

Environmental Monitoring Report

For 2015

Pilgrim, Seabrook, and Vermont Yankee
Nuclear Power Station
Emergency Planning Zones

Prepared by:

Environmental Toxicology Program
Bureau of Environmental Health
Massachusetts Department of Public Health
250 Washington Street
Boston, Massachusetts 02108

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EXECUTIVE SUMMARY

The Massachusetts Department of Public Health (MDPH) Bureau of Environmental Health Environmental Toxicology and Radiation Control Programs collaborate to conduct routine environmental monitoring within the three Emergency Planning Zones (EPZs) of nuclear power stations in the Commonwealth. This monitoring is part of the department's regulatory responsibility, and provides a system of watchfulness over environmental radiation in Massachusetts communities surrounding nuclear power plants. These EPZs include communities located within a 10-mile radius of Pilgrim Nuclear Power Station (PNPS) in Plymouth, MA, Seabrook Nuclear Power Station (Seabrook) in Seabrook, NH, and the Vermont Yankee Nuclear Power Station (VY), in Vernon, VT (which ceased operations on December 29, 2014 and is undergoing decommissioning). This report summarizes the 2015 monitoring activities and results for each nuclear plant EPZ.

Radiation monitoring results in 2015 for areas surrounding the three nuclear power stations affecting Massachusetts have been either non-detect, naturally occurring, at levels expected to be present in the environment from background fallout from historic bomb testing and past nuclear accidents, or attributable to a known source. Radioactive iodine was identified just above laboratory reporting levels in three Irish moss samples: one at a background location to Seabrook, and one at a background and one at an indicator location to PNPS. Air and surface water samples collected at the same time near both Seabrook and PNPS did not detect iodine-131, and MDPH determined the source is not likely to be either nuclear power plant. Three fish and sediment samples within and outside the VY EPZ detected Cesium-137 which MDPH has determined is attributable to historic radiation fallout in the environment.

Overall, no radiation indicators or radionuclides were detected at a level of health concern.

1. INTRODUCTION

THE MDPH radiation environmental monitoring program samples a variety of media within and just outside the EPZs surrounding nuclear power plants, monitors the airborne gamma radiation in the EPZs of PNPS, and gamma and beta radiation in the Massachusetts communities within the EPZ of Seabrook. MDPH's intent is to monitor radiation levels and protect public health in the Commonwealth from radiation. Samples are analyzed for radiation by the Massachusetts Environmental Radiation Laboratory (MERL). Environmental media samples analyzed in 2015 include: food crops, vegetation, milk, surface water, sediment, shellfish, fish, and air.

MDPH has a network of stationary monitors surrounding PNPS which measure gamma radiation in real-time and transmit the data to a computer which is monitored by MDPH staff. The C-IO Research & Education Foundation, Inc., a non-profit under contract to MDPH, conducts direct radiation monitoring in communities within the Seabrook EPZ and provides summary reports to MDPH.

The MDPH environmental monitoring programs at PNPS and Seabrook have been in place since the 1980s. The environmental monitoring program for Massachusetts communities within the VY EPZ began in 2011. A focused investigation of tritium in groundwater at PNPS is ongoing and not part of this report. Updates on this monitoring effort are posted on the MDPH website: [Tritium investigation update reports](#).

The Nuclear Regulatory Commission requires specific environmental monitoring and annual reporting by operating nuclear power plants. The reports summarizing Seabrook and PNPS's environmental monitoring can be found on the NRC website: [PNPS 2015 Environmental Radiological Monitoring Report](#) and [Seabrook's 2015 Environmental Radiological Monitoring Report](#). Vermont Yankee's reports are no longer on the NRC website.

MDPH's monitoring activities for each nuclear plant are described in the Environmental Monitoring sections of this report. The report is organized by presenting sample location and analysis information for each of the three EPZs, discussing the analyses of the samples, and summarizing the monitoring results for each EPZ.

ENVIRONMENTAL RADIATION

Radiation present in the environment comes from three general sources: naturally occurring radiation, radioactive fallout from past weapons testing or nuclear accidents, and radiation from active operations.

Naturally occurring radionuclides such as Potassium-40 and Beryllium-7 are present in most environmental media. Potassium-40 is a naturally occurring radioactive form of potassium, an essential nutrient. Beryllium-7 is produced when cosmic energy collides with nitrogen and oxygen in the atmosphere. Other natural sources of radon, cosmic radiation, and carbon-14 contribute to an annual background dose of approximately 310 mrems/year (NRC, 2016). Man-made sources include medical treatments and nuclear research. All contribute to the 620 mrem annual dose of environmental radiation by average U.S. residents.

Figure 1. Background Radiation Dose for Average U.S. Resident (NRC, 2014)

Annual dose	Millirems/year
Due to natural background radiation	310 per year
Total of all sources	620 per year

Background radiation includes fallout radiation from historic weapons testing, primarily in the 1950s and 1960s, and from nuclear power plant accidents such as Chernobyl and Fukushima. This fallout includes radioisotopes such as Cesium-137 (Cs-137) and Strontium-90 (Sr-90) which persist in the environment due to their 28-30 year half-lives. These radionuclides are also released in small quantities from nuclear power plant operations.

During active operation, nuclear power plants emit direct gamma radiation from nuclear reactor systems, discharge gases and particulates from the station's air stack, and discharge water containing alpha, beta and gamma radiation. These emissions can be classified as: noble gases, tritium, and iodines and particulates. **Noble gases** are chemically inert, have short half-lives and disperse quickly in the environment, and do not bioconcentrate or easily incorporate into biological tissue. **Tritium** is created when water passes through the reactor core; the hydrogen atoms in the water molecules and other trace elements like boron absorb neutrons from the fission of the reactor fuel. **Iodines and particulates**, notably Cesium-137, Iodine-131, Cobalt-60, Magnesium-54, Iron-59, and Zinc-65, have environmental and public health significance: their half-lives range from weeks to years, are readily incorporated into biological tissue, and will bioconcentrate.

Exposure to radiation from nuclear power plants may occur from permitted air or liquid discharges or from unmonitored releases or leaks. MDPH evaluates possible routes of exposure for radionuclides, particularly those that accumulate in the food chain, and samples environmental media to measure potential radiation along these routes.

LABORATORY METHODS

All samples collected by and provided to MDPH are analyzed by the Massachusetts Environmental Radiation Laboratory (MERL). MERL maintains its standard of excellence in analytical capability through participation with several federal agencies in inter-laboratory quality assurance measures.

Samples analyzed by MERL are reviewed on-site for a suite of more than 30 radiation isotopes. Gamma spectroscopy is used to identify and detect environmentally significant and natural radioisotopes; gas proportion counters measure gross beta and alpha radiation; and liquid scintillation counters measure tritium. Results for environmental media samples are compared to typical background levels. In the event that gamma emitters are present above typical background, the MERL protocol calls for additional testing at an outside laboratory for alpha emitters, such as transuranic (high atomic number) elements, and beta emitters, such as strontium-90. Analysis methods by media are summarized below:

AIR

Air filters are collected weekly and analyzed for gross alpha and gross beta radioactivity using a gas proportion counter. Air cartridges are analyzed for iodine-131 using gamma spectroscopy. Iodine is usually the first radioactive particulate detected in the event of an accidental release of power plant radiation. Gross alpha and beta analysis is a screening-level tool that does not identify individual radionuclides; therefore, air filters are also analyzed quarterly for gamma radionuclides using gamma spectroscopy. Results are compared to results from a background monitor located in Boston.

Direct gamma radiation in air is measured with thermoluminescent dosimeters (TLDs) and analyzed using gamma spectroscopy.

WATER

Surface water samples are tested for total alpha and beta radioactivity with a gas proportional counter, and for gamma-emitting materials with a gamma spectrometer. Tritium is lighter and more mobile in water than other radionuclides and is a sentinel indicator of radionuclides in water bodies. Water samples are also tested for tritium with a liquid scintillation counter.

MILK

Cow's milk is tested for gamma radionuclides and iodine-131 using gamma spectroscopy. Milk is a good indicator media for radioactive particulates, particularly iodine-131, which can be detected in milk soon after cow's graze on contaminated pastures or feed.

SOIL, BIOTA, CROPS, SEAFOOD AND SHELLFISH

Produce, sediment, biota, seafood and shellfish were chosen to represent various stages of the food chain in water and on land using media where radionuclides may be identified. Shellfish filter-feed soil and sand where heavy and soil-bound radionuclides may accumulate; lobsters eat clams, mussels and small fish; and radionuclides biomagnify from smaller to larger surface-dwelling fish. Analyses of biota and crop samples aim to identify radionuclides and particulates which may settle on plants, and be absorbed through the roots. Samples are tested for gamma-emitting radionuclides using a gamma spectrometer.

QUALITY ASSURANCE

Laboratory samples detection levels are affected by sample size, time between collection and analysis, and equipment processing and counting time. Where detection levels fall outside our analytic sensitivity guidelines they are noted in the tables as “NR” (Result is not reported for quality control reason).

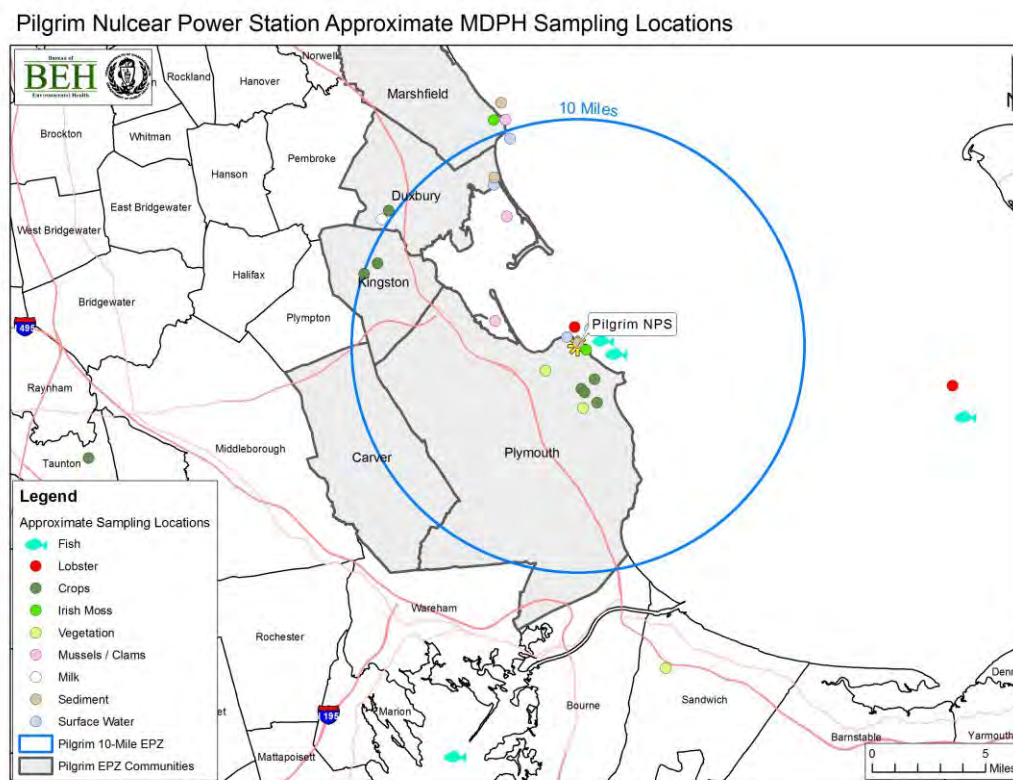
2. ENVIRONMENTAL MONITORING AND SAMPLING

This section describes the three nuclear power station 10-mile EPZs in Massachusetts and summarizes the environmental samples collected and analyzed in 2015.

A. PILGRIM NUCLEAR POWER STATION

The Pilgrim Nuclear Power Station (PNPS) is located in Plymouth, MA. Five Massachusetts communities are included in the 10-mile EPZ of PNPS: Carver, Duxbury, Kingston, Marshfield, and Plymouth shown in Figure 1.

Figure 2. PNPS EPZs and sampling locations



Radiation monitoring conducted within and outside the PNPS EPZ includes: direct radiation, air, surface water, fish, lobsters, and milk. MDPH's radiation monitoring conducted within and outside the PNPS EPZ is a combination of independent direct radiation monitoring, air, milk and cranberry sampling, and analysis of split samples provided by Entergy of water, fish, lobsters, shellfish, sediment, Irish moss, and crops.

Air/Direct Radiation

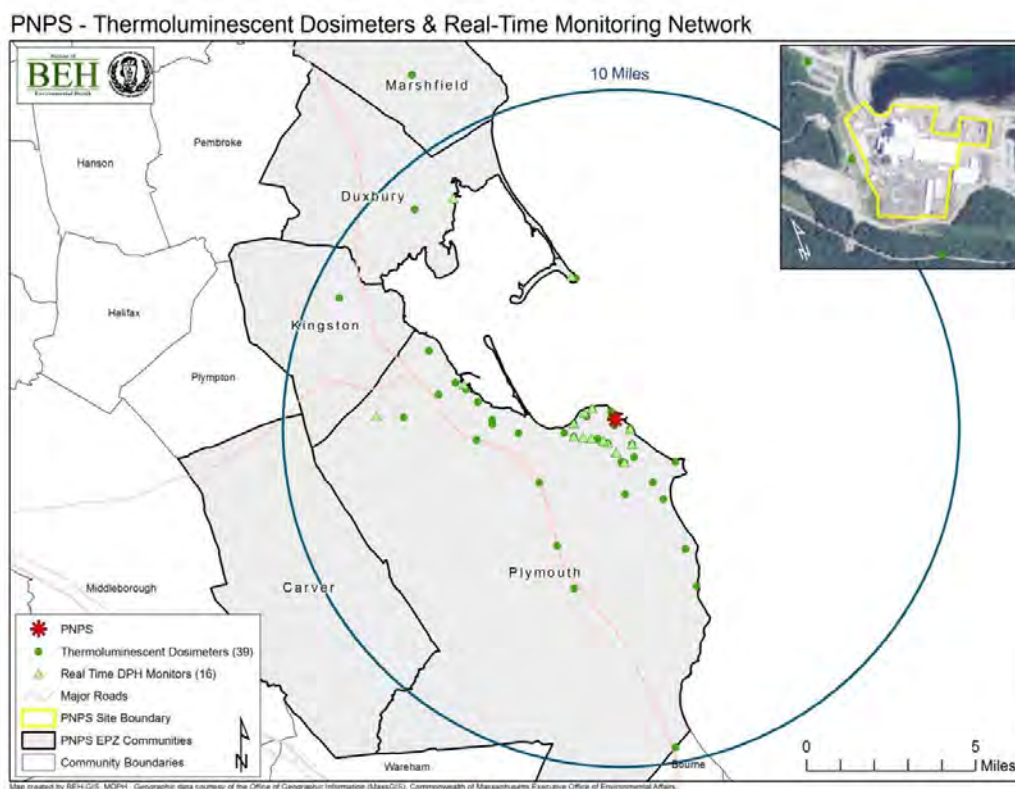
MDPH's direct radiation monitoring at PNPS is comprised of three systems operating on a real-time, weekly and quarterly basis. The redundant systems are designed to independently monitor the land areas within the 10-mile EPZ and to verify the utility's radiation monitoring.

MDPH's network of 15 stationary radiation monitoring stations detect gamma radiation in real-time and transmit data to a computer which is remotely accessed by staff. Emergency alerts are sent to MDPH and MEMA officials if radiation is detected above three times the typical background level. In 2012 and 2013, MDPH relocated three monitors to locations that more effectively represent the area's coastal and more densely populated areas.

MDPH co-locates an air particulate filter and charcoal air cartridge with Entergy's air sampler at PNPS and collects them weekly. Filters are analyzed for gross beta and gross alpha radioactivity and cartridges are analyzed for iodine-131. A filter composite sample is also analyzed quarterly for gamma radionuclides. The same analyses are done for an air particulate filter and charcoal cartridge at a background location in Boston.

MDPH has a network of 39 TLDs placed throughout the PNPS EPZ and surrounding communities which measure total gamma radiation in milliroentgen (mR). The majority of the TLDs are located in the inner perimeter of the EPZ, and three are at the site border. These TLDs are collected and analyzed quarterly, and the results are compared to those of a background location in Boston.

Figure 3. The MDPH Radiation -monitoring network at PNPS



Surface Water

Entergy collects seawater on a monthly basis from the PNPS discharge canal and the Powder Point Bridge in Duxbury and provides split samples to MDPH for analysis of gamma radionuclides. A quarterly composite of surface water samples from both locations is also analyzed for tritium by MERL.

Fish, Lobster and Shellfish

Entergy provides split samples of fish, lobster, and shellfish samples from Plymouth Harbor, Marshfield Bay and the PNPS discharge canal to MDPH for analysis. Entergy provides control and background samples of fish, shellfish and lobster from Cape Cod Bay, and MERL analyzes split samples.

Mussels are collected semiannually from Green Harbor in Marshfield by Entergy and clams from Duxbury Bay and Plymouth Harbor; these three locations are reported to be background locations by Entergy for federal reporting requirements, but considered to be “indicator” locations by MDPH because they fall within the 10-mile EPZ. The split samples are analyzed by MERL for gamma radionuclides.

Sediment

Entergy collects sediment from the PNPS discharge canal and Green Harbor in Marshfield semiannually and Duxbury Bay annually, and split samples are analyzed by MERL.

Irish moss

Irish moss readily absorbs iodine and is a good reference indicator of iodine-131 in the environment. Entergy collects samples of Irish moss from the PNPS discharge canal and a background location at Brant Rock in Marshfield semiannually and split samples are analyzed by MERL.

Crops

MDPH collects and analyses background cranberry samples from a bog in East Taunton annually.

Crops including corn, apples, gourds, gourd leaves, pumpkins, squash, and hay forage are collected during the growing season annually by Entergy from a Plymouth County farm located within the PNPS EPZ. A representative portion of the samples are analyzed by MERL. Entergy also collects samples of vegetables and wild vegetation from several commercial gardens in Plymouth and two background locations in Bridgewater and Duxbury; a portion of these are provided to MERL for analysis. Entergy collects hay forage samples from a background location in Whitman and cranberries from a bog located in Plymouth and MERL analyzes split samples of both.

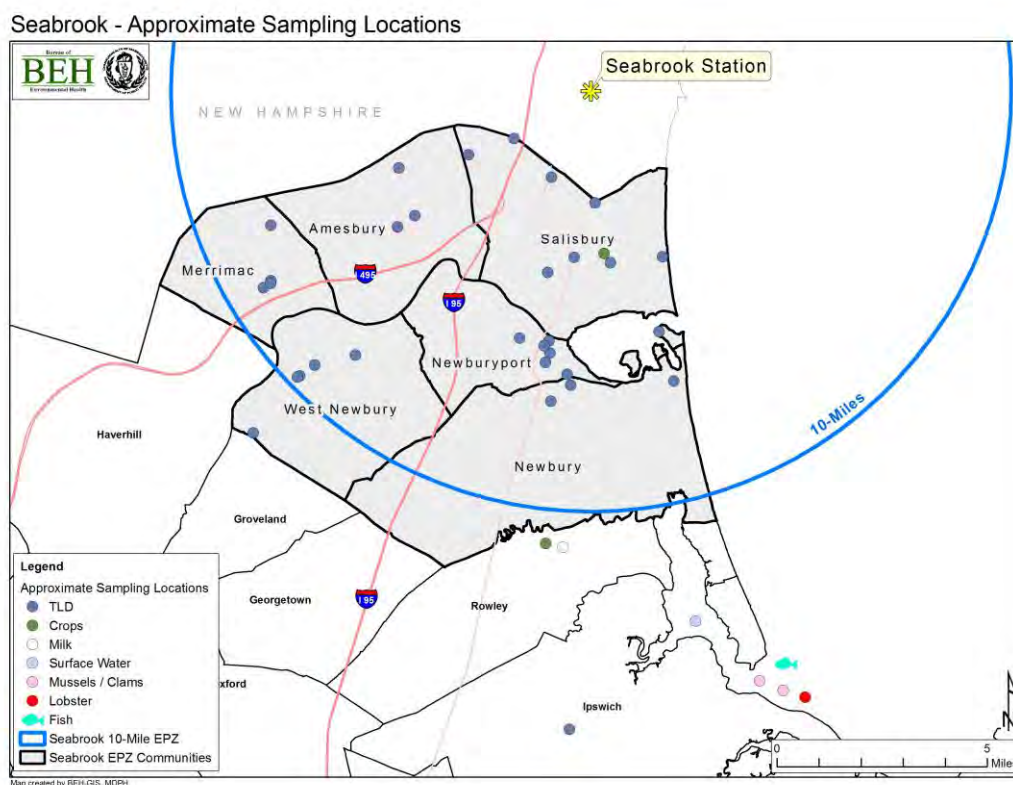
Milk

MDPH collects samples of cow’s milk monthly from a farm in Duxbury. The milk is analyzed for gamma radionuclides and Iodine-131. Although this farm is located just outside the EPZ (11 miles from PNPS), it is the closest dairy farm to PNPS with available milk samples.

B. SEABROOK NUCLEAR POWER STATION

The Seabrook Nuclear Power Station (Seabrook) is located in Seabrook, New Hampshire, approximately two miles north of the Massachusetts border. Six Massachusetts communities are included in the 10-mile EPZ of Seabrook: Amesbury, Merrimac, Newbury, Newburyport, Salisbury, and West Newbury shown in Figure 2.

Figure 4. Seabrook EPZs and sampling locations within Massachusetts



Radiation monitoring conducted within and outside the Seabrook EPZ includes the following environmental media: air, surface water, fish, lobster, shellfish, sediment, Irish moss, crops, and milk. MDPH receives split samples from Nextera, the utility that owns Seabrook, for all media except milk and air. Sampling locations and activities within Massachusetts are described below:

Air/Direct Radiation

MDPH collects air particulate filters and charcoal cartridges weekly at the Salisbury Fire Station. Filters are analyzed for gross beta and alpha radioactivity, and cartridges for iodine-131. Additionally, a filter composite is analyzed quarterly for gamma emitting radionuclides. The same analyses are done for air particulate filters and charcoal cartridges at the background location in Boston.

MDPH measures total ambient gamma radiation using a network of 34 TLDs placed at locations throughout the Seabrook EPZ in Massachusetts. These are collected and analyzed quarterly and results are compared to those of a background location in Boston.

MDPH has contracted the C-10 Research & Education Foundation, Inc. to conduct radiation monitoring in Massachusetts communities located in the Seabrook EPZ. The C-10 system consists of a network of 16 real-time radiation sensors and weather probes located in Massachusetts within a 10-mile radius of Seabrook station. Beta, gamma, and weather data are collected and uploaded every 15 minutes to a secure web-based central repository. The data are compiled and graphed monthly, with reports submitted to MDPH. All 16 monitoring sites are located at private homes, schools, and businesses. MDPH and MEMA officials receive text alerts from C-10 if levels go above three times the typical background readings.

Surface Water

Seawater samples are typically collected monthly by Nextera from a background location in Ipswich Bay. Split samples are analyzed for gamma radionuclides by MERL and a quarterly composite of these samples is analyzed for tritium.

Fish, Lobster, and Shellfish

Samples of fish, lobster, and shellfish, including *Modiolus* (Atlantic mussels) and *Mytilus* (Blue mussels), are collected semiannually by Nextera from Ipswich Bay, considered a background location, and split samples are analyzed by MERL for gamma radionuclides.

Sediment

Sediment samples from Ipswich Bay and the tidal flats on Plum Island, both background locations, are collected semiannually by Nextera and split samples are analyzed by MERL for gamma radionuclides.

Irish moss

As noted earlier, Irish moss (*Chondrus*) readily absorbs iodine and is a sentinel indicator of environmental iodine-131. Nextera collects samples of Irish moss semiannually from a background location in Ipswich Bay, and split samples are analyzed by MERL for gamma radionuclides.

Crops

Crops (e.g., strawberries and tomatoes) are collected by Nextera from a farm located within the Seabrook EPZ in Salisbury and split samples are analyzed by MERL. In addition, strawberries, tomatoes, and squash are collected from a background location by Nextera in Ipswich and split samples are analyzed by MERL for gamma radionuclides.

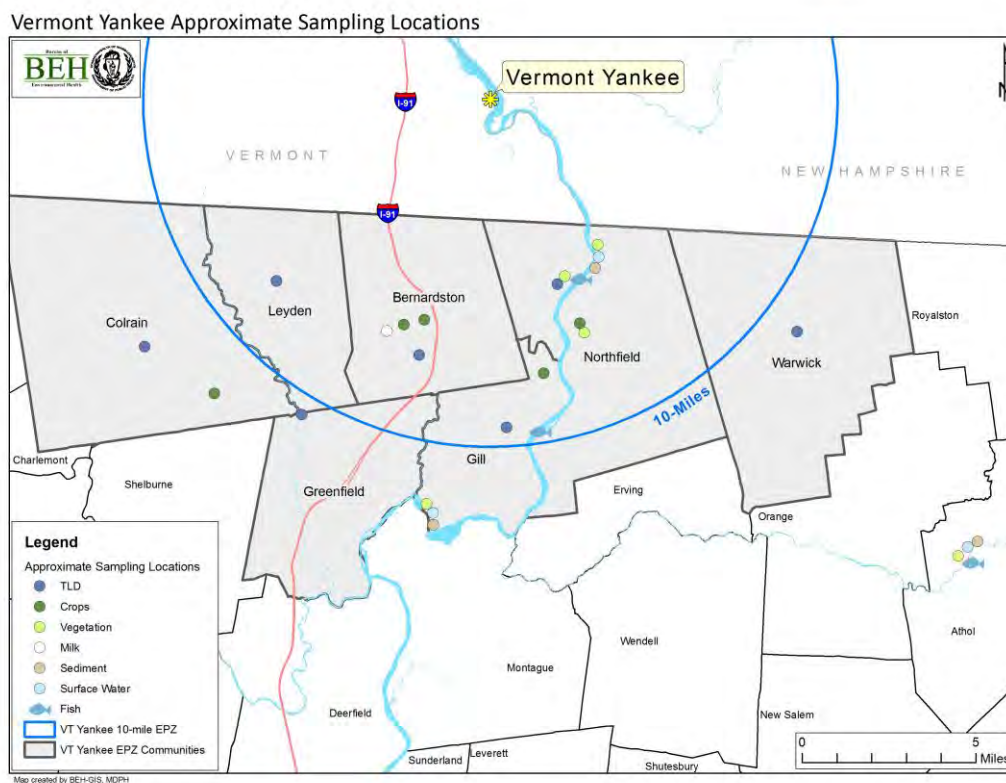
Milk

MDPH collects samples of cow's milk monthly from a farm located in Rowley and MERL analyzes them for gamma-emitting radionuclides and for iodine-131.

C. VERMONT YANKEE NUCLEAR POWER STATION

The Vermont Yankee Nuclear Power Station (VY) is located in Vernon, VT, approximately four miles north of the Massachusetts border. The reactor was permanently shut down on December 29, 2014, and the fuel was removed on January 12, 2015. Seven Massachusetts communities are located in the 10-mile EPZ of VY: Bernardston, Colrain, Gill, Greenfield, Leyden, Northfield, and Warwick.

Figure 4. VY EPZs and Sampling Locations within Massachusetts



MDPH initiated an environmental monitoring program in Massachusetts communities located within and outside the Vermont Yankee Nuclear Power Station EPZ in 2011. Radiation monitoring includes air, surface water, fish, sediment, grass, crops, and milk.

Air/Direct Radiation

MDPH collects air particulate filters and charcoal cartridges weekly at the Northfield Transfer Station. The filters are analyzed for gross beta and gross alpha radioactivity and the cartridges for iodine-131. Additionally, a filter composite is analyzed quarterly for gamma radionuclides. The same analyses are done for air particulate filters and charcoal cartridges at the background location in Boston.

MDPH measures total gamma radiation using a network of 7 TLDs placed at locations throughout and just outside the VY EPZ. These TLDs are collected and analyzed quarterly and results are compared to those of a background location in Boston.

Surface Water

MDPH collects surface water samples on a quarterly basis from two locations in the Connecticut River within the communities of Northfield and Gill, and from a background location at the Miller's River in Athol. Surface water samples are analyzed for gamma radionuclides and for tritium.

Fish

MDPH collects fish semiannually from the Connecticut River in Northfield and Gill and from a background location at the Millers River in Athol, and analyzes them for gamma radionuclides.

Sediment

MDPH collects sediment samples semiannually from two locations in the Connecticut River in Northfield and Gill, and from a background location at the Millers River in Athol. Samples are analyzed for gamma radionuclides.

Wild Grass

MDPH collects wild grass samples semiannually from two locations near the Connecticut River in Northfield and Gill and from a background location near the Millers River in Athol. Samples are analyzed for gamma radionuclides.

Crops

MDPH collects and analyzes crops (e.g. pumpkins, elderberries, apples and pasture grass) from several farms within the VY EPZ in Bernardston and Northfield during the growing season. Apples are collected from a background location in Colrain. All samples are analyzed for gamma radionuclides.

Milk

MDPH collects samples of cow's milk monthly from a farm in Bernardston and analyzes them for gamma radionuclides and iodine-131. Silage, used to feed the cows, is collected and analyzed annually for gamma radionuclides.

3. 2015 ENVIRONMENTAL MONITORING RESULTS

Radiation monitoring results in 2015 for Massachusetts have been either non-detect, naturally occurring (i.e., Potassium-40, Beryllium-7), or at levels expected to be present in the environment from historic background fallout and nuclear accidents including Chernobyl and Fukushima Dai-chi (i.e., Cesium-137). No detectable radionuclides were at levels of health concern or were indicative of an unintentional release of radiation at PNPS, Seabrook, or VY. One detection of radioactive iodine was identified in Irish moss at a background location to Seabrook and two in Plymouth (one background and one indicator location); all were at levels just above detection. Cesium-137, attributable to historic fallout, was detected in fish and soil samples within and outside VY's EPZ.

Results of environmental monitoring conducted by MDPH in the Massachusetts communities in the vicinity of each of the three nuclear power stations are discussed below and presented in Tables 1-9. The tables are organized by nuclear power station and by sample media. Sampling results presented in this report include:

- Air particulate filter for gross alpha and beta radiation, charcoal filter for radioactive iodine and thermoluminescent devices (TLDs) for gamma radiation doses.
- Surface and ground water for gamma radionuclides, and quarterly composites for tritium. Milk for natural and man-made radioactive materials including radioactive iodine.
- Fish, shellfish, crops, vegetation and sediment for gamma radionuclides.

A. PILGRIM NUCLEAR POWER STATION

Results are provided in Tables 1, 2 and 3.

Naturally occurring Potassium-40 and Beryllium-7 were detected in nearly all samples of environmental media for which they were analyzed from within and outside of the PNPS EPZ. Cesium-137 was not detected in any fish samples collected from within and outside the PNPS EPZ in 2015.

Although not detected at levels of human health concern (ATSDR, 2004) two Irish moss (*chondrus*) samples found detectable iodine-131 (12.1 pCi/kg on April 22, 2015 in Brant Rock, Marshfield, and 11.3 pCi/kg at the Discharge Canal on April 20, 2015). Iodine-131 is monitored carefully as nuclear power plants and nuclear weapons produce it, but it is most commonly used for treatment of thyroid disorders (Rose et al., 2012), and is allowed to be released into sewers. Surface water samples taken on April 28, 2015 at PNPS discharge canal and at Powder Point Bridge did not detect measurable Iodine-131, nor did air filter results at Pilgrim station on April 21st and 27th 2015. These two sample results are not at a level of health concern and do not appear to be connected to PNPS operations.

Air filter and cartridge analyses indicated low levels of gross alpha and gross beta radiation, as well as naturally occurring Beryllium-7 and Potassium-40 in most samples. These results are consistent with those obtained from the background location in Boston.

Real-time monitoring did not show radiation levels above typical background levels of approximately 0.008 - 0.010 mrem/hour with the exception of brief increases up to 0.002 mrem/hour that are expected due to rainfall washout from naturally occurring radionuclides and from cosmic radiation fluctuations. The average gamma reading for the year was 0.00924 mrem/hour, and no alerts at three

times background were recorded. For comparison, the average U.S. resident is exposed to approximately 310 mrem per year (or 0.035 mrem/hour) from natural background radiation (NRC, 2016).

TLD total gamma exposure results for three of the four quarters (TLD results for the third quarter were compromised during laboratory analysis and are not reported) ranged from 12.1 to 16.9 mR/quarter, with an average of 14.5 mR/quarter. This value is compared to an average value of 11.9 mR/quarter measured at a background location in Boston, and results in an average gamma exposure of 2.6 mR/quarter above background.

B. SEABROOK NUCLEAR POWER STATION

Seabrook sampling results are provided in Tables 4, 5 and 6.

Naturally occurring Potassium-40 and Beryllium-7 were detected in nearly all samples of environmental media from both within and outside of the Seabrook EPZ.

Although not detected at levels of human health concern (ATSDR, 2004) an Irish moss (*chondrus*) sample in Ipswich bay, a background location approximately 20 miles from the Seabrook EPZ, detected iodine-131 (21.3 pCi/kg on May 26, 2015). Radioactive iodine was found in Irish moss in the same location in 2012 and 2014. Iodine-131 is monitored carefully as nuclear power plants and nuclear weapons produce it, but it is most commonly used for treatment of thyroid disorders (Rose et al., 2012), and is allowed to be released into sewers. Monthly surface water samples in Ipswich Bay on May 21, 2015 and weekly air samples at the Salisbury Fire Station did not detect radioactive iodine. Sewage discharges and a medical center providing cancer treatment are near this background location, and these are most likely the source of the radioiodine. MDPH determined the radioiodine source is unlikely attributable to Seabrook and the levels detected do not present a health risk.

Air filter and cartridge sample results found low levels of gross alpha and gross beta radiation, as well as naturally occurring Beryllium-7 and Potassium-40. No gamma radionuclides of concern were detected in quarterly composite samples. The results are consistent with results obtained from the background location in Boston.

In 2015, real-time monitoring for the Seabrook EPZ did not show gamma radiation levels above typical background levels (approximately 0.010 mrem/hour) with the exception of brief increases (0.002 mrem/hour) that are expected due to rainfall washout from naturally occurring radionuclides such as airborne radon daughters, and cosmic radiation events. Beta readings ranged from 40 to 50 counts per minute with the exception of brief increases similar to the gamma results.

TLD results for total gamma exposure ranged from 12.8 to 20.2 mR/quarter with an average exposure of 17.6 mR/quarter, compared to an average of 14.5 mR/quarter at the background location in Boston. The result is an average gamma exposure level of 2.1 mR/quarter over background.

C. VERMONT YANKEE NUCLEAR POWER STATION

Vermont Yankee sampling results are provided in Tables 7, 8, and 9.

Naturally occurring Potassium-40 and Beryllium-7 were detected in nearly all samples of environmental media from both within and outside of the VY EPZ.

Cesium-137 was detected in 3 fish samples; two from background locations (49.4 – 50.1 pCi/kg) and one (13.2 pCi/kg) from the Connecticut River. Cs-137 had been detected in a fish sample in 2013 and three in 2014. These results are consistent with those from other locations reported in the scientific literature, and are considered attributable to historical fallout from weapons testing and past nuclear power plant accidents (VTDOH, 2012; Burger et al., 2007; ATSDR, 2004; Amund et al., 1996). Other power plant produced radionuclides were not detected in the fish, nor was Cs-137 detected in surface water at these locations, supporting the conclusion that residual deposition is the source. These concentrations of Cs-137 in fish present a very low health risk.

Cs-137, most likely attributable to historic weapon testing, was detected in sediment from the all three sampling areas in the VY EPZ at levels between 53.6 and 249 pCi/kg. Results for 2011-14 found similar detectable levels of Cs-137 in the soil. U.S. background soil and sediment typically has between 10 and 1000 pCi/kg of Cs-137 from past atmospheric bomb testing (US EPA, 1976). The results found within and around the VY fall within these values.

No detectable radioactive iodine was identified in surface water samples. Iodine-131 had been previously detected in the background surface water sample at the Millers River in Athol in 2012.

Air filter and cartridge analyses found low levels of gross alpha and gross beta radiation. The results are consistent with those obtained from the background location in Boston.

TLD results for total gamma exposure ranged from 10.3 to 15.4 mR/quarter with an average of 14.0 mR/quarter, which is just above the 13.6 mR/quarter average at the background location in Boston.

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E. TABLES

Table 1. Pilgrim Nuclear Power Station 2015 Environmental Monitoring Data – Liquid Matrices

Sample Type	Location	Date	K-40* (pCi/L)	Mn-54* (pCi/L)	Fe-59* (pCi/L)	Co-60* (pCi/L)	Zn-65* (pCi/L)	I-131* (pCi/L)	Cs-137* (pCi/L)	Ba-140* (pCi/L)	H-3* (pCi/L)
Surface water	PNPS discharge canal	2/4/2015	289	<5.3	<12.9	<5.2	<15.7	<19.1	<5.3	-	-
Surface water	PNPS discharge canal	3/3/2015	296	<4.2	<8.8	<4.5	<10.6	<5.5	<4.6	-	-
Surface water	PNPS discharge canal	3/31/2015	326	<4	<10.8	<4	<11.2	<25.3	<4	-	-
Surface water	PNPS discharge canal	4/28/2015	297	<3.8	<10.3	<3.9	<9.6	<20.9	<3.8	-	-
Surface water	PNPS discharge canal tritium composite	4/28/2016	-	-	-	-	-	-	-	-	<300
Surface water	PNPS discharge canal tritium composite	5/26/2015	-	-	-	-	-	-	-	-	<300
Surface water	PNPS discharge canal	6/2/2015	275	<2.7	<10.2	<4.3	<10.9	<18	<4.3	-	-
Surface water	PNPS discharge canal	6/8/2015	283	<3.6	<25.9	<2.8	<8	NR	<2.8	-	-
Surface water	PNPS discharge canal	6/16/2015	301	<2.9	<18.2	<2.7	<6.8	NR	<2.7	-	-
Surface water	PNPS discharge canal	6/22/2015	314	<2.9	<16.3	<2.7	<6.8	NR	<2.6	-	-
Surface water	PNPS discharge canal	6/30/2015	337	<2.8	<16.6	<2.8	<7.2	NR	<2.8	-	-
Surface water	PNPS discharge canal tritium composite	6/30/2015	-	-	-	-	-	-	-	-	<300
Surface water	PNPS discharge canal	7/28/2015	286	<3.4	<18.1	<2.8	<7.2	NR	<3	-	-
Surface water	PNPS discharge canal tritium composite	7/28/2015	-	-	-	-	-	-	-	-	<300
Surface water	PNPS discharge canal	8/25/2015	<115	<3.5	<13.3	<3.3	<7.2	NR	<3.3	-	-
Surface water	PNPS discharge canal tritium composite	8/25/2015	-	-	-	-	-	-	-	-	<300
Surface water	PNPS discharge canal	9/29/2015	<114	<2.8	<8.2	<3.1	<6	<18	<3	-	-
Surface water	PNPS discharge canal tritium composite	9/29/2015	-	-	-	-	-	-	-	-	<300
Surface water	PNPS discharge canal	10/26/2015	320	<3	<8.4	<2.8	<6.3	<27.5	<3	-	-
Surface water	PNPS discharge canal tritium composite	10/26/2015	-	-	-	-	-	-	-	-	<300
Surface water	PNPS discharge canal	11/24/2015	292	<3.1	<7.9	<2.9	<6.4	<24.3	<2.9	-	-
Surface water	PNPS discharge canal tritium composite	11/24/2015	-	-	-	-	-	-	-	-	<300
Surface water	PNPS discharge canal	12/29/2015	315	<3	<7	<2.7	<6.2	<10.5	<2.8	-	-
Surface water	PNPS discharge canal tritium composite	12/29/2015	-	-	-	-	-	-	-	-	<300
Surface water	Powder Point Bridge (background) ¹	2/4/2015	327	<4	<9.3	<4	<10.8	<14	<4	-	-
Surface water	Powder Point Bridge (background) ¹	3/3/2015	334	<3.8	<8	<4	<10.7	<4.8	<4.1	-	-
Surface water	Powder Point Bridge (background) ¹	3/31/2015	287	<5.1	<14.3	<5.3	<13.9	<32.6	<5.3	-	-
Surface water	Powder Point Bridge (background) ¹	4/28/2015	268	<4.3	<11.1	<4.1	<10.8	<23.3	<4.4	-	-

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

1. Sample considered "background" for the purpose of NRC regulations, but considered "indicator" by MDPH because it falls within the 10-mile EPZ.

"<" = value is less than the listed MDA value.

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Sample Type	Location	Date	K-40* (pCi/L)	Mn-54* (pCi/L)	Fe-59* (pCi/L)	Co-60* (pCi/L)	Zn-65* (pCi/L)	I-131* (pCi/L)	Cs-137* (pCi/L)	Ba-140* (pCi/L)	H-3* (pCi/L)
Surface water	Powder point bridge tritium composite	4/28/2015	-	-	-	-	-	-	-	-	<300
Surface water	Powder point bridge tritium composite	5/26/2016	-	-	-	-	-	-	-	-	<300
Surface water	Powder Point Bridge (background) ¹	6/2/2015	293	<3.7	<9	<4.1	<9.5	<15.4	<3.8	-	-
Surface water	Powder Point Bridge (background) ¹	6/8/2015	308	<3	<21.2	<2.7	<6.9	NR	<2.8	-	-
Surface water	Powder Point Bridge (background) ¹	6/16/2015	284	<3.5	<21.9	<2.8	<7.7	NR	<2.9	-	-
Surface water	Powder Point Bridge (background) ¹	6/22/2015	252	<3.1	<19	<2.6	<6.5	NR	<2.8	-	-
Surface water	Powder Point Bridge (background) ¹	6/30/2015	256	<3.7	<19.1	<2.9	<7.5	NR	<2.9	-	-
Surface water	Powder point bridge tritium composite	6/30/2015	-	-	-	-	-	-	-	-	<300
Surface water	Powder Point Bridge (background) ¹	7/28/2015	<113	<3.4	<18.3	<3.3	<7.4	NR	<3	-	-
Surface water	Powder point bridge tritium composite	7/28/2015	-	-	-	-	-	-	-	-	<300
Surface water	Powder Point Bridge (background) ¹	8/25/2015	306	<2.9	<10.3	<2.7	<6.1	NR	<2.8	-	-
Surface water	Powder point bridge tritium composite	8/25/2015	-	-	-	-	-	-	-	-	<300
Surface water	Powder Point Bridge (background) ¹	9/29/2015	295	<2.3	<6.3	<2.7	<5.2	<15.5	<2.5	-	-
Surface water	Powder point bridge tritium composite	9/29/2015	-	-	-	-	-	-	-	-	<300
Surface water	Powder Point Bridge (background) ¹	10/26/2015	289	<2.6	<7	<2.9	<5.2	<21.7		<2.7	
Surface water	Powder point bridge monthly tritium composite	10/26/2015									
Surface water	Powder Point Bridge (background) ¹	11/24/2015	<115	<3	<7.9	<2.9	<7	<21.7		<3.2	
Surface water	Powder point bridge monthly tritium composite	11/24/2015									
Surface water	Powder Point Bridge (background) ¹	12/29/2015	284	<2.7	<6.5	<3	<5.8	<8.5		<2.9	
Surface water	Powder point bridge monthly tritium composite	12/29/2015									
Milk	Duxbury	1/20/2015	1260					<3.9	<4.3	<4.3	<14.2
Milk	Duxbury	2/25/2015	1290					<4.2	<4.4	<4.7	<15
Milk	Duxbury	3/11/2015	1230					<4.6	<4.7	<4.8	<15.6
Milk	Duxbury	4/7/2015	1240					<4.6	<4.7	<4.9	<15.6
Milk	Duxbury	5/6/2015	1380					<4.1	<4.3	<4.5	<15
Milk	Duxbury	6/9/2015	1360					<4.2	<4.2	<4.7	<15.1
Milk	Duxbury	7/8/2015	1300					<2.6	<2.5	<3	<9.8

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

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"<" = value is less than the listed MDA value.

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Sample Type	Location	Date	K-40* (pCi/L)	Mn-54* (pCi/L)	Fe-59* (pCi/L)	Co-60* (pCi/L)	Zn-65* (pCi/L)	I-131* (pCi/L)	Cs-137* (pCi/L)	Ba-140* (pCi/L)	H-3* (pCi/L)
Milk	Duxbury	8/10/2015	1290					<2.4	<2.5	<3	<10.2
Milk	Duxbury	9/8/2015	1350					<2.6	<2.6	<3.1	<9.7
Milk	Duxbury	10/7/2015	1300					<2.7	<2.5	<3	<10.1
Milk	Duxbury	11/13/2015	1280					<4	<2.6	<3.1	<12.2
Milk	Duxbury	12/11/2015	1280					<4.1	<2.5	<3.1	<12.6

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134-Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

1. Sample considered "background" for the purpose of NRC regulations, but considered "indicator" by MDPH because it falls within the 10-mile EPZ.

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Table 2. Pilgrim Nuclear Power Station 2015 Environmental Monitoring Data – Solid matrices

Sample Type	Location	Date	Be-7* (pCi/kg)	K-40* (pCi/kg)	Mn-54* (pCi/kg)	Fe-59* (pCi/kg)	Co-60* (pCi/kg)	Zn-65* (pCi/kg)	I-131* (pCi/kg)	Cs-137* (pCi/kg)
Chondrus	Ellisville (background)	4/22/2015	115	5,470	<4.8	<10.9	<5.2	<13.3	<5.1	<4.9
Mussels	Plymouth Harbor, Plymouth (background) ¹	12/2/2015	<439	7,780	NR	<107	<37.4	<76.6	<37.5	-
Chondrus	Brant Rock, Marshfield (background) ¹	4/22/2015	155	4,640	<7.4	<16.3	<8.1	<19.8	<7.8	12.3
Chondrus	PNPS-discharge canal	4/20/2015	109	7,420	<6.2	<15.4	<7.3	<17.6	<6.2	11.1
Chondrus	Brant Rock, Marshfield (background) ¹	10/27/2015	NR	26,200	<16.4	<78.5	<17.8	<41.7	<13.7	NR
Chondrus	PNPS-discharge canal	11/5/2015	342	32,500	<22	<93.8	<23.5	<62.3	<19.8	NR
Clams	Plymouth Harbor, Plymouth (background) ¹	4/21/2015	<53	2,370	<6	<20.3	<6.6	<16.8	<5.7	-
Clams	Duxbury (background) ¹	4/21/2015	88.7	2,640	<7.7	<24.1	<7.8	<21	<7.5	-
Mussels	Green Harbor, Marshfield (background)	4/21/2015	<35	1,310	<5.3	<11.9	<5.8	<16.4	<5.5	-
Mussels	Plymouth Harbor, Plymouth (background) ¹	5/11/2015	NR	1,470	<8.4	NR	<5.6	<20.2	<4.9	-
Clams	Duxbury (background) ¹	10/1/2015	<490	3,580	<19.1	<135	<16	<42.3	<16.5	-
Mussels	PNPS Discharge Canal (indicator)	6/5/2015	<393	1,990	<6.1	NR	<4.4	<15.9	<3.9	-
Mussels	Green Harbor, Marshfield (background)	10/1/2015	<88	1,360	<4.4	<25.7	<4.6	<11	<4.1	-
Mussels	PNPS Discharge Canal (indicator)	11/5/2015	<419	1,630	<28.9	<110	<23.3	<64.3	<26	-
Clams	Plymouth Harbor, Plymouth (background) ¹	10/30/2015	<79	1,690	<4.9	<22.8	<5.1	<11.1	<4.7	-
Cranberries	East Taunton, MA (background)	10/21/2015	48.2	704	<3.1	<5.8	<2.8	<6.7	<3	-
Bluefish	Vineyard Sound (background)	7/21/2015	<201	3,950	<5.5	<87.8	<5	<14.5	<3.9	-
Tautog	Buzzards Bay (background)	9/2/2015	<566	3,250	<19.9	NR	<14.6	<41	<14.9	-
Winter flounder	Cape Cod Bay (background)	5/5/2015	<624	3,800	<7.1	NR	<4.7	<19.3	<4.4	-
Winter flounder	PNPS Discharge Canal	5/4/2015	<585	3,760	<6.2	NR	<5.2	<18.1	<3.7	-
Bluefish	PNPS Discharge Canal	7/21/2015	<324	3,620	<6.1	NR	<5.6	<17.5	<5.9	-
Striped Bass	Vineyard Sound (background)	7/24/2015	<311	4,650	<7.2	NR	<5.5	<18.7	<5.2	-
Lobster	PNPS discharge canal	8/21/2015	<157	2,430	<5.4	<57.3	<4.3	<13.4	<4.1	-
Lobster	Cape Cod Bay	8/21/2015	<132	2,280	<4.5	<49.3	<4.2	<11.7	<3.8	-
Sediment	Green Harbor, Marshfield (background)	4/21/2015	-	9,420	-	-	<26.4	-	<27.4	-
Sediment	Duxbury (background) ¹	4/21/2015	-	8,380	-	-	<25.3	-	<27.1	-
Sediment	PNPS Discharge Canal	6/5/2015	-	6,440	-	-	<29.5	-	<28.1	-
Sediment	Green Harbor, Marshfield (background)	10/1/2015	-	11,100	-	-	<24.3	-	<23.1	-
Sediment	Green Harbor, Marshfield (background)	10/1/2015	-	5,890	-	-	<24.9	-	<25.5	-
Sediment	PNPS Discharge Canal	11/5/2015	-	10,300	-	-	<26.2	-	<26.4	-

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

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Table 3. Pilgrim Nuclear Power Station 2014 Environmental Monitoring Data - Air Samples

Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Pilgrim Station	1/6/2015	<0.03	-	-	-	-	-	-	-	0.00715	0.0198
Air	Pilgrim Station	1/13/2015	<0.0238	-	-	-	-	-	-	-	0.00677	0.0199
Air	Pilgrim Station	1/20/2015	<0.029	-	-	-	-	-	-	-	0.00607	0.0221
Air	Pilgrim Station	1/26/2015	<0.0331	-	-	-	-	-	-	-	0.00421	0.0177
Air	Pilgrim Station	2/3/2015	<0.0227	-	-	-	-	-	-	-	0.00463	0.0161
Air	Pilgrim Station	2/11/2015	<0.0199	-	-	-	-	-	-	-	0.00573	0.0177
Air	Pilgrim Station Quarterly Composite	2/15/2015	-	<0.854	<0.028	<0.002	<0.548	<0.001	<0.005	<0.001	-	-
Air	Pilgrim Station	2/17/2015	<0.0329	-	-	-	-	-	-	-	0.00668	0.0275
Air	Pilgrim Station	2/25/2015	<0.0261	-	-	-	-	-	-	-	0.00658	0.0266
Air	Pilgrim Station	3/3/2015	<0.0406	-	-	-	-	-	-	-	0.00211	0.0215
Air	Pilgrim Station	3/11/2015	<0.0213	-	-	-	-	-	-	-	0.00438	0.0221
Air	Pilgrim Station	3/18/2015	<0.0272	-	-	-	-	-	-	-	0.0019	0.0158
Air	Pilgrim Station	3/24/2015	<0.0308	-	-	-	-	-	-	-	0.00334	0.0199
Air	Pilgrim Station	3/30/2015	<0.0279	-	-	-	-	-	-	-	0.0028	0.0221
Air	Pilgrim Station	4/7/2015	<0.0319	-	-	-	-	-	-	-	0.00328	0.0182
Air	Pilgrim Station	4/14/2015	<0.0228	-	-	-	-	-	-	-	0.00117	0.0142
Air	Pilgrim Station	4/21/2015	<0.0323	-	-	-	-	-	-	-	0.00213	0.0173
Air	Pilgrim Station	4/27/2015	<0.0378	-	-	-	-	-	-	-	0.00038	0.0116
Air	Pilgrim Station	5/6/2015	<0.0262	-	-	-	-	-	-	-	0.00152	0.0126
Air	Pilgrim Station	5/12/2015	<0.0403	-	-	-	-	-	-	-	0.00389	0.0227
Air	Pilgrim Station Quarterly Composite	5/15/2015	-	<0.398	<0.028	<0.001	<0.217	<0.001	<0.004	<0.001	-	-
Air	Pilgrim Station	5/19/2015	<0.0327	-	-	-	-	-	-	-	0.00259	0.0171
Air	Pilgrim Station	5/26/2015	<0.0276	-	-	-	-	-	-	-	0.00194	0.0187
Air	Pilgrim Station	6/2/2015	<0.0304	-	-	-	-	-	-	-	0.00128	0.0144
Air	Pilgrim Station	6/9/2015	<0.028	-	-	-	-	-	-	-	0.0008	0.0124
Air	Pilgrim Station	6/17/2015	<0.0202	-	-	-	-	-	-	-	0.00203	0.0178
Air	Pilgrim Station	6/23/2015	<0.0303	-	-	-	-	-	-	-	0.00017	0.0183
Air	Pilgrim Station	7/1/2015	<0.0194	-	-	-	-	-	-	-	0.00112	0.013
Air	Pilgrim Station	7/8/2015	<0.0202	-	-	-	-	-	-	-	0.00582	0.0199
Air	Pilgrim Station	7/15/2015	<0.0199	-	-	-	-	-	-	-	0.00811	0.0246

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Pilgrim Station	7/22/2015	<0.0153	-	-	-	-	-	-	-	0.0104	0.0265
Air	Pilgrim Station	7/29/2015	<0.0139	-	-	-	-	-	-	-	0.00326	0.0134
Air	Pilgrim Station	8/4/2015	<0.0239	-	-	-	-	-	-	-	0.0102	0.0278
Air	Pilgrim Station	8/10/2015	<0.0239	-	-	-	-	-	-	-	0.00469	0.0149
Air	Pilgrim Station Quarterly Composite	8/15/2015	-	0.125	<0.029	<0.001	<0.032	<0.001	<0.003	<0.001	-	-
Air	Pilgrim Station	8/18/2015	<0.0179	-	-	-	-	-	-	-	0.00604	0.0208
Air	Pilgrim Station	8/24/2015	<0.0187	-	-	-	-	-	-	-	0.00745	0.0216
Air	Pilgrim Station	9/1/2015	<0.0189	-	-	-	-	-	-	-	0.0104	0.0278
Air	Pilgrim Station	9/8/2015	<0.0241	-	-	-	-	-	-	-	0.0135	0.0349
Air	Pilgrim Station	9/15/2015	<0.0216	-	-	-	-	-	-	-	0.00987	0.0251
Air	Pilgrim Station	9/24/2015	<0.0125	-	-	-	-	-	-	-	0.0134	0.028
Air	Pilgrim Station	9/29/2015	<0.0282	-	-	-	-	-	-	-	0.00787	0.0296
Air	Pilgrim Station	10/7/2015	<0.014	-	-	-	-	-	-	-	0.00481	0.0213
Air	Pilgrim Station	10/14/2015	<0.0155	-	-	-	-	-	-	-	0.0129	0.0317
Air	Pilgrim Station	10/21/2015	<0.0157	-	-	-	-	-	-	-	0.0109	0.027
Air	Pilgrim Station	10/30/2015	<0.021	-	-	-	-	-	-	-	0.00916	0.027
Air	Pilgrim Station	11/5/2015	<0.0274	-	-	-	-	-	-	-	0.0126	0.0394
Air	Pilgrim Station	11/13/2015	<0.0187	-	-	-	-	-	-	-	0.0102	0.028
Air	Pilgrim Station Quarterly Composite	11/15/2015	-	0.074	<0.031	<0.001	<0.009	<0.001	<0.002	<0.001	-	-
Air	Pilgrim Station	11/20/2015	<0.0218	-	-	-	-	-	-	-	0.00682	0.0243
Air	Pilgrim Station	11/25/2015	<0.03	-	-	-	-	-	-	-	0.00536	0.0208
Air	Pilgrim Station	12/4/2015	<0.0231	-	-	-	-	-	-	-	0.00496	0.0218
Air	Pilgrim Station	12/11/2015	<0.0209	-	-	-	-	-	-	-	0.00738	0.0322
Air	Pilgrim Station	12/18/2015	<0.0171	-	-	-	-	-	-	-	0.00911	0.0276
Air	Pilgrim Station	12/23/2015	<0.0282	-	-	-	-	-	-	-	0.00612	0.0306
Air	Pilgrim Station	12/31/2015	<0.015	-	-	-	-	-	-	-	0.00676	0.0236
Air	Background	1/6/2015	<0.0252	-	-	-	-	-	-	-	0.0051	0.018
Air	Background	1/13/2015	<0.0241	-	-	-	-	-	-	-	0.00721	0.032
Air	Background	1/20/2015	<0.0307	-	-	-	-	-	-	-	0.0036	0.0163
Air	Background	1/26/2015	<0.0253	-	-	-	-	-	-	-	0.00527	0.0207
Air	Background	2/3/2015	<0.0291	-	-	-	-	-	-	-	0.00431	0.0181
Air	Background	2/11/2015	<0.022	-	-	-	-	-	-	-	0.00839	0.0291

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Background Quarterly Composite	2/15/2015	-	<0.824	<0.03	<0.001	<0.58	<0.001	<0.005	<0.001	-	-
Air	Background	2/17/2015	<0.0298	-	-	-	-	-	-	-	0.00892	0.0297
Air	Background	2/24/2015	<0.0215	-	-	-	-	-	-	-	0.00936	0.0292
Air	Background	3/3/2015	<0.0234	-	-	-	-	-	-	-	0.00851	0.033
Air	Background	3/10/2015	<0.0341	-	-	-	-	-	-	-	0.00882	0.0282
Air	Background	3/17/2015	<0.0338	-	-	-	-	-	-	-	0.00242	0.0199
Air	Background	3/24/2015	<0.0368	-	-	-	-	-	-	-	0.003	0.0167
Air	Background	3/31/2015	<0.0272	-	-	-	-	-	-	-	0.00527	0.0207
Air	Background	4/7/2015	<0.027	-	-	-	-	-	-	-	0.00569	0.023
Air	Background	4/14/2015	<0.0356	-	-	-	-	-	-	-	0.00312	0.0186
Air	Background	4/21/2015	<0.0267	-	-	-	-	-	-	-	0.00245	0.0151
Air	Background	4/28/2015	<0.0353	-	-	-	-	-	-	-	0.00061	0.0091
Air	Background	5/5/2015	<0.0234	-	-	-	-	-	-	-	0.00118	0.0138
Air	Background	5/12/2015	<0.0273	-	-	-	-	-	-	-	0.00262	0.0211
Air	Background Quarterly Composite	5/15/2015	-	<0.361	<0.028	<0.002	<0.199	<0.001	<0.004	<0.001	-	-
Air	Background	5/19/2015	<0.0279	-	-	-	-	-	-	-	0.00391	0.0232
Air	Background	5/26/2015	<0.0234	-	-	-	-	-	-	-	0.00325	0.0181
Air	Background	6/3/2015	<0.0204	-	-	-	-	-	-	-	0.00088	0.0154
Air	Background	6/9/2015	<0.039	-	-	-	-	-	-	-	0.00016	0.0157
Air	Background	6/16/2015	<0.0233	-	-	-	-	-	-	-	0.00172	0.0161
Air	Background	6/23/2015	<0.023	-	-	-	-	-	-	-	0.00033	0.0142
Air	Background	6/30/2015	<0.0204	-	-	-	-	-	-	-	0.00121	0.0143
Air	Background	7/7/2015	<0.0197	-	-	-	-	-	-	-	0.0104	0.0219
Air	Background	7/14/2015	<0.0189	-	-	-	-	-	-	-	0.00924	0.0207
Air	Background	7/21/2015	<0.0191	-	-	-	-	-	-	-	0.00839	0.0233
Air	Background	7/28/2015	<0.0212	-	-	-	-	-	-	-	0.00836	0.0249
Air	Background	8/4/2015	<0.0193	-	-	-	-	-	-	-	0.0146	0.0316
Air	Background	8/11/2015	<0.0204	-	-	-	-	-	-	-	0.0075	0.0193
Air	Background Quarterly Composite	8/15/2015	-	0.124	<0.028	<0.001	<0.03	<0.001	<0.003	<0.001	-	-
Air	Background	8/18/2015	<0.0205	-	-	-	-	-	-	-	0.0127	0.0293
Air	Background	8/25/2015	<0.0209	-	-	-	-	-	-	-	0.00972	0.0249

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Background	9/1/2015	<0.0139	-	-	-	-	-	-	-	0.0142	0.0341
Air	Background	9/8/2015	<0.0196	-	-	-	-	-	-	-	0.0107	0.0259
Air	Background	9/15/2015	<0.0124	-	-	-	-	-	-	-	0.00931	0.0269
Air	Background	9/22/2015	<0.0221	-	-	-	-	-	-	-	0.0171	0.0369
Air	Background	9/29/2015	<0.0197	-	-	-	-	-	-	-	0.0071	0.0238
Air	Background	10/6/2015	<0.0164	-	-	-	-	-	-	-	0.00941	0.0219
Air	Background	10/13/2015	<0.0154	-	-	-	-	-	-	-	0.0139	0.0315
Air	Background	10/20/2015	<0.0161	-	-	-	-	-	-	-	0.00867	0.0217
Air	Background	10/27/2015	<0.0197	-	-	-	-	-	-	-	0.0137	0.0323
Air	Background	11/3/2015	<0.021	-	-	-	-	-	-	-	0.0121	0.0313
Air	Background	11/10/2015	<0.0208	-	-	-	-	-	-	-	0.0122	0.0339
Air	Background Quarterly Composite	11/15/2015	-	0.082	0.11	<0.001	<0.008	<0.001	<0.002	<0.001	-	-
Air	Background	11/17/2015	<0.0207	-	-	-	-	-	-	-	0.011	0.0332
Air	Background	11/24/2015	<0.0227	-	-	-	-	-	-	-	0.00858	0.0228
Air	Background	12/1/2015	<0.0212	-	-	-	-	-	-	-	0.0096	0.0281
Air	Background	12/8/2015	<0.0219	-	-	-	-	-	-	-	0.0095	0.0314
Air	Background	12/15/2015	<0.0207	-	-	-	-	-	-	-	0.0108	0.0438
Air	Background	12/22/2015	<0.0172	-	-	-	-	-	-	-	0.00612	0.0227
Air	Background	12/29/2015	<0.0217	-	-	-	-	-	-	-	0.00722	0.0253

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Table 4. Seabrook Nuclear Power Station 2015 Environmental Monitoring Data – Liquid Matrices

Sample Type	Location	Date	K-40* (pCi/L)	Mn-54* (pCi/L)	Fe-59* (pCi/L)	Co-60* (pCi/L)	Zn-65* (pCi/L)	I-131* (pCi/L)	Cs-134* (pCi/L)	Cs-137* (pCi/L)	Ba-140* (pCi/L)	H-3* (pCi/L)
Surface water	Ipswich Bay	1/21/2015	259	<4.3	<12.9	<4.3	<12.1	NR	-	<4.5	-	-
Surface water	Ipswich Bay	2/19/2015	313	<4.4	<9.6	<4.3	<11.8	<8.3	-	<4.5	-	-
Surface water	Ipswich Bay	3/24/2015	281	<4.3	<13	<4.4	<12.7	NR	-	<4.6	-	-
Surface water	Ipswich Bay	4/15/2015	293	<3.7	<8.8	<3.9	<10.3	<11.4	-	<3.9	-	-
Surface water	Ipswich Bay composite	4/15/2015	-	-	-	-	-	-	-	-	-	<300
Surface water	Ipswich Bay	5/19/2015	308	<4.1	<8.4	<4.3	<11	<5	-	<4.5	-	-
Surface water	Ipswich Bay composite	5/19/2015	-	-	-	-	-	-	-	-	-	<300
Surface water	Ipswich Bay	6/22/2015	268	<2.9	<6	<2.7	<6.5	<5.5	-	<2.8	-	-
Surface water	Ipswich Bay composite	6/22/2015	-	-	-	-	-	-	-	-	-	<300
Surface water	Ipswich Bay	7/14/2015	247	<3	<17.4	<2.7	<6.8	NR	-	<2.5	-	-
Surface water	Ipswich Bay composite	7/14/2016	-	-	-	-	-	-	-	-	-	<300
Surface water	Ipswich Bay	8/19/2015	292	<3.4	<15	<3.1	<7.9	NR	-	<3.1	-	-
Surface water	Ipswich Bay composite	8/19/2015	-	-	-	-	-	-	-	-	-	<300
Surface water	Ipswich Bay	9/14/2015	280	<3.2	<9.1	<2.7	<6.6	NR	-	<2.9	-	-
Surface water	Ipswich Bay composite	9/14/2015	-	-	-	-	-	-	-	-	-	<300
Surface water	Ipswich Bay	10/20/2015	<116	<3.5	<10.5	<3.5	<7	NR	-	<3.4	-	-
Surface water	Ipswich Bay composite	10/20/2015	-	-	-	-	-	-	-	-	-	<300
Surface water	Ipswich Bay	11/16/2015	292	<3.1	<8.7	<2.9	<6.2	NR	-	<2.8	-	-
Surface water	Ipswich Bay composite	11/16/2015	-	-	-	-	-	-	-	-	-	<300
Surface water	Ipswich Bay	12/14/2015	296	<2.9	<7.8	<2.6	<6	NR	-	<2.8	-	-
Surface water	Ipswich Bay composite	12/14/2015	-	-	-	-	-	-	-	-	-	<300
Raw milk	Rowley	1/7/2015	1,370	-	-	-	-	<5.2	<6.1	<5.6	<19	-
Raw milk	Rowley	2/11/2015	1,440	-	-	-	-	<4.4	<4.6	<4.6	<15.5	-
Raw milk	Rowley	3/4/2015	1,360	-	-	-	-	<4.1	<4.3	<4.6	<15	-
Raw milk	Rowley	4/1/2015	1,370	-	-	-	-	<4.2	<4.4	<4.6	<15.4	-
Raw milk	Rowley	5/20/2015	1,350	-	-	-	-	<5.1	<5.1	<5.5	<18.3	-
Raw milk	Rowley	6/3/2015	1,360	-	-	-	-	<5.2	<5.8	<5.5	<18.8	-
Raw milk	Rowley	7/1/2015	1,470	-	-	-	-	<3.1	<2.5	<3	<10.7	-
Raw milk	Rowley	8/6/2015	1,420	-	-	-	-	<2.4	<2.4	<2.8	<9.3	-
Raw milk	Rowley	9/2/2015	1,420	-	-	-	-	<2.6	<2.5	<2.9	<10	-
Raw milk	Rowley	10/7/2015	1,160	-	-	-	-	<2.2	<2.3	<2.9	<9.2	-
Raw milk	Rowley	11/25/2015	1,430	-	-	-	-	<4.9	<2.6	<3.2	<14.5	-
Raw milk	Rowley	12/23/2015	1,400	-	-	-	-	<3.1	<2.6	<3.2	<10.5	-

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Table 5. Seabrook Nuclear Power Station 2015 Environmental Monitoring Data –Solid Matrices

Sample Type	Location	Date	Be-7* (pCi/kg)	K-40* (pCi/kg)	Mn-54* (pCi/kg)	Fe-59* (pCi/kg)	Co-60* (pCi/kg)	Zn-65* (pCi/kg)	I-131* (pCi/kg)	Cs-137* (pCi/kg)
Chondrus	Ipswich Bay (background)	5/26/2015	129	10,100	<5.8	<15	<6.3	<16.5	21.3	<5.7
Chondrus	Ipswich Bay (background)	11/16/2015	693	28,700	<22.4	<58.1	<22.7	<55.2	<85.4	NR
Mytilus	Ipswich Bay (background)	5/19/2015	<69	1,650	<6.7	<18.3	<6.8	<19.1	-	<6.6
Modiolus	Ipswich Bay (background)	5/26/2015	<36	1,290	<6.3	<16	<6.2	<16.8	-	<6.5
Modiolus	Ipswich Bay (background)	11/16/2015	<301	NR	<21.4	<75.4	<20.6	<42.6	-	<20.6
Mytilus	Ipswich Bay (background)	11/16/2015	<222	3,630	<14.7	<51.7	<14.3	<32.8	-	<14.8
Skatewings	Ipswich Bay (background)	5/26/2015	<1120	NR	<119	<283	<119	<304	-	NR
Silver Hake	Ipswich Bay (background)	8/19/2015	<1180	9,960	<43	<329	<38	<98	-	NR
Silver Hake	Ipswich Bay (background)	11/16/2015	<959	NR	<55	<268	<48	<118	-	NR
Lobster	Ipswich Bay (background)	5/26/2015	<36	2,200	<4	<10.8	<4.5	<11.1	-	<4
Lobster	Ipswich Bay (background)	11/18/2015	<59	10,600	<4.5	<17.7	<4.4	<10.6	-	<4
Sediment	Ipswich Bay (subtidal) background	5/26/2015	-	16,300	-	-	<54.7	-	-	<61.7
Sediment	Ipswich Bay (subtidal) background	5/26/2015	-	12,100	-	-	<44.1	-	-	<49.1
Sediment	Ipswich Bay (subtidal) background	5/26/2015	-	9,370	-	-	<47.9	-	-	<51.5
Sediment	Ipswich Bay (subtidal) background	11/16/2015	-	11,400	-	-	<28.5	-	-	<33.4
Sediment	Ipswich Bay (subtidal) background	11/16/2015	-	16,300	-	-	<21.1	-	-	<22.4
Sediment	Ipswich Bay (beach) background	11/18/2015	-	17,100	-	-	<19.9	-	-	<18.4
Sediment	Ipswich Bay (beach) background	11/18/2015	-	1,300	-	-	<18.3	-	-	<18.5
Strawberries	Russell Orchards/Ipswich (background)	6/23/2015	31.4	1,060	<4.4	<9.2	<4.6	<11.8	-	<4.6
Strawberries	Bartlett Farm/Salisbury	7/1/2015	<33.2	2,330	<3.1	<6.1	<2.9	<6.6	-	<3.1
Green Beans	Bartlett Farm/Salisbury	7/21/2015	<32.2	2,280	<3.5	<7.8	<4	<8.5	-	<4
Green Beans	Russell Orchards/Ipswich (background)	7/21/2015	<35.8	2,970	<4.4	<8.6	<4.5	<10.2	-	<4.2
Cherry Tomatoes	Bartlett Farm/Salisbury	9/1/2015	<38.5	2,920	<4.5	<9.9	<5.1	<11	-	<5
Cherry Tomatoes	Russell Orchards/Ipswich (background)	9/1/2015	<34.7	2,920	<4.4	<9.3	<4.7	<10.7	-	<4.5

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Table 6. Seabrook Nuclear Power Station 2015 Environmental Monitoring Data - Air Samples

Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Salisbury Fire Station	1/7/2015	<0.0223	-	-	-	-	-	-	-	0.00859	0.0244
Air	Salisbury Fire Station	1/14/2015	<0.0264	-	-	-	-	-	-	-	0.0114	0.0306
Air	Salisbury Fire Station	1/20/2015	<0.0341	-	-	-	-	-	-	-	0.00771	0.0295
Air	Salisbury Fire Station	1/28/2015	<0.026	-	-	-	-	-	-	-	0.00582	0.0159
Air	Salisbury Fire Station	2/4/2015	<0.0284	-	-	-	-	-	-	-	0.00474	0.0152
Air	Salisbury Fire Station	2/10/2015	<0.0391	-	-	-	-	-	-	-	0.00746	0.0284
Air	Salisbury Fire Station quarterly composite	2/15/2015		<1.13	0.114	<0.001	<0.747	<0.001	<0.004	<0.001	-	-
Air	Salisbury Fire Station	2/18/2015	<0.0208	-	-	-	-	-	-	-	0.00771	0.0289
Air	Salisbury Fire Station	2/24/2015	<0.0406	-	-	-	-	-	-	-	0.00656	0.0303
Air	Salisbury Fire Station	3/4/2015	<0.0243	-	-	-	-	-	-	-	0.00876	0.0314
Air	Salisbury Fire Station	3/11/2015	<0.0343	-	-	-	-	-	-	-	0.00516	0.0208
Air	Salisbury Fire Station	3/17/2015	<0.0441	-	-	-	-	-	-	-	0.0037	0.0189
Air	Salisbury Fire Station	3/24/2015	<0.0275	-	-	-	-	-	-	-	0.00704	0.0249
Air	Salisbury Fire Station	4/1/2015	<0.0308	-	-	-	-	-	-	-	0.0145	0.027
Air	Salisbury Fire Station	4/8/2015	<0.0288	-	-	-	-	-	-	-	0.0137	0.0245
Air	Salisbury Fire Station	4/15/2015	<0.0408	-	-	-	-	-	-	-	0.0135	0.0245
Air	Salisbury Fire Station	4/22/2015	<0.0225	-	-	-	-	-	-	-	0.00875	0.0178
Air	Salisbury Fire Station	4/29/2015	<0.0389	-	-	-	-	-	-	-	0.00758	0.0156
Air	Salisbury Fire Station	5/5/2015	<0.0393	-	-	-	-	-	-	-	0.0061	0.0188
Air	Salisbury Fire Station	5/14/2015	<0.0264	-	-	-	-	-	-	-	0.00971	0.0193
Air	Salisbury Fire Station quarterly composite	5/15/2015		<0.314	<0.026	<0.001	<0.161	<0.001	<0.003	<0.001	-	-
Air	Salisbury Fire Station	5/20/2015	<0.0339	-	-	-	-	-	-	-	0.0137	0.0242
Air	Salisbury Fire Station	5/27/2015	<0.0263	-	-	-	-	-	-	-	0.00804	0.0211
Air	Salisbury Fire Station	6/3/2015	<0.024	-	-	-	-	-	-	-	0.00685	0.017
Air	Salisbury Fire Station	6/10/2015	<0.0208	-	-	-	-	-	-	-	0.00631	0.0154
Air	Salisbury Fire Station	6/17/2015	<0.0223	-	-	-	-	-	-	-	0.0075	0.0188
Air	Salisbury Fire Station	6/24/2015	<0.0206	-	-	-	-	-	-	-	0.0059	0.0159
Air	Salisbury Fire Station	7/1/2015	<0.0365	-	-	-	-	-	-	-	0.00593	0.0161
Air	Salisbury Fire Station	7/8/2015	<0.0156	-	-	-	-	-	-	-	0.00982	0.0206
Air	Salisbury Fire Station	7/15/2015	<0.0135	-	-	-	-	-	-	-	0.0104	0.0221
Air	Salisbury Fire Station	7/21/2015	<0.0217	-	-	-	-	-	-	-	0.0107	0.0208
Air	Salisbury Fire Station	7/29/2015	<0.0114	-	-	-	-	-	-	-	0.00872	0.0191
Air	Salisbury Fire Station	8/6/2015	<0.0165	-	-	-	-	-	-	-	0.0105	0.0268

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Salisbury Fire Station	8/12/2015	<0.0243	-	-	-	-	-	-	-	0.00621	0.0191
Air	Salisbury Fire Station quarterly composite	8/15/2015	-	<0.06	0.088	<0.001	<0.023	<0.001	<0.002	<0.001	-	-
Air	Salisbury Fire Station	8/19/2015	<0.0181	-	-	-	-	-	-	-	0.0133	0.0318
Air	Salisbury Fire Station	8/26/2015	<0.0138	-	-	-	-	-	-	-	0.00484	0.0142
Air	Salisbury Fire Station	9/1/2015	<0.0209	-	-	-	-	-	-	-	0.0114	0.0319
Air	Salisbury Fire Station	9/9/2015	<0.0192	-	-	-	-	-	-	-	0.0163	0.0371
Air	Salisbury Fire Station	9/16/2015	<0.0175	-	-	-	-	-	-	-	0.00797	0.0245
Air	Salisbury Fire Station	9/22/2015	<0.0172	-	-	-	-	-	-	-	0.00774	0.0239
Air	Salisbury Fire Station	9/29/2015	<0.0159	-	-	-	-	-	-	-	0.00901	0.0244
Air	Salisbury Fire Station	10/7/2015	<0.0165	-	-	-	-	-	-	-	0.00628	0.0189
Air	Salisbury Fire Station	10/14/2015	<0.0199	-	-	-	-	-	-	-	0.0105	0.0263
Air	Salisbury Fire Station	10/21/2015	<0.017	-	-	-	-	-	-	-	0.00941	0.0224
Air	Salisbury Fire Station	10/27/2015	<0.0225	-	-	-	-	-	-	-	0.00734	0.0245
Air	Salisbury Fire Station	11/3/2015	<0.0151	-	-	-	-	-	-	-	0.00855	0.0273
Air	Salisbury Fire Station	11/9/2015	<0.017	-	-	-	-	-	-	-	0.00861	0.0282
Air	Salisbury Fire Station quarterly composite	11/15/2015	-	0.082	<0.028	<0.001	<0.008	<0.001	<0.002	<0.001	-	-
Air	Salisbury Fire Station	11/18/2015	<0.0123	-	-	-	-	-	-	-	0.00807	0.0235
Air	Salisbury Fire Station	11/25/2015	<0.014	-	-	-	-	-	-	-	0.00543	0.0194
Air	Salisbury Fire Station	12/1/2015	<0.0181	-	-	-	-	-	-	-	0.00825	0.0271
Air	Salisbury Fire Station	12/10/2015	<0.0138	-	-	-	-	-	-	-	0.00802	0.0291
Air	Salisbury Fire Station	12/16/2015	<0.0225	-	-	-	-	-	-	-	0.0107	0.0408
Air	Salisbury Fire Station	12/23/2015	<0.0362	-	-	-	-	-	-	-	0.0108	0.0379
Air	Salisbury Fire Station	12/30/2015	<0.0226	-	-	-	-	-	-	-	0.00731	0.0276
Air	Background	1/6/2015	<0.0252	-	-	-	-	-	-	-	0.0051	0.018
Air	Background	1/13/2015	<0.0241	-	-	-	-	-	-	-	0.00721	0.032
Air	Background	1/20/2015	<0.0307	-	-	-	-	-	-	-	0.0036	0.0163
Air	Background	1/26/2015	<0.0253	-	-	-	-	-	-	-	0.00527	0.0207
Air	Background	2/3/2015	<0.0291	-	-	-	-	-	-	-	0.00431	0.0181
Air	Background	2/11/2015	<0.022	-	-	-	-	-	-	-	0.00839	0.0291
Air	Background quarterly composite	2/15/2015	-	0.824	<0.03	<0.001	<0.58	<0.001	<0.005	<0.001	-	-
Air	Background	2/17/2015	<0.0298	-	-	-	-	-	-	-	0.00892	0.0297
Air	Background	2/24/2015	<0.0215	-	-	-	-	-	-	-	0.00936	0.0292
Air	Background	3/3/2015	<0.0234	-	-	-	-	-	-	-	0.00851	0.033

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Background	3/10/2015	<0.0341	-	-	-	-	-	-	-	0.00882	0.0282
Air	Background	3/17/2015	<0.0338	-	-	-	-	-	-	-	0.00242	0.0199
Air	Background	3/24/2015	<0.0368	-	-	-	-	-	-	-	0.003	0.0167
Air	Background	3/31/2015	<0.0272	-	-	-	-	-	-	-	0.00527	0.0207
Air	Background	4/7/2015	<0.027	-	-	-	-	-	-	-	0.00569	0.023
Air	Background	4/14/2015	<0.0356	-	-	-	-	-	-	-	0.00312	0.0186
Air	Background	4/21/2015	<0.0267	-	-	-	-	-	-	-	0.00245	0.0151
Air	Background	4/28/2015	<0.0353	-	-	-	-	-	-	-	0.00061	0.0091
Air	Background	5/5/2015	<0.0234	-	-	-	-	-	-	-	0.00118	0.0138
Air	Background	5/12/2015	<0.0273	-	-	-	-	-	-	-	0.00262	0.0211
Air	Background quarterly composite	5/15/2015	-	<0.361	<0.028	<0.002	<0.199	<0.001	<0.004	<0.001	-	-
Air	Background	5/19/2015	<0.0279	-	-	-	-	-	-	-	0.00391	0.0232
Air	Background	5/26/2015	<0.0234	-	-	-	-	-	-	-	0.00325	0.0181
Air	Background	6/3/2015	<0.0204	-	-	-	-	-	-	-	0.00088	0.0154
Air	Background	6/9/2015	<0.039	-	-	-	-	-	-	-	0.00016	0.0157
Air	Background	6/16/2015	<0.0233	-	-	-	-	-	-	-	0.00172	0.0161
Air	Background	6/23/2015	<0.023	-	-	-	-	-	-	-	0.00033	0.0142
Air	Background	6/30/2015	<0.0204	-	-	-	-	-	-	-	0.00121	0.0143
Air	Background	7/7/2015	<0.0197	-	-	-	-	-	-	-	0.0104	0.0219
Air	Background	7/14/2015	<0.0189	-	-	-	-	-	-	-	0.00924	0.0207
Air	Background	7/21/2015	<0.0191	-	-	-	-	-	-	-	0.00839	0.0233
Air	Background	7/28/2015	<0.0212	-	-	-	-	-	-	-	0.00836	0.0249
Air	Background	8/4/2015	<0.0193	-	-	-	-	-	-	-	0.0146	0.0316
Air	Background	8/11/2015	<0.0204	-	-	-	-	-	-	-	0.0075	0.0193
Air	Background Quarterly Composite	8/15/2015	-	0.124	<0.028	<0.001	<0.03	<0.001	<0.003	<0.001	-	-
Air	Background	8/18/2015	<0.0205	-	-	-	-	-	-	-	0.0127	0.0293
Air	Background	8/25/2015	<0.0209	-	-	-	-	-	-	-	0.00972	0.0249
Air	Background	9/1/2015	<0.0139	-	-	-	-	-	-	-	0.0142	0.0341
Air	Background	9/8/2015	<0.0196	-	-	-	-	-	-	-	0.0107	0.0259
Air	Background	9/15/2015	<0.0124	-	-	-	-	-	-	-	0.00931	0.0269
Air	Background	9/22/2015	<0.0221	-	-	-	-	-	-	-	0.0171	0.0369
Air	Background	9/29/2015	<0.0197	-	-	-	-	-	-	-	0.0071	0.0238
Air	Background	10/6/2015	<0.0164	-	-	-	-	-	-	-	0.00941	0.0219
Air	Background	10/13/2015	<0.0154	-	-	-	-	-	-	-	0.0139	0.0315

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Background	10/20/2015	<0.0161	-	-	-	-	-	-	-	0.00867	0.0217
Air	Background	10/27/2015	<0.0197	-	-	-	-	-	-	-	0.0137	0.0323
Air	Background	11/3/2015	<0.021	-	-	-	-	-	-	-	0.0121	0.0313
Air	Background	11/10/2015	<0.0208	-	-	-	-	-	-	-	0.0122	0.0339
Air	Background Quarterly Composite	11/15/2015	-	0.082	0.11	<0.001	<0.008	<0.001	<0.002	<0.001	-	-
Air	Background	11/17/2015	<0.0207	-	-	-	-	-	-	-	0.011	0.0332
Air	Background	11/24/2015	<0.0227	-	-	-	-	-	-	-	0.00858	0.0228
Air	Background	12/1/2015	<0.0212	-	-	-	-	-	-	-	0.0096	0.0281
Air	Background	12/8/2015	<0.0219	-	-	-	-	-	-	-	0.0095	0.0314
Air	Background	12/15/2015	<0.0207	-	-	-	-	-	-	-	0.0108	0.0438
Air	Background	12/22/2015	<0.0172	-	-	-	-	-	-	-	0.00612	0.0227
Air	Background	12/29/2015	<0.0217	-	-	-	-	-	-	-	0.00722	0.0253

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Table 7. Vermont Yankee Nuclear Power Station 2015 Environmental Monitoring Data – Liquid Matrices

Sample Type	Location	Date	K-40* (pCi/L)	Mn-54* (pCi/L)	Fe-59* (pCi/L)	Co-60* (pCi/L)	Zn-65* (pCi/L)	I-131* (pCi/L)	Cs-134* (pCi/L)	Cs-137* (pCi/L)	Ba-140* (pCi/L)	H-3* (pCi/L)
Surface water	Connecticut River, Gill	3/24/2015	<109	<4.4	<8.6	<4.3	<11.5	<5.5	-	<4.4	-	
Surface water	Connecticut River, Gill	4/21/2015	<116	<5.1	<10.6	<5.1	<12.3	<9	-	<5.3	-	<300
Surface water	Connecticut River, Gill	7/28/2015	<74	<2.9	<13.7	<2.6	<6.3	NR	-	<2.7	-	<300
Surface water	Connecticut River, Gill	10/26/2015	<116	<3	<8.5	<3.1	<6.5	NR	-	<3.3	-	<300
Surface water	Miller's river, Athol (background)	3/24/2015	<117	<5	<10	<5	<13	<6.5	-	<5.1	-	
Surface water	Miller's river, Athol (background)	4/21/2015	<108	<4.2	<9	<4.2	<10.9	<8.4	-	<4.6	-	<300
Surface water	Miller's river, Athol (background)	7/28/2015	<109	<3.4	<16.1	<2.7	<7.5	NR	-	<2.9	-	<300
Surface water	Miller's river, Athol (background)	10/26/2015	<73	<2.9	<6.9	<2.8	<6	<29.1	-	<2.8	-	<300
Surface water	Connecticut River, Northfield	3/23/2015	<73	<3.6	<7.3	<4	<9.6	<4.6	-	<3.9	-	
Surface water	Connecticut River, Northfield	4/21/2015	<109	<4.2	<9	<4.2	<10.4	<6.8	-	<4.3	-	<300
Surface water	Connecticut River, Northfield	7/28/2015	<116	<3.3	<15.7	<3.1	<7.1	NR	-	<3.1	-	<300
Surface water	Connecticut River, Northfield	10/26/2015	<114	<2.9	<8.1	<3.2	<6.6	<31.4	-	<3	-	<300
Raw milk	Bernardston	1/23/2015	1,320	-	-	-	-	<4.2	<4.4	<4.6	<15	-
Raw milk	Bernardston	2/26/2015	1,330	-	-	-	-	<4.2	<4.3	<4.7	<15	-
Raw milk	Bernardston	3/24/2015	1,300	-	-	-	-	<4.3	<4.8	<4.8	<15.5	-
Raw milk	Bernardston	4/21/2015	1,320	-	-	-	-	<4.2	<4.3	<4.6	<15.3	-
Raw milk	Bernardston	5/13/2015	1,340	-	-	-	-	<4.3	<4.1	<4.6	<14.4	-
Raw milk	Bernardston	6/24/2015	1,380	-	-	-	-	<3.7	<4.2	<4.1	<13.8	-
Raw milk	Bernardston	7/28/2015	1,330	-	-	-	-	<2.5	<2.5	<3	<9.7	-
Raw milk	Bernardston	8/25/2015	1,280	-	-	-	-	<3.1	<2.5	<3.2	<10	-
Raw milk	Bernardston	9/24/2015	1,010	-	-	-	-	<3.1	<2.4	<2.9	<10.1	-
Raw milk	Bernardston	10/26/2015	891	-	-	-	-	<3	<2.8	<3.1	<11.8	-
Raw milk	Bernardston	11/15/2015	1,400	-	-	-	-	<3.3	<2.5	<3	<11.4	-
Raw milk	Bernardston	12/14/2015	1,370	-	-	-	-	<2.6	<2.5	<3.1	<10.2	-

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Table 8. Vermont Yankee Nuclear Power Station 2015 Environmental Monitoring Data – Solid matrices

Sample Type	Location	Date	Be-7* (pCi/kg)	K-40* (pCi/kg)	Mn-54* (pCi/kg)	Fe-59* (pCi/kg)	Co-60* (pCi/kg)	Zn-65* (pCi/kg)	I-131* (pCi/kg)	Cs-137* (pCi/kg)
Sediment	Athol, Miller's River (background)	4/21/2015	-	10,900	-	-	<32.9	-	-	186
Sediment	Athol, Miller's River (background)	4/21/2015	-	14,100	-	-	<31.3	-	-	213
Sediment	Athol, Miller's River (background)	10/26/2015	-	10,100	-	-	<26.9	-	-	249
Sediment	Northfield, Connecticut River	4/21/2015	-	13,000	-	-	<43.8	-	-	<43.9
Sediment	Northfield, Connecticut River	4/21/2015	-	13,400	-	-	<35.3	-	-	53.6
Sediment	Northfield, Connecticut River	10/26/2015	-	16,500	-	-	<36.5	-	-	60.9
Sediment	Northfield, Connecticut River	10/26/2015	-	6,770	-	-	<40.3	-	-	<61.4
Sediment	Gill, Barton's cove (background)	4/21/2015	-	10,400	-	-	<28.4	-	-	29.3
Sediment	Gill, Barton's cove (background)	4/21/2015	-	8,310	-	-	<33	-	-	32.3
Sediment	Gill Barton's cove (background)	10/26/2015	-	5,600	-	-	<33.7	-	-	<35.6
Apples	Gill (background)	10/26/2015	<43.1	1,100	<4.05	<8.83	<4.7	<9.51	-	<4.6
Apples	Northfield, Mt. Hermon School	10/26/2015	<34.7	1,240	<3.8	<9	<3.8	<8.6	-	<3.7
Feed corn	Northfield, Mt. Hermon School	11/13/2015	<34.2	2,570	<3.5	<9.4	<3.6	<7.7	-	<3.4
Potatoes	Northfield, Mt. Hermon School	11/13/2015	<50	3,350	<5	<13.5	<5.6	<12.2	-	<5.1
Beets	Amherst (background)	11/13/2015	<38	4,410	<4	<11.8	<4.7	<11.2	-	<4.1
Beets	Northfield	11/13/2015	<46	2,250	<4.6	<11.8	<5.2	<10.7	-	<4.8
Small mouth bass	Northfield, Connecticut River	6/11/2015	<703	3,920	<7.61	<328	<5.42	<20	-	13.2
Carp	Northfield, Connecticut River	6/11/2015	<1,850	7,610	<34.1	NR	<25.4	<72.4	-	<28.1
Yellow perch	Northfield, Connecticut River	6/11/2015	NR	5,630	<119	NR	<81.2	<266	-	<90.7
Sunfish "RB"	Northfield, Connecticut River	6/11/2015	NR	4,650	NR	NR	<103	<290	-	<101
White suckers	Northfield, Connecticut River	6/11/2015	<610	3,840	<6.64	<300	<4.53	<18.6	-	<5.57
Carp	Northfield, Connecticut River	6/11/2015	<334	3,360	<5.17	<147	<4.86	<15.4	-	<4.4
White suckers	Athol, Miller's River (background)	6/19/2015	<558	3,840	<6.18	<275	<4.9	<17.2	-	55
small mouth bass	Athol, Miller's River (background)	6/19/2015	NR	8,120	<50	NR	<39	<108	-	56
Sunfish "RB"	Athol, Miller's River (background)	6/19/2015	NR	3,920	NR	NR	<87	<277	-	<87
Mixed species	Athol, Miller's River (background)	10/15/2015	<1,300	<1500	<50.2	<366	<41.1	<115	-	<50
Mixed species	Northfield, Connecticut River	10/14/2015	<162	4,010	<7.03	<53.4	<6	<16.9	-	<6
Mixed grasses	Athol, Miller's River (background)	4/21/2015	6,180	6,250	<31.2	<65.2	<32		-	<25.4
Mixed grasses	Northfield, Connecticut River	4/21/2015	21,500	20,200	<115	NR	NR		-	NR
Mixed grasses	Gill, Connecticut River (background)	4/21/2015	11,700	21,200	<97.4	NR	<103		-	<99.9
Silage	Bernardston, Grover's Farm	11/13/2015	926	4,960	<9	<22.5	<7.6	<19.9	-	<8.4

"-" Not analyzed

* K-40 = Potassium-40; Mn-54=Manganese-54; Fe-59=Iron 59; Co-60 = Cobalt 60; Zn-65=Zinc 65; Cs-134=Cesium 134; Cs-137=Cesium 137; Ba-140 = Beryllium 140; H-3 = Tritium

"<" = value is less than the listed MDA value.

"NR"= result not reported for quality control reasons.

Table 9. Vermont Yankee Nuclear Power Station 2015 Environmental Monitoring Data - Air Samples

Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Northfield, MA	1/7/2015	<0.0263	-	-	-	-	-	-	-	0.00825	0.0229
Air	Northfield, MA	1/14/2015	<0.0301	-	-	-	-	-	-	-	0.00982	0.0306
Air	Northfield, MA	1/20/2015	<0.0499	-	-	-	-	-	-	-	0.00978	0.0284
Air	Northfield, MA	1/29/2015	<0.021	-	-	-	-	-	-	-	0.00736	0.0241
Air	Northfield, MA	2/4/2015	<0.0361	-	-	-	-	-	-	-	0.00819	0.0239
Air	Northfield, MA	2/11/2015	<0.0289	-	-	-	-	-	-	-	0.0114	0.0318
Air	Northfield, MA	2/15/2015		<1.11	<0.021	<0.002	<0.763	<0.001	<0.005	<0.001		
Air	Northfield, MA	2/19/2015	<0.0308	-	-	-	-	-	-	-	0.00999	0.0302
Air	Northfield, MA	2/26/2015	<0.031	-	-	-	-	-	-	-	0.0126	0.0412
Air	Northfield, MA	3/4/2015	<0.0366	-	-	-	-	-	-	-	0.00791	0.0327
Air	Northfield, MA	3/11/2015	<0.0404	-	-	-	-	-	-	-	0.00804	0.027
Air	Northfield, MA	3/18/2015	<0.0248	-	-	-	-	-	-	-	0.00347	0.0188
Air	Northfield, MA	3/24/2015	<0.0372	-	-	-	-	-	-	-	0.00582	0.0221
Air	Northfield, MA	4/1/2015	<0.0247	-	-	-	-	-	-	-	0.0114	0.0231
Air	Northfield, MA	4/8/2015	<0.0361	-	-	-	-	-	-	-	0.0144	0.0246
Air	Northfield, MA	4/15/2015	<0.0298	-	-	-	-	-	-	-	0.00855	0.0176
Air	Northfield, MA	4/21/2015	<0.0342	-	-	-	-	-	-	-	0.00881	0.0206
Air	Northfield, MA	4/28/2015	<0.0656	-	-	-	-	-	-	-	0.00474	0.0164
Air	Northfield, MA	5/6/2015	<0.0221	-	-	-	-	-	-	-	0.00691	0.0177
Air	Northfield, MA	5/13/2015	<0.033	-	-	-	-	-	-	-	0.0105	0.0237
Air	Northfield, MA	5/15/2015		<0.284	0.087	<0.001	<0.141	<0.001	<0.003	<0.001		
Air	Northfield, MA	5/20/2015	<0.0281	-	-	-	-	-	-	-	0.0103	0.025
Air	Northfield, MA	5/27/2015	<0.0242	-	-	-	-	-	-	-	0.0104	0.0248
Air	Northfield, MA	6/3/2015	<0.0275	-	-	-	-	-	-	-	0.00705	0.0158
Air	Northfield, MA	6/10/2015	<0.0312	-	-	-	-	-	-	-	0.00817	0.0208
Air	Northfield, MA	6/17/2015	<0.0253	-	-	-	-	-	-	-	0.00846	0.0199
Air	Northfield, MA	6/24/2015	<0.0205	-	-	-	-	-	-	-	0.011	0.0214
Air	Northfield, MA	7/1/2015	<0.0144	-	-	-	-	-	-	-	0.00705	0.016
Air	Northfield, MA	7/8/2015	<0.0226	-	-	-	-	-	-	-	0.0127	0.0272
Air	Northfield, MA	7/15/2015	<0.016	-	-	-	-	-	-	-	0.0134	0.0273
Air	Northfield, MA	7/22/2015	<0.0209	-	-	-	-	-	-	-	0.00917	0.0239
Air	Northfield, MA	7/28/2015	<0.0242	-	-	-	-	-	-	-	0.00835	0.0222
Air	Northfield, MA	8/5/2015	<0.0192	-	-	-	-	-	-	-	0.0128	0.0275
Air	Northfield, MA	8/12/2015	<0.0282	-	-	-	-	-	-	-	0.00669	0.0161

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Sample Type	Location	Date	I-131* (pCi/m ³)	Be-7* (pCi/m ³)	K-40* (pCi/m ³)	Mn-54* (pCi/m ³)	Fe-59* (pCi/m ³)	Co-60* (pCi/m ³)	Zn-65* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Northfield, MA	8/15/2015		0.121	0.1	<0.001	<0.023	<0.001	<0.002	<0.001		
Air	Northfield, MA	8/19/2015	<0.0279	-	-	-	-	-	-	-	0.0142	0.0325
Air	Northfield, MA	8/26/2015	<0.0198	-	-	-	-	-	-	-	0.00989	0.0285
Air	Northfield, MA	9/2/2015	<0.0168	-	-	-	-	-	-	-	0.0151	0.0339
Air	Northfield, MA	9/9/2015	<0.0155	-	-	-	-	-	-	-	0.0184	0.0439
Air	Northfield, MA	9/16/2015	<0.0167	-	-	-	-	-	-	-	0.0122	0.0311
Air	Northfield, MA	9/23/2015	<0.0187	-	-	-	-	-	-	-	0.014	0.0337
Air	Northfield, MA	9/30/2015	<0.0174	-	-	-	-	-	-	-	0.00898	0.0255
Air	Northfield, MA	10/7/2015	<0.0312	-	-	-	-	-	-	-	0.00643	0.0222
Air	Northfield, MA	10/14/2015	<0.0225	-	-	-	-	-	-	-	0.0108	0.0324
Air	Northfield, MA	10/21/2015	<0.0149	-	-	-	-	-	-	-	0.00823	0.022
Air	Northfield, MA	10/28/2015	<0.0177	-	-	-	-	-	-	-	0.00901	0.0284
Air	Northfield, MA	11/4/2015	<0.0159	-	-	-	-	-	-	-	0.0101	0.0282
Air	Northfield, MA	11/12/2015	<0.0204	-	-	-	-	-	-	-	0.0121	0.0304
Air	Northfield, MA	11/15/2015		0.077	0.098	<0.001	<0.007	<0.001	<0.002	<0.001		
Air	Northfield, MA	11/18/2015	<0.0228	-	-	-	-	-	-	-	0.00747	0.0276
Air	Northfield, MA	11/25/2015	<0.0239	-	-	-	-	-	-	-	0.00626	0.0272
Air	Northfield, MA	12/2/2015	<0.023	-	-	-	-	-	-	-	0.00962	0.0306
Air	Northfield, MA	12/9/2015	<0.0169	-	-	-	-	-	-	-	0.00794	0.0297
Air	Northfield, MA	12/16/2015	<0.0225	-	-	-	-	-	-	-	0.0104	0.042
Air	Northfield, MA	12/23/2015	<0.0219	-	-	-	-	-	-	-	0.00455	0.0213
Air	Northfield, MA	12/30/2015	<0.0277	-	-	-	-	-	-	-	0.00503	0.0189
Air	Background	1/6/2015	<0.0252	-	-	-	-	-	-	-	0.0051	0.018
Air	Background	1/13/2015	<0.0241	-	-	-	-	-	-	-	0.00721	0.032
Air	Background	1/20/2015	<0.0307	-	-	-	-	-	-	-	0.0036	0.0163
Air	Background	1/26/2015	<0.0253	-	-	-	-	-	-	-	0.00527	0.0207
Air	Background	2/3/2015	<0.0291	-	-	-	-	-	-	-	0.00431	0.0181
Air	Background	2/11/2015	<0.022	-	-	-	-	-	-	-	0.00839	0.0291
Air	Background Quarterly Composite	2/15/2015	-	0.824	<0.03	<0.001	<0.58	<0.001	<0.005	<0.001	-	-
Air	Background	2/17/2015	<0.0298	-	-	-	-	-	-	-	0.00892	0.0297
Air	Background	2/24/2015	<0.0215	-	-	-	-	-	-	-	0.00936	0.0292
Air	Background	3/3/2015	<0.0234	-	-	-	-	-	-	-	0.00851	0.033
Air	Background	3/10/2015	<0.0341	-	-	-	-	-	-	-	0.00882	0.0282
Air	Background	3/17/2015	<0.0338	-	-	-	-	-	-	-	0.00242	0.0199

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Air	Background	3/24/2015	<0.0368	-	-	-	-	-	-	-	0.003	0.0167
Air	Background	3/31/2015	<0.0272	-	-	-	-	-	-	-	0.00527	0.0207
Air	Background	4/7/2015	<0.027	-	-	-	-	-	-	-	0.00569	0.023
Air	Background	4/14/2015	<0.0356	-	-	-	-	-	-	-	0.00312	0.0186
Air	Background	4/21/2015	<0.0267	-	-	-	-	-	-	-	0.00245	0.0151
Air	Background	4/28/2015	<0.0353	-	-	-	-	-	-	-	-0.00061	0.0091
Air	Background	5/5/2015	<0.0234	-	-	-	-	-	-	-	0.00118	0.0138
Air	Background	5/12/2015	<0.0273	-	-	-	-	-	-	-	0.00262	0.0211
Air	Background Quarterly Composite	5/15/2015	-	<0.361	<0.028	<0.002	<0.199	<0.001	<0.004	<0.001	-	-
Air	Background	5/19/2015	<0.0279	-	-	-	-	-	-	-	0.00391	0.0232
Air	Background	5/26/2015	<0.0234	-	-	-	-	-	-	-	0.00325	0.0181
Air	Background	6/3/2015	<0.0204	-	-	-	-	-	-	-	0.00088	0.0154
Air	Background	6/9/2015	<0.039	-	-	-	-	-	-	-	0.00016	0.0157
Air	Background	6/16/2015	<0.0233	-	-	-	-	-	-	-	0.00172	0.0161
Air	Background	6/23/2015	<0.023	-	-	-	-	-	-	-	0.00033	0.0142
Air	Background	6/30/2015	<0.0204	-	-	-	-	-	-	-	0.00121	0.0143
Air	Background	7/7/2015	<0.0197	-	-	-	-	-	-	-	0.0104	0.0219
Air	Background	7/14/2015	<0.0189	-	-	-	-	-	-	-	0.00924	0.0207
Air	Background	7/21/2015	<0.0191	-	-	-	-	-	-	-	0.00839	0.0233
Air	Background	7/28/2015	<0.0212	-	-	-	-	-	-	-	0.00836	0.0249
Air	Background	8/4/2015	<0.0193	-	-	-	-	-	-	-	0.0146	0.0316
Air	Background	8/11/2015	<0.0204	-	-	-	-	-	-	-	0.0075	0.0193
Air	Background Quarterly Composite	8/15/2015	-	0.124	<0.028	<0.001	<0.03	<0.001	<0.003	<0.001	-	-
Air	Background	8/18/2015	<0.0205	-	-	-	-	-	-	-	0.0127	0.0293
Air	Background	8/25/2015	<0.0209	-	-	-	-	-	-	-	0.00972	0.0249
Air	Background	9/1/2015	<0.0139	-	-	-	-	-	-	-	0.0142	0.0341
Air	Background	9/8/2015	<0.0196	-	-	-	-	-	-	-	0.0107	0.0259
Air	Background	9/15/2015	<0.0124	-	-	-	-	-	-	-	0.00931	0.0269
Air	Background	9/22/2015	<0.0221	-	-	-	-	-	-	-	0.0171	0.0369
Air	Background	9/29/2015	<0.0197	-	-	-	-	-	-	-	0.0071	0.0238
Air	Background	10/6/2015	<0.0164	-	-	-	-	-	-	-	0.00941	0.0219
Air	Background	10/13/2015	<0.0154	-	-	-	-	-	-	-	0.0139	0.0315
Air	Background	10/20/2015	<0.0161	-	-	-	-	-	-	-	0.00867	0.0217

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Air	Background	10/27/2015	<0.0197	-	-	-	-	-	-	-	0.0137	0.0323
Air	Background	11/3/2015	<0.021	-	-	-	-	-	-	-	0.0121	0.0313
Air	Background	11/10/2015	<0.0208	-	-	-	-	-	-	-	0.0122	0.0339
Air	Background Quarterly Composite	11/15/2015	-	0.082	0.11	<0.001	<0.008	<0.001	<0.002	<0.001	-	-
Air	Background	11/17/2015	<0.0207	-	-	-	-	-	-	-	0.011	0.0332
Air	Background	11/24/2015	<0.0227	-	-	-	-	-	-	-	0.00858	0.0228
Air	Background	12/1/2015	<0.0212	-	-	-	-	-	-	-	0.0096	0.0281
Air	Background	12/8/2015	<0.0219	-	-	-	-	-	-	-	0.0095	0.0314
Air	Background	12/15/2015	<0.0207	-	-	-	-	-	-	-	0.0108	0.0438
Air	Background	12/22/2015	<0.0172	-	-	-	-	-	-	-	0.00612	0.0227
Air	Background	12/29/2015	<0.0217	-	-	-	-	-	-	-	0.00722	0.0253

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