- Reviewed 2021 Dental Assisting National Board's Radiation Health and Safety (RHS) examination results. There were 343 first-time examinees from NJ programs. New Jersey's mean score was 458 and the passing percentage was 82.5%. A score of 400 is needed to pass the examination. New Jersey's first-time mean score and passing percentage continue to be above the DANB's national values. One program had a passing percentage below the Board's standard of 75%. Additional examination analysis is available upon request.
- Reviewed the past criminal convictions of an applicant applying for a license in dental radiologic technology. The Board found that the applicant submitted sufficient evidence of rehabilitation and current good moral character and that her past convictions would not preclude her from obtaining a license, once she can document competent work experience in performing dental radiography procedures.

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	\$0	\$0	\$320	\$320
Initial Licenses	\$6,360	\$5,100	\$72,960	\$70,680
Renewal Licenses	\$450	\$1,800	\$12,600	\$41,400
Totals	\$6,810	\$6,900	\$85,880	\$112,400

Contact: Al Orlandi (609) 984-5890

E. MAMMOGRAPHY SECTION

Stereotactic Facilities Inspected

The Mammography Section inspected 7 facilities with a stereotactic/needle localization breast biopsy unit during the month of May. A total of 44 of the 57 planned stereotactic facility inspections have been performed since July 1, 2021.

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 26 facilities in May. A total of 208 of the 233 facilities scheduled to be inspected under the contract that expires on August 20, 2022. There were three facilities found to have non-compliance issues.

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 other manufacturers required QC tests were either not performed or acceptable results were not obtained.

- The compression device QC was not adequate because the QC test was not done at the required frequency.
- Failed to produce documents verifying if the radiologic technologist met the continuing education of having taught or completed at least 15 continuing education units in mammography in 36 months.

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

Contact: Mary Kanewski (609) 984-5370

F. BUREAU ENFORCEMENT SERVICES SECTION

Enforcement Actions for May 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 Department's NJEMS database system, it enters summary inspection information into NJEMS on all inspections conducted by the Bureau to provide more accurate inspection numbers for the Department's NJEMS reports. See the table below for current month and year to date information.

Inspections and Enforcement Documents Issued					
May 2022					
Bureau of X-Ray Compliance					
		Month	YTD		
	Compliance Inspections entered into NJEMS	45	342		
	Dental/CBCT Inspections entered into NJEMS	21	470		
Notice of Violations	Closed	Effective	Pending	Total	YTD
	7	0	5	12	133
Administrative Orders	Closed	Effective	Pending	Total	YTD
	0	0	10	10	181
Notice of Prosecutions	Closed	Effective	Pending	Total	YTD
	0	0	8	8	170
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
	\$4,000.00	\$84,350.00	\$74,400.00	\$19,450.00	\$93,850.00

Inspector: ALL
Discipline: ALL

Number of Inspections Performed

Inspection Type	Inspection Description	Facilities Inspected	Machines Inspected	Machines Audited	Machines Uninspected
1	ROUTINE INSPECTION	42	122		8
11	INVESTIGATION	8			
12	STEREOTACTIC INSPECTION	7	7		
15	QA INSPECTION ROUTINE LEVEL 1	19	70	167	
22	NON-QA INSPECTION - HOSPITALS	6	54		7
28	DENTAL CBCT INSPECTION	2	9		1
Total On-Site Inspections:				167	16
6	OFFICE VIOLATION RESPONSE REVIEW	32		51	
18	OFFICE QA VIOLATION RESPONSE REVIEW	14		16	
23	OFFICE TECH CERT INSPECTION	4		4	
30	DENTAL CBCT OFFICE REVIEW INSPECTION	8		18	
Total Office Inspections:		58		89	0

Number of Enforcement Documents Issued

NOV	8
AO	8
NOP	7
Amount of Penalties	\$2,750

Inspector: ALL
Discipline: ALL

Violation Code	Glossary Information	Description Non-Compliance	Number of Violations By Code
Violations Cited Non-QA			
Analytical			
A-002	21.6(a)1	Testing safety devices every six months.	11
A-006	8.1	Personnel monitoring records not available.	1
Cabinet			
C-006	17.7(c)	Requirements for film badges not met.	1
C-008	17.7(d)	Requirements for external radiation not met:	1
C-014	17.7(f)5	Requirements for safety interlock tests not met.	2
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	1
Registration			
REG1	3.1 (a) and (b)	Failed to register the ionizing radiation producing machine within 30 days of acquisition.	1
TC			
TC-001	19.3(c)	x-rayed humans without a valid NJ license	4
Total Violations Cited Non-QA			25
Violations Cited QA			
Quality Assurance			
QA-037	22.6(a)2	QC tests from Table 2 (Fluoroscopic) not performed at the required intervals.	4
QA-063	22.7(a)2	QC tests from Table 3 (CT) not performed at the required intervals.	2
Total Violations Cited QA			6
Total Violations			31

**APPENDIX A - TECHNOLOGIST EDUCATION AND LICENSING SECTION
MONTH OF MAY 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	31	3	3	47	-	-	-	-	84	1,133	1,100
Licenses Renewed	8	-	2	12	-	-	-	-	22	480	N/A
Total Licensed	9,472	970	864	11,654	48	16	5	97	23,126	23,126	N/A
Exams Scheduled	-	-	-	-	-	-	-	-	0	2	N/A
Investigations Conducted	-	-	1	1	-	-	-	-	2	32	30
Licenses Verified	20	10	4	189	-	-	-	-	223	4,655	7,000
Expired Licenses	1	-	-	1	-	-	-	-	2	8	N/A
Unlicensed	-	-	-	1	-	-	-	-	1	14	N/A
Enforcement Documents Issued	4	-	-	8	-	-	-	-	12	88	N/A
NEAs Issued	-	-	-	-	-	-	-	-	0	0	N/A
Offer of Settlement	\$450	-	-	\$1,650	-	-	-	-	\$2,100	\$28,800	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	13	8
School Inspections Conducted	-	-	-	2	-	-	-	-	2	3	4
Total Schools Reviewed	-	-	-	3	-	-	-	-	3	16	12
Curriculum Modifications Evaluated	-	-	-	2	-	-	-	-	2	22	20
Clinical Applications Approved	-	-	-	135	-	-	-	-	135	1,354	1,100

**Appendix A - Bureau of X-ray Compliance
Mammography Section
May 2022**

Type of Facility	INDUSTRY	PHYSICIAN	HOSPITAL	GOVERNMENT	TOTAL MONTH	FY TO DATE	TOTAL DUE THIS FY
MQSA							
Facilities Inspected	0	19	7	0	26	208	233
Machines Inspected	0	25	16	0	41	335	
FDA Violations Level 1	0	0	0	0	0	1	
FDA Violations Level 2	0	3	0	0	3	21	
Registered	0	2	0	0	2	28	
Canceled	0	2	0	0	2	42	
Stereotactic							57
Facilities Inspected	0	4	3	0	7	44	
Machines Inspected	0	4	3	0	7	45	
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

Woodbridge Township reached out to the Bureau of Environmental Radiation to assist with an investigation into alleged increased cancer incidents of former students at Colonia High School. A 1997 BER investigation into a radioactive rock found at the high school spurred the interest in potential radiation exposure as the source of the increased cancer cases. Woodbridge Township hired a radiation consultant to perform a radiological assessment of the high school and grounds. Staff of the BER reviewed the survey plan, quality assurance and quality control measures, and the final results of the survey and radon testing. The survey results indicated there were no levels outside of the natural variation in background. Radon in air levels in the school were all below DEP's guidance level of 4 pCi/L. The New Jersey Department of Health determined that the number of brain cancers was within the 95% confidence level of incidence of brain cancers in Woodbridge Township.

Brooke Richards, a student from Seton Hall University, has been selected to be the BER's intern for the summer. Brooke is a physics major (and fire fighter) and organized our recruitment meeting with the Student Physics Society at Seton Hall. We are looking forward to her contributions to our program.

B. RADIOACTIVE MATERIALS PROGRAM

During the month of May 2022, the Radioactive Materials Program responded to six (6) radiation incidents:

Date	Type of Incident	Description	Status
5/3/22	Scrap	On May 3, 2022, BER was notified that a load of scrap metal was rejected at a recycler in Jersey City. The load originated from the New York Dept. Of Sanitation in Staten Island. DOT SP 10656 NJ-NY-22-01 was issued, permitting the load to return to NY. Officials in NYC were notified.	Closed
5/4/22	Trash	On May 4, 2022, BER was notified that a load of municipal solid waste was rejected at an incinerator in Newark. The load originated from the New York Dept. Of Sanitation in Staten Island. DOT SP 11406 NJ-NY-22-03 was issued, permitting the load to return to NY. Officials in NYC were notified.	Closed
5/6/22	Trash	A load of MSW was rejected at a NJ incinerator facility. DOT SP 11406 was issued for the load to return to its origin at the DSNY in Staten Island, NY.	Closed

5/12/22	Other	BER received telephone notification from a reciprocity licensee regarding a truck that overturned; it was hauling soils from an LSRP oversight case. All soil/waste from the overturned truck has now been transferred to railcar at a transload facility in PA and headed to the disposal site, US Ecology Michigan. Surveys documented no residual radioactivity at the accident location, or on trucks and equipment involved in the accident cleanup. The truck contents were generally low level TENORM.	Closed
5/17/22	Trash	On 5/17/2022, RMP staff was notified about a load of MSW that set off the detectors at an incinerator in Newark. The load was initially returned to its origin, also in Newark, and was subsequently scanned again without issue.	Closed
5/25/22	Scrap	RMP staff was informed that a load of scrap was rejected at a scrap facility in Newark. A DOT SP was issued so the roll off container could return to its point of origin, a demolition site in Newark. The material was described as pipes removed from an old building. RMP staff spoke with the contractor and their consultant and determined that the material is likely pipe scale. The material is safely secluded in a corner of the demo site.	Pending

Contact: Nancy Stanley (609) 984-5452

C. ROUTINE ACTIVITIES

	This Month 5/1/22-5/31/22	FY-To-Date 7/1/22-5/31/22
Number of Amendments Processed	15	239
Number of Renewals Processed	7	65
Number of Initial Applications Processed	1	13
Number of Active Licenses	558	558
Number of Terminations	1	7
Number of Reciprocity Requests Received	25	276
Number of Incidents	6	31
Number of Inspections	10	117

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. Seven sources on the databases were verified during May.

Staff continues to maintain entry of quarterly reports from manufacturers and distributors into the generally licensed database. No reports were received reflecting quarterly transactions. Generally Licensed Device Registration Forms continue to be maintained. A total of 48 registrations are currently active.

Contact: Sarah Sanderlin (609) 984-5466

D. SUMMARY OF ENFORCEMENT – MAY 2022

Bureau of Environmental Radiation – By Month (5/1/2022 -5/31/2022)				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	0	1	2	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	2	2
Radon Section	0	0	2	2
Bureau of Environmental Radiation – Fiscal Year to Date 7/1/2021 - 5/31/2022				
Administrative Orders				
	Closed	Effective	Pending	Total
Radioactive Materials Section	11	1	2	13
Radon Section	0	1	4	5
Notice of Prosecution				
	Closed	Effective	Pending	Total
Radioactive Materials Section	4	1	0	5
Radon Section	0	1	1	2

Notice of Violations				
	Closed	Effective	Pending	Total
Radioactive Materials Section	8	3	2	13
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 5/1/2022 - 5/31/2022		Amount Collected from 5/1/2022 - 5/31/2022	
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 19 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 11 technical reports/referrals and 1 Decommissioning Financial Assurance submission. Staff worked on the following sites/projects:

- City of Vineland Water Utility
- Heritage Minerals site in Manchester
- Howmet site in Dover
- Jacobus Pharmaceutical / Industrial Reactor Laboratory in Plainsboro
- Maywood FUSRAP Site
- MEL Chemicals in Kingwood
- Middlesex Industrial Center

- National Lead site in Sayreville
- Phelps Dodge Site in Elizabeth
- PSEG Fossil Mercer Generating Station in Hamilton
- Rutgers Camden License Termination
- Shieldalloy Metallurgical Corporation site in Newfield

Contact: James McCullough 609-984-5480

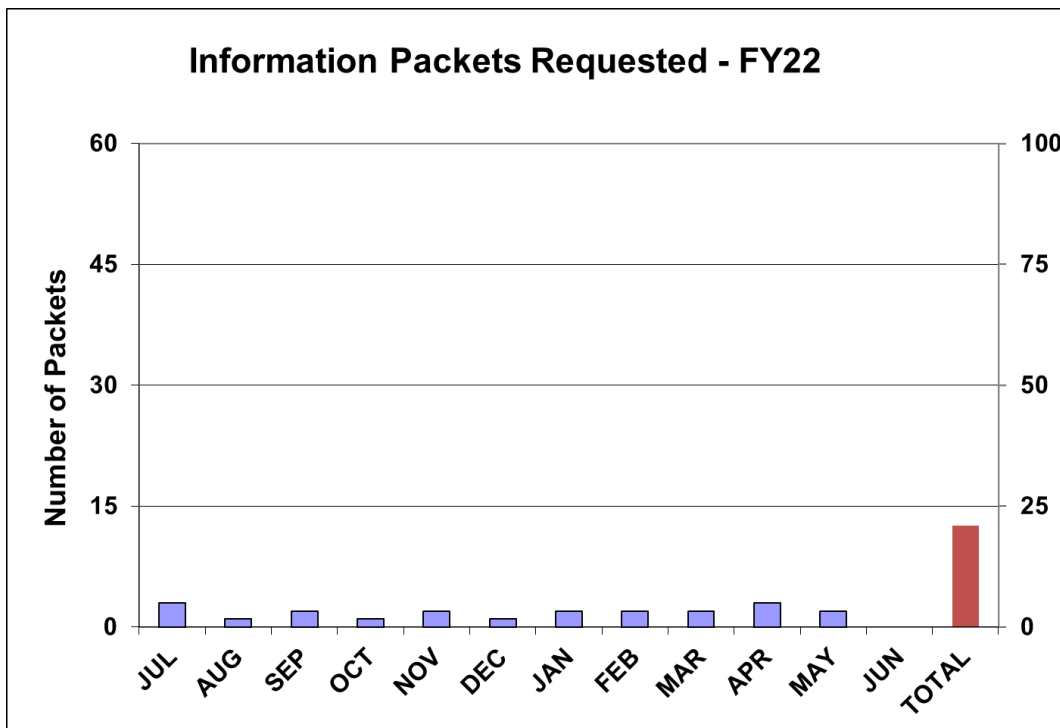
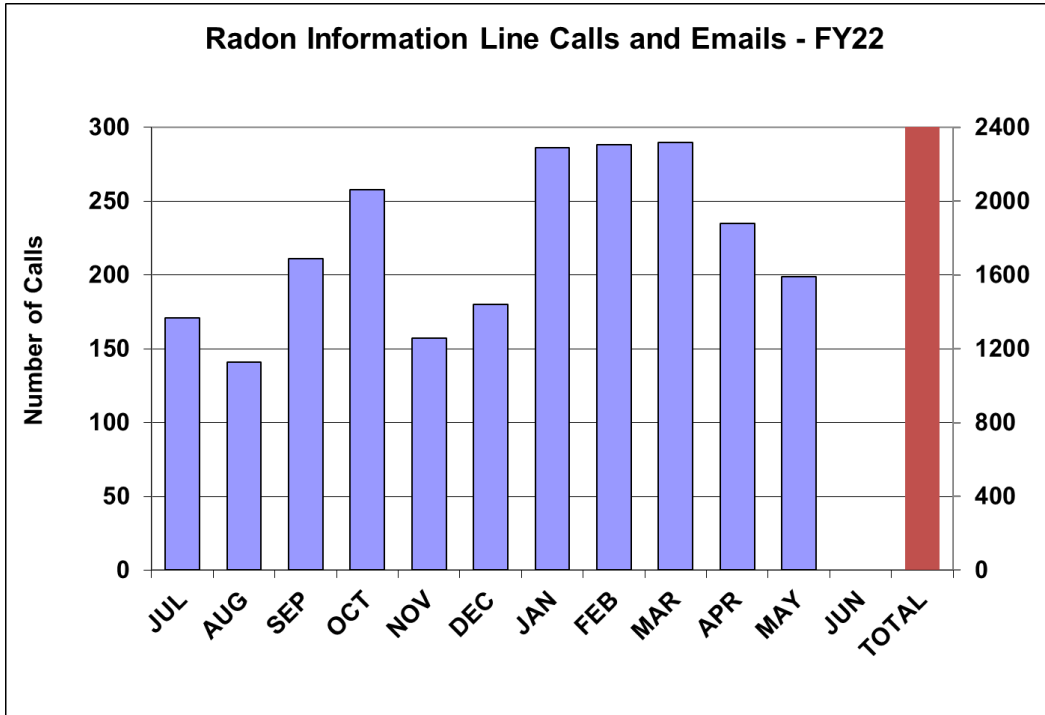
F. RADON SECTION

Measurement and Mitigation Radon Certifications

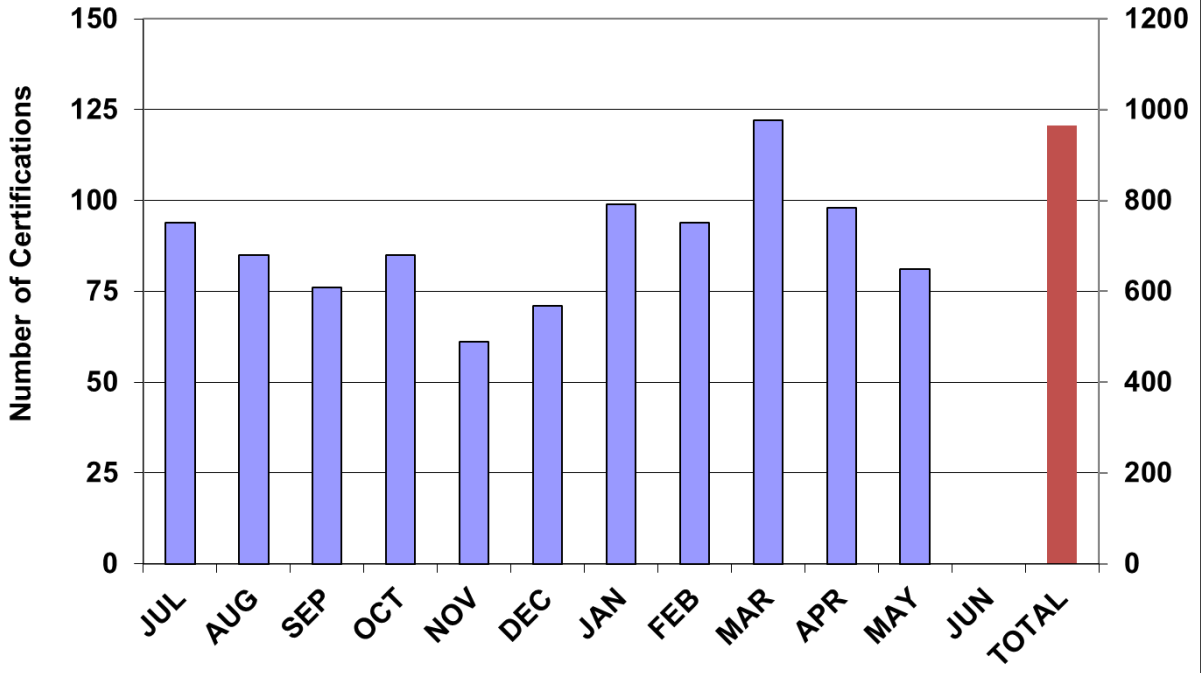
Certification Type	Initial	Renewal
MES		3
MET	9	55
MIS	1	4
MIT		1
MEB		1
MIB		7

Contact: Anita Kopera (609) 984-5543

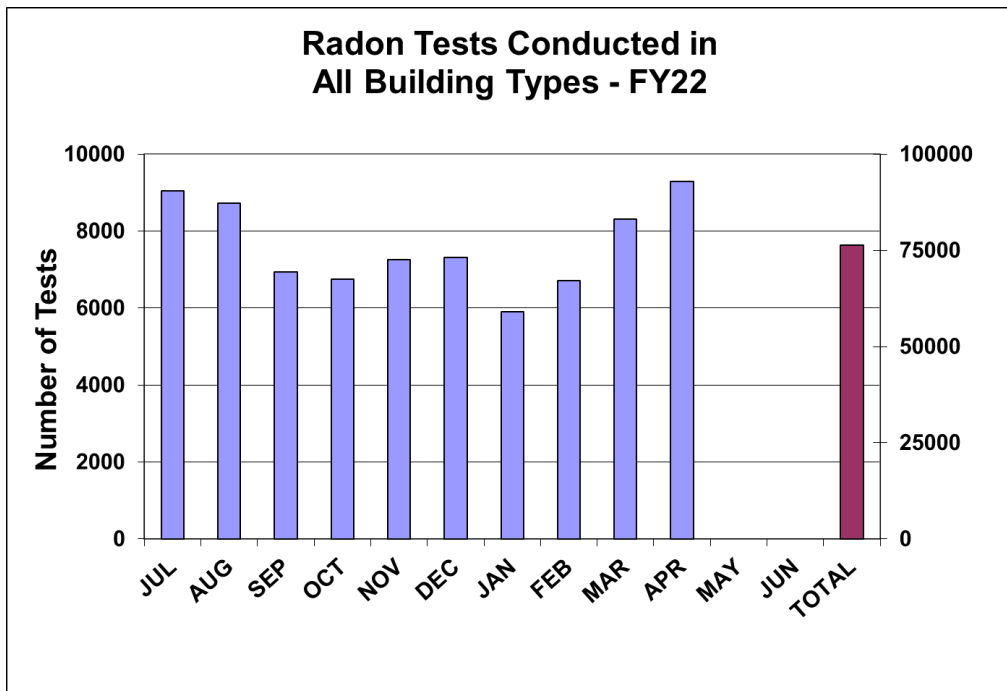
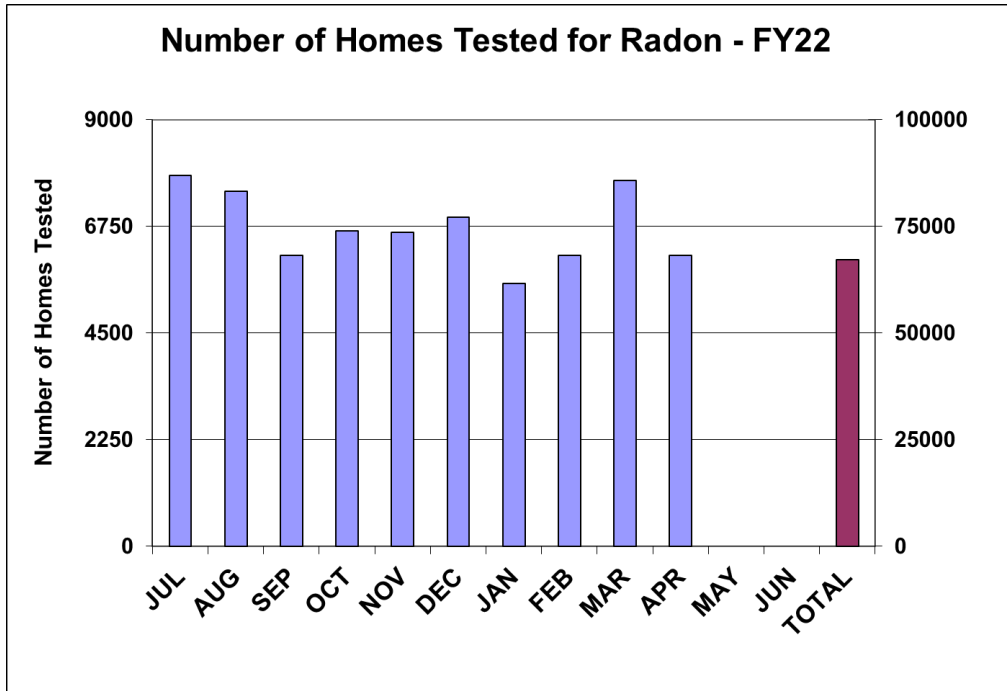
APPENDIX B: BUREAU OF ENVIRONMENTAL RADIATION SUMMARY OF STATISTICS

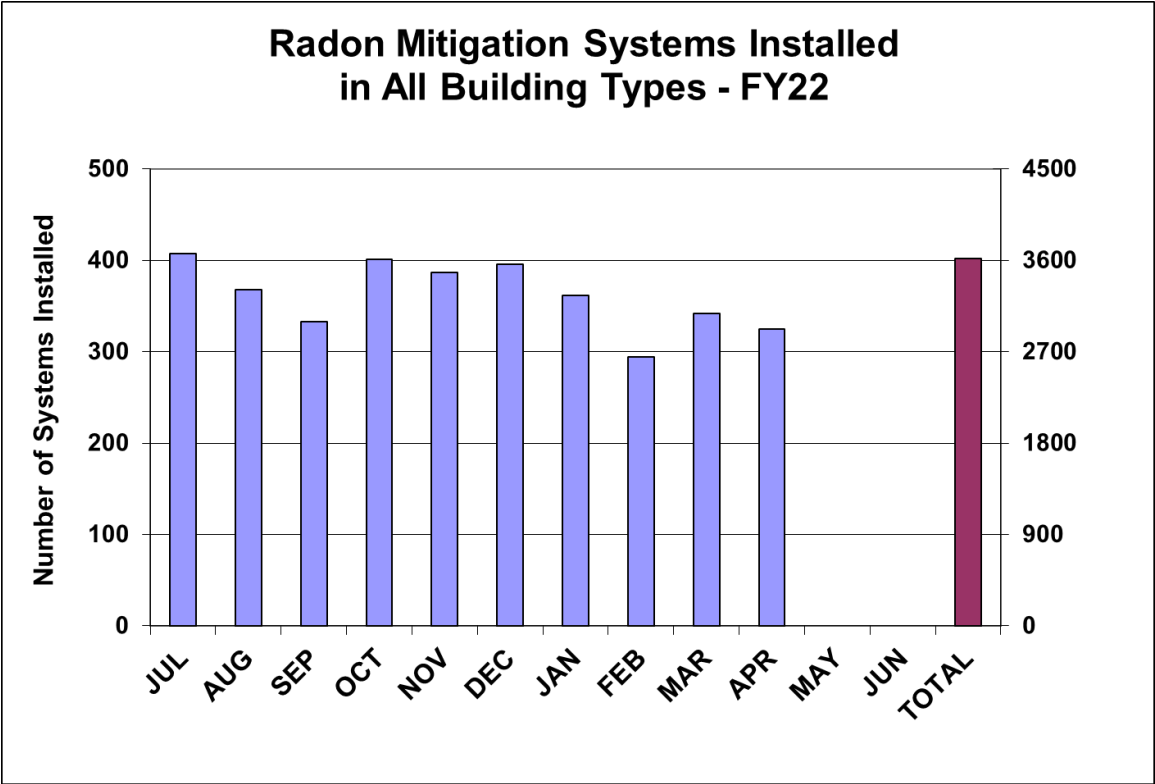
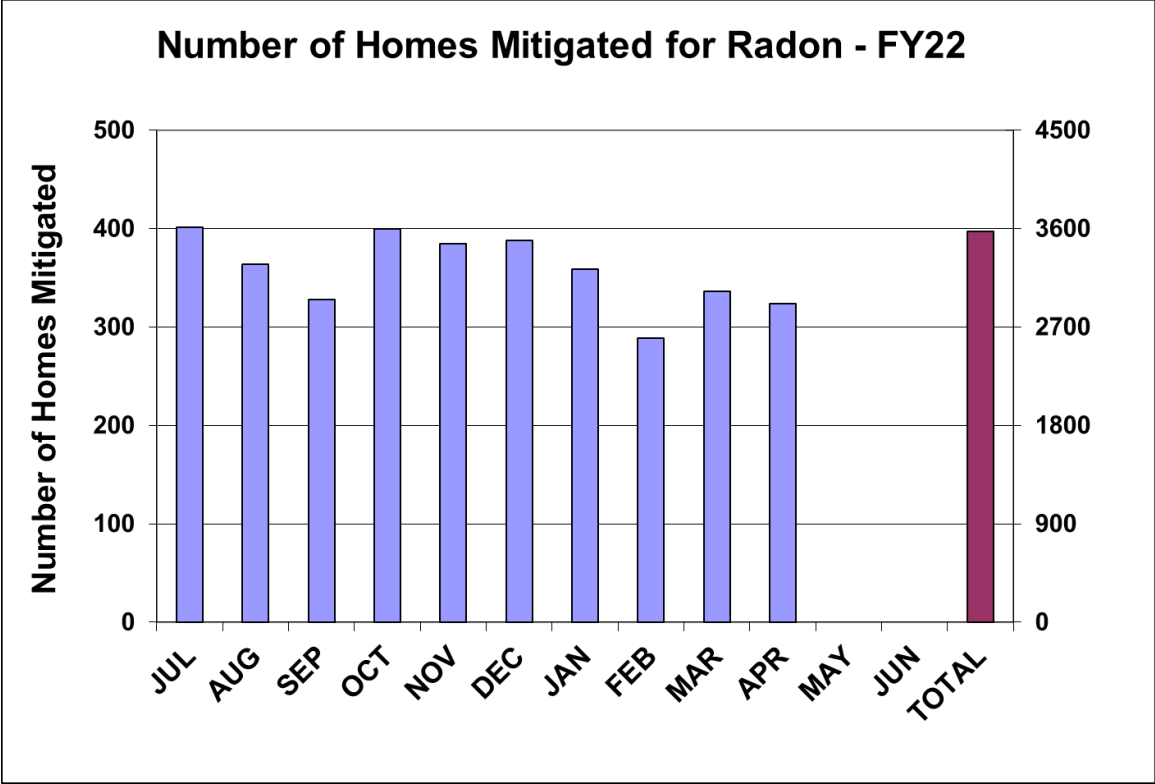


Radon Certifications Issued - FY22



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 April 2022 are due by June 1, 2022.





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 are 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 into smaller pieces is in progress.

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 May 11th and May 31st to discuss decommissioning activities with HDI personnel.

Contact: Veena Gubbi (609) 984-7457

Hope Creek

Hope Creek ran at essentially full power throughout May, with the following exceptions: Power was reduced to 97% on the following days to perform scheduled reactor control rod pattern adjustments: May 6th, 13th, 20th and 27th. Power was returned to 100% later each day.

Contact: Veena Gubbi (609) 984-7457

Salem Unit 1

On April 9th plant operators conducted a planned manual shutdown of the unit to begin its 28th refueling outage (S1R28). On May 18th, Salem 1 synchronized the main generator to the offsite grid, thus ending the 28th Refueling Outage. Salem Unit 1 ran at an average power of 39% in May. Salem Unit 1 ran at 100% power starting May 23rd.

Contact: Jacob Fakory (609) 984-7458

Salem Unit 2

Salem Unit 2 ran at essentially full power throughout May.

Contact: Jacob Fakory (609) 984-7458

BNE Activities at Artificial Island

The NES Staff and NES Supervisor virtually attended various Salem 1 Outage Control Center (OCC) briefings every day in order to be aware of the ongoing status of the S1R28 Refueling Outage.

Contact: Jerry Humphreys (609) 984-7469

NES Staff Attends Quarterly Status Meeting with Holtec

On May 9th, the Assistant Director of the Radiation Protection Element, the BNE Manager, the BNE NES Supervisor, and one NES Engineer participated in a “Teams” meeting with representatives of Holtec’s Decommissioning Management Team to discuss ongoing decommissioning activities at Oyster Creek. Holtec provided an overall summary of the ongoing decommissioning activities which included spent fuel pool rack removal, reactor vessel internal segmentation, site characterization, structural demolition, wastewater processing and the spent fuel dry cask inspections in accordance with the aging management program for the casks. Holtec stated that it continues to brief the local community through scheduled stakeholder meetings. According to Holtec, decommissioning activities are on track per the decommissioning schedule. The decommissioning fund continues to be adequate for completing the Oyster Creek decommissioning.

Contact: Veena Gubbi (609) 984-7457

NRC Performs Inspection of Salem Unit 1 and 2 Radiological Hazard Assessment and Exposure Controls Inspection

On May 2nd to 6th, the NRC performed the Salem Unit 1 and 2 Radiological Hazard Assessment and Exposure Controls Inspection. This inspection was conducted in accordance with NRC Inspection Procedure (IP) 71124.01- “Radiological Hazard Assessment and Exposure Controls”. The inspection assessed the effectiveness of the licensee’s program in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure controls. The inspection assessed the effectiveness of the licensee’s program for properly identifying and reporting Performance Indicators (PIs) for the Occupational Radiation Safety Cornerstone and Problem Identification and Resolution. One (1) NES Engineer observed the inspection onsite.

Contact: Jacob Fakory (609) 984-7458

NES Staff Attends NRC Teleconferences/Webinars

NRC Teleconference on Proposed Rulemaking on Independent Spent Fuel Storage Installation (ISFSI) Security Requirements

On May 24th, the NRC held a virtual meeting to discuss the NRC staff's development of a Commission paper presenting options for a proposed rulemaking on the ISFSI security requirements. The purpose of this meeting was to gather comments from stakeholders and the public. Two (2) NES Engineers and NES Supervisor attended the meeting.

Contact: Jerry Humphreys (609) 984-7469

NRC Teleconference to discuss integrity of reactor pressure vessel, reactor vessel internals, and piping

On May 26th, the NRC held a virtual public meeting to exchange technical information related to industry materials program related to integrity of reactor pressure vessel, reactor vessel internals and piping. The NRC provided its perspective on performance monitoring, successive examinations, and surveillance programs. The Electric Power Research Institute (EPRI) provided industry's perspective. One (1) NES Engineer attended the meeting.

Contact: Veena Gubbi (609) 984-7457

NRC Pre-Submittal Teleconference to discuss PSEG's Upcoming License Amendment Request (LAR)

On May 26th, the NRC held a license amendment pre-submittal meeting with PSEG. The purpose of the meeting was to discuss the license amendment submittal request to extend the Emergency Diesel Generator Allowed Outage Time to 14 days for Salem Nuclear Generating Station Units 1 and 2. The purpose of the meeting was to provide PSEG an opportunity to describe the proposed amendment and to establish understanding of the scope of request and the schedule. PSEG is planning to submit the License Amendment Request (LAR) to the NRC by end of June. Following PSEG's presentation, the NRC staff asked questions seeking clarification from the PSEG team concerning certain aspects of the upcoming submittal. Two (2) NES Engineers attended the meeting.

Contact: Jacob Fakory (609) 984-7458 or 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 May 3rd, the NTSF Planning Committee held a virtual meeting. The Northeast (NE) Task Force will be the host of the 2022 Annual NTSF Meeting scheduled to be held in Philadelphia in June 2022. Agenda deadline, registration, and moderators/coordinators for the 2022 meeting were discussed by the representative from the NE Task Force. Preliminary discussions for the 2023 annual meeting continued with a review of proposed cities for the 2023 meeting location. The Midwestern Radioactive Materials Transportation Committee (MRMTC) will host the 2023 meeting. The NES Supervisor attended the meeting.

Contact: Jerry Humphreys (609) 984-7469

Northeast Task Force Meeting

On May 23rd, co- chairs of the Northeast Task Force held a virtual meeting to discuss the logistics for the upcoming Northeast States meeting to be held on Tuesday during the Annual NTSF Meeting. Co-chairs finalized the agenda and the meeting details. The NES Supervisor attended the meeting.

Contact: Jerry Humphreys (609) 984-7469

Vermont Yankee Nuclear Decommissioning Citizens Advisory Panel (NDCAP) Holds Public Webcast

On May 9th, the Vermont Yankee NDCAP held a virtual public meeting. NorthStar (owner of Vermont Yankee) provided an overview of the decommissioning projects: reactor vessel segmentation; reactor building equipment demolition; removal of service water pumps and circulating water pumps; discharge structure demolition; waste transport operations; and non-radiological site characterization. The representative from the Vermont Department of Public Service (PSD) provided its role in the decommissioning process: annual reporting requirements;

annual public certification; financial updates on nuclear decommissioning trust fund and site restoration trust fund. The representatives from the Agency of Natural Resources (ANR) and Vermont Department of Environmental Conservation (DEC) provided an update on the quarterly groundwater sampling for non-radiological contaminants; environmental monitoring and other DEC programs and permits required for decommissioning. Following the presentations, questions and concerns from the panel members were addressed by the presenters.

A panel member provided updates on the advisory opinion for the DOE's consent-based citing; Deep Isolation project; and dry storage cask system. After the panel question and answer session, questions, and concerns from the members of the public were heard. On May 13th, one (1) NES Engineer watched the recording of the meeting.

Contact: Veena Gubbi (609) 984-7457

Vermont Yankee Nuclear Decommissioning Citizens Advisory Panel's (NDCAP) Federal Nuclear Waste Policy Committee Holds Public Meeting

On December 7th, 2020, the NDCAP voted to create a Federal Nuclear Waste Policy Committee to take a deeper look at current and potential policies on nuclear waste (spent nuclear fuel) and to provide information to the NDCAP concerning the spent fuel storage and disposal issues in the United States. The Committee will develop recommendations on the nuclear waste policies for the full panel to consider.

On May 23rd, the Federal Nuclear Waste Policy Committee held a virtual public meeting. Representatives from Holtec provided an overview of Holtec International; worldwide acceptance of Holtec's dry storage and transport system; history of dry storage of spent fuel at Vermont Yankee; Holtec's HI-STORM 100 system; Holtec's proposed Consolidated Interim Storage Facility in New Mexico; and Holtec's Aging Management Program for spent fuel casks. Following the presentation, questions and concerns from the panel and the public were addressed by the Holtec representatives. On May 26th, one (1) NES Engineer watched the recording of the meeting.

Contact: Veena Gubbi (609) 984-7457

NES Staff Support the Maintenance of the BNE Continuous Radiological Environmental Surveillance Telemetry (CREST) Monitors Surrounding

On May 25th, one (1) NES Engineer and the NES Supervisor provided security escort services for the BNE contractor performing maintenance activities on the three CREST monitors surrounding the Independent Spent Fuel Storage Facility (ISFSI) located north of Hope Creek on Artificial Island.

Contact: Jerry Humphreys (609) 984-7469

Radioactive Materials Shipment Notifications

The Bureau of Nuclear Engineering is responsible for tracking certain radioactive materials that are transported in New Jersey. Advance notification for these radioactive materials is in three categories: 1) Spent Fuel and Nuclear Waste; 2) Highway Route Control Quantity Shipments; and 3) Radionuclides of Concern. Each category must meet certain packaging and notification requirements established by the federal government. Following is a table representing the number of shipments completed in May 2022:

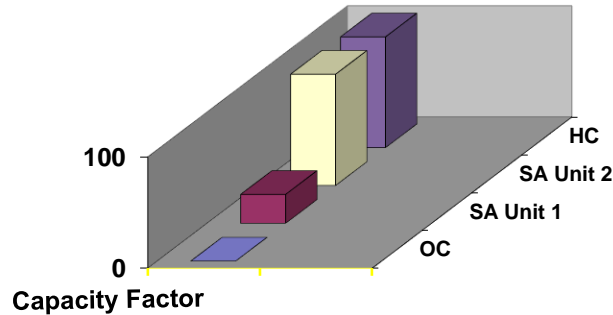
Spent Fuel and Nuclear Waste	Highway Route Control Quantity Shipments	Radionuclides of Concern
0	1	0

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

BUREAU OF NUCLEAR ENGINEERING

Plant Operating Performance – 1

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



STATISTICAL INFORMATION

EMERGENCY AND NON-EMERGENCY EVENT NOTIFICATIONS FOR MAY 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.

	MAY 2022		JAN - MAY 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 61 samples during the month of May 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 MAY 2022

SAMPLE MEDIUM	NUMBER OF SAMPLES
AIR FILTER	28
AIR IODINE	12
AIR PARTICULATE COMPOSITE	1
MILK (Cow)	3
SURFACE WATER	11
AQUATIC BIOTA	3
VEGETABLE	3
TOTAL SAMPLES	61

Air Sampler Calibration / Maintenance

Annual calibration and maintenance of the BNE's environmental air sampling network was performed by staff and the BNE's contractor, Najarian Associates, during the week of May 16, 2022, and included refresher training for Najarian's technicians. The purpose of the annual calibration is to maintain manufacturer specifications of the air samplers and flow meters, thus ensuring accurate environmental air sampling results for the environs of the New Jersey's nuclear power generating stations.

Contact: Compton Alleyne (609) 984-7455

Document Review

- Holtec Decommissioning International, “Annual Radioactive Effluent Release Report 2021”, Oyster Creek Nuclear Station, April 28, 2022.
- Holtec Decommissioning International, “Annual Radioactive Environmental Operating Report for 2021, Oyster Creek Nuclear Station, April 28, 2022.
- PSE&G Nuclear, LLC, “Annual Radiological Environmental Operating Report 2021”, Salem and Hope Creek Generating Stations, May 1, 2022.
- PSE&G Nuclear, LLC, “Annual Radioactive Effluent Release Report 2021”, Salem and Hope Creek Generating Stations, May 1, 2022.

All reports shall be made available to the public on the USNRC website at, <https://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html>

Contacts: Karen Tuccillo (609) 984-7443

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

During the month of May 2022, six (6) groundwater monitoring well samples were collected and shipped to the BNE’s contract laboratory, GEL Laboratories, for radiological analysis.

Contacts: Jay Vouglitois (609) 984-7514 or Karen Tuccillo (609) 984-7443

Update on Oyster Creek Tritium Monitoring

During the month of May 2022, nineteen (19) groundwater monitoring wells and one (1) surface water sample were collected as part of the semi-annual Groundwater Monitoring Program at the site and shipped to GEL Laboratories, LLC. Results of the groundwater (and surface water) analyses shall be available on the BNE website at:

<http://www.state.nj.us/dep/rpp/bne/bnedown/FinalOCH3.pdf>

Contacts: Paul E. Schwartz (609) 984-7539 or Compton Alleyne (609) 984-7455

Thermoluminescent Dosimetry (TLD) Program

During the week of May 23, 2022, a staff member performed the BNE/NEES Reader and QC TLD calibration with the support of contractor/vendor, ProxDose. The contractor/vendor also performed the annual maintenance of the TLD badge reader including mechanical issues and cleaning of internal parts. The purpose of the annual maintenance is to maintain peak data integrity and provide the most accurate data in the environs of the State’s nuclear power plants.

Contact: Compton Alleyne (609) 984-7455

Oyster Creek Decommissioning Quarterly Update Meeting

On May 17, 2022, staff members from the Bureau of Nuclear Engineering (BNE) and the Bureau of Environmental Radiation (BER) participated in a virtual meeting hosted by the site owner, Holtec regarding an update of the Industrial Site Recovery Act (ISRA) project at the Oyster Creek site. Holtec staff provided updates on (1) Decommissioning status / ongoing activities on-site, (2) Characterization planning, and the (3) License Termination Plan. The Bureau of Environmental Radiation 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

Conference of Radiation Control Program Directors (CRCPD) Board Meeting and 54th National Conference on Radiation Control

A staff member participated in the CRCPD's Spring Board meeting and 54th Annual National Conference on Radiation Control, as a member-at large, from May 12-May 20, 2022. The CRCPD is a nonprofit professional organization whose membership consists of state and local radiation control officials and others interested in the work of radiation protection in the public interest. Information on CRCPD can be obtained at the following website address:

<https://www.crcpd.org/default.aspx>.

Contact: Karen Tuccillo (609) 984-7443

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.

There were no controlled liquid effluent releases from Oyster Creek during the month of April 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 March 2022 were not available at the drafting of this report. However, the data shall be included in the June 2022 monthly report available in early July 2022.

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

**PSEG Nuclear
Radioactive Effluent Releases¹
Nuclear Environmental Engineering Section
For the Period of 04-01-22 to 04-30-22**

**Hope Creek
Gaseous
Effluents**

<u>Effluent</u>		
Fission Gases	0	Ci
Iodines	0.00046	Ci
Particulates	0.00001	Ci
Tritium	20.7	Ci

**Hope Creek
Liquid Effluents**

<u>Effluent</u>		
Fission Products	0.00019	Ci
Tritium	2.7	Ci

**Salem Unit 1
Gaseous
Effluents**

<u>Effluent</u>		
Fission Gases	0.0862	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	40.6	Ci

**Salem Unit 1
Liquid Effluents**

<u>Effluent</u>		
Fission Products	0.00149	Ci
Tritium	224.0	Ci

**Salem Unit 2
Gaseous
Effluents**

<u>Effluent</u>		
Fission Gases	0	Ci
Iodines	0	Ci
Particulates	0	Ci
Tritium	25.7	Ci

**Salem Unit 2
Liquid Effluents**

<u>Effluent</u>		
Fission Products	0.0039	Ci
Tritium	81.5	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 Releases²
Nuclear Environmental Engineering Section
For the Period of 04-01-22 to 04-30-22³**

Oyster Creek Liquid Effluents

<u>Effluent</u>		
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 April 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 May:

Artificial Island CREST System Ambient Radiation Levels May 2022 Derived From One Minute Averages UNITS = mR/Hr				
AI1	AI2	AI3	AI4	AI5
.0062	.0063	.0063	.0062	.0065
AI6	AI7	AI8	AI9	AI10
.0064	.0055	.0053	.0073	.0051

Oyster Creek CREST System Ambient Radiation Levels May 2022 Derived From One Minute Averages UNITS = mR/Hr			
OC1	OC2	OC3	OC4
.0038	.0054	.0058	.0047
OC5	OC6	OC7	OC8
.0053	.0055	.0047	.0050
OC9	OC10	OC11	OC12
.0057	.0069	.0054	.0054
OC13	OC14	OC15	OC16
.0052	.0053	.0050	.0054

**** indicates insufficient valid data

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Hope Creek FEMA Evaluated Exercise

On May 10, 2022, Radiation Protection Element staff joined the New Jersey State Police Office of Emergency Management (NJ OEM), Salem and Cumberland Counties, Delaware Emergency Management Agency (DEMA) and PSEG Nuclear LLC in a full-scale nuclear emergency response exercise. The offsite response organizations are being evaluated by FEMA Regions 2 & 3, while PSEG Nuclear LLC is evaluated by the NRC. Simulating an accident at Hope Creek Nuclear Generating Station, staff from the Bureaus of Nuclear Engineering (BNE), X-ray Compliance, Environmental Radiation, Emergency Response, Geographic Information Systems and Communications & Response Services, as well as National Guard 21st Civil Support Team, staffed the Emergency Operations Facility in Salem, Field Command Center in Ewing and State Emergency Operations Center and Joint Information Center both at the Regional Operations Intelligence Center in West Trenton for this biennial evening exercise. Three field monitoring teams were dispatched to collect simulated radiation readings. This is the first in-person federally evaluated nuclear emergency response exercise since May 2018, as the 2020 evaluated exercise was held on a virtual platform for the offsite response organizations due to the COVID public health emergency. Post exercise, FEMA indicated that all objectives for the Bureau of Nuclear Engineering's response were successfully met.

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Field Command Center Training

On May 3, 2022, NEPS provided training for the Field Command Center staff in preparation for the May 10th full scale Hope Creek Nuclear Emergency Response Exercise. The training focused on operations, use of electronic tools, communications and data sharing. It included a review of Standard Operating Procedures, use of new Teletrix equipment for radiation detection during exercises and implementation of CBRNResponder app for uploading field readings. New staff from the Radiation Protection Element attended the training to become familiar with exercise expectations.

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Field Monitoring Team Training

On May 4, 2022, NEPS provided field monitoring team training for staff participating in the May 10th full scale response exercise for Hope Creek Nuclear Generating Station. The training focused on field team operations and expectations. It included review of Standard Operating Procedures, Job Aides, use of new Teletrix equipment for radiation detection during exercises and implementation of CBRNResponder app for uploading field readings. It also reviewed use of the BNE's Nuclear Emergency Response vehicles and the radiation detection equipment installed to take real-time measurements.

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Controller Training

On May 4, 2022, NEPS staff provided training for Controllers supporting the May 10th Nuclear Emergency Response Exercise for Hope Creek Generating Station. The training reviewed use of the new Teletrix equipment for radiation detection during exercises and implementation of CBRNResponder app for uploading radiation readings collected by field monitoring teams. It also included a review of the scenario, meteorological forecast, updates to Standard Operating Procedures, associated forms and pertinent logistics for the exercise.

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Training for Emergency Operations Facility / Emergency Operations Center / Joint Information Center Staff

On May 4, 2022, NEPS provided training for staff supporting the Emergency Operations Facility, Emergency Operations Center and Joint Information Center in preparation for the upcoming May 10th Hope Creek Nuclear Generating Station Evaluated Exercise. The training focused on changes to procedures, use of electronic tools, data sharing, communications and exercise logistics. This is the first full-scale in-person FEMA and NRC evaluated nuclear emergency response exercise since May 2018, due to the COVID public health emergency.

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Meeting with Holtec/CDI on Oyster Creek Decommissioning

On May 9, 2022, Assistant Director of the Radiation Protection Element, Manager of Bureau of Nuclear Engineering and the Nuclear Engineering Section's Supervisor and dedicated engineer met with Site Vice President of Oyster Creek Nuclear Generating Station and his staff for their quarterly update meeting. Holtec discussed ongoing decommissioning activities at Oyster Creek and provided an overall summary of the work. Ongoing decommissioning activities include spent fuel pool rack removal, reactor vessel internal segmentation, site characterization, structural demolition, wastewater processing and cask inspections for aging management program. Holtec stated that it continues to brief the local community through scheduled stakeholder meetings. According to Holtec, decommissioning activities are on track per the decommissioning schedule. The decommissioning fund continues to be adequate for completing the Oyster Creek decommissioning.

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Farewell to Dan Salama

On May 11, 2022, Radiation Physicist Daniel Salama left the Bureau of Nuclear Engineering for a healthcare position in California. His contributions to the Nuclear Emergency Preparedness Section were significant and his absence will be felt. Dan ensured all preparations for the full-scale in-person nuclear emergency response exercise evaluated by FEMA were completed before his departure, and the exercise was successful.

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Webinar on Building a Framework for Post-Nuclear Accident Recovery Preparedness: National-level Guidance

On May 23, 2022, Bureau of Nuclear Engineering Manager attended a webinar hosted by the Nuclear Energy Agency (NEA) launching the newly released report, *Building a Framework for Post Nuclear Accident Recovery Preparedness: National Level Guidance*. The report was produced by the NEA's Expert Group on Recovery Management (EGRM). USEPA's Sara DeCair, who shepherded the publication of the updated Protective Action Guides (PAG) Manual, is Vice-Chair of the EGRM and the only American presenting in the webinar. The objective of the report is to assist NEA member countries in planning and improving their preparedness for recovery by providing guidance on how to develop a nuclear or radiological post-accident recovery management framework which is flexible and can be adapted to national conditions. The panel addressed questions from attendees and discussed topics of interest in greater depth.

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Nuclear/Radiological Communications Working Group Meeting

On May 25, 2022, Bureau of Nuclear Engineering Manager attended a Nuclear/Radiological Communication Working Group Meeting. Lauren Matakas of USEPA presented COVID-19 takeaways for radiation emergency and recovery planning. In 2020 and 2021, EPA radiation risk communication staff were mission-assigned to work on FEMA's Community Based Testing Sites and Community Vaccination Center efforts. Through extensive daily media analysis, EPA staff developed actionable recommendations to mitigate potential challenges, identify ways to increase testing and vaccination accessibility and monitor for future issues across the country. Staff used their experiences to identify gaps in nuclear/radiological emergency planning. Working group participants had opportunity to ask questions and further discuss key issues following the presentation.

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