



Exelon Generation®

Oyster Creek
Route 9 South
P.O. Box 388
Forked River, NJ 08731

10 CFR 50.36a(a)(2)
10 CFR 72.44 (d)(3)
Technical Specification 6.9.1.d

RA-18-047

April 30, 2018

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555 - 0001

Oyster Creek Nuclear Generating Station
Renewed Facility Operating License No. DPR-16
NRC Docket No. 50-219

Independent Spent Fuel Storage Facility
NRC Docket No. 72-15

Subject: Annual Radioactive Effluent Release Report for 2017

Enclosed with this cover letter is the Annual Radioactive Effluent Release Report for the period January 1 to December 31, 2017. This report includes the Oyster Creek Nuclear Generating Station Independent Spent Fuel Storage Facility.

If any further information or assistance is needed, please contact Kevin Wolf, Chemistry Manager, at 609-971-4051.

Sincerely,

Michael J. Gullin for T. Moore

Timothy A. Moore
Site Vice President
Oyster Creek Nuclear Generating Station

Enclosure: 2017 Annual Radioactive Effluent Release Report

cc: Administrator, USNRC Region I
USNRC Senior Project Manager, Oyster Creek
USNRC Senior Resident Inspector, Oyster Creek
Craig Stewart, American Nuclear Insurers

IE48
NMSS 26
NRR
NMSS



Annual Radioactive Effluent Release Report

2017

Oyster Creek Generating Station

Oyster Creek 2017 Annual Radioactive Effluent Release Report

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

January 1, 2017 through December 31, 2017

EXELON GENERATION COMPANY, LLC

OYSTER CREEK GENERATING STATION

DOCKET NO. 50-219 (Oyster Creek Generating Station)

DOCKET NO. 72-15 (Independent Spent Fuel Storage Facility)

**Submitted to
The United States Nuclear Regulatory Commission
Pursuant to
Renewed Facility Operating License DPR-16**

Oyster Creek 2017 Annual Radioactive Effluent Release Report

TABLE OF CONTENTS

SECTION	PAGE
EXECUTIVE SUMMARY	1
1. Understanding Radiation	3
2. Sources of Radiation	7
3. Exposure Pathways	8
4. Radiation Risk	9
5. Annual Reports	11
6. Introduction	13
7. Supplemental Information	14
A Regulatory Limits	14
B Effluent Concentration Limits	15
C Average Energy	15
D Measurements and Approximations of Total Radioactivity	15
E Batch Releases	19
F Abnormal Releases	19
G Revisions to the ODCM	19
H Radiation Effluent Monitors Out of Service More Than 30 Days	19
I Releases from the Independent Spent Fuel Storage Facility	20
J Program Deviations	20
Appendix A – Effluent and Waste Disposal Summary	21
Appendix B – Solid Waste and Irradiated Fuel Shipments	28
Appendix C – Radiological Impact to Man	35
Appendix D – Meteorological Data	38
Appendix E – ODCM Revisions	112
Appendix F – ERRATA	113

Oyster Creek 2017 Annual Radioactive Effluent Release Report

(Page Intentionally Left Blank)

Oyster Creek 2017 Annual Radioactive Effluent Release Report

EXECUTIVE SUMMARY

Effluents are strictly monitored to ensure that radioactivity released to the environment is as low as reasonably achievable and does not exceed regulatory limits. Effluent control includes the operation of monitoring systems, in-plant and environmental sampling and analyses programs, quality assurance programs for the effluent and environmental programs, and procedures covering all aspects of effluent and environmental monitoring.

Both radiological environmental and effluent monitoring indicate that the operation of Oyster Creek Generating Station (OCGS) does not result in significant radiation exposure to the people or the environment surrounding OCGS and is well below the applicable levels set by the Nuclear Regulatory Commission (NRC) and the Environmental Protection Agency (EPA).

There were liquid radioactive effluent releases during 2017 of concentrations of tritium too low to detect at an LLD of 200 picocuries per liter (pCi/L) at the New Jersey Pollution Discharge Elimination System (NJPDES) permitted main condenser outfall. The releases were part of nearly continuous pumping of groundwater at approximately 60 gpm containing low levels of tritium and no detectable gamma. Exelon and the State of New Jersey Department of Environmental Protection (NJDEP) agreed to this remediation action instead of natural attenuation to address concentrations of tritium in groundwater. Well 73 and supporting equipment and piping were installed to pump groundwater to the intake structure at the inlet of the main circulating water pumps. Provisions were established for both batch and continuous releases of groundwater. Continuous releases occurred approximately 303 days in 2017. The nearly continuous releases occurred from January 1, 2017 through October 5, 2017 and December 12, 2017 through December 31, 2017 with a total of $2.85E+07$ gallons of groundwater pumped resulting in $2.17E-01$ Ci of tritium released to the discharge canal. The dose to the most limiting member of the public due to the release of groundwater was $1.02E-06$ mrem.

There were no liquid abnormal releases during 2017.

There were no gaseous abnormal releases during 2017.

The maximum calculated organ dose (Bone) from iodines, tritium, carbon-14 (C-14), and particulates to any individual due to gaseous effluents was $5.39E-01$ mrem, which was approximately $3.59E+00$ percent of the annual limit of $1.50E+01$ mrem. The majority of organ dose from gaseous effluents was due to C-14. The maximum calculated gamma air dose in the UNRESTRICTED AREA due to noble gas effluents was $5.86E-04$ mrad, which was $5.86E-03$ percent of the annual 10 CFR 50 Appendix I, As Low As Reasonably Achievable (ALARA) limit of $1.00E+01$ mrad.

For comparison, the background radiation dose averages approximately 620 mrem per year to the average person in the United States.

The Independent Spent Fuel Storage Installation (ISFSI) is a closed system and the only exposure is due to direct radiation. Based on offsite TLD readings, dose due to direct radiation from the ISFSI was less than 1 mrem for 2017. Because it is a sealed unit, no radioactive material was released.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Comparison of environmental sampling results to iodine and particulate gaseous effluents released, showed no radioactivity attributable to the operation of OCGS. Both elevated and ground-level release paths were considered in this review, with total iodines released of $8.06\text{E-}03$ Ci and total particulates with half-lives greater than 8 days of $1.50\text{E-}02$ Ci. This total does not include C-14, which is calculated separately. It was calculated that $9.63\text{E}00$ Ci of C-14 were released in 2017.

Joint Frequency Tables of meteorological data, per Stability Classification Category, as well as for all stability classes, are included. All data was collected from the on-site Meteorological Facility. Data recoveries for the 380-foot data and the 33-foot data were 99.8 percent and 99.8 percent, respectively. The UFSAR commits to Regulatory Guide (RG) 1.23 for Meteorological Facility data recovery. RG 1.23 requires data recovery of at least 90% on an annual basis.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

The nuclear power industry uses terms and concepts that may be unfamiliar to all readers of this report. This section of the report is intended to help the reader better understand some of these terms and concepts. In this section, we will discuss radiation and exposure pathways. This section is intended only to give a basic understanding of these subjects to hopefully allow the reader to better understand the data provided within the report.

Every nuclear power station is required to submit two reports annually, the Annual Radioactive Effluents Release Report (ARERR) and the Annual Radiological Environmental Operating Report (AREOR). The following information is provided in both reports for Oyster Creek Generating Station.

1. Understanding Radiation

Radiation is simply defined as the process of emitting radiant energy in the form of waves or particles. Radiation can be categorized as ionizing or non-ionizing radiation. If the radiation has enough energy to displace electrons from an atom it is termed ionizing radiation. Typically you will see a warning sign where there is a potential to be exposed to man-made ionizing radiation. These signs normally have the trefoil symbol on a yellow background.



Example Radiological warning signs

People do not always recognize non-ionizing radiation as a form of radiation, such as light, heat given off from a stove, radiowaves and microwaves. In our report we focus on the ionizing radiation that is produced at a nuclear power plant though it is important to note that ionizing radiation comes from many sources. In fact, the amount of ionizing radiation an average person is exposed to due to operation of a nuclear power plant is a very small fraction of the total ionizing radiation they will be exposed to in their lifetime and will be discussed later.

From this point forward we will only be discussing ionizing radiation but we will just use the term radiation.

Since this report discusses radiation in different forms and different pathways we first need to understand where the radiation comes from that we report. Radiation comes from atoms. So, what are atoms and how does radiation come from atoms?

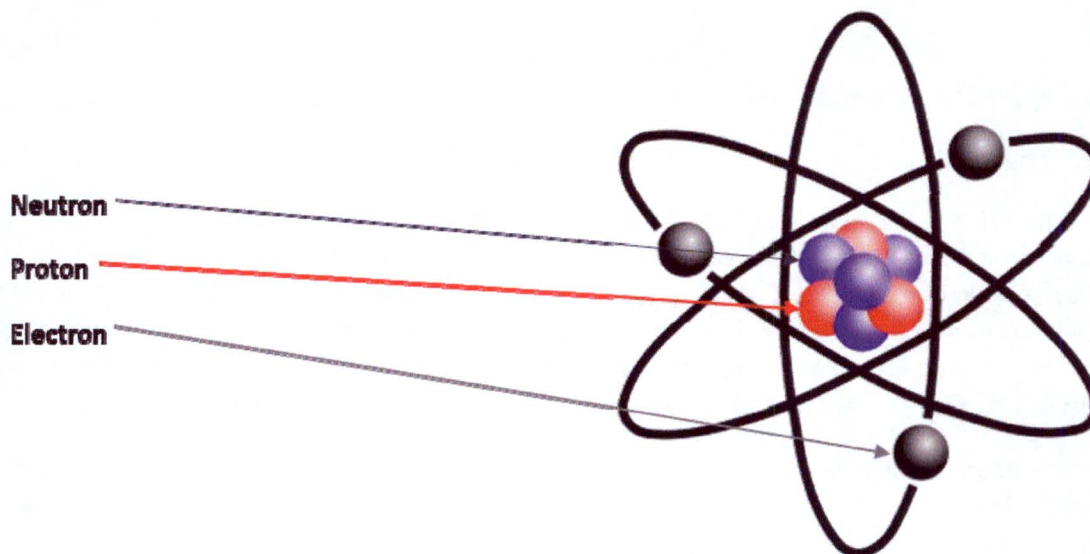
Oyster Creek 2017 Annual Radioactive Effluent Release Report

You may have seen a Periodic Table of the Elements

The Periodic Table of the Elements

Group→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18									
↓Period																											
1	1 H																	2 He									
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne									
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar									
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr									
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe									
6	55 Cs	56 Ba											72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra											104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
Lanthanides		57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu											
Actinides		89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr											

This table lists all the elements found on earth. An atom is the smallest part of an element that maintains the characteristics of that element. An atom is made up of three parts, protons, neutrons and electrons.



The number of protons in an atom determines the element. A hydrogen atom will always have one proton while an oxygen atom will always have eight protons. The protons are clustered

Oyster Creek 2017 Annual Radioactive Effluent Release Report

with the neutrons at the center of the atom and this is called the nucleus. Orbiting around the nucleus are the relatively small electrons. Neutrons do not have an electrical charge, protons have a positive charge while electrons have a negative charge. In an electrically neutral atom, the negative and positive charges are balanced. Atoms of the same element that have a different number of neutrons in their nucleus are called isotopes.

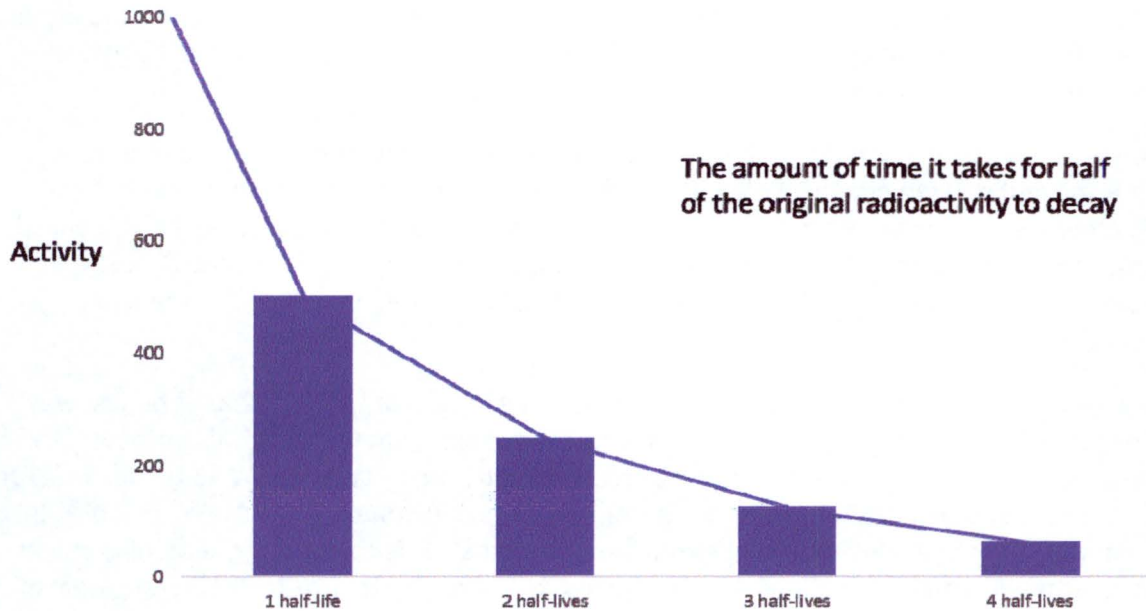
Isotopes are atoms that have the same number of protons but different number of neutrons. They all have the same chemical properties and many isotopes are nonradioactive or stable while other isotopes may be unstable and are radioactive. Radioactive isotopes can be called a radionuclide, a radioisotope or simply called a radioactive atom. A radionuclide usually contains an excess amount of energy in the nucleus usually due to a deficit or excess of neutrons in the nucleus.

There are two basic ways radionuclides are produced at a nuclear power plant. The first way is a direct result of the fission process and the radionuclides created through this process are termed fission products. Fission occurs when a very large atom, such as U-235 (Uranium-235) and Pu-239 (Plutonium-239) absorbs a neutron into its nucleus making the atom unstable. In this instance the atom can actually split into smaller atoms. This splitting of the atom is called fission. When fission occurs there is also a large amount of energy released from the atom in the form of heat which is what is used to produce the steam that will spin the turbines to produce electricity at a nuclear power plant.

The second way a radionuclide is produced at a nuclear power plant is through a process called activation and the radionuclides produced in this method are termed activation products. Water passes through the core where the fission process is occurring. This water is used to both produce the steam to turn the turbines and to cool the reactor. Though the water passing through the core is considered to be very pure water, there is always some other material within the water. This material typically comes from the material used in the plant's construction. As the water passes through the core, the material is exposed to the fission process and the radiation within the core can react with the material causing it to become unstable, creating a radionuclide. The atoms in the water itself can become activated and create radionuclides.

Over time, radioactive atoms will reach a stable state and no longer be radioactive. To do this they must release the excess energy. The release of excess energy can be in different forms and is called radioactive decay and the energy released is called radiation. The time it takes for a radionuclide to become stable is measured in units called half-lives. A half-life is the amount of time it takes for half of the original radioactivity to decay. Each radionuclide has a specific half-life. Some half-lives can be very long and are measured in years while others may be very short and are measured in seconds.

Half-life

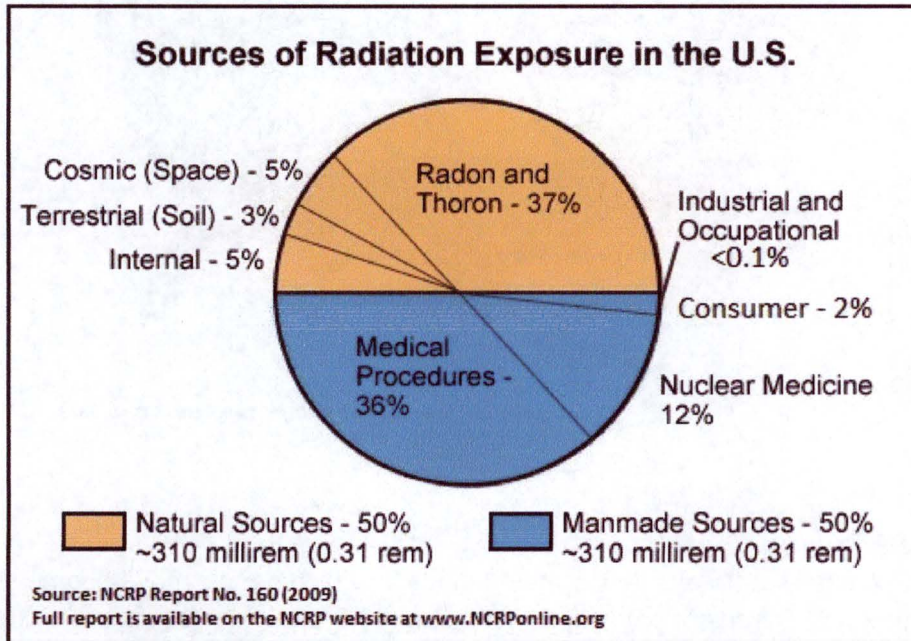


In this report you will see radionuclides listed such as K-40 (potassium-40) and Co-60 (cobalt-60). The letter(s) represents the element and the number represents the specific isotope of that element and is the number of neutrons in the nucleus of that radionuclide. You may hear the term naturally occurring radionuclide which refers to radionuclides that naturally occur in nature such as K-40. There are man-made radionuclides such as Co-60 that we are concerned with since these man-made radionuclides result as a by-product when generating electricity at a nuclear power plant. There are other ways man-made radionuclides are produced, such as detonating nuclear weapons, and this is important to note since nuclear weapons testing deposited these man-made radionuclides into the environment and some are still present today. There is a discussion in the AREOR for the radionuclides Cs-137, Sr-89 and Sr-90. The reason we only see some of the radionuclides today is due to the fact that some of the radionuclides released into the environment had relatively short half-lives and all the atoms have decayed to a stable state while other radionuclides have relatively long half-lives and will be measurable in the environment for years to come.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

2. Sources of Radiation

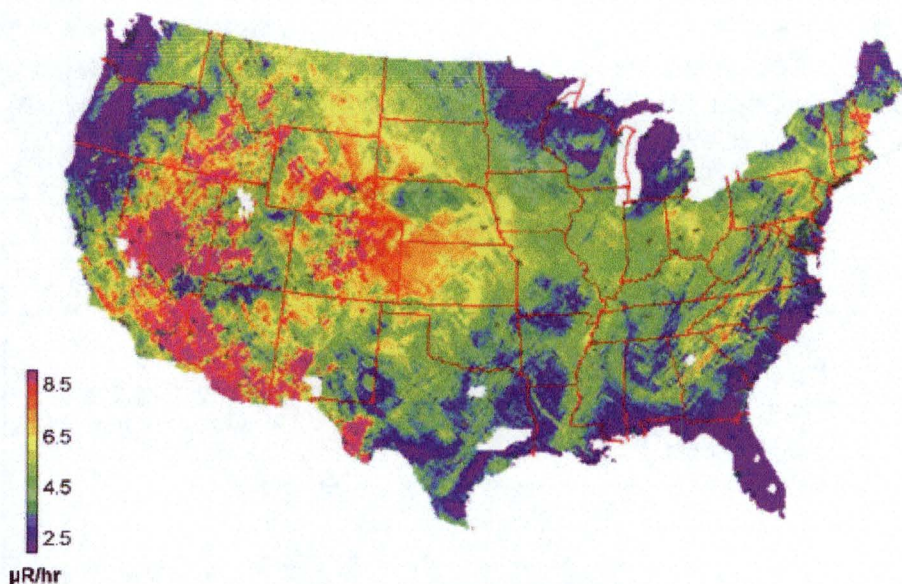
People are exposed to radiation every day of their lives and have been since the dawn of mankind. Some of this radiation is naturally occurring while some is man-made. There are many factors that will determine the amount of radiation an individual will be exposed to such as where you live, medical treatments, etc. Below are examples of some of the typical sources of radiation an individual is exposed to in a year.



Adapted with permission of the National Council on Radiation Protection and Measurements, <http://NCRPonline.org>

As you can see from the graph, the largest natural source of radiation is due to Radon. That is because essentially all air contains Radon. Cosmic and Internal make up the next largest natural sources of radiation. Cosmic radiation comes from the sun and stars and there are multiple factors which can impact the amount of cosmic radiation you are exposed to such as the elevation at which you live and the amount of air travel you take a year. The internal natural source of radiation mainly comes from two sources. Technically, all organic material is slightly radioactive due to C-14 (Carbon-14), including humans and the food we eat. C-14 makes up a percentage of the carbon in all organic material. Another contributor to the internal natural source is K-40 (Potassium-40). Potassium is present in many of the foods we eat, such as brazil nuts, bananas, carrots and red meat. The smallest natural source listed is terrestrial. Soil and rocks contain radioactive materials such as Radium and Uranium. The amount of terrestrial radiation you are exposed to depends on where you live. The map below shows terrestrial exposure levels across the United States. The radiation released from nuclear power plants is included in the Industrial and Occupational slice and is listed as <0.1%.

Terrestrial Gamma-Ray Exposure at 1m above ground



Source of data: U.S. Geological Survey Digital Data Series DDS-9, 1993

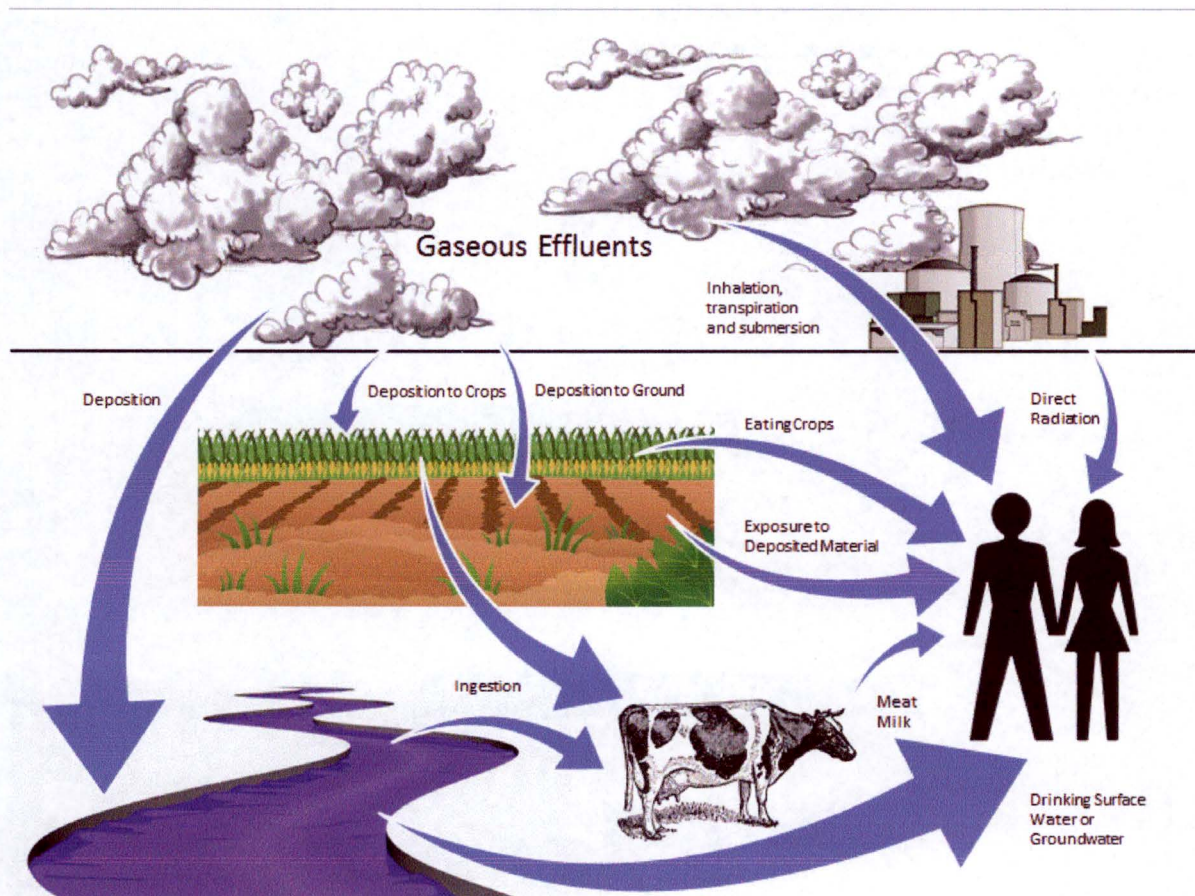
3. Exposure Pathways

Radiological exposure pathways define the methods by which people may become exposed to radioactive material. The major pathways of concern are those which could cause the highest calculated radiation dose. These projected pathways are determined from the type and amount of radioactive material released into the environment and how the environment is used. The way radioactive material is transported in the environment includes consideration of physical factors, such as the hydrological (water) and meteorological (weather) characteristics of the area. An annual average of the water flow, wind speed, and wind direction are used to evaluate how the radionuclides will be distributed in an area for gaseous or liquid releases. An important factor in evaluating the exposure pathways is the use of the environment. Many factors are considered such as dietary intake of residents, recreational use of the area, and the locations of homes and farms in the area.

The external and internal exposure pathways considered are shown in Figure 2.1. The release of radioactive gaseous effluents involves pathways such as external whole-body exposure, deposition of radioactive material on plants, deposition on soil, inhalation by animals destined for human consumption, and inhalation by humans. The release of radioactive material in liquid effluents involves pathways such as drinking water, fish, and direct exposure from the water at the shoreline while swimming.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Although radionuclides can reach humans by many different pathways, some result in more dose than others. The critical pathway is the exposure route that will provide, for a specific radionuclide, the greatest dose to a population, or to a specific group of the population called the critical group. The critical group may vary depending on the radionuclides involved, the age and diet of the group, or other cultural factors. The dose may be delivered to the whole body or to a specific organ. The organ receiving the greatest fraction of the dose is called the critical organ.



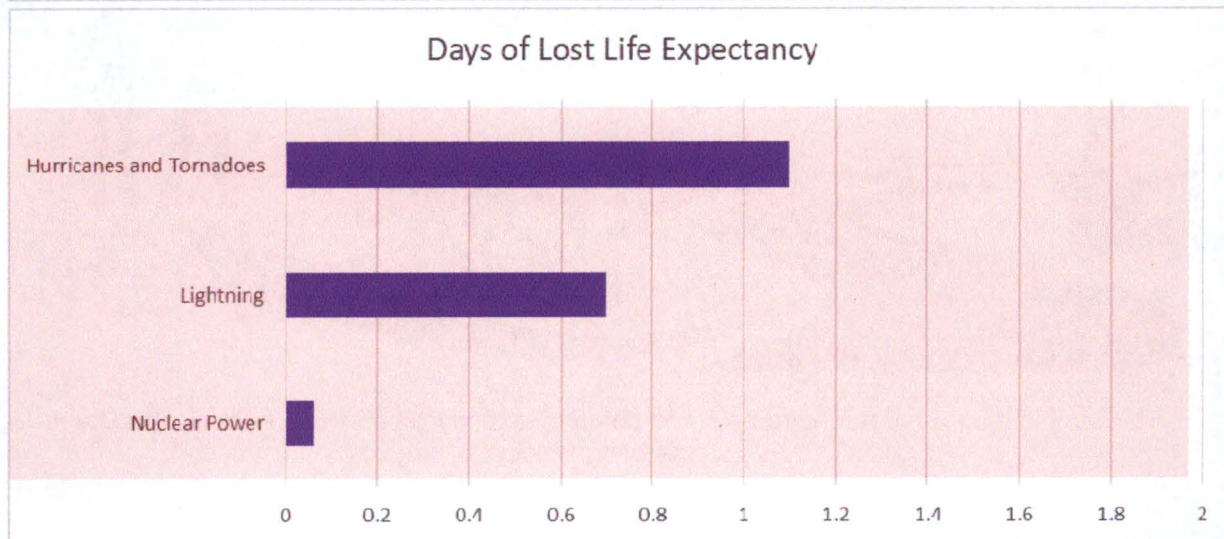
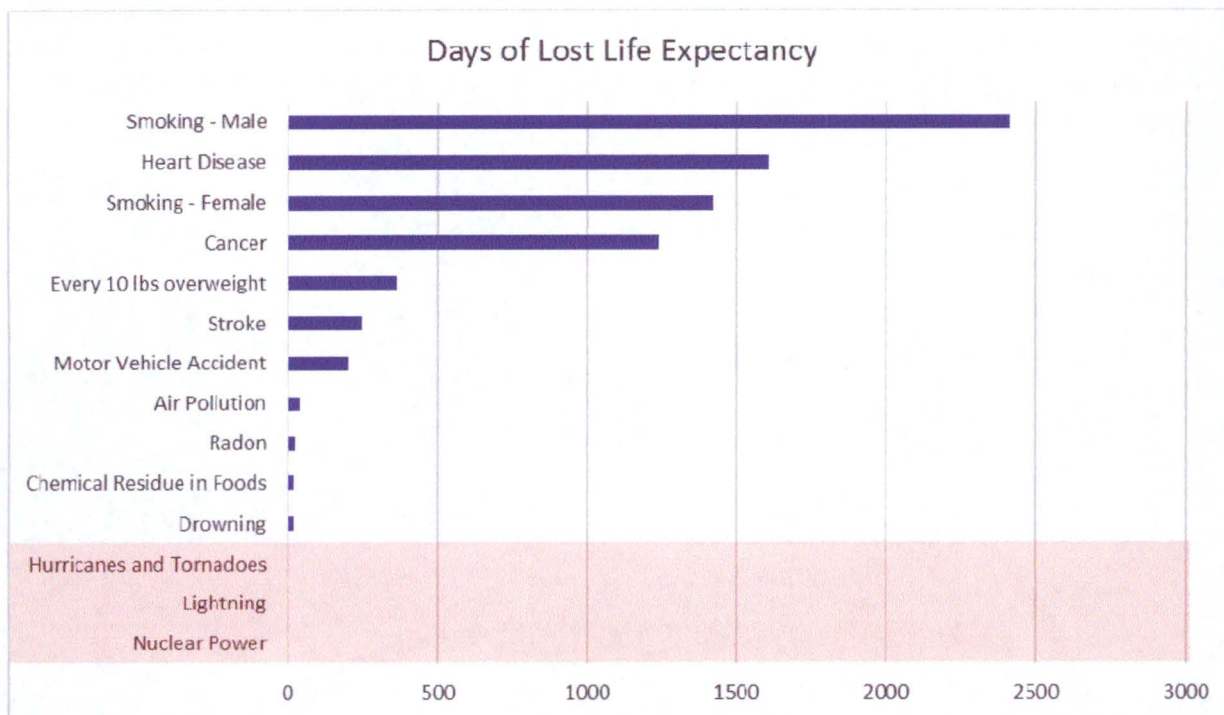
This simple diagram demonstrates some potential exposure pathways from Oyster Creek Generating Station.

4. Radiation Risk

U.S. radiation protection standards are based on the premise that any radiation exposure carries some risk. There is a risk whether the radiation exposure is due to man-made sources or natural sources. There have been many studies performed trying to determine the level of risk. The following graph is an example of one study that tries to relate risk from many different factors. This graph represents risk as "Days of Lost Life Expectancy". All the categories are averaged over the entire population except Male Smokers, Female Smokers and individuals

Oyster Creek 2017 Annual Radioactive Effluent Release Report

that are overweight. Those risks are only for people that fall into those categories. The category for Nuclear Power is a government estimate based on all radioactivity releases from nuclear power, including accidents and wastes.



Adapted from the article by Bernard L. Cohen, Ph.D. in the Journal of American Physicians and Surgeons Volume 8 Number 2 Summer 2003.

The full article can be found at <http://www.jpands.org/vol8no2/cohen.pdf>

Oyster Creek 2017 Annual Radioactive Effluent Release Report

5. Annual Reports

All nuclear power plants are required to perform sampling of both the potential release paths from the plant and the potential exposure pathways in the environment. The results of this sampling are required to be reported annually to the Nuclear Regulatory Commission (NRC) and made available to the public. There are two reports generated annually, the Annual Radioactive Effluents Release Report (ARERR) and the Annual Radiological Environmental Operating Report (AREOR). The ARERR summarizes all of the effluents released from the plant and quantifies the doses to the public from these effluents. The AREOR summarizes the results of the samples obtained in the environment looking at all the potential exposure pathways by sampling different media such as air, vegetation, direct radiation, etc. These two reports are related in that the results should be aligned. The AREOR should validate that the effluent program is accurate. The ARERR and AREOR together ensure Nuclear Power Plants are operating in a manner that adequately protects the public.

In the reports there are four different but interrelated units for measuring radioactivity, exposure, absorbed dose, and dose equivalent. Together, they are used to properly capture both the amount of radiation and its effects on humans.

- Radioactivity refers to the amount of ionizing radiation released by a material. The units of measure for radioactivity used within the AREOR and ARERR are the curie (Ci). Small fractions of the Ci often have a prefix, such as μCi that means 1/1,000,000. That means there are 1,000,000 μCi in one Ci.
- Exposure describes the amount of radiation traveling through the air. The units of measure for exposure used within the AREOR and ARERR are the roentgen (R). Traditionally direct radiation monitors placed around the site are measured in milliroentgen (mR), 1/1,000 of one R.
- Absorbed dose describes the amount of radiation absorbed by an object or person. The units of measure for absorbed dose used within the AREOR and ARERR are the rad. Noble gas air doses are reported by the site are measured in milliard (mrad), 1/1,000 of one rad.
- Dose equivalent (or effective dose) combines the amount of radiation absorbed and the health effects of that type of radiation. The units used within the AREOR and ARERR are the roentgen equivalent man (rem). Regulations require doses to the whole body, specific organ, and direct radiation to be reported in millirem (mrem), 1/1,000 of one rem.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Typically releases from nuclear power plants are so low that the samples taken in the environment are below the detection levels required to be met by all nuclear power plants. There are some radionuclides identified in the environment during the routine sampling but this is typically background radiation from nuclear weapons testing and events such as Chernobyl and these radionuclides are discussed in the AREOR.

Each report lists the types of samples that are collected and the analyses performed. Different types of media may be used at one sample location looking for specific radionuclides. For example, at our gaseous effluent release points we use different media to collect samples for particulates, iodines, noble gases and tritium. There are also examples where a sample collected on one media is analyzed differently depending on the radionuclide for which the sample is being analyzed.

These annual reports, and much more information related to nuclear power, are available on the NRC website at www.nrc.gov.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

6. Introduction

In accordance with the reporting requirements of Technical Specification 6.9.1.d applicable during the reporting period, this report summarizes the effluent release data for OCGS for the period January 1, 2017 through December 31, 2017. This submittal complies with the format described in Regulatory Guide 1.21, "Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants." Revision 1, June 1974.

Meteorological data was reported in the format specified in Regulatory Guide 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants".

All vendor results were received and included in the report calculations. Therefore, the 2017 report is complete.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

7. Supplemental Information

Oyster Creek Generating Station

Exelon Generation Company, LLC

A. Regulatory Limits:

	Limit	Units	Receptor	ODCM and 10 CFR 50, Appendix I Design Objective Limits
1. Noble Gases:				
a.	≤ 500	mrem/yr	Total Body	ODCM Control 3.11.2.1
	≤ 3000	mrem/yr	Skin	
b.	≤ 5	mrad/qtr	Air Gamma	Quarterly air dose limits ODCM Control 3.11.2.2
	≤ 10	mrad/qtr	Air Beta	
c.	≤ 10	mrad/yr	Air Gamma	Yearly air dose limits ODCM Control 3.11.2.2
	≤ 20	mrad/yr	Air Beta	
d.	< 5	mrem/yr	Total Body (Gamma)	10 CFR 50, Appendix I, Section II.B.2(b)
	< 15	Mrem/yr	Skin (Beta)	
2. Iodines, Tritium, Particulates with Half Life > 8 days:				
a.	≤ 1500	mrem/yr	Any Organ	ODCM Control 3.11.2.1
b.	≤ 7.5	mrem/qtr	Any Organ	Quarterly dose limits ODCM Control 3.11.2.3
c.	≤ 15	mrem/yr	Any Organ	Yearly dose limits ODCM Control 3.11.2.3
3. Liquid Effluents:				
a.	Concentration 10 CFR 20, Appendix B, Table 2 Column 2			ODCM Control 3.11.1.1
b.	≤ 1.5	mrem/qtr	Total Body	Quarterly dose limits ODCM Control 3.11.1.2
	≤ 5	mrem/qtr	Any Organ	
c.	≤ 3	mrem/yr	Total Body	Yearly dose limits ODCM Control 3.11.1.2
	≤ 10	mrem/yr	Any Organ	

Oyster Creek 2017 Annual Radioactive Effluent Release Report

B. Effluent Concentration Limits:

Gaseous dose rates rather than effluent concentrations are used to calculate permissible release rates for gaseous releases. The maximum permissible dose rates for gaseous releases are defined in ODCM Controls 3.11.2.1.

The Effluent Concentration Limit (ECL) specified in 10 CFR 20, Appendix B, Table 2, Column 2 for identified nuclides, were used to calculate permissible release rates and concentrations for liquid release per ODCM Controls 3.11.1.1. The total activity concentration at the Route 9 bridge for all dissolved or entrained gases was limited to $< 2E-04 \mu\text{Ci/ml}$.

C. Average Energy (\bar{E}):

The Oyster Creek ODCM limits the instantaneous dose equivalent rates due to the release of noble gases to less than or equal to 500 mrem/year to the total body and less than or equal to 3000 mrem/year to the skin. The average beta and gamma energies (\bar{E}) of the radionuclide mixture in releases of fission and activation gases as described in Regulatory Guide 1.21, "Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plant" may be used to calculate doses in lieu of more sophisticated software. The Oyster Creek radioactive effluent program employs the methodologies presented in U.S. NRC Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977. Therefore, average energy (\bar{E}) as described in Regulatory Guide 1.21 is not applicable to Oyster Creek.

D. Measurements and Approximations of Total Radioactivity:

1. Fission and Activation Gases

The method used for Gamma Isotopic Analysis is the Canberra Gamma Spectroscopy System with a gas Marinelli beaker. Airborne effluent gaseous activity was continuously monitored and recorded in accordance with the Off Site Dose Calculation Manual (ODCM) Table 4.11.2.1.2-1. Additional grab samples were taken from the stack Radioactive and Gaseous Effluent Monitoring System (RAGEMS) sample point and ground-level release sample points and analyzed at least monthly to determine the isotopic mixture of noble gas activity released for the month. If activity was found in the grab isotopic analysis, the results are entered into Simplified Environmental Effluent Dosimetry System (SEEDS) to calculate dose and dose rates. If no activity is detected in the stack grab samples, post treatment or Off Gas Isotopic Analysis data may be used.

2. Iodines

The method used for Gamma Isotopic Analysis is the Canberra Gamma Spectroscopy System with a charcoal cartridge. Iodine activity was continuously sampled and analyzed in accordance with ODCM Table 4.11.2.1.2-1. Charcoal samples are taken from the stack RAGEMS sample point and

Oyster Creek 2017 Annual Radioactive Effluent Release Report

ground-level release sample points and analyzed at least weekly to determine the total activity released from the plant based on the average vent flow rates recorded for the sampling period.

3. Particulates (half-lives > 8 days)

The method used for Gamma Isotopic Analysis is the Canberra Gamma Spectroscopy System with a particulate filter (47 mm). Particulate activity was continuously sampled and analyzed in accordance with ODCM Table 4.11.2.1.2-1. Particulate samples are taken from the stack RAGEMS sample point and ground-level release sample points and analyzed at least weekly to determine the total activity released from the plant based on the average vent flow rates recorded for the sampling period.

4. Tritium

A. Gaseous Effluents

Air from stack and vent effluents was passed through a desiccant column and distilled to remove the moisture collected. An aliquot of the water from the distillate was analyzed for tritium using a liquid scintillation counter.

B. Liquid Effluents

Water from liquid effluents was analyzed for tritium using a liquid scintillation counter.

5. Gross Alpha

Gross alpha was measured by an off-site vendor for both the gas and liquid effluent composite samples.

6. Hard-To-Detects

Hard-To-Detects was measured by an off-site vendor for one set of gas monthly composites. The analysis included Fe-55, I-129, Ni-59, Ni-63, Tc-99, Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240 and Pu-241. Fe-55 and Ni-63 have been added to the routine monthly composite analysis schedule based on previous sample results for Hard-To-Detects. Only nuclides that have been detected are included in Table A-2 and/or Table A-3.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

7. Carbon-14 (C-14)

The amount of C-14 (Ci) released was estimated using the guidance from EPRI Technical Report 1021106, Estimation of Carbon-14 in Nuclear Power Plant Gaseous Effluents. The C-14 was released primarily through the stack (97%) with a small amount (3%) released through plant vents. The activity in liquid effluents was determined to not be significant.

The offsite dose from C-14 was calculated using SEEDS, which uses approved ODCM methodologies. The resulting annual dose to a child from gaseous releases of C-14 is about 5.27E-01 mrem to the bone.

8. Liquid Effluents

Groundwater containing tritium was released during 2017. For continuous releases, tritium and principal gamma emitters were determined for a composite sample daily. The concentration of tritium is limited to ensure concentrations were less than 200 pCi/l in the discharge canal. The gamma emitters were limited to less than detectable concentrations. Gross alpha and Hard-to-detect analyses (Fe-55, Ni-63, Sr-89 and Sr-90) were determined for monthly composite samples for each type of release (batch or continuous).

The leaks into the groundwater were reported in the 2009 Annual Radioactive Effluent Release Report as abnormal releases. Estimates of the curies of the tritium releases were reported. Doses due to the release of the groundwater to the discharge canal were included in the report. To ensure that the amount of activity discharge is accurate and limiting, the activity and doses as a result of discharges during 2017 from the groundwater remediation project are included in this report.

9. Estimated Total Error Present

Procedure CY-AA-170-2100, "Estimated Errors of Effluent Measurements" provides the methodology to obtain an overall estimate of the error associated with radioactive effluents.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

10. Composite Samples and Lower Limit of Detection (LLD)

Particulate air samples were composited monthly and analyzed for gross alpha, Sr-89, Sr-90, Fe-55 and Ni-63. Groundwater batch and continuous releases were composited at least monthly and analyzed for gross alpha, Sr-89, Sr-90, Fe-55 and Ni-63. These composites are submitted to an offsite vendor laboratory for analysis. The ODCM required LLD for liquid and airborne releases are as follows:

Liquid:	LLD
Principal Gamma Emitters (Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, I-131, Ce-141, Cs-134, Cs-137)	5E-07 µCi/ml
Principal Gamma Emitters (Ce-144)	5E-06 µCi/ml
Dissolved and Entrained Gases	1E-05 µCi/ml
H-3	1E-05 µCi/ml
Gross Alpha	1E-07 µCi/ml
Sr-89 and Sr-90	5E-08 µCi/ml
Fe-55 and Ni-63	1E-06 µCi/ml
Airborne	LLD
Principal Gamma Emitters (Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, Xe-138)	1E-04 µCi/ml
H-3	1E-06 µCi/ml
I-131	1E-12 µCi/ml
I-133	1E-10 µCi/ml
Principal Gamma Emitters (Mn-54, Fe-59, Co-58, Co-60, Zn-65, Cs-134, Cs-137, Ce-141)	1E-11 µCi/ml
Principal Gamma Emitters (Mo-99, Ce-144)	1E-10 µCi/ml
Gross Alpha	1E-11 µCi/ml
Sr-89, Sr-90	1E-11 µCi/ml

Oyster Creek 2017 Annual Radioactive Effluent Release Report

E. Batch Releases:

1. Liquid

There were no batch releases of liquid effluents during 2017.

2. Gaseous

There were no batch releases of gaseous effluents during 2017.

F. Abnormal Releases:

There were no abnormal liquid releases during 2017.

There were no abnormal gaseous releases during 2017.

G. Revisions to the ODCM:

There were no revisions to the ODCM in 2017.

H. Radiation Effluent Monitors Out of Service More Than 30 Days

Per ODCM Control 3.3.3.10, "Radioactive Liquid Effluent Monitoring Instrumentation" and 3.3.3.11, Radioactive Gaseous Effluent Monitoring Instrumentation requires:

With less than the minimum number of radioactive liquid/gaseous effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3.3.10-1/3.3.3.11-1. Make every reasonable effort to return the instrument to OPERABLE status within 30 days and, if unsuccessful, explain in the next Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner.

The following is a discussion of instrumentation out of service for greater than 30 days:

1. The Turbine Building Ventilation Monitoring Radioactive Noble Gas Monitor (Low Range) was declared inoperable from December 24, 2016 through March 24, 2017 (90 days). The system was originally declared inoperable to perform the Turbine Building RAGEMS Noble Gas Calibration surveillance and compensatory sampling was initiated per the ODCM. During the surveillance, the noble gas low range monitor failed the source check. The issue was entered into the Corrective Action Program and the low range monitor remained inoperable until the surveillance could be completed satisfactorily. The failure was determined to be due to the age of the source being used to perform the surveillance. The source had decayed to the point where it no longer had an activity level appropriate for this source check. A new source was ordered and the surveillance was revised for using the new source. The surveillance was completed satisfactorily with the new source. The time it took to order and obtain the new source as well as revise and reperform the

Oyster Creek 2017 Annual Radioactive Effluent Release Report

surveillance resulted in the monitoring system being inoperable for more than 30 days.

I. Releases from the Independent Spent Fuel Storage Facility:

The ISFSI is a closed system and the only exposure would be due to direct radiation. This includes iodines, particulates, and noble gases. Based on offsite TLD readings, dose due to direct radiation from the ISFSI was less than 1 mrem for 2017. Because it is a sealed unit, no radioactive material was released.

J. Program Deviations:

1. There were no program deviations in 2017.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Appendix A
Effluent and Waste Disposal Summary

Oyster Creek 2017 Annual Radioactive Effluent Release Report

LIST OF TABLES

	PAGE
Table A - 1 Gaseous Effluents – Summary of All Releases	23
Table A - 2 Gaseous Effluents Release Point: Elevated Release	24
Table A - 3 Gaseous Effluents Release Point: Ground Level Releases	25
Table A - 4 Liquid Effluents – Summary of All Releases	26
Table A - 5 Liquid Release Point: Groundwater Remediation	27

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table A-1: Gaseous Effluents - Summary Of All Releases

Period: January 1, 2017 through December 31, 2017

Unit: Oyster Creek

A. Fission & Activation Gases	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Est. Total Error %
1. Total Release	Ci	9.53E-01	3.88E-01	4.21E+01	2.23E+01	24.64%
2. Average Release Rate for Period	µCi/sec	1.23E-01	4.93E-02	5.30E+00	2.81E+00	
3. Gamma Air Dose	mrad	1.98E-05	1.25E-05	4.76E-04	1.88E-04	
4. Beta Air Dose	mrad	9.40E-06	1.29E-05	1.71E-04	7.33E-05	
5. Percent of ODCM Limit						
- Gamma Air Dose	%	3.96E-04	2.50E-04	9.52E-03	3.76E-03	
- Beta Air Dose	%	9.40E-05	1.29E-04	1.71E-03	7.33E-04	
B. Iodines						
1. Total – I-131	Ci	5.24E-05	9.96E-05	1.07E-03	8.11E-04	17.61%
2. Average Release Rate for Period	µCi/sec	6.74E-06	1.27E-05	1.35E-04	1.02E-04	
3. Percent of ODCM limit	%	*	*	*	*	
C. Particulate						
1. Particulates with T 1/2 > 8 days	Ci	1.02E-03	2.72E-04	4.29E-03	9.37E-03	18.20%
2. Average Release Rate for Period	µCi/sec	1.31E-04	3.46E-05	5.40E-04	1.18E-03	
3. Percent of ODCM limit	%	*	*	*	*	
D. Tritium						
1. Total Release	Ci	4.98E+00	6.39E+00	1.11E+01	8.25E+00	22.74%
2. Average Release Rate for Period	µCi/sec	6.40E-01	8.13E-01	1.40E+00	1.04E+00	
3. Percent of ODCM limit	%	*	*	*	*	
E. Gross Alpha						
1. Total Release	Ci	<LLD	<LLD	<LLD	<LLD	23.96%
2. Average Release Rate for Period	µCi/sec	<LLD	<LLD	<LLD	<LLD	
3. Percent of ODCM limit	%	*	*	*	*	
F. Carbon-14						
1. Total Release	Ci	2.39E+00	2.42E+00	2.37E+00	2.44E+00	
2. Average Release Rate for Period	µCi/sec	3.08E-01	3.08E-01	2.98E-01	3.07E-01	
3. Percent of ODCM limit	%	*	*	*	*	
G. Iodine 131 & 133, Tritium & Particulate						
1. Organ Dose	mrem	3.35E-02	1.20E-01	2.24E-01	1.62E-01	
2. Percent of ODCM Limit	%	4.47E-01	1.60E+00	2.99E+00	2.16E+00	

* ODCM Limit is for combined Iodine, tritium, Carbon-14 and particulate only, which is shown in Item G.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table A-2: Gaseous Effluents Release Point: Elevated Release

Period: January 1, 2017 through December 31, 2017

Unit: Oyster Creek

Nuclides Released	Unit	Continuous Mode				Batch Mode			
		Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1. Fission gases									
Kr- 85	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Kr- 85m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-87	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-88	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-133	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-135	Ci	9.53E-01	3.88E-01	4.21E+01	2.23E+01	<LLD	<LLD	<LLD	<LLD
Xe-135m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-137	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-138	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ar-41	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Total for Period	Ci	9.53E-01	3.88E-01	4.21E+01	2.23E+01	<LLD	<LLD	<LLD	<LLD
2. Iodines									
I-131	Ci	5.16E-05	9.94E-05	1.07E-03	8.11E-04	<LLD	<LLD	<LLD	<LLD
I-132	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
I-133	Ci	8.51E-05	2.16E-04	3.22E-03	2.26E-03	<LLD	<LLD	<LLD	<LLD
I-135	Ci	<LLD	<LLD	<LLD	2.09E-04	<LLD	<LLD	<LLD	<LLD
Total for Period	Ci	1.37E-04	3.15E-04	4.29E-03	3.28E-03	<LLD	<LLD	<LLD	<LLD
3. Particulates									
Sr-89	Ci	5.52E-04	2.75E-05	1.14E-03	3.56E-03	<LLD	<LLD	<LLD	<LLD
Sr-90	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-134	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-137	Ci	<LLD	<LLD	<LLD	4.09E-05	<LLD	<LLD	<LLD	<LLD
Ba-140	Ci	4.29E-04	3.41E-05	2.50E-03	4.71E-03	<LLD	<LLD	<LLD	<LLD
La-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Cr-51	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Mn-54	Ci	<LLD	3.72E-06	3.78E-05	6.23E-05	<LLD	<LLD	<LLD	<LLD
Co-58	Ci	3.35E-06	7.15E-05	2.44E-04	3.68E-04	<LLD	<LLD	<LLD	<LLD
Co-60	Ci	3.01E-05	1.15E-04	3.59E-04	5.09E-04	<LLD	<LLD	<LLD	<LLD
Ni-63	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Mo-99	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ag-110m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ce-141	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ce-144	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Fe-55	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Fe-59	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Zn-65	Ci	<LLD	<LLD	<LLD	1.11E-04	<LLD	<LLD	<LLD	<LLD
Am-241	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Total for Period	Ci	1.01E-03	2.52E-04	4.28E-03	9.36E-03	<LLD	<LLD	<LLD	<LLD
4. Tritium									
H-3	Ci	4.52E+00	5.91E+00	1.02E+01	7.49E+00	<LLD	<LLD	<LLD	<LLD
5. Gross Alpha									
Gross Alpha	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
6. Carbon-14									
C-14	Ci	2.32E+00	2.35E+00	2.30E+00	2.37E+00	<LLD	<LLD	<LLD	<LLD

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table A-3: Gaseous Effluent Release Point: Ground Level Releases

Period: January 1, 2017 through December 31, 2017

Unit: Oyster Creek

Nuclides Released	Unit	Continuous Mode				Batch Mode			
		Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1. Fission gases									
Kr- 85	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Kr- 85m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-87	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-88	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-133	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-133m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-135	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-135m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-138	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ar-41	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Total for Period	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
2. Iodines									
I-131	Ci	7.87E-07	1.80E-07	2.60E-06	4.45E-07	<LLD	<LLD	<LLD	<LLD
I-133	Ci	2.05E-06	7.31E-06	1.94E-05	7.81E-06	<LLD	<LLD	<LLD	<LLD
I-135	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Total for Period	Ci	2.84E-06	7.49E-06	2.20E-05	8.26E-06	<LLD	<LLD	<LLD	<LLD
3. Particulates									
Sr-89	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Sr-90	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-134	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-137	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ba-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
La-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Cr-51	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Mn-54	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Co-58	Ci	1.55E-06	5.91E-06	3.34E-06	2.45E-06	<LLD	<LLD	<LLD	<LLD
Co-60	Ci	6.14E-06	1.41E-05	9.24E-06	7.54E-06	<LLD	<LLD	<LLD	<LLD
Ni-63	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Mo-99	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ag-110m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ce-141	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ce-144	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Fe-55	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Fe-59	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Zn-65	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Am-241	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Total for Period	Ci	7.69E-06	2.00E-05	1.26E-05	9.99E-06	<LLD	<LLD	<LLD	<LLD
4. Tritium									
H-3	Ci	4.59E-01	4.82E-01	9.35E-01	7.62E-01	<LLD	<LLD	<LLD	<LLD
5. Gross Alpha									
Gross Alpha	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
6. Carbon-14									
C-14	Ci	7.18E-02	7.27E-02	7.09E-02	7.34E-02	<LLD	<LLD	<LLD	<LLD

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table A-4: Liquid Effluents - Summary Of All Releases

Period: January 1, 2017 through December 31, 2017

Unit: Oyster Creek

A. Fission & Activation Products	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Est. Total Error %
1. Total Release not including tritium, gases, alpha	Ci	<LLD	<LLD	<LLD	<LLD	15.24%
2. Average Diluted concentration during period	µCi/ml	<LLD	<LLD	<LLD	<LLD	
3. Total Body Dose	mrem	3.08E-07	3.07E-07	3.05E-07	9.85E-08	
4. Organ Dose	mrem	3.08E-07	3.07E-07	3.05E-07	9.85E-08	
3. Percent of ODCM Limit						
-Total Body Dose	%	2.05E-05	2.05E-05	2.03E-05	6.57E-06	
-Organ Dose	%	6.16E-06	6.15E-06	6.09E-06	1.97E-06	
B. Tritium						
	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Est. Total Error %
1. Total Release	Ci	6.52E-02	6.55E-02	6.50E-02	2.10E-02	15.24%
2. Average diluted concentration during period	µCi/ml	1.37E-10	1.35E-10	1.32E-10	1.31E-10	
3. Percent of 10CFR20 limit	%	1.37E-05	1.35E-05	1.32E-05	1.31E-05	
C. Dissolved and Entrained Gases						
	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Est. Total Error %
1. Total Release	Ci	<LLD	<LLD	<LLD	<LLD	15.24%
2. Average diluted concentration	µCi/ml	<LLD	<LLD	<LLD	<LLD	
3. Percent of ODCM limit	%	<LLD	<LLD	<LLD	<LLD	
D. Gross Alpha Activity						
	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Est. Total Error %
1. Total Release	Ci	<LLD	<LLD	<LLD	<LLD	21.79%
E. Volume of Waste Released prior to dilution						
	Liters	3.27E+07	3.23E+07	3.25E+07	1.04E+07	
F. Volume of Dilution Water Used During Period						
	Liters	4.77E+11	4.86E+11	4.91E+11	1.6E+11	

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table A-5: Liquid Release Point: Groundwater Remediation

Period: January 1, 2017 through December 31, 2017

Unit: Oyster Creek

Nuclides Released	Unit	Continuous Mode				Batch Mode			
		Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Fission & Activation Products									
Sr-89	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Sr-90	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-134	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-137	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
I-131	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Co-58	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Co-60	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ni-63	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Fe-59	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Zn-65	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Mn-54	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Cr-51	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Zr-95	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Nb-95	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Mo-99	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Tc-99m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ba-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
La-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ce-141	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ag-110m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Fe-55	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Ce-144	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Total for Period		<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Dissolved Entrained Gases									
Xe-133	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-135	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
Tritium									
H-3	Ci	6.52E-02	6.55E-02	6.50E-02	2.10E-02	<LLD	<LLD	<LLD	<LLD
Gross Alpha									
Gross Alpha	Ci	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Appendix B Solid Waste and Irradiated Fuel Shipments

Oyster Creek 2017 Annual Radioactive Effluent Release Report

A. Solid waste shipped offsite for burial or disposal (not irradiated fuel)

1. Type of waste

Types of Waste	Total Quantity (m ³)	Total Activity (Ci)	Period	Est. Total Error%
a. Spent resins, filter sludges, evaporator bottom, etc	6.56E+01	2.55E+02	2017	18.05%
b. Dry compressible waste, contaminated equip, etc	2.05E+02	3.08E-02	2017	18.05%
c. Irradiated components, control rods, etc	1.13E-04	3.82E-02	2017	18.05%
d. Other	4.33E+01	2.81E-02	2017	18.05%

Oyster Creek 2017 Annual Radioactive Effluent Release Report

1. Estimate of Major Nuclide Composition (By Waste Type)

Category A – Spent Resin, Filters, Sludges, Evaporator Bottoms, etc.

Isotope	Waste Class A		Waste Class B		Waste Class C	
	Curies	Percent	Curies	Percent	Curies	Percent
H-3	4.75E-03	2.68E-03				
C-14	3.48E-01	1.96E-01	1.33E-03	1.71E-03		
Cr-51						
P-32			1.92E-34	2.46E-34		
Mn-54	3.88E+00	2.19E+00	2.40E-01	3.08E-01		
Fe-55	1.01E+02	5.70E+01	5.07E+01	6.50E+01		
Fe-59						
Co-57			3.62E-04	4.64E-04		
Co-58	1.83E-01	1.03E-01	1.34E-07	1.72E-07		
Co-60	6.38E+01	3.60E+01	2.02E+01	2.59E+01		
Ni-59						
Ni-63	1.55E+00	8.75E-01	1.23E+00	1.58E+00		
Zn-65	1.01E+00	5.70E-01	4.70E-02	6.03E-02		
Sr-89			3.03E-11	3.89E-11		
Sr-90	8.31E-03	4.69E-03	3.13E-02	4.02E-02		
Nb-95						
Tc-99						
Ag-110m						
Sb-125	6.58E-02	3.71E-02				
I-129						
Cs-134						
Cs-137	5.08E+00	2.87E+00	5.46E+00	7.00E+00		
Ce-144	2.46E-01	1.39E-01	2.34E-03	3.00E-03		
Pu-238	1.02E-03	5.76E-04	1.10E-03	1.41E-03		
Pu-239	6.43E-04	3.63E-04	3.46E-04	4.44E-04		
Pu-240	6.43E-04	3.63E-04	3.46E-04	4.44E-04		
Pu-241	5.14E-02	2.90E-02	3.27E-02	4.20E-02		
Am-241	1.25E-03	7.05E-04	1.36E-03	1.74E-03		
Cm-242	1.81E-04	1.02E-04	3.83E-07	4.91E-07		
Cm-243	6.59E-04	3.72E-04	4.01E-04	5.14E-04		
Cm-244	6.50E-04	3.67E-04	3.79E-04	4.86E-04		
Totals	1.77E+02	1.00E+02	7.79E+01	1.00E+02	0.00E+00	0.00E+00

Note: Grey fields are where results were not reported in the NRC Regulatory Guide 1.21 Report

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Category B – Dry Compressible Waste, Contaminated Equipment, etc.

Isotope	Waste Class A	
	Curies	Percent
H-3		
C-14		
P-32		
Mn-54	1.17E-03	3.80E+00
Fe-55	2.11E-02	6.85E+01
Co-57		
Co-58	4.76E-06	1.55E-02
Co-60	7.49E-03	2.43E+01
Ni-59		
Ni-63	1.53E-04	4.97E-01
Zn-65	1.30E-05	4.22E-02
Sb-125		
Sr-89		
Sr-90	9.66E-07	3.14E-03
Tc-99		
I-129		
Cs-137	6.76E-04	2.20E+00
Ce-144	1.78E-04	5.78E-01
Pu-238	1.59E-08	5.16E-05
Pu-239	9.79E-09	3.18E-05
Pu-240	9.79E-09	3.18E-05
Pu-241	9.42E-06	3.06E-02
Am-241	1.45E-07	4.71E-04
Cm-242	3.04E-09	9.87E-06
Cm-243	6.89E-08	2.24E-04
Cm-244	6.89E-08	2.24E-04
Totals	3.08E-02	1.00E+02

Note: Grey fields are where results were not reported in the NRC Regulatory Guide 1.21 Report

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Category C – Irradiated components, control rods, etc.

Isotope	Waste Class B	
	Curies	Percent Abundance %
H-3	8.00E-06	2.60E-02
C-14	5.50E-07	1.79E-03
Cr-51		
Mn-54	2.20E-03	4.48E+00
Fe-55	2.06E-02	4.20E+01
Fe-59		
Co-58	2.22E-03	4.52E+00
Co-60	1.60E-02	3.26E+01
Ni-59	3.03E-06	6.17E-03
Ni-63	4.62E-04	9.41E-01
Zn-65		
Sr-90	7.01E-04	1.43E+00
Zr-95		
Nb-94	1.27E-08	2.59E-05
Mo-93		
Tc-99	1.09E-07	2.22E-04
Sb-125		
I-129	1.68E-10	3.42E-07
Cs-137	7.28E-04	1.48E+00
Ce-144	6.17E-03	1.26E+01
U-235	1.59E-08	3.24E-05
Np-237	1.81E-10	3.69E-07
Pu-238	3.90E-08	7.94E-05
Pu-239	2.27E-08	4.62E-05
Pu-240	1.90E-09	3.87E-06
Pu-241	3.34E-08	6.80E-05
Am-241	9.00E-11	1.83E-07
Am-243	6.41E-15	1.31E-11
Cm-242	1.21E-11	2.46E-08
Cm-243	2.08E-15	4.24E-12
Cm-244	2.83E-14	5.76E-11
Totals	4.91E-02	1.00E+02

Note: Grey fields are where results were not reported in the NRC Regulatory Guide 1.21 Report

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Category D - Other - Scrap Metal

Isotope	Waste Class A		Waste Class B	
	Curies	Percent	Curies	Percent
H-3				
C-14			4.51E-08	2.39E-04
P-32				
Mn-54	4.25E-04	3.71E+00	5.74E-04	3.04E+00
Fe-55	7.90E-03	6.89E+01	1.16E-02	6.14E+01
Co-57				
Co-58				
Co-60	2.77E-03	2.42E+01	4.82E-03	2.55E+01
Ni-59			1.41E-06	7.47E-03
Ni-63	5.52E-05	4.81E-01	1.52E-04	8.05E-01
Zn-65			3.04E-04	1.61E+00
Sr-85				
Sr-89				
Sr-90	3.42E-07	2.98E-03	4.50E-06	2.38E-02
Y-88				
Tc-99			5.90E-07	3.12E-03
Cd-109				
Sn-113				
I-129				
Cs-137	2.49E-04	2.17E+00	1.40E-03	7.41E+00
Ba-133				
Ce-139				
Ce-144	6.63E-05	5.78E-01	2.80E-05	1.48E-01
Hg-203				
Pu-238			1.38E-07	7.31E-04
Pu-239			4.01E-08	2.12E-04
Pu-240			4.01E-08	2.12E-04
Pu-241	3.70E-06	3.23E-02	1.51E-06	8.00E-03
Am-241	5.25E-08	4.58E-04	1.84E-07	9.74E-04
Cm-242			4.83E-09	2.56E-05
Cm-243	2.47E-08	2.15E-04	1.12E-07	5.93E-04
Cm-244	2.46E-08	2.14E-04	1.12E-07	5.93E-04
Totals	1.15E-02	1.00E+02	1.89E-02	1.00E+02

Note: Grey fields are where results were not reported in the NRC Regulatory Guide 1.21 Report

Oyster Creek 2017 Annual Radioactive Effluent Release Report

2. Solid Waste (Disposition)

Number of Shipments	Mode of Transportation	Destination
10	HITTMAN TRANSPORT CO.	Barnwell Disposal Facility Operated by Energy Solutions, LLC
6	HITTMAN TRANSPORT CO.	Energy Solutions Services 1560 Bear Creek Road
2	HITTMAN TRANSPORT CO.	Energy Solutions Services, Inc. Gallaher Road Facility
1	HITTMAN TRANSPORT CO.	Barnwell Processing Facility 16043 Dunbarton Boulevard

B. Irradiated Fuel Shipments (disposition).

There were no irradiated fuel shipments.

C. Changes to the Process Control Program

Revision 12 of the Process Control Program, RW-AA-100 was implemented August 1, 2017. See the complete copy of RW-AA-100 Revision 12 attached as part of this report.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Appendix C Radiological Impact to Man

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Per ODCM Administrative Control 6.2, an assessment of radiation doses to the likely most exposed MEMBER OF THE PUBLIC from reactor releases and other nearby uranium fuel cycle sources (including doses from primary effluent pathways and direct radiation) for the previous calendar year must be made to show conformance with 40 CFR Part 190, Environmental Radiation Protection Standards for Nuclear Power Operation. For purposes of this calculation the following assumptions were made:

Gaseous

- Nearest member of the public was W sector at 483 meters.
- Actual 2017 meteorology and measured gaseous effluent releases were used.
- All significant pathways were assumed to be present.
- Occupancy factor was considered 22.8% (40 hours/week for 50 weeks).

Liquid

- Doses calculated in the discharge canal at the Route 9 Bridge.
- Fish, shellfish and shoreline pathways doses calculated.

40 CFR Part 190 Compliance

- Dosimetry measurements (minus average of control stations) measured direct radiation for the nearest member of the public. The nearest member of the public for direct radiation is considered an individual that works in the warehouse west of the site. As a worker, the individual is assumed to work 2,000 hours per year at this location. A shielding factor of $7.00E-01$ is applied for direct radiation.
- Nearest resident was at SE sector at 937 meters.
- The highest calculated dose for gamma air dose and liquid total body were summed for total body dose.
- The highest calculated dose for gamma air dose, child bone and liquid organ were summed for organ dose.
- The limits for Kr-85, I-129, Pu-239 and other alpha-emitting transuranic radionuclides with half-lives greater than one year were not exceeded.

The ODCM does not require total body doses to the population and average doses to individuals in the population from gaseous effluents to a distance of 50 miles from the site to be calculated.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

A summary of gaseous and liquid radiation doses to most likely exposed MEMBER OF THE PUBLIC was as follows:

Effluent	Applicable Organ	Estimated Dose	Age Group	Location		% of Applicable Limit	Limit	Unit
				Distance (meters)	Direction (toward)			
Noble Gas	Gamma - Air Dose	5.86E-04	All	500	ENE	5.86E-03	10	mrad
Noble Gas	Beta - Air Dose	2.15E-04	All	500	ENE	1.08E-03	20	mrad
Noble Gas	Total Body (Gamma)	2.61E-04	All	988	NNE	5.22E-03	5	mrem
Noble Gas	Skin (Beta)	3.66E-04	All	988	NNE	2.44E-03	15	mrem
Iodine, Particulate, Carbon-14 & Tritium	Bone	5.39E-01	Child	972	ESE	3.59E+00	15	mrem
Liquid	Total body	1.02E-06	All	South Route 9 Bridge		3.40E-05	3	mrem
Liquid	Organ	1.02E-06	All			1.02E-05	10	mrem
Direct Radiation	Total Body	6.50E+00	All	483	W	2.60E+01	25	mrem
Direct Radiation	Total Body	<LLD	All	937	SE	<LLD	25	mrem
40 CFR Part 190 Compliance								
Warehouse Worker								
Total Dose	Total Body	6.50E+00	All	483	W	2.60E+01	25	mrem
Total Dose	Bone	6.62E+00	All	483	W	2.65E+01	25	mrem
Total Dose	Thyroid	6.50E+00	All	483	W	8.67E+00	75	mrem
Nearest Resident								
Total Dose	Total Body	5.87E-04	All	937	SE	2.35E-03	25	mrem
Total Dose	Bone	5.40E-01	All	937	SE	2.16E+00	25	mrem
Total Dose	Thyroid	5.87E-04	All	937	SE	7.83E-04	75	mrem

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Appendix D Meteorological Data

Oyster Creek 2017 Annual Radioactive Effluent Release Report

LIST OF METEOROLOGICAL DATA TABLES

		PAGE
Table D – 1	Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – March, 2017	40
Table D – 2	Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January – March, 2017	47
Table D – 3	Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, April – June, 2017	54
Table D – 4	Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, April – June, 2017	61
Table D – 5	Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, July – September, 2017	68
Table D – 6	Wind Speed by Direction Measured at 380 Feet for various Stability Classes for 75 the Oyster Creek Generating Station, July – September, 2017	
Table D – 7	Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, October – December, 2017	82
Table D – 8	Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, October – December, 2017	89
Table D – 9	Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017	96
Table D – 10	Wind Speed by Direction Measured at 380 Feet for various Stability Classes for 104 the Oyster Creek Generating Station, January – December, 2017	

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 1 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017

Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)

Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	6	0	0	0	7
NNE	0	1	4	0	0	0	5
NE	0	1	1	0	0	0	2
ENE	0	0	2	0	0	0	2
E	0	3	2	0	0	0	5
ESE	0	4	2	0	0	0	6
SE	0	3	4	0	0	0	7
SSE	0	0	6	0	0	0	6
S	0	0	3	2	0	0	5
SSW	0	1	5	2	0	0	8
SW	0	2	3	1	0	0	6
WSW	0	0	3	0	0	0	3
W	0	2	13	7	0	0	22
WNW	0	0	34	23	0	0	57
NW	0	5	23	13	2	0	43
NNW	0	1	21	2	0	0	24
Variable	0	0	0	0	0	0	0
Total	0	24	132	50	2	0	208

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 0

Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 1 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
Stability Class - Moderately Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	2	0	0	0	0	2
NE	0	2	0	0	0	0	2
ENE	0	0	4	0	0	0	4
E	0	0	0	0	0	0	0
ESE	0	1	1	0	0	0	2
SE	0	2	5	0	0	0	7
SSE	0	2	2	0	0	0	4
S	0	0	1	2	0	0	3
SSW	0	1	5	0	0	0	6
SW	1	1	2	0	0	0	4
WSW	0	5	0	0	0	0	5
W	0	4	7	4	0	0	15
WNW	0	2	22	6	1	0	31
NW	0	3	12	6	3	0	24
NNW	0	7	10	1	0	0	18
Variable	0	0	0	0	0	0	0
Total	1	32	71	19	4	0	127

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 1 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the
Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
Stability Class - Slightly Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	2	1	0	0	4
NNE	0	0	0	0	0	0	0
NE	0	1	0	6	0	0	7
ENE	0	3	1	0	1	0	5
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	3	0	0	0	3
SSE	0	3	1	0	0	0	4
S	0	1	3	0	0	0	4
SSW	0	0	3	0	0	0	3
SW	0	0	1	1	0	0	2
WSW	0	4	0	0	0	0	4
W	0	4	6	1	0	0	11
WNW	0	2	7	4	0	0	13
NW	0	2	2	2	0	0	6
NNW	0	1	2	1	0	0	4
Variable	0	0	0	0	0	0	0
Total	0	23	31	16	1	0	71

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 1 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
Stability Class - Neutral - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	3	25	11	1	0	0	40
NNE	1	8	12	1	1	0	23
NE	7	27	41	8	0	0	83
ENE	4	16	31	9	3	0	63
E	4	7	20	0	0	0	31
ESE	2	8	5	0	0	0	15
SE	2	8	2	0	0	0	12
SSE	3	20	5	0	0	0	28
S	5	26	10	0	0	0	41
SSW	1	6	22	4	0	0	33
SW	6	6	7	5	0	0	24
WSW	2	31	10	1	0	0	44
W	5	22	33	2	0	0	62
WNW	3	21	28	21	1	0	74
NW	5	20	18	12	0	0	55
NNW	11	31	25	3	0	0	70
Variable	0	0	0	0	0	0	0
Total	64	282	280	67	5	0	698

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 1 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
Stability Class - Slightly Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	6	0	0	0	0	10
NNE	7	5	0	0	0	0	12
NE	8	15	0	0	0	0	23
ENE	9	9	0	0	0	0	18
E	6	2	0	0	0	0	8
ESE	8	1	0	0	0	0	9
SE	3	2	0	0	0	0	5
SSE	3	12	0	0	0	0	15
S	8	15	6	1	0	0	30
SSW	5	55	22	9	0	0	91
SW	15	22	17	3	0	0	57
WSW	12	50	13	0	0	0	75
W	8	52	10	3	0	0	73
WNW	12	66	33	5	0	0	116
NW	7	44	39	4	0	0	94
NNW	2	22	10	0	0	0	34
Variable	0	0	0	0	0	0	0
Total	117	378	150	25	0	0	670

Hours of calm in this stability class: 3
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 1 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
 Stability Class - Moderately Stable - 150Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	2	0	0	0	0	3
NNE	2	1	0	0	0	0	3
NE	3	0	0	0	0	0	3
ENE	1	2	0	0	0	0	3
E	0	0	0	0	0	0	0
ESE	3	0	0	0	0	0	3
SE	1	0	0	0	0	0	1
SSE	6	1	0	0	0	0	7
S	3	0	0	0	0	0	3
SSW	4	6	0	0	0	0	10
SW	7	4	0	0	0	0	11
WSW	14	16	1	0	0	0	31
W	25	19	0	0	0	0	44
WNW	8	9	0	0	0	0	17
NW	5	6	0	0	0	0	11
NNW	2	2	0	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	85	68	1	0	0	0	154

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 1 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
Stability Class - Extremely Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	0	0	0	0	0	1
NNE	0	1	0	0	0	0	1
NE	1	1	0	0	0	0	2
ENE	3	0	0	0	0	0	3
E	0	0	0	0	0	0	0
ESE	1	0	0	0	0	0	1
SE	1	0	0	0	0	0	1
SSE	1	0	0	0	0	0	1
S	4	0	0	0	0	0	4
SSW	3	1	0	0	0	0	4
SW	11	1	0	0	0	0	12
WSW	39	5	0	0	0	0	44
W	65	9	0	0	0	0	74
WNW	36	6	0	0	0	0	42
NW	20	7	0	0	0	0	27
NNW	4	1	0	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	190	32	0	0	0	0	222

Hours of calm in this stability class: 2
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 2 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
 Stability Class - Extremely Unstable - 380Ft-33Ft Delta-T (F)
 Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	1	0	0	1
NE	0	0	0	1	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	1	1
WNW	0	0	0	2	2	8	12
NW	0	0	0	0	0	5	5
NNW	0	0	0	1	1	0	2
Variable	0	0	0	0	0	0	0
Total	0	0	0	5	3	14	22

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 2 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
Stability Class - Moderately Unstable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	2	0	0	2
NNE	0	0	0	1	1	0	2
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	1	0	0	0	1
ESE	0	0	2	0	0	0	2
SE	0	0	1	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	2	0	0	0	2
WSW	0	0	0	1	0	0	1
W	0	0	0	2	0	5	7
WNW	0	0	0	9	8	9	26
NW	0	0	3	8	0	6	17
NNW	0	0	2	4	1	0	7
Variable	0	0	0	0	0	0	0
Total	0	0	11	27	10	20	68

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 2 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
Stability Class - Slightly Unstable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	2	3	0	0	5
NNE	0	0	0	0	1	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	2	0	0	0	2
E	0	0	1	0	0	0	1
ESE	0	0	4	0	0	0	4
SE	0	0	1	1	0	0	2
SSE	0	0	0	3	0	0	3
S	0	0	1	1	1	0	3
SSW	0	0	0	6	2	0	8
SW	0	0	2	2	1	0	5
WSW	0	0	0	2	1	0	3
W	0	0	4	5	5	2	16
WNW	0	0	1	14	14	13	42
NW	0	0	4	7	2	5	18
NNW	0	0	3	5	1	0	9
Variable	0	0	0	0	0	0	0
Total	0	0	25	49	28	20	122

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 2 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
Stability Class - Neutral - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	4	24	22	6	2	58
NNE	0	2	8	8	2	4	24
NE	0	5	12	16	33	30	96
ENE	0	5	4	9	25	7	50
E	1	2	1	12	17	0	33
ESE	0	4	8	3	0	0	15
SE	1	3	10	2	0	0	16
SSE	1	8	16	2	0	0	27
S	0	4	20	12	5	0	41
SSW	2	3	6	17	12	5	45
SW	0	2	6	6	13	5	32
WSW	0	11	23	23	14	0	71
W	0	9	16	40	23	8	96
WNW	0	3	12	36	37	36	124
NW	1	6	24	23	31	31	116
NNW	0	2	25	18	24	7	76
Variable	0	0	0	0	0	0	0
Total	6	73	215	249	242	135	920

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 2 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the
Oyster Creek Generating Station, January – March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017

Stability Class - Slightly Stable - 380Ft-33Ft Delta-T (F)

Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	4	4	7	0	0	16
NNE	0	1	7	4	0	1	13
NE	1	2	12	15	0	2	32
ENE	0	1	7	5	3	0	16
E	1	2	3	1	2	0	9
ESE	0	4	0	0	1	3	8
SE	1	2	4	1	1	0	9
SSE	1	1	7	9	1	0	19
S	0	2	6	13	7	1	29
SSW	0	2	12	28	51	16	109
SW	0	1	13	19	20	13	66
WSW	2	1	12	16	37	1	69
W	1	0	7	19	36	5	68
WNW	0	2	4	36	59	10	111
NW	0	2	3	36	31	5	77
NNW	0	0	5	19	7	0	31
Variable	0	0	0	0	0	0	0
Total	8	27	106	228	256	57	682

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 0

Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 2 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017
Stability Class - Moderately Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	1	1	8	1	0	13
NNE	0	2	2	1	0	0	5
NE	0	1	1	2	0	0	4
ENE	0	0	0	2	0	0	2
E	0	0	0	1	1	0	2
ESE	0	0	0	0	0	0	0
SE	1	1	0	0	0	0	2
SSE	0	0	1	0	0	0	1
S	1	1	0	11	4	0	17
SSW	0	1	5	6	8	0	20
SW	1	1	0	8	8	1	19
WSW	0	0	3	5	13	4	25
W	1	0	3	7	10	2	23
WNW	0	1	2	12	17	1	33
NW	0	0	7	10	11	2	30
NNW	0	0	7	14	2	4	27
Variable	0	0	0	0	0	0	0
Total	6	9	32	87	75	14	223

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 2 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the
Oyster Creek Generating Station, January - March, 2017

Oyster Creek Alpha

Period of Record: January - March 2017

Stability Class - Extremely Stable - 380Ft-33Ft Delta-T (F)

Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	7	4	2	3	0	16
NNE	0	5	1	0	0	0	6
NE	0	2	3	1	0	0	6
ENE	0	0	2	0	0	0	2
E	0	2	1	2	1	0	6
ESE	0	1	1	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	3	1	0	0	4
SSW	0	1	2	0	0	0	3
SW	0	3	3	8	5	1	20
WSW	0	1	4	5	5	0	15
W	0	1	2	1	2	0	6
WNW	0	3	2	7	0	0	12
NW	0	0	2	5	1	0	8
NNW	0	4	1	2	4	1	12
Variable	0	0	0	0	0	0	0
Total	0	30	31	34	21	2	118

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 3 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)

Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	0	0	0	0	1
NNE	0	4	0	0	0	0	4
NE	0	3	7	0	0	0	10
ENE	0	7	26	0	0	0	33
E	0	4	23	0	0	0	27
ESE	0	12	30	0	0	0	42
SE	0	5	27	0	0	0	32
SSE	0	0	10	1	0	0	11
S	0	1	28	24	0	0	53
SSW	0	0	10	9	1	0	20
SW	0	6	7	0	0	0	13
WSW	0	8	18	6	0	0	32
W	0	7	32	2	0	0	41
WNW	0	8	31	8	0	0	47
NW	0	7	24	9	0	0	40
NNW	0	3	9	0	0	0	12
Variable	0	0	0	0	0	0	0
Total	0	76	282	59	1	0	418

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 3 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Moderately Unstable - 150Ft-33Ft Delta-T (F)

Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	3	3	0	0	0	6
NNE	0	4	0	0	0	0	4
NE	0	9	4	0	0	0	13
ENE	0	8	9	0	0	0	17
E	0	4	2	0	0	0	6
ESE	0	10	2	0	0	0	12
SE	0	6	9	0	0	0	15
SSE	0	2	6	0	0	0	8
S	0	0	5	4	0	0	9
SSW	0	0	6	6	0	0	12
SW	0	1	3	0	0	0	4
WSW	0	6	4	2	0	0	12
W	0	6	10	1	0	0	17
WNW	0	4	3	2	0	0	9
NW	0	2	2	2	0	0	6
NNW	0	3	1	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	0	68	69	17	0	0	154

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 3 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Slightly Unstable - 150Ft-33Ft Delta-T (F)

Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	0	0	0	0	1
NNE	0	1	1	1	0	0	3
NE	1	4	3	0	0	0	8
ENE	0	9	5	0	0	0	14
E	0	0	2	0	0	0	2
ESE	0	6	1	0	0	0	7
SE	0	3	1	0	0	0	4
SSE	0	3	3	0	0	0	6
S	0	1	2	0	0	0	3
SSW	0	0	3	1	0	0	4
SW	1	1	2	0	0	0	4
WSW	1	4	3	0	0	0	8
W	0	4	6	1	0	0	11
WNW	0	1	5	0	0	0	6
NW	0	2	3	0	0	0	5
NNW	0	3	4	0	0	0	7
Variable	0	0	0	0	0	0	0
Total	3	43	44	3	0	0	93

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 3 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017
Stability Class - Neutral - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	5	3	0	0	0	12
NNE	7	28	3	1	0	0	39
NE	12	55	24	2	0	0	93
ENE	7	47	36	6	0	0	96
E	7	42	25	4	0	0	78
ESE	3	41	14	1	0	0	59
SE	6	34	6	3	0	0	49
SSE	5	20	13	7	1	0	46
S	5	16	18	4	0	0	43
SSW	1	12	32	15	1	0	61
SW	1	9	7	0	0	0	17
WSW	0	11	13	2	0	0	26
W	5	17	7	1	0	0	30
WNW	0	11	17	1	0	0	29
NW	3	12	4	0	0	0	19
NNW	0	7	11	0	0	0	18
Variable	0	0	0	0	0	0	0
Total	66	367	233	47	2	0	715

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 3 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017
Stability Class - Slightly Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	3	0	0	0	0	7
NNE	6	4	0	0	0	0	10
NE	6	6	0	0	0	0	12
ENE	5	3	0	0	0	0	8
E	3	13	1	0	0	0	17
ESE	0	3	3	0	0	0	6
SE	7	3	0	0	0	0	10
SSE	4	2	0	0	0	0	6
S	3	16	2	0	0	0	21
SSW	3	44	38	2	1	0	88
SW	8	72	16	0	0	0	96
WSW	11	53	4	0	0	0	68
W	7	17	1	0	0	0	25
WNW	3	10	9	0	0	0	22
NW	5	13	2	0	0	0	20
NNW	3	8	2	0	0	0	13
Variable	0	0	0	0	0	0	0
Total	78	270	78	2	1	0	429

Hours of calm in this stability class: 4
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 3 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Moderately Stable - 150Ft-33Ft Delta-T (F)

Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	2	0	0	0	0	0	2
ENE	4	1	0	0	0	0	5
E	2	0	0	0	0	0	2
ESE	1	0	0	0	0	0	1
SE	1	0	0	0	0	0	1
SSE	2	1	0	0	0	0	3
S	6	0	0	0	0	0	6
SSW	7	3	0	0	0	0	10
SW	8	9	0	0	0	0	17
WSW	12	16	0	0	0	0	28
W	9	6	0	0	0	0	15
WNW	6	4	0	0	0	0	10
NW	7	3	0	0	0	0	10
NNW	3	3	0	0	0	0	6
Variable	0	0	0	0	0	0	0
Total	71	46	0	0	0	0	117

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 3 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Extremely Stable - 150Ft-33Ft Delta-T (F)

Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	6	0	0	0	0	0	6
NNE	2	0	0	0	0	0	2
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	3	1	0	0	0	0	4
SW	9	4	0	0	0	0	13
WSW	39	14	0	0	0	0	53
W	65	9	0	0	0	0	74
WNW	36	9	0	0	0	0	45
NW	29	5	0	0	0	0	34
NNW	12	1	0	0	0	0	13
Variable	0	0	0	0	0	0	0
Total	203	43	0	0	0	0	246

Hours of calm in this stability class: 2
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 4 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Extremely Unstable - 380Ft-33Ft Delta-T (F)

Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	2	0	0	2
ENE	0	0	0	5	0	0	5
E	0	0	0	4	0	0	4
ESE	0	0	0	2	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	1	0	1
SSW	0	0	0	0	1	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	1	1	1	3
W	0	0	0	4	0	1	5
WNW	0	0	1	1	5	3	10
NW	0	0	0	0	2	5	7
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	1	19	10	10	40

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 4 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Moderately Unstable - 380Ft-33Ft Delta-T (F)

Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	2	3	0	0	5
ENE	0	0	4	7	0	0	11
E	0	0	8	4	0	0	12
ESE	0	0	5	11	0	0	16
SE	0	0	4	2	0	0	6
SSE	0	0	1	6	0	0	7
S	0	0	0	8	10	0	18
SSW	0	0	0	4	6	3	13
SW	0	0	0	3	1	0	4
WSW	0	0	7	5	0	4	16
W	0	0	0	4	4	0	8
WNW	0	0	3	11	4	1	19
NW	0	0	3	12	2	2	19
NNW	0	0	0	2	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	0	37	82	27	10	156

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 4 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Slightly Unstable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	0	0	0	0	1
NNE	0	1	1	0	0	0	2
NE	0	0	5	5	2	0	12
ENE	0	1	3	5	1	0	10
E	0	1	5	2	0	0	8
ESE	0	0	8	4	0	0	12
SE	0	1	9	3	0	0	13
SSE	0	1	9	5	0	0	15
S	0	0	1	13	3	1	18
SSW	0	0	3	6	5	4	18
SW	0	0	2	4	0	0	6
WSW	0	0	7	7	0	2	16
W	0	0	10	11	6	1	28
WNW	0	0	9	5	5	0	19
NW	0	0	8	3	2	1	14
NNW	0	0	3	4	1	0	8
Variable	0	0	0	0	0	0	0
Total	0	6	83	77	25	9	200

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 4 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017
Stability Class - Neutral - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	1	2	4	0	3	12
NNE	1	15	22	8	1	3	50
NE	2	16	54	20	22	4	118
ENE	0	11	25	36	28	13	113
E	2	17	21	25	13	4	82
ESE	0	14	54	24	5	2	99
SE	2	7	32	9	1	0	51
SSE	2	5	24	8	6	5	50
S	1	3	16	29	12	2	63
SSW	0	4	12	31	34	17	98
SW	0	0	2	16	5	1	24
WSW	1	3	11	26	6	2	49
W	1	6	16	19	15	1	58
WNW	1	2	10	15	16	5	49
NW	1	6	6	12	8	1	34
NNW	0	5	5	8	11	1	30
Variable	0	0	0	0	0	0	0
Total	16	115	312	290	183	64	980

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 4 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017
Stability Class - Slightly Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	2	4	0	0	7
NNE	1	2	4	2	0	0	9
NE	0	4	4	2	0	0	10
ENE	1	4	2	5	2	0	14
E	2	2	9	1	0	0	14
ESE	0	5	4	2	0	1	12
SE	1	2	6	1	0	3	13
SSE	1	2	6	1	1	5	16
S	0	5	6	3	0	0	14
SSW	2	5	5	28	43	5	88
SW	1	3	7	22	57	6	96
WSW	0	3	4	19	17	0	43
W	0	1	4	17	3	1	26
WNW	0	2	9	10	9	2	32
NW	0	1	3	10	1	0	15
NNW	0	2	7	9	2	0	20
Variable	0	0	0	0	0	0	0
Total	9	44	82	136	135	23	429

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 4 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Moderately Stable - 380Ft-33Ft Delta-T (F)

Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	4	10	5	0	20
NNE	0	0	4	1	0	0	5
NE	0	1	2	1	0	0	4
ENE	0	0	3	0	0	0	3
E	0	1	1	0	0	0	2
ESE	0	5	0	0	0	0	5
SE	1	0	0	0	0	0	1
SSE	1	1	2	0	0	0	4
S	0	1	0	4	0	0	5
SSW	0	0	1	3	3	1	8
SW	0	1	2	6	22	6	37
WSW	0	2	4	5	18	16	45
W	0	0	5	6	14	1	26
WNW	0	1	5	5	6	2	19
NW	0	0	3	2	10	1	16
NNW	0	0	2	2	3	1	8
Variable	0	0	0	0	0	0	0
Total	2	14	38	45	81	28	208

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 4 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, April - June, 2017

Oyster Creek Alpha

Period of Record: April - June 2017

Stability Class - Extremely Stable - 380Ft-33Ft Delta-T (F)

Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	1	7	10	0	0	19
NNE	0	2	6	6	0	0	14
NE	0	1	7	2	0	0	10
ENE	0	1	0	2	0	0	3
E	0	2	7	0	0	0	9
ESE	1	2	2	0	0	0	5
SE	0	2	4	0	0	0	6
SSE	0	1	0	0	0	0	1
S	0	0	0	4	1	0	5
SSW	0	1	0	2	3	0	6
SW	1	1	1	1	6	1	11
WSW	0	6	2	3	3	2	16
W	0	3	6	4	2	1	16
WNW	0	0	3	5	11	1	20
NW	0	0	4	3	4	1	12
NNW	0	0	4	4	3	1	12
Variable	0	0	0	0	0	0	0
Total	3	23	53	46	33	7	165

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 5 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the
Oyster Creek Generating Station, July - September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	8	0	0	0	9
NNE	0	1	0	0	0	0	1
NE	0	6	4	0	0	0	10
ENE	0	22	14	0	0	0	36
E	0	13	5	0	0	0	18
ESE	0	11	3	0	0	0	14
SE	0	7	22	0	0	0	29
SSE	0	2	17	0	0	0	19
S	0	1	26	6	0	0	33
SSW	0	1	7	4	0	0	12
SW	0	4	4	0	0	0	8
WSW	0	9	11	0	0	0	20
W	0	3	18	0	0	0	21
WNW	0	9	4	0	0	0	13
NW	0	19	5	0	0	0	24
NNW	0	7	8	0	0	0	15
Variable	0	0	0	0	0	0	0
Total	0	116	156	10	0	0	282

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 5 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, July – September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Moderately Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	4	5	0	0	0	9
NNE	0	8	5	0	0	0	13
NE	0	8	1	0	0	0	9
ENE	0	13	4	0	0	0	17
E	0	8	1	0	0	0	9
ESE	0	5	3	0	0	0	8
SE	0	8	1	0	0	0	9
SSE	1	3	5	0	0	0	9
S	0	3	6	3	0	0	12
SSW	1	10	5	0	0	0	16
SW	0	2	2	0	0	0	4
WSW	0	8	4	0	0	0	12
W	0	11	3	0	0	0	14
WNW	0	8	2	0	0	0	10
NW	0	14	2	0	0	0	16
NNW	0	12	8	0	0	0	20
Variable	0	0	0	0	0	0	0
Total	2	125	57	3	0	0	187

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 5 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, July – September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Slightly Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	5	2	0	0	0	7
NNE	0	1	1	0	0	0	2
NE	0	5	2	0	0	0	7
ENE	1	5	0	0	0	0	6
E	0	3	1	0	0	0	4
ESE	1	2	1	0	0	0	4
SE	1	5	1	0	0	0	7
SSE	0	2	2	0	0	0	4
S	0	2	8	0	0	0	10
SSW	0	5	2	0	0	0	7
SW	0	2	1	0	0	0	3
WSW	0	2	1	0	0	0	3
W	0	5	1	0	0	0	6
WNW	0	5	1	0	0	0	6
NW	0	2	0	0	0	0	2
NNW	0	8	2	0	0	0	10
Variable	0	0	0	0	0	0	0
Total	3	59	26	0	0	0	88

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 5 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, July – September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Neutral - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	6	13	6	0	0	0	25
NNE	4	19	12	0	0	0	35
NE	15	38	31	0	0	0	84
ENE	8	32	14	0	0	0	54
E	4	31	17	0	0	0	52
ESE	7	15	8	0	0	0	30
SE	6	18	0	0	0	0	24
SSE	3	16	2	0	0	0	21
S	1	23	19	0	0	0	43
SSW	4	15	18	2	0	0	39
SW	3	9	3	0	0	0	15
WSW	1	14	8	0	0	0	23
W	5	24	3	0	0	0	32
WNW	5	11	4	0	0	0	20
NW	9	16	4	0	0	0	29
NNW	8	33	17	0	0	0	58
Variable	0	0	0	0	0	0	0
Total	89	327	166	2	0	0	584

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 5 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, July - September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Slightly Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	6	7	0	0	0	14
NNE	11	13	6	0	0	0	30
NE	6	9	1	0	0	0	16
ENE	7	14	14	0	0	0	35
E	3	15	5	0	0	0	23
ESE	4	7	0	0	0	0	11
SE	4	5	0	0	0	0	9
SSE	4	7	0	0	0	0	11
S	18	31	6	0	0	0	55
SSW	13	25	15	1	0	0	54
SW	22	23	0	0	0	0	45
WSW	25	50	1	0	0	0	76
W	14	15	1	0	0	0	30
WNW	12	8	0	0	0	0	20
NW	14	20	0	0	0	0	34
NNW	10	32	9	0	0	0	51
Variable	0	0	0	0	0	0	0
Total	168	280	65	1	0	0	514

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 5 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, July – September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017

Stability Class - Moderately Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	5	1	0	0	0	0	6
NNE	6	0	0	0	0	0	6
NE	1	2	0	0	0	0	3
ENE	1	0	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	1	0	0	0	0	0	1
SE	4	0	0	0	0	0	4
SSE	6	0	0	0	0	0	6
S	9	1	0	0	0	0	10
SSW	16	1	0	0	0	0	17
SW	14	4	0	0	0	0	18
WSW	27	21	0	0	0	0	48
W	28	4	0	0	0	0	32
WNW	10	1	0	0	0	0	11
NW	22	13	0	0	0	0	35
NNW	8	5	0	0	0	0	13
Variable	0	0	0	0	0	0	0
Total	158	53	0	0	0	0	211

Hours of calm in this stability class: 4
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 5 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, July - September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Extremely Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	3	0	0	0	0	0	3
NNE	1	0	0	0	0	0	1
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	2	0	0	0	0	0	2
S	3	0	0	0	0	0	3
SSW	4	0	0	0	0	0	4
SW	11	0	0	0	0	0	11
WSW	47	9	0	0	0	0	56
W	126	6	0	0	0	0	132
WNW	42	1	0	0	0	0	43
NW	58	2	0	0	0	0	60
NNW	7	4	0	0	0	0	11
Variable	0	0	0	0	0	0	0
Total	305	22	0	0	0	0	327

Hours of calm in this stability class: 11
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 6 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, July – September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017

Stability Class - Extremely Unstable - 380Ft-33Ft Delta-T (F)

Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	1	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	1	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	0	1	0	0	1
SSW	0	0	0	0	1	0	1
SW	0	0	1	0	0	0	1
WSW	0	0	0	0	1	0	1
W	0	0	0	1	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	2	3	2	0	7

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 6 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, July - September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Moderately Unstable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	2	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	2	3	0	0	5
ENE	0	0	3	2	0	0	5
E	0	0	1	0	0	0	1
ESE	0	0	2	0	0	0	2
SE	0	0	8	4	0	0	12
SSE	0	0	0	9	0	0	9
S	0	0	0	5	5	0	10
SSW	0	0	0	3	1	0	4
SW	0	0	1	1	0	0	2
WSW	0	0	1	3	2	0	6
W	0	0	3	4	0	0	7
WNW	0	0	0	0	0	0	0
NW	0	0	1	0	2	0	3
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	22	36	10	0	68

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 6 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, July - September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Slightly Unstable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	3	0	0	4
NNE	0	0	6	0	0	0	6
NE	0	1	10	5	0	0	16
ENE	0	2	20	3	4	0	29
E	0	0	6	1	0	0	7
ESE	0	2	7	0	0	0	9
SE	0	1	8	2	0	0	11
SSE	0	0	4	11	0	0	15
S	0	0	8	9	3	0	20
SSW	0	0	1	3	2	0	6
SW	0	0	2	5	0	0	7
WSW	0	0	4	4	2	0	10
W	0	1	4	9	0	0	14
WNW	0	0	8	3	0	0	11
NW	0	1	11	3	2	0	17
NNW	0	0	9	9	2	0	20
Variable	0	0	0	0	0	0	0
Total	0	8	109	70	15	0	202

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 6 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, July - September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Neutral - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	5	11	6	10	4	37
NNE	1	15	21	8	19	0	64
NE	2	19	38	28	10	12	109
ENE	2	11	46	14	22	5	100
E	1	11	30	20	10	2	74
ESE	6	21	9	9	3	1	49
SE	2	10	20	5	1	0	38
SSE	1	12	17	12	1	0	43
S	2	5	23	35	3	0	68
SSW	0	7	28	28	11	1	75
SW	1	10	7	12	0	0	30
WSW	0	3	15	15	3	0	36
W	0	6	24	24	2	0	56
WNW	0	6	25	11	1	0	43
NW	2	12	32	8	1	0	55
NNW	1	9	22	28	14	0	74
Variable	0	0	0	0	0	0	0
Total	22	162	368	263	111	25	951

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 6 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, July - September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017

Stability Class - Slightly Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	4	4	5	8	0	22
NNE	0	5	12	5	0	0	22
NE	0	6	5	2	0	0	13
ENE	0	5	4	6	6	0	21
E	0	5	6	6	2	0	19
ESE	2	3	6	2	0	0	13
SE	1	4	2	1	0	0	8
SSE	1	3	14	1	0	0	19
S	1	2	14	22	0	0	39
SSW	1	2	19	28	12	0	62
SW	0	4	10	29	17	0	60
WSW	2	4	11	17	19	0	53
W	2	3	12	8	3	0	28
WNW	0	5	2	6	4	0	17
NW	1	1	6	2	4	0	14
NNW	2	2	5	20	22	0	51
Variable	0	0	0	0	0	0	0
Total	14	58	132	160	97	0	461

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 6 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, July - September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Moderately Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	2	13	13	0	29
NNE	0	1	3	5	1	0	10
NE	1	1	0	1	0	0	3
ENE	1	0	1	1	0	0	3
E	0	1	1	0	0	0	2
ESE	0	2	0	0	0	0	2
SE	1	2	0	0	0	0	3
SSE	2	5	3	0	0	0	10
S	0	4	5	0	0	0	9
SSW	1	3	9	7	0	0	20
SW	2	1	11	20	7	0	41
WSW	0	4	3	26	32	1	66
W	1	9	6	5	10	0	31
WNW	0	2	4	3	5	0	14
NW	0	0	4	4	1	0	9
NNW	0	2	5	10	28	0	45
Variable	0	0	0	0	0	0	0
Total	9	38	57	95	97	1	297

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 6 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, July – September, 2017

Oyster Creek Alpha

Period of Record: July - September 2017
Stability Class - Extremely Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	4	8	13	3	0	29
NNE	2	4	9	9	0	0	24
NE	2	1	5	3	1	0	12
ENE	2	0	5	0	0	0	7
E	0	2	1	0	0	0	3
ESE	0	1	0	0	0	0	1
SE	1	0	1	0	0	0	2
SSE	0	1	0	0	0	0	1
S	0	2	4	0	0	0	6
SSW	0	5	12	0	0	0	17
SW	0	4	7	5	0	0	16
WSW	0	0	10	8	1	1	20
W	1	4	7	6	7	0	25
WNW	0	2	10	5	1	1	19
NW	1	0	4	4	5	0	14
NNW	1	6	9	6	4	0	26
Variable	0	0	0	0	0	0	0
Total	11	36	92	59	22	2	222

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 7 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	2	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	2	0	0	0	0	2
ENE	0	2	5	0	0	0	7
E	0	2	1	0	0	0	3
ESE	0	0	0	0	0	0	0
SE	0	4	0	0	0	0	4
SSE	0	0	1	0	0	0	1
S	0	0	7	4	0	0	11
SSW	0	2	2	0	0	0	4
SW	0	6	4	0	0	0	10
WSW	0	6	2	0	0	0	8
W	0	2	13	2	0	0	17
WNW	0	2	17	0	0	0	19
NW	0	1	13	0	0	0	14
NNW	0	3	3	3	0	0	9
Variable	0	0	0	0	0	0	0
Total	0	32	70	9	0	0	111

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 7 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
Stability Class - Moderately Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	8	1	0	0	0	9
NNE	0	4	0	0	0	0	4
NE	0	6	1	0	0	0	7
ENE	0	11	2	0	0	0	13
E	0	9	0	0	0	0	9
ESE	0	3	0	0	0	0	3
SE	0	2	5	0	0	0	7
SSE	0	1	4	0	0	0	5
S	0	0	7	0	0	0	7
SSW	0	3	1	0	0	0	4
SW	0	5	7	1	0	0	13
WSW	0	3	3	0	0	0	6
W	1	1	11	4	0	0	17
WNW	0	2	13	4	0	0	19
NW	0	4	12	1	0	0	17
NNW	0	6	3	2	0	0	11
Variable	0	0	0	0	0	0	0
Total	1	68	70	12	0	0	151

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 7 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
Stability Class - Slightly Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	4	0	0	0	0	4
NNE	0	1	0	0	0	0	1
NE	1	2	1	0	0	0	4
ENE	0	5	3	0	0	0	8
E	0	5	1	0	0	0	6
ESE	0	1	2	0	0	0	3
SE	0	2	1	0	0	0	3
SSE	0	0	1	0	0	0	1
S	0	3	1	3	0	0	7
SSW	0	1	2	0	0	0	3
SW	0	1	0	0	0	0	1
WSW	1	0	2	0	0	0	3
W	0	1	4	2	0	0	7
WNW	0	5	5	4	0	0	14
NW	0	6	4	0	0	0	10
NNW	0	4	1	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	2	41	28	9	0	0	80

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 7 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
Stability Class - Neutral - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	3	25	13	0	0	0	41
NNE	4	14	0	0	0	0	18
NE	3	5	4	2	0	0	14
ENE	6	18	30	10	0	0	64
E	2	9	2	3	0	0	16
ESE	0	9	4	0	0	0	13
SE	4	9	8	0	0	0	21
SSE	5	13	11	5	0	0	34
S	1	10	23	14	0	0	48
SSW	0	11	27	13	0	0	51
SW	1	8	9	0	0	0	18
WSW	1	10	13	2	0	0	26
W	4	21	21	10	1	0	57
WNW	5	14	21	9	0	0	49
NW	10	25	18	1	0	0	54
NNW	3	23	4	2	0	0	32
Variable	0	0	0	0	0	0	0
Total	52	224	208	71	1	0	556

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 7 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
Stability Class - Slightly Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	5	16	0	0	0	0	21
NNE	3	1	0	0	0	0	4
NE	4	3	0	0	0	0	7
ENE	3	7	4	0	0	0	14
E	2	15	5	0	0	0	22
ESE	1	4	1	0	0	0	6
SE	3	18	3	0	0	0	24
SSE	4	13	4	3	0	0	24
S	9	25	13	0	0	0	47
SSW	10	27	24	8	0	0	69
SW	15	63	7	0	0	0	85
WSW	19	47	1	0	0	0	67
W	10	42	15	0	0	0	67
WNW	11	33	12	0	0	0	56
NW	9	43	12	0	0	0	64
NNW	6	23	11	0	0	0	40
Variable	0	0	0	0	0	0	0
Total	114	380	112	11	0	0	617

Hours of calm in this stability class: 1
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 7 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
Stability Class - Moderately Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	1	0	0	0	0	5
NNE	3	0	0	0	0	0	3
NE	0	1	0	0	0	0	1
ENE	2	0	0	0	0	0	2
E	2	1	0	0	0	0	3
ESE	3	0	0	0	0	0	3
SE	1	2	0	0	0	0	3
SSE	3	1	0	0	0	0	4
S	2	4	0	0	0	0	6
SSW	3	3	0	0	0	0	6
SW	11	10	0	0	0	0	21
WSW	13	18	0	0	0	0	31
W	13	23	0	0	0	0	36
WNW	15	15	0	0	0	0	30
NW	11	15	0	0	0	0	26
NNW	10	14	0	0	0	0	24
Variable	0	0	0	0	0	0	0
Total	96	108	0	0	0	0	204

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 7 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
 Stability Class - Extremely Stable - 150Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	1	0	0	0	0	5
NNE	3	0	0	0	0	0	3
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	2	0	0	0	0	0	2
SE	4	0	0	0	0	0	4
SSE	3	0	0	0	0	0	3
S	7	1	0	0	0	0	8
SSW	7	1	0	0	0	0	8
SW	18	0	0	0	0	0	18
WSW	95	14	0	0	0	0	109
W	151	19	0	0	0	0	170
WNW	64	2	0	0	0	0	66
NW	51	5	0	0	0	0	56
NNW	14	5	0	0	0	0	19
Variable	0	0	0	0	0	0	0
Total	424	48	0	0	0	0	472

Hours of calm in this stability class: 9
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 8 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
 Stability Class - Extremely Unstable - 380Ft-33Ft Delta-T (F)
 Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 8 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
 Stability Class - Moderately Unstable - 380Ft-33Ft Delta-T (F)
 Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	1	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	1	0	0	1
SSW	0	0	0	0	0	0	0
SW	0	0	1	0	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	1	0	0	1
WNW	0	0	0	1	2	0	3
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	2	3	2	0	7

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 8 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, October – December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
Stability Class - Slightly Unstable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	0	0	0	3
NNE	0	0	0	0	0	0	0
NE	0	0	3	3	0	0	6
ENE	0	0	3	4	0	0	7
E	0	0	1	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	1	2	0	0	0	3
SSE	0	0	0	1	0	0	1
S	0	0	1	5	4	0	10
SSW	0	0	4	0	0	0	4
SW	0	0	3	4	0	1	8
WSW	0	0	2	0	1	0	3
W	0	0	1	9	7	7	24
WNW	0	0	1	7	8	2	18
NW	0	0	1	4	6	2	13
NNW	0	1	1	2	0	1	5
Variable	0	0	0	0	0	0	0
Total	0	3	25	39	26	13	106

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 8 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, October – December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
Stability Class - Neutral - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	8	15	27	5	0	55
NNE	0	4	17	2	0	0	23
NE	1	4	10	7	2	7	31
ENE	2	13	11	15	22	21	84
E	1	11	14	8	5	0	39
ESE	1	6	6	11	3	0	27
SE	2	7	4	9	3	6	31
SSE	2	7	10	7	7	8	41
S	0	2	9	26	17	9	63
SSW	0	2	15	16	33	17	83
SW	0	3	8	17	5	0	33
WSW	0	5	8	13	10	1	37
W	0	6	8	42	17	27	100
WNW	0	5	10	30	20	15	80
NW	1	9	18	33	18	5	84
NNW	1	3	14	12	11	3	44
Variable	0	0	0	0	0	0	0
Total	11	95	177	275	178	119	855

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 8 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017
Stability Class - Slightly Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	0	5	19	2	0	27
NNE	0	0	9	0	0	0	9
NE	1	2	2	1	0	0	6
ENE	3	1	1	6	0	1	12
E	0	3	6	10	2	0	21
ESE	0	1	3	2	0	0	6
SE	1	3	1	17	8	0	30
SSE	0	3	1	7	5	1	17
S	2	4	7	19	7	0	39
SSW	0	1	6	30	19	7	63
SW	1	3	3	25	43	11	86
WSW	2	3	1	31	19	1	57
W	1	4	6	17	29	1	58
WNW	0	5	8	20	29	1	63
NW	1	1	7	29	28	2	68
NNW	0	0	3	18	10	0	31
Variable	0	0	0	0	0	0	0
Total	13	34	69	251	201	25	593

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D - 8 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, October - December, 2017

Oyster Creek Alpha

Period of Record: October - December 2017

Stability Class - Moderately Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	11	15	0	26
NNE	0	2	1	1	0	0	4
NE	1	0	3	1	0	0	5
ENE	1	1	4	5	0	0	11
E	1	1	3	2	0	0	7
ESE	1	5	1	2	0	0	9
SE	0	0	3	2	1	0	6
SSE	0	0	1	1	0	0	2
S	2	3	3	5	5	0	18
SSW	0	1	0	14	3	0	18
SW	0	3	1	7	15	4	30
WSW	0	0	2	16	7	8	33
W	0	0	4	5	14	7	30
WNW	0	1	1	10	11	3	26
NW	0	2	4	24	19	1	50
NNW	1	3	5	9	13	5	36
Variable	0	0	0	0	0	0	0
Total	7	22	36	115	103	28	311

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 8 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, October – December, 2017

Oyster Creek Alpha

Period of Record: October – December 2017
Stability Class - Extremely Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	3	18	3	0	25
NNE	0	5	10	3	0	0	18
NE	1	1	14	8	0	0	24
ENE	1	1	4	1	1	0	8
E	2	1	9	14	0	0	26
ESE	2	8	4	2	0	0	16
SE	1	1	3	3	0	0	8
SSE	1	4	4	6	0	0	15
S	1	2	4	2	2	0	11
SSW	0	2	2	11	10	0	25
SW	1	2	1	14	3	0	21
WSW	1	2	10	15	4	0	32
W	0	2	5	5	14	3	29
WNW	2	2	5	15	7	2	33
NW	0	3	2	9	2	1	17
NNW	2	2	3	9	5	0	21
Variable	0	0	0	0	0	0	0
Total	15	39	83	135	51	6	329

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 7

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 9 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class - All Stabilities - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind	Wind Speed Range (m/s)											
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0	Total	
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	2	17	32	39	85	51	21	9	2	0	0	258
NNE	0	30	28	42	73	24	24	7	1	1	0	230
NE	3	19	45	72	118	101	46	11	11	1	0	427
ENE	1	27	28	46	131	156	88	32	15	4	0	528
E	1	14	18	46	97	107	48	8	3	0	0	342
ESE	1	16	19	19	93	79	28	5	1	0	0	261
SE	0	21	25	25	90	82	45	5	2	0	0	295
SSE	1	25	28	36	71	53	38	25	12	1	0	290
S	2	36	44	50	107	93	95	53	45	0	0	525
SSW	2	36	40	54	136	148	109	66	52	5	0	648
SW	5	57	94	82	166	95	29	18	4	0	0	550
WSW	5	115	211	195	219	115	41	9	11	0	0	921
W	5	251	274	142	175	141	91	40	32	1	0	1152
WNW	5	121	131	87	158	132	126	67	63	4	0	894
NW	5	92	156	124	163	124	104	26	36	5	0	835
NNW	2	32	58	99	147	110	72	20	7	3	0	550
Tot	40	909	1231	1158	2029	1611	1005	401	297	25	0	8706

Hours of Calm 36
Hours of Variable Direction 0
Hours of Valid Data 8742
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 9 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind	Wind Speed Range (m/s)											Total
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0		
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	0	0	1	1	11	5	1	0	0	0	19
NNE	0	0	0	1	5	1	2	1	0	0	0	10
NE	0	0	0	1	9	11	3	0	0	0	0	24
ENE	0	0	0	0	13	39	23	3	0	0	0	78
E	0	0	0	1	11	27	14	0	0	0	0	53
ESE	0	0	0	0	11	42	8	1	0	0	0	62
SE	0	0	0	0	8	35	29	0	0	0	0	72
SSE	0	0	0	0	0	7	17	13	0	0	0	37
S	0	0	0	0	0	12	36	27	27	0	0	102
SSW	0	0	0	0	2	7	15	4	14	2	0	44
SW	0	0	0	0	9	19	8	0	1	0	0	37
WSW	0	0	0	2	14	25	16	1	5	0	0	63
W	0	0	0	0	9	39	33	9	11	0	0	101
WNW	0	0	0	1	15	31	44	18	27	0	0	136
NW	0	0	0	0	20	37	37	9	16	2	0	121
NNW	0	0	0	0	9	21	20	6	2	2	0	60
Tot	0	0	0	7	136	364	310	93	103	6	0	1019

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 1019
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 9 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class - Moderately Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind	Wind Speed Range (m/s)											Total
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0		
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	0	0	1	13	5	2	3	0	0	0	24
NNE	0	0	0	0	14	7	1	1	0	0	0	23
NE	0	0	0	6	14	8	2	1	0	0	0	31
ENE	0	0	0	1	23	17	10	0	0	0	0	51
E	0	0	0	4	9	11	0	0	0	0	0	24
ESE	0	0	0	1	13	7	3	1	0	0	0	25
SE	0	0	0	0	14	16	8	0	0	0	0	38
SSE	0	0	1	0	7	11	5	2	0	0	0	26
S	0	0	0	0	1	7	10	9	4	0	0	31
SSW	0	0	1	1	11	5	10	5	5	0	0	38
SW	0	0	1	2	6	9	4	3	0	0	0	25
WSW	0	0	0	2	13	14	3	1	2	0	0	35
W	0	0	1	1	18	12	16	8	7	0	0	63
WNW	0	0	0	0	13	20	14	13	8	1	0	69
NW	0	0	0	3	19	11	17	3	7	3	0	63
NNW	0	0	0	2	17	19	8	5	1	1	0	53
Tot	0	0	4	24	205	179	113	55	34	5	0	619

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 619
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 9 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class - Slightly Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind	Wind Speed Range (m/s)											
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0	Total	
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	0	0	3	7	3	0	2	1	0	0	16
NNE	0	0	0	1	1	1	1	2	0	0	0	6
NE	0	0	2	2	8	5	3	2	4	0	0	26
ENE	0	0	1	1	16	9	5	0	0	1	0	33
E	0	0	0	2	6	4	1	0	0	0	0	13
ESE	0	0	0	2	6	5	1	0	0	0	0	14
SE	0	0	1	0	10	5	1	0	0	0	0	17
SSE	0	0	0	1	2	10	2	0	0	0	0	15
S	0	0	0	1	4	6	9	1	3	0	0	24
SSW	0	0	0	1	5	4	3	3	1	0	0	17
SW	0	0	1	1	2	3	1	2	0	0	0	10
WSW	0	0	2	1	6	7	2	0	0	0	0	18
W	0	0	0	3	9	12	4	4	3	0	0	35
WNW	0	0	0	5	6	6	11	5	5	1	0	39
NW	0	0	0	3	7	6	4	1	2	0	0	23
NNW	0	0	0	2	13	5	3	2	1	0	0	26
Tot	0	0	7	29	108	91	51	24	20	2	0	332

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 332
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 9 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Neutral - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind	Wind Speed Range (m/s)											Total
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0		
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	4	11	14	48	30	8	2	1	0	0	118
NNE	0	3	12	24	44	9	18	3	1	1	0	115
NE	2	7	24	41	70	76	38	8	7	1	0	274
ENE	0	7	16	28	61	77	43	27	15	3	0	277
E	0	5	10	23	47	49	32	8	3	0	0	177
ESE	0	1	11	13	53	19	16	3	1	0	0	117
SE	0	7	9	18	40	19	6	5	2	0	0	106
SSE	0	3	12	20	41	21	13	9	9	1	0	129
S	0	4	6	15	52	41	31	15	11	0	0	175
SSW	0	3	3	7	26	45	45	35	19	1	0	184
SW	0	3	7	8	22	19	6	7	2	0	0	74
WSW	0	0	4	10	44	38	12	7	4	0	0	119
W	0	7	11	23	43	44	26	18	8	1	0	181
WNW	0	2	10	13	34	35	32	24	21	1	0	172
NW	0	4	19	20	44	35	19	7	9	0	0	157
NNW	0	1	17	29	57	37	29	5	3	0	0	178
Tot	2	61	182	306	726	594	374	183	116	9	0	2553

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 2553
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 9 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Slightly Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind	Wind Speed Range (m/s)											
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0	Total	
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	3	9	16	15	2	6	1	0	0	0	52
NNE	0	13	13	13	9	6	2	0	0	0	0	56
NE	1	7	14	20	15	1	0	0	0	0	0	58
ENE	0	12	9	14	17	14	7	2	0	0	0	75
E	1	7	6	15	24	16	1	0	0	0	0	70
ESE	0	7	6	3	10	6	0	0	0	0	0	32
SE	0	7	10	6	17	7	1	0	0	0	0	48
SSE	1	8	6	11	21	4	1	1	3	0	0	56
S	0	13	25	29	49	27	9	1	0	0	0	153
SSW	1	10	16	29	89	87	36	19	13	2	0	302
SW	3	25	30	47	116	45	10	6	1	0	0	283
WSW	0	22	40	68	118	30	8	0	0	0	0	286
W	0	14	24	34	74	33	12	1	3	0	0	195
WNW	1	14	18	36	70	40	25	7	2	1	0	214
NW	0	8	26	46	62	35	27	6	2	0	0	212
NNW	1	4	15	30	46	28	12	2	0	0	0	138
Tot	9	174	267	417	752	381	157	46	24	3	0	2230

Hours of Calm 8
Hours of Variable Direction 0
Hours of Valid Data 2238
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 9 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Moderately Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind	Wind Speed Range (m/s)											Total
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0		
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	4	6	3	1	0	0	0	0	0	0	14
NNE	0	9	2	2	0	0	0	0	0	0	0	13
NE	0	2	4	2	1	0	0	0	0	0	0	9
ENE	0	6	2	2	1	0	0	0	0	0	0	11
E	0	2	2	1	0	0	0	0	0	0	0	5
ESE	1	5	2	0	0	0	0	0	0	0	0	8
SE	0	4	3	1	1	0	0	0	0	0	0	9
SSE	0	9	8	3	0	0	0	0	0	0	0	20
S	0	9	11	4	1	0	0	0	0	0	0	25
SSW	1	13	13	13	3	0	0	0	0	0	0	43
SW	0	13	25	18	11	0	0	0	0	0	0	67
WSW	0	19	34	61	23	1	0	0	0	0	0	138
W	0	22	50	36	18	1	0	0	0	0	0	127
WNW	0	16	21	17	14	0	0	0	0	0	0	68
NW	0	14	30	30	8	0	0	0	0	0	0	82
NNW	0	6	13	23	5	0	0	0	0	0	0	47
Tot	2	153	226	216	87	2	0	0	0	0	0	686

Hours of Calm 4
Hours of Variable Direction 0
Hours of Valid Data 690
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 9 Wind Speed by Direction Measured at 33 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Extremely Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind	Wind Speed Range (m/s)											
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0	Total	
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	2	6	6	1	0	0	0	0	0	0	0	15
NNE	0	5	1	1	0	0	0	0	0	0	0	7
NE	0	3	1	0	1	0	0	0	0	0	0	5
ENE	1	2	0	0	0	0	0	0	0	0	0	3
E	0	0	0	0	0	0	0	0	0	0	0	0
ESE	0	3	0	0	0	0	0	0	0	0	0	3
SE	0	3	2	0	0	0	0	0	0	0	0	5
SSE	0	5	1	1	0	0	0	0	0	0	0	7
S	2	10	2	1	0	0	0	0	0	0	0	15
SSW	0	10	7	3	0	0	0	0	0	0	0	20
SW	2	16	30	6	0	0	0	0	0	0	0	54
WSW	5	74	131	51	1	0	0	0	0	0	0	262
W	5	208	188	45	4	0	0	0	0	0	0	450
WNW	4	89	82	15	6	0	0	0	0	0	0	196
NW	5	66	81	22	3	0	0	0	0	0	0	177
NNW	1	21	13	13	0	0	0	0	0	0	0	48
Tot	27	521	545	159	15	0	0	0	0	0	0	1267

Hours of Calm 24
Hours of Variable Direction 0
Hours of Valid Data 1291
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 10 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – All Stabilities - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind	Wind Speed Range (m/s)											Total		
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0				
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0				
N	0	1	5	13	24	32	37	80	134	79	2	3	428	
NNE	0	2	3	10	46	40	78	53	40	30	1	0	312	
NE	0	2	10	10	43	65	85	90	91	66	6	9	531	
ENE	1	6	5	12	33	49	81	64	99	1	08	6	1	519
E	0	3	7	10	40	48	65	60	84	44	2	2	383	
ESE	0	2	9	14	55	54	58	51	53	9	1	1	316	
SE	0	5	8	11	25	48	62	46	43	14	1	1	273	
SSE	0	2	9	13	26	51	55	55	63	17	2	5	316	
S	0	5	4	10	22	38	56	93	171	86	2	8	513	
SSW	0	3	3	9	18	57	57	82	203	2	35	12	8	795
SW	1	0	6	6	26	37	46	53	180	1	97	10	6	658
WSW	0	2	6	10	28	46	61	81	208	1	92	9	2	726
W	0	2	6	7	35	46	73	86	206	1	97	13	0	788
WNW	0	0	1	8	20	40	69	73	225	2	23	19	6	855
NW	0	2	6	4	30	45	91	67	203	1	62	12	2	732
NNW	0	5	3	6	20	61	54	67	174	1	52	5	5	597
Tot	2	42	91	153	491	757	1028	1101	2	177	1	11	10	8742

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 8742
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 10 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Extremely Unstable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind	Wind Speed Range (m/s)												
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0	Total		
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0			
N	0	0	0	0	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	0	1	0	0	1	
NE	0	0	0	0	0	1	0	0	3	0	0	4	
ENE	0	0	0	0	0	0	0	0	4	1	0	5	
E	0	0	0	0	0	0	0	0	4	0	0	4	
ESE	0	0	0	0	0	0	0	0	2	0	0	2	
SE	0	0	0	0	0	0	0	0	1	0	0	1	
SSE	0	0	0	0	0	0	0	0	0	0	0	0	
S	0	0	0	0	0	0	0	0	1	1	0	2	
SSW	0	0	0	0	0	0	0	0	0	1	1	2	
SW	0	0	0	0	0	1	0	0	0	0	0	1	
WSW	0	0	0	0	0	0	0	0	1	1	2	4	
W	0	0	0	0	0	0	0	0	4	1	2	7	
WNW	0	0	0	0	0	0	0	1	2	4	1	5	22
NW	0	0	0	0	0	0	0	0	0	1	1	1	12
NNW	0	0	0	0	0	0	0	0	1	1	0	2	
Tot	0	0	0	0	0	2	0	1	24	11	3	1	69

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 69
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 10 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Moderately Unstable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed Range (m/s)											Total
	<0.50	0.5-1.0	1.1-1.5	1.6-2.0	2.1-3.0	3.1-4.0	4.1-5.0	5.1-6.0	6.1-8.0	8.1-10.0	>10.0	
N	0	0	0	0	0	0	0	0	4	0	0	4
NNE	0	0	0	0	0	0	0	0	1	1	0	2
NE	0	0	0	0	0	0	2	3	5	0	0	10
ENE	0	0	0	0	0	0	5	5	7	0	0	17
E	0	0	0	0	0	2	4	4	4	0	0	14
ESE	0	0	0	0	0	2	5	10	3	0	0	20
SE	0	0	0	0	0	2	7	7	3	0	0	19
SSE	0	0	0	0	0	0	0	2	14	0	0	16
S	0	0	0	0	0	0	0	4	10	12	3	29
SSW	0	0	0	0	0	0	0	0	6	5	6	17
SW	0	0	0	0	0	0	4	1	3	1	0	9
WSW	0	0	0	0	0	1	1	7	6	4	4	23
W	0	0	0	0	0	0	1	4	8	5	5	23
WNW	0	0	0	0	0	0	0	5	16	13	4	48
NW	0	0	0	0	0	0	4	7	15	3	1	39
NNW	0	0	0	0	0	0	1	1	6	1	0	9
Tot	0	0	0	0	0	7	34	60	111	45	4	299

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 299
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 10 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Slightly Unstable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind	Wind Speed Range (m/s)											Total
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0		
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	0	0	0	1	2	2	5	3	0	0	13
NNE	0	0	0	0	1	0	5	2	0	1	0	9
NE	0	0	0	0	0	3	12	8	9	1	1	34
ENE	0	0	0	0	1	4	20	10	8	5	0	48
E	0	0	0	0	1	3	7	3	3	0	0	17
ESE	0	0	0	0	1	8	11	2	3	0	0	25
SE	0	0	0	0	2	3	12	7	5	0	0	29
SSE	0	0	0	0	1	2	7	11	13	0	0	34
S	0	0	0	0	0	0	3	11	23	13	1	51
SSW	0	0	0	0	0	1	3	4	14	7	7	36
SW	0	0	0	0	0	1	5	9	9	0	2	26
WSW	0	0	0	0	0	0	8	9	8	5	2	32
W	0	0	0	0	1	4	9	10	29	17	1	82
WNW	0	0	0	0	0	2	11	11	23	20	2	90
NW	0	0	0	0	0	6	15	8	13	10	1	62
NNW	0	0	0	0	1	1	8	9	18	2	3	42
Tot	0	0	0	0	10	40	138	119	181	81	6	630

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 630
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 10 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Neutral - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind Direction	Wind Speed Range (m/s)											Total
	<0.50	0.5-1.0	1.1-1.5	1.6-2.0	2.1-3.0	3.1-4.0	4.1-5.0	5.1-6.0	6.1-8.0	8.1-10.0	>10.0	
N	0	0	2	4	11	16	19	30	42	21	17	162
NNE	0	0	2	2	26	22	38	22	16	24	9	161
NE	0	1	4	4	30	46	47	42	51	63	66	354
ENE	0	2	2	8	24	32	41	37	53	89	59	347
E	0	1	3	7	24	25	33	30	48	35	22	228
ESE	0	0	7	5	29	30	33	33	38	9	6	190
SE	0	2	4	3	16	28	32	24	15	5	7	136
SSE	0	0	4	6	14	32	33	28	16	11	17	161
S	0	1	2	2	8	19	29	51	73	29	21	235
SSW	0	1	1	5	7	25	24	30	70	81	57	301
SW	0	0	1	0	10	14	12	9	42	21	10	119
WSW	0	1	0	3	14	19	29	25	61	34	7	193
W	0	1	0	1	17	27	31	34	95	55	49	310
WNW	0	0	0	4	8	21	26	24	77	54	82	296
NW	0	1	4	3	24	25	46	25	61	48	52	289
NNW	0	1	1	3	10	31	27	21	54	50	26	224
Tot	0	12	37	60	272	412	500	465	812	629	507	3706

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 3706
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 10 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Slightly Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind	Wind Speed Range (m/s)											
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0	Total	
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	1	1	2	5	6	4	17	24	10	2	72
NNE	0	1	0	3	5	7	17	12	7	0	1	53
NE	0	0	2	3	9	5	9	16	15	0	2	61
ENE	0	1	2	3	6	10	5	3	19	12	2	63
E	0	0	3	3	8	7	14	8	13	7	0	63
ESE	0	0	1	3	9	6	7	4	4	0	5	39
SE	0	0	3	6	4	7	7	4	17	8	4	60
SSE	0	1	2	3	5	9	13	9	15	6	8	71
S	0	2	0	4	7	11	14	23	39	20	1	121
SSW	0	1	2	0	6	15	17	36	79	13	5	322
SW	0	0	2	2	7	11	12	18	73	18	6	308
WSW	0	1	5	3	6	11	9	19	70	78	2	222
W	0	0	4	1	5	7	10	21	44	68	2	180
WNW	0	0	0	0	6	11	13	14	59	82	3	223
NW	0	1	1	0	3	6	12	8	66	56	2	174
NNW	0	2	0	0	1	10	6	16	50	43	5	133
Tot	0	11	28	36	92	139	169	228	594	621	24	2165

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 2165
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 10 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Moderately Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind	Wind Speed Range (m/s)											Total
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0		
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	0	1	3	1	0	3	11	31	34	4	88
NNE	0	0	0	1	4	1	5	7	4	2	0	24
NE	0	1	1	1	1	2	3	4	3	0	0	16
ENE	1	0	1	0	1	1	3	7	5	0	0	19
E	0	0	1	0	1	5	2	1	2	1	0	13
ESE	0	0	0	6	6	2	0	0	2	0	0	16
SE	0	2	1	0	1	3	1	2	1	1	0	12
SSE	0	1	2	2	4	3	2	3	0	0	0	17
S	0	2	1	3	4	4	4	3	18	8	2	49
SSW	0	1	0	1	2	5	6	11	23	14	3	66
SW	1	0	1	2	5	2	7	9	33	45	2	127
WSW	0	0	0	1	2	7	2	13	38	54	5	169
W	0	1	1	1	7	5	8	9	17	32	2	110
WNW	0	0	0	0	4	2	7	7	25	32	1	92
NW	0	0	0	0	2	4	7	12	32	34	1	105
NNW	0	1	0	0	3	6	6	13	29	41	1	116
Tot	2	9	10	21	48	52	66	112	263	298	15	1039

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 1039
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Table D – 10 Wind Speed by Direction Measured at 380 Feet for various Stability Classes for the Oyster Creek Generating Station, January – December, 2017

Oyster Creek Alpha

Period of Record: January - December 2017
Stability Class – Extremely Stable - 380Ft-33Ft Delta-T (F)
Winds Measured at 380 Feet

Wind	Wind Speed Range (m/s)											Total
Direction	0.5-	1.1-	1.6-	2.1-	3.1-	4.1-	5.1-	6.1-	8.1-	>10.0		
Sector	<0.50	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0		
N	0	0	1	4	6	8	9	17	30	14	0	89
NNE	0	1	1	4	10	10	13	10	11	2	0	62
NE	0	0	3	2	3	8	12	17	5	2	0	52
ENE	0	3	0	1	1	2	7	2	3	1	0	20
E	0	2	0	0	6	6	5	14	10	1	0	44
ESE	0	2	1	0	10	6	2	2	1	0	0	24
SE	0	1	0	2	2	5	3	2	1	0	0	16
SSE	0	0	1	2	2	5	0	2	5	0	0	17
S	0	0	1	1	3	4	6	1	7	3	0	26
SSW	0	0	0	3	3	11	7	1	11	14	1	51
SW	0	0	2	2	4	8	6	7	20	12	7	68
WSW	0	0	1	3	6	8	12	8	24	16	5	83
W	0	0	1	4	5	3	14	8	9	19	13	76
WNW	0	0	1	4	2	4	12	11	23	18	9	84
NW	0	0	1	1	1	4	7	7	16	10	4	51
NNW	0	1	2	3	5	13	6	7	16	14	4	71
Tot	0	10	16	36	69	105	121	116	192	126	43	834

Hours of Calm 0
Hours of Variable Direction 0
Hours of Valid Data 834
Hours of Missing Data 18
Hours in Period 8760

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Appendix E
ODCM Revisions

There were no ODCM revisions in 2017

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Appendix F
ERRATA

Oyster Creek 2017 Annual Radioactive Effluent Release Report

Corrections to 2016 ARERR

1. A Program Deviation was not reported as required in the 2016 Annual Radiological Effluent Release Report in Section J. Program Deviations. A turbine building (TB) effluent tritium sample was not collected for the first quarter of 2016 within the required time frame.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

ORIGINAL PAGE Oyster Creek 2016 Annual Radioactive Effluent Release Report

a third party vendor increased the time to locate, order and receive the new output card which resulted in the monitoring system being inoperable for more than 30 days.

2. The Turbine Building Ventilation Monitoring System Effluent Flow Measuring Device was declared inoperable from February 10, 2016 through May 17, 2016 (97 days). During the performance of the Turbine Building RAGEMS Sample and Effluent Flow – Functional Test surveillance, the alarm for loss of flow from the feed pump room was not received as required by the acceptance criteria of the surveillance. The issue was entered into our Corrective Action Program and the Effluent Flow Measuring Device was declared inoperable. Compensatory sampling was initiated per the ODCM. After review of the surveillance performance and plant response during the surveillance, it was determined that the flow indication did not reach the alarm set point due to static pressure on the high side of the delta pressure transmitter. The surveillance was revised to address the static pressure issue and it was determined by the station to re-perform the surveillance at the next scheduled quarterly performance of the surveillance which resulted in the Effluent Flow Measuring Device being inoperable for more than 30 days.
3. The Reactor Building Service Water Radiation Monitor was declared inoperable from August 11, 2016 through September 22, 2016 (41 days). During the weekly performance of the source check of the Reactor Building Service Water Radiation Monitor, the LCD monitor for the monitor turned off and abnormal conditions were observed. The issue was entered into our Corrective Action Program and the Reactor Building Service Water Radiation Monitor was declared inoperable. Compensatory sampling was initiated per the ODCM. Troubleshooting identified that the DC power supply was degraded due to a failed beacon bulb. The components were not available on site and the components were ordered through the vendor. Due to the vendor having limited availability of the components, it took 31 days for the vendor to ship the components. The power supply and the beacon bulb were replaced as soon as they arrived. The time required for the components to arrive from the vendor resulted in the monitor being inoperable for more than 30 days.

I. Releases from the Independent Spent Fuel Storage Facility:

The ISFSI is a closed system and the only exposure would be due to direct radiation. This includes iodines, particulates, and noble gases. Based on offsite TLD readings, dose due to direct radiation from the ISFSI was less than 1 mrem for 2016. Because it is a sealed unit, no radioactive material was released.

J. Program Deviations:

1. There was one program deviation in 2016.

A stack RAGEMS compensatory noble gas sample was not obtained within the ODCM required 8 hour time frame. The stack RAGEMS low range monitor was declared inoperable at 12:14 on October 17, 2016 by Operations so the Instrument Maintenance Department could perform a calibration of the stack RAGEMS low range monitor. An activity on the work order for the calibration is for the Chemistry Department to line up flow to the by-pass sample line which stops flow from going through the low range monitor.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

ORIGINAL PAGE Oyster Creek 2016 Annual Radioactive Effluent Release Report

Chemistry commenced the ODCM required compensatory sampling for the low range monitor being declared inoperable which is a noble gas sample every 8 hours. The calibration was suspended due to a parts issue and the monitor was inoperable longer than is typical to perform a calibration. When the Instrument Maintenance Department completed the calibration they informed Operations that the calibration was completed satisfactorily. The Operations crew that was on shift at the time the calibration was completed was a different crew than when the calibration began and did not realize that the monitor flow was in by-pass mode and declared the low range monitor operable at 16:05 on October 27, 2016. The Operations Department notified the on shift chemistry technician that they had declared the low range monitor operable. The on shift chemistry technician was not involved in lining the low range monitor to the by-pass mode and stopped performing the ODCM required compensatory sampling based on Operations declaring the monitor operable. When Operations performed their daily source check early the next morning they noticed that the indication didn't change from when flow was supposed to be going through the monitor and when they placed the monitor in purge to perform the source check. Operations discovered that the flow was in by-pass mode and requested Chemistry to perform the compensatory sampling. Chemistry immediately obtained a sample but it was 9 hours and 55 minutes from the previous sample so it did not meet the ODCM requirement of performing a compensatory sample every 8 hours. The low range monitor flow was returned to normal through the monitor and the low range monitor was returned to service. This event was entered into our Corrective Action Program and the cause was determined to be that the Operations Unit Supervisor failed to use procedure OP-AA-108-106 (Equipment Return to Service Checklist) due to the belief that the surveillance test returned the system to its normal lineup and that no maintenance was performed during the surveillance test. The OP-AA-108-106 would have directed a work order search be performed which would have identified there were activities that still needed to be completed including returning flow to the monitor. A contributing cause of this event was that the surveillance procedure Stack RAGEMS Noble Gas Monitor Calibration (621.3.025) does not contain instructions as to the mode or condition in which the equipment is to be placed after completion of the maintenance activity or test.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

CORRECTED PAGE Oyster Creek 2016 Annual Radioactive Effluent Release Report

a third party vendor increased the time to locate, order and receive the new output card which resulted in the monitoring system being inoperable for more than 30 days.

4. The Turbine Building Ventilation Monitoring System Effluent Flow Measuring Device was declared inoperable from February 10, 2016 through May 17, 2016 (97 days). During the performance of the Turbine Building RAGEMS Sample and Effluent Flow – Functional Test surveillance, the alarm for loss of flow from the feed pump room was not received as required by the acceptance criteria of the surveillance. The issue was entered into our Corrective Action Program and the Effluent Flow Measuring Device was declared inoperable. Compensatory sampling was initiated per the ODCM. After review of the surveillance performance and plant response during the surveillance, it was determined that the flow indication did not reach the alarm set point due to static pressure on the high side of the delta pressure transmitter. The surveillance was revised to address the static pressure issue and it was determined by the station to re-perform the surveillance at the next scheduled quarterly performance of the surveillance which resulted in the Effluent Flow Measuring Device being inoperable for more than 30 days.
5. The Reactor Building Service Water Radiation Monitor was declared inoperable from August 11, 2016 through September 22, 2016 (41 days). During the weekly performance of the source check of the Reactor Building Service Water Radiation Monitor, the LCD monitor for the monitor turned off and abnormal conditions were observed. The issue was entered into our Corrective Action Program and the Reactor Building Service Water Radiation Monitor was declared inoperable. Compensatory sampling was initiated per the ODCM. Troubleshooting identified that the DC power supply was degraded due to a failed beacon bulb. The components were not available on site and the components were ordered through the vendor. Due to the vendor having limited availability of the components, it took 31 days for the vendor to ship the components. The power supply and the beacon bulb were replaced as soon as they arrived. The time required for the components to arrive from the vendor resulted in the monitor being inoperable for more than 30 days.

K. Releases from the Independent Spent Fuel Storage Facility:

The ISFSI is a closed system and the only exposure would be due to direct radiation. This includes iodines, particulates, and noble gases. Based on offsite TLD readings, dose due to direct radiation from the ISFSI was less than 1 mrem for 2016. Because it is a sealed unit, no radioactive material was released.

L. Program Deviations:

There were two program deviations in 2016.

1. A stack RAGEMS compensatory noble gas sample was not obtained within the ODCM required 8 hour time frame. The stack RAGEMS low range monitor was declared inoperable at 12:14 on October 17, 2016 by Operations so the Instrument Maintenance Department could perform a calibration of the stack RAGEMS low range monitor. An activity on the work order for the calibration is for the Chemistry Department to line up flow to the by-pass sample line which stops flow from going through the low range monitor.

Oyster Creek 2017 Annual Radioactive Effluent Release Report

CORRECTED PAGE Oyster Creek 2016 Annual Radioactive Effluent Release Report

Chemistry commenced the ODCM required compensatory sampling for the low range monitor being declared inoperable which is a noble gas sample every 8 hours. The calibration was suspended due to a parts issue and the monitor was inoperable longer than is typical to perform a calibration. When the Instrument Maintenance Department completed the calibration they informed Operations that the calibration was completed satisfactorily. The Operations crew that was on shift at the time the calibration was completed was a different crew than when the calibration began and did not realize that the monitor flow was in by-pass mode and declared the low range monitor operable at 16:05 on October 27, 2016. The Operations Department notified the on shift chemistry technician that they had declared the low range monitor operable. The on shift chemistry technician was not involved in lining the low range monitor to the by-pass mode and stopped performing the ODCM required compensatory sampling based on Operations declaring the monitor operable. When Operations performed their daily source check early the next morning they noticed that the indication didn't change from when flow was supposed to be going through the monitor and when they placed the monitor in purge to perform the source check. Operations discovered that the flow was in by-pass mode and requested Chemistry to perform the compensatory sampling. Chemistry immediately obtained a sample but it was 9 hours and 55 minutes from the previous sample so it did not meet the ODCM requirement of performing a compensatory sample every 8 hours. The low range monitor flow was returned to normal through the monitor and the low range monitor was returned to service. This event was entered into our Corrective Action Program and the cause was determined to be that the Operations Unit Supervisor failed to use procedure OP-AA-108-106 (Equipment Return to Service Checklist) due to the belief that the surveillance test returned the system to its normal lineup and that no maintenance was performed during the surveillance test. The OP-AA-108-106 would have directed a work order search be performed which would have identified there were activities that still needed to be completed including returning flow to the monitor. A contributing cause of this event was that the surveillance procedure Stack RAGEMS Noble Gas Monitor Calibration (621.3.025) does not contain instructions as to the mode or condition in which the equipment is to be placed after completion of the maintenance activity or test.

2. The first quarter Turbine Building (TB) effluent tritium sample was not obtained within the required time. This sample is required per Table 4.11.2.1.2-1, Radioactive Gaseous Waste Sampling and Analysis Program, of the Oyster Creek ODCM (CY-OC-170-301) to be obtained once every 92 days with a 25% grace period. The previous sample was obtained on October 6, 2015 at 00:15 am. Based on that sample time, the first quarter sample was required to be obtained no later than January 29, 2016 at 00:16 am. The sample was completed February 18, 2016 at 09:00 am. The cause for the delay in sampling was due to improper close out of the paperwork for the sample obtained October 6, 2015. That paperwork was closed out several weeks after the actual sample date causing the next activity to be scheduled late. This issue was captured in our corrective action program and corrective actions taken to prevent recurrence.