

Environmental Monitoring Report

Pilgrim, Seabrook, and Vermont Yankee

Nuclear Power Station

Emergency Planning Zones

2014

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EXECUTIVE SUMMARY

The Massachusetts Department of Public Health (MDPH) Bureau of Environmental Health (BEH) Environmental Toxicology Program (TOX) and Radiation Control Program (RCP) 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 2014 monitoring activities and results for each nuclear plant EPZ.

Radiation monitoring results in 2014 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. At a background location to Seabrook nuclear power station radioactive iodine was detected in two Irish moss samples. MDPH determined the source is most likely radioactive medical waste from either a water treatment plant or a hospital near the sample site. Three fish 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 and 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 2014 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 central computer which is monitored remotely by BEH and RCP 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.

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 2014 Environmental Radiological Monitoring Report](#) and [Seabrook's 2014 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.

A. 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. This report covers radiation from nuclear power plant operations. Other radiation sources include medical treatment and research facilities, and all contribute to the dose of environmental radiation received by exposed people.

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. These contribute approximately 30 mrem/year to the average dose from naturally occurring radiation (NRC, 2016). Other natural background radiation sources include radon, cosmic radiation, and carbon-14 which all contribute to an annual dose of approximately 310 mrems/year.

Figure 1. Background Radiation Dose for Average U.S. Resident (NRC, 2016)

Dose	Millirems/year
Annual Dose – All Sources	620 per year
Annual Dose – Due to Natural Background Radiation	310 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 longer half-lives. These radionuclides are also released in small quantities from nuclear power plant operations.

Operating nuclear power plants routinely 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. Power plant 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, are not readily incorporated into biological tissue, and do not bioconcentrate. 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: they have longer half-lives, 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.

B. 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:

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. Water samples are also tested for tritium with a liquid scintillation counter. Tritium is lighter and more mobile in water than other radionuclides and is a sentinel indicator of radionuclides in water bodies.

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 roots of crops. Samples are tested for gamma-emitting radionuclides using a gamma spectrometer.

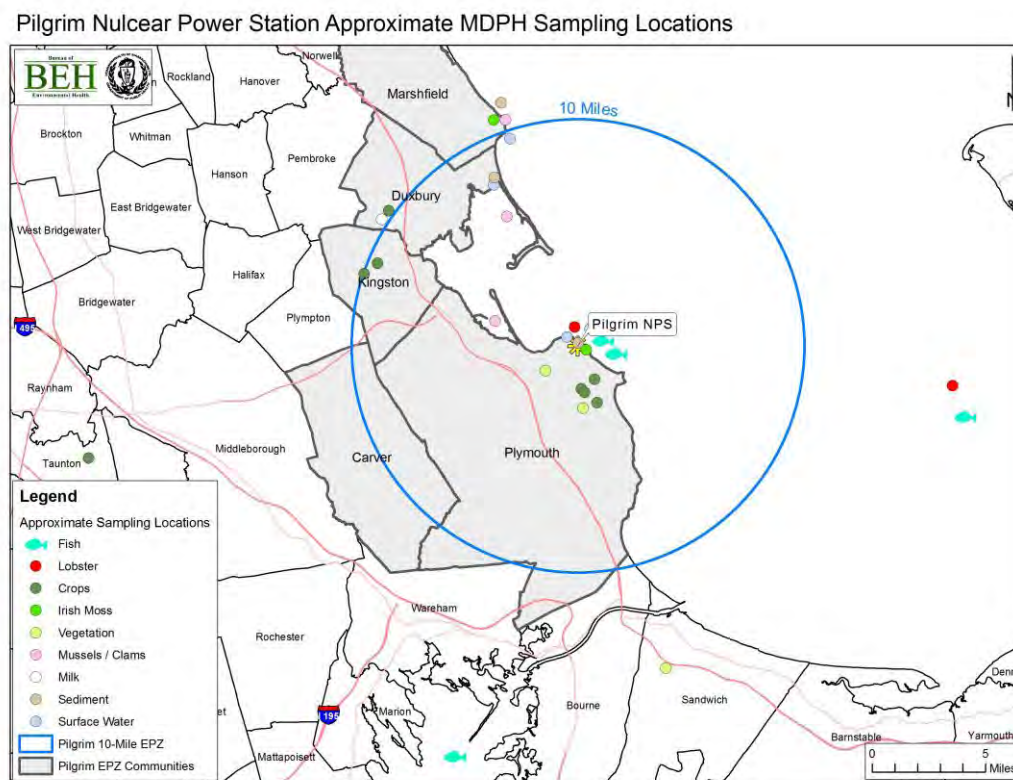
2. ENVIRONMENTAL MONITORING AND SAMPLING

This section describes the three nuclear power station 10-mile EPZs in Massachusetts and summarizes the environmental samples collected and analyzed in 2014.

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 2.

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

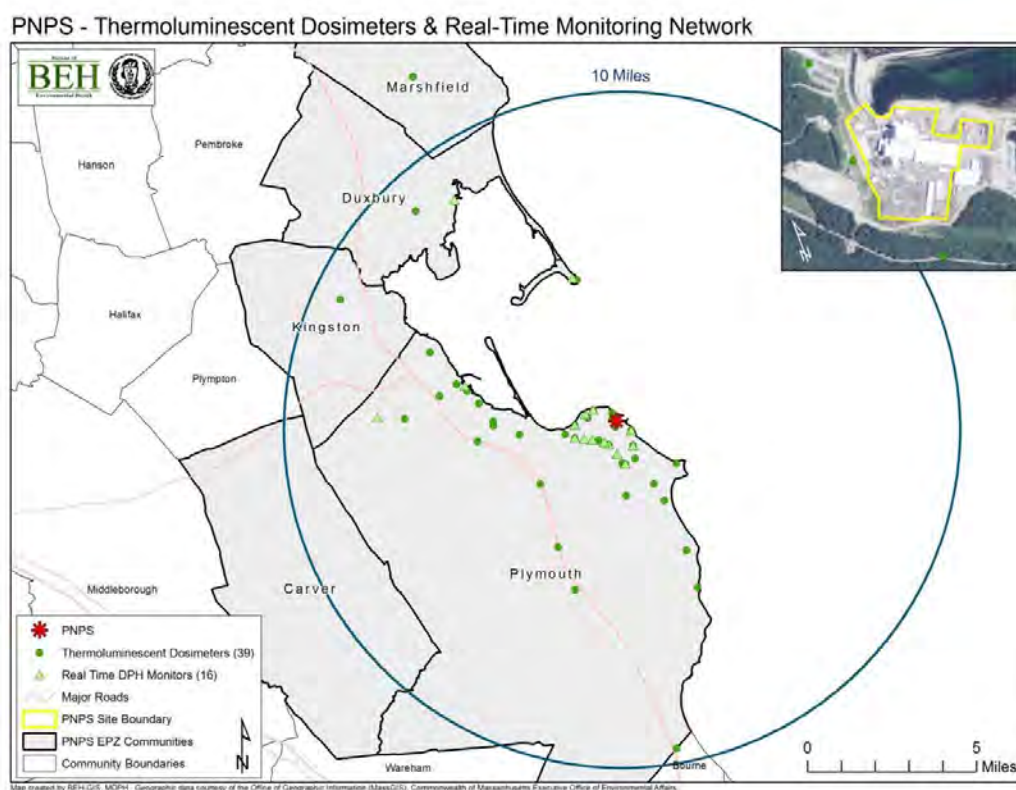
MDPH's direct radiation monitoring at PNPS is comprised of three systems operating on a real-time, weekly and quarterly basis. The redundant systems are designed to independently monitor the land areas within the 10-mile EPZ and to verify the utility's radiation monitoring.

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 from both the RCP and ETP. Emergency pager 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 of the 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 (e.g., 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, and a representative portion of 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 split samples are analyzed by MERL. Finally, Entergy collects cranberries from a bog located in Plymouth and MERL analyzes split samples.

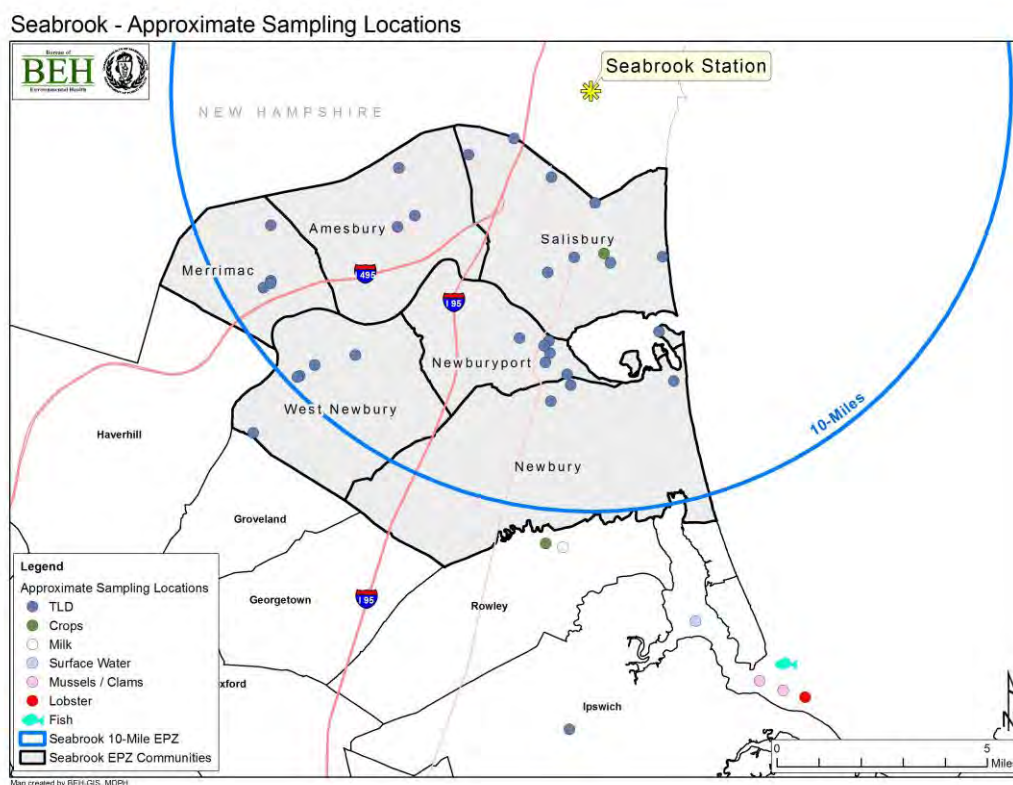
Milk

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 (i.e., 11 miles from PNPS), it is currently the closest dairy farm to PNPS where milk samples are available.

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 4.

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, and split samples are analyzed by MERL for gamma radionuclides. A quarterly composite of these monthly surface water 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.

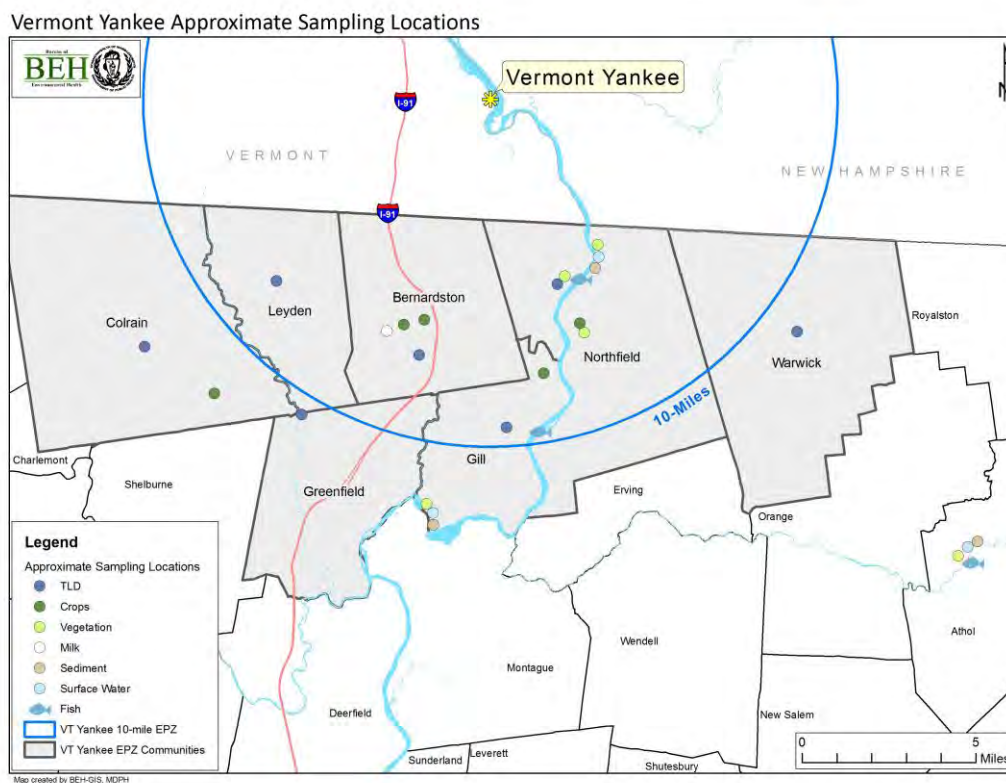
Milk

MDPH collects samples of cow's milk monthly from a farm located in Rowley and 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 5. 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 analyzed annually for gamma radionuclides.

3. 2014 ENVIRONMENTAL MONITORING RESULTS

Radiation monitoring results in 2014 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. Two detections of radioactive iodine were identified in Irish moss at a background location to Seabrook, and Cesium-137, attributable to historic fallout, was detected in three fish 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. Results presented in this report:

- 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

Naturally occurring Potassium-40 and Beryllium-7 were detected in nearly all samples of environmental media for which they were analyzed from both within and outside of the PNPS EPZ (results are provided in Tables 1, 2 and 3).

Cesium-137 was detected in a bluefish sample collected from the PNPS discharge canal on October 14, 2014, at a concentration of 5 picocuries per kilogram (pCi/kg). This amount is slightly over detection level of 4 pCi/kg, and is considered attributable to historical fallout from bomb testing in the 1950s and 1960s (Burger et al., 2007; Amund et al., 1996). Consistently, one bluefish sample in 2013 and another in 2011 had a detection of Cs-137. Cs-137 was identified in three wild vegetation samples (two from Plymouth and a background sample from Sandwich). A review of background Cs-137 levels measured prior to plant operations (Boston Edison, 1971) showed these results are consistent with levels described, and are considered attributable to historical fallout past nuclear weapons testing and power plant accidents.

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 (i.e., approximately 0.008 - 0.010 mrem/hour) with the exception of brief increases (e.g., 0.002 mrem/hour) that are expected due to rainfall washout from naturally occurring radionuclides such as radon daughters and from cosmic radiation fluctuations. The average gamma reading for the year was 0.00925 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 results for total gamma exposure ranged from 10.9 and 50.1 mR/quarter, with an average of 16.3 mR/quarter. This value is compared to an average value of 13.6 mR/quarter measured at a background location in Boston, and results in an average gamma exposure of 2.6 mR/quarter above background. TLD readings vary, due to proximity to objects with naturally occurring radiation such as bricks and granite.

B. SEABROOK NUCLEAR POWER STATION

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 (results are provided in Tables 4, 5 and 6).

Although not detected at levels of concern with respect to human health (ATSDR, 2004), both Irish moss (*Chondrus*) samples in Ipswich bay, a background location approximately 20 miles from the Seabrook EPZ, detected iodine-131 (144 pCi/kg on May 21, 2014 and 28.8 pCi/kg on December 15, 2014). Notably, radioactive iodine was found in Irish moss in the same location in 2012. 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, 2014 and weekly air samples at the Salisbury Fire Station found 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 believes the radioiodine source is unlikely attributable to Seabrook and the levels detected do not present a health risk.

Air filter and cartridge results, provided in Table 6, found low levels of gross alpha and gross beta radiation, as well as naturally occurring Beryllium-7 and Potassium-40, for most samples. 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 2014, real-time monitoring for the Seabrook EPZ did not show gamma radiation levels above typical background levels (i.e., approximately 0.010 mrem/hour) with the exception of brief increases (e.g., 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 15.7-17.1 mR /quarter with an average exposure of 16.5 mR/quarter, compared to an average of 13.3 mR/quarter at the background location in Boston. The result is an increase over background exposure level of 3.2 mR/quarter. TLD readings can vary with location, due to proximity to objects with naturally occurring radiation such as bricks and granite.

C. VERMONT YANKEE NUCLEAR POWER STATION

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 (results are provided in Tables 7, 8, and 9).

Cesium-137 was detected in 3 of 5 fish samples; two from background locations (49.4 – 50.1 pCi/kg) and one (88.9 pCi/kg) from the Connecticut River. Cs-137 had been detected in a fish sample in 2013. These results are consistent with those measured in fish 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 Connecticut River in the VY EPZ at levels of 35.2 pCi/kg and between 124 and 136 pCi/kg at the background location at the Millers River in Athol, 10 miles outside the VY EPZ. Prior year results for 2011-13 also found detectable levels of Cs-137 in the soil. Background soil and sediment in the U.S. typically has between 10 and 1000 pCi/kg of Cs-137 from atmospheric bomb testing conducted mainly in the 1950s and 1960s (US EPA, 1976).

No detectable radioactive iodine was identified in 2014 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 (provided in Table 9) 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 11.8 to 16.2 mR/quarter with an average of 14.1 mR/quarter, which is almost the same as the 13.7 mR/quarter at the background location in Boston. TLD readings can vary with location, due to proximity to objects with naturally occurring radiation such as bricks and granite.

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E. TABLES

Table 1. Pilgrim Nuclear Power Station 2014 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	PNPS Discharge Canal	01-28-2014	444	<7.93	<16.6	<7.71	<21.7	<13.3	-	<8.06	-	-
Surface Water	PNPS Discharge Canal, quarterly tritium composite	02-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	PNPS Discharge Canal	02-26-2014	510	<8.16	<17.6	<8.03	<24.4	<16.3	-	<8.35	-	-
Surface Water	PNPS Discharge Canal	04-01-2014	324	<6.05	<16.7	<5.93	<16.7	<39.9	-	<6.27	-	-
Surface Water	PNPS Discharge Canal	04-28-2014	324	<5.19	<12.2	<5.61	<14.8	<12.3	-	<5.71	-	-
Surface Water	PNPS Discharge Canal, quarterly tritium composite ¹	05-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	PNPS Discharge Canal, quarterly tritium composite ¹	05-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	PNPS Discharge Canal	06-03-2014	327	<3.8	<9.55	<3.82	<10.1	<13.2	-	<3.84	-	-
Surface Water	PNPS Discharge Canal	07-01-2014	298	<4.16	<8.6	<4.23	<10.2	<4.97	-	<4.42	-	-
Surface Water	PNPS Discharge Canal	07-29-2014	287	<4.29	<8.72	<4.4	<11.1	<5.45	-	<4.22	-	-
Surface Water	PNPS Discharge Canal, quarterly tritium composite	08-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	PNPS Discharge Canal	09-02-2014	306	<3.93	<9.13	<4.44	<10.9	<6.89	-	<4.33	-	-
Surface Water	PNPS Discharge Canal	09-30-2014	299	<5.12	<12.9	<5.04	<13.3	<22	-	<5.26	-	-
Surface Water	PNPS Discharge Canal	10-28-2014	323	<4.34	<11.8	<4.45	<11.1	<31.2	-	<4.54	-	-
Surface Water	PNPS Discharge Canal, quarterly tritium composite	11-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	PNPS Discharge Canal	12-02-2014	290	<4.84	<10.2	<5.47	<13	<6.5	-	<5.21	-	-
Surface Water	PNPS Discharge Canal	12-23-2014	311	<5.19	<12.7	<4.93	<14.5	<22.1	-	<5.24	-	-
Surface Water	PNPS Discharge Canal	12-30-2014	257	<5.17	<12.7	<5.3	<14.6	<18.7	-	<5.36	-	-
Surface Water	Powder Point Bridge (background) ¹	01-28-2014	301	<5.36	<11.6	<5.79	<17.7	<8.9	-	<5.75	-	-
Surface Water	Powder Point Bridge Quarterly Tritium composite (background) ¹	02-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	Powder Point Bridge (background) ¹	02-26-2014	289	<5.65	<12.3	<6.08	<19.7	<11.6	-	<5.87	-	-
Surface Water	Powder Point Bridge (background) ¹	04-01-2014	298	<5.4	<14.5	<5.68	<15.3	<34.8	-	<5.28	-	-
Surface Water	Powder Point Bridge (background) ¹	04-28-2014	326	<6.05	<14.5	<5.85	<16.5	<19	-	<6.34	-	-
Surface Water	Powder Point Bridge quarterly tritium composite (Background) ¹	05-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	Powder Point Bridge quarterly tritium composite (background) ¹	05-15-2014	-	-	-	-	-	-	-	-	-	<300

"-" 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.

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	Powder Point Bridge (background) ¹	06-03-2014	318	<4.26	<10.4	<4.43	<11.7	<15.1	-	<4.44	-	-
Surface Water	Powder Point Bridge (background) ¹	07-01-2014	204	<5.11	<10.7	<5.1	<13	<5.88	-	<5.24	-	-
Surface Water	Powder Point Bridge (background) ¹	07-29-2014	304	<4.93	<10.6	<4.89	<13.3	<6.29	-	<5.3	-	-
Surface Water	Powder Point Bridge quarterly tritium composite (background) ¹	08-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	Powder Point Bridge (background) ¹	09-02-2014	304	<5.15	<10.8	<5.4	<13.5	<8.1	-	<5.06	-	-
Surface Water	Powder Point Bridge (background) ¹	09-30-2014	305	<3.8	<9.32	<3.91	<9.34	<15.3	-	<3.94	-	-
Surface Water	Powder Point Bridge (background) ¹	10-28-2014	239	<5.35	<14.7	<5.13	<14.3	<39.7	-	<5.36	-	-
Surface Water	Powder Point Bridge quarterly tritium composite (background) ¹	11-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	Powder Point Bridge (background) ¹	12-02-2014	233	<3.8	<7.65	<4.02	<11	<4.8	-	<3.83	-	-
Surface Water	Powder Point Bridge (background) ¹	12-23-2014	313	<3.98	<9.93	<3.94	<11.6	<16.2	-	<4	-	-
Surface Water	Powder Point Bridge (background) ¹	12-30-2014	297	<3.83	<9.21	<3.87	<11	<13.5	-	<3.97	-	-
Milk	Duxbury	01-07-2014	1360	-	-	-	-	<6.43	<7.35	<6.86	<22.6	-
Milk	Duxbury	02-04-2014	1490	-	-	-	-	<7.87	<9.15	<8.5	<28.7	-
Milk	Duxbury	03-04-2014	1290	-	-	-	-	<5.8	<6.78	<6.46	<20.8	-
Milk	Duxbury	04-01-2014	1430	-	-	-	-	<7.95	<8.82	<8.36	<28.6	-
Milk	Duxbury	05-27-2014	1370	-	-	-	-	<4.41	<4.44	<4.79	<15.1	-
Milk	Duxbury	07-22-2014	1350	-	-	-	-	<4.24	<4.59	<4.71	<15.4	-
Milk	Duxbury	08-05-2014	1370	-	-	-	-	<4.15	<4.22	<4.72	<14.8	-
Milk	Duxbury	09-03-2014	1320	-	-	-	-	<4.21	<4.05	<4.59	<14.9	-
Milk	Duxbury	10-08-2014	1340	-	-	-	-	<5.19	<5.79	<5.45	<18.7	-
Milk	Duxbury	11-12-2014	1430	-	-	-	-	<5.06	<5.66	<5.66	<18.3	-
Milk	Duxbury	12-24-2014	1350	-	-	-	-	<4.22	<4.18	<4.85	<14.6	-
Milk	Boston (background)	03-13-2014	1520	-	-	-	-	<6.5	<7.6	<7.29	<23.0	-
Milk	Boston (background)	06-24-2014	1400	-	-	-	-	<5.58	<4.6	<4.64	<17.8	-

"-" 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

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.

Table 2. Pilgrim Nuclear Power Station 2014 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	PNPS-Discharge Canal	05-30-2014	528	13,700	<11.8	<27.8	<13.1	<35.4	<16.3	<11.8
Chondrus	Brant Rock-Marshfield (background) ¹	06-11-2014	117	4,940	<9.6	<22.9	<10	<28.7	<14.7	<9.75
Chondrus	Brant Rock-Marshfield (background) ¹	10-07-2014	53	12,100	<8.34	<20.5	<9.57	<24.4	<9.84	<8.59
Chondrus	PNPS-Discharge Canal	10-07-2014	194	12,000	<11.1	<27.1	<12.7	<32.9	<11.8	<11.5
Clams	Duxbury Bay, Duxbury	04-23-2014	<707	1,400	<33.5	<210	<29	<89.2	-	<30.5
Mussels	Green Harbor, Marshfield	04-23-2014	<112	1,730	<7.35	<48.4	<6.74	<22.5	-	<6.41
Clams	Plymouth Harbor, Plymouth	04-16-2014	<154	1,900	<6.84	<51.1	<6.71	<21.2	-	<6.12
Clams	Plymouth Harbor, Plymouth	10-06-2014	<118	1,380	<7.7	<34.5	<7.5	<22.4	-	<7.07
Mussels	Green Harbor, Marshfield	10-07-2014	<93.7	1,350	<6.73	<28.5	<6.61	<19.1	-	<6.31
Winter flounder	Cape Cod Bay (background) ¹	05-03-2014	<135	3,570	<6.98	<51.6	<6.55	<21.4	-	<6.15
Winter flounder	PNPS Discharge Canal	05-02-2014	<136	4,290	<6.8	<54.7	<6.76	<21.2	-	<5.08
Tautog	Narragansett Bay (background) ¹	09-28-2014	<579	3,790	<34.2	<163	<29.7	<92.5	-	<31.9
Striped bass	PNPS Discharge Canal	10-14-2014	<348	4,200	<24.6	<100	<24.2	<67.3	-	<25.5
Bluefish	PNPS Discharge Canal	10-14-2014	<84.8	3,400	<6.06	<27.3	<5.76	<16.4	-	5
Bluefish	Buzzards Bay (background) ¹	11-06-2014	<67.1	3,040	<5.84	<21.6	<5.86	<17	-	<4.73
Lobster	PNPP Discharge Canal	07-25-2014	<51	2,090	<6.06	<16.1	<6.63	<17.3	-	<5.97
Lobster	Cape Cod Bay (background) ¹	09-05-2014	<96.1	1,900	<6.48	<31	<6.42	<18.7	-	<5.97
Lobster	Cape Cod Bay (background) ¹	11-08-2014	<52	2,610	<6.07	<15.2	<6.54	<8.97	-	<6.34
Lobster	PNPP Discharge Canal	11-08-2014	<47.3	2,440	<5.35	<14	<6.2	<16.4	-	<5.55
Sediment	Green Harbor, Marshfield (background) ¹	04-23-2014	-	7,460	-	-	<28.1	-	-	<28.6
Sediment	PNPS Discharge Canal	05-30-2014	-	7,490	-	-	<24.2	-	-	<24.3
Sediment	PNPS Duxbury Bay	07-12-2014	-	9,310	-	-	<21.5	-	-	<22.3
Sediment	Green Harbor, Marshfield (background) ¹	10-07-2014	-	9,530	-	-	<26.7	-	-	<25.6
Sediment	PNPS Discharge Canal	11-07-2014	-	9,090	-	-	<22.3	-	-	<21.6
Green beans	Plymouth	07-22-2014	<53.3	1,620	<6.46	<12.9	<6.87	<17.5	-	<6.79
Green beans	Kingston	07-22-2014	<37.8	2,460	<5.99	<13.6	<6.77	<16.4	-	<6.5
Cranberries	E. Taunton (background)	09-30-2014	36	697	<4.36	<8.78	<4.38	<11.8	-	<4.58
Zucchini leaves	Plymouth	10-08-2014	1,290	4,220	<5.13	<12.1	<5.65	<14.4	-	<3.5
Kale	Kingston	10-08-2014	268	5,000	<5.97	<15.3	<6.66	<17	-	<6.15
Pumpkins	Plymouth County Farm Stand	10-04-2014	<51	3,340	<5.66	<15.6	<5.87	<15.3	-	<5.59
Cranberries	Plymouth	10-21-2014	46.1	653	<6.35	<13	<7.07	<17.8	-	<6.56
Hay	Duxbury	11-12-2014	<517	17,700	<49.8	<145	<51.7	<146	-	<51.2
Wild vegetation	Sandwich (background)	10-03-2014	16,400	13,600	<25.4	<87.7	<28.8	-	-	67
Wild vegetation	Plymouth (background)	10-03-2014	5,300	8,120	<15	<80.3	<23.5	-	-	<20.6
Wild vegetation	Plymouth	10-04-2014	5,100	7,830	<30.9	<98.2	<30.1	-	-	63
Wild vegetation	Plymouth	10-04-2014	7,040	7,660	<28.4	<87.4	<27	-	-	377

"-" 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.

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

Sample Type	Location	Date	I-131* (pCi/m3)	Be-7* (pCi/m3)	K-40* (pCi/m3)	Mn-54* (pCi/m3)	Fe-59* (pCi/m3)	Co-60* (pCi/m3)	Zn-65* (pCi/m3)	Cs-134* (pCi/m3)	Cs-137* (pCi/m3)	Gross Alpha (pCi/m3)	Gross Beta (pCi/m3)
Air	Pilgrim Station	01-07-2014	<0.0408	-	-	-	-	-	-	-	-	0.00318	0.0148
Air	Pilgrim Station	01-14-2014	<0.0473	-	-	-	-	-	-	-	-	0.00402	0.0161
Air	Pilgrim Station	01-22-2014	<0.0383	-	-	-	-	-	-	-	-	0.00917	0.0259
Air	Pilgrim Station	01-29-2014	<0.0324	-	-	-	-	-	-	-	-	0.00315	0.0178
Air	Pilgrim Station	02-04-2014	<0.0574	-	-	-	-	-	-	-	-	0.01040	0.0331
Air	Pilgrim Station	02-13-2014	<0.0447	-	-	-	-	-	-	-	-	0.00755	0.0290
Air	Pilgrim Station Quarterly Composite	02-15-2014	-	0.0926	<0.0202	<0.0014	<0.0281	<0.00117	<0.00409	-	<0.000992	-	-
Air	Pilgrim Station	02-19-2014	<0.0340	-	-	-	-	-	-	-	-	0.00324	0.0191
Air	Pilgrim Station	02-26-2014	<0.0435	-	-	-	-	-	-	-	-	0.00173	0.0167
Air	Pilgrim Station	03-04-2014	<0.0493	-	-	-	-	-	-	-	-	0.01100	0.0420
Air	Pilgrim Station	03-12-2014	<0.0400	-	-	-	-	-	-	-	-	0.00465	0.0215
Air	Pilgrim Station	03-19-2014	<0.0455	-	-	-	-	-	-	-	-	0.00525	0.0182
Air	Pilgrim Station	03-26-2014	<0.0634	-	-	-	-	-	-	-	-	0.00259	0.0168
Air	Pilgrim Station	04-01-2014	<0.0412	-	-	-	-	-	-	-	-	0.00622	0.0225
Air	Pilgrim Station	04-09-2014	<0.0412	-	-	-	-	-	-	-	-	0.00295	0.0137
Air	Pilgrim Station	04-15-2014	<0.0463	-	-	-	-	-	-	-	-	0.00766	0.0264
Air	Pilgrim Station	04-22-2014	<0.0381	-	-	-	-	-	-	-	-	0.00492	0.0183
Air	Pilgrim Station	04-29-2014	<0.0412	-	-	-	-	-	-	-	-	0.00411	0.0188
Air	Pilgrim Station	05-06-2014	<0.0403	-	-	-	-	-	-	-	-	0.00285	0.0134
Air	Pilgrim Station	05-14-2014	<0.0356	-	-	-	-	-	-	-	-	0.00476	0.0226
Air	Pilgrim Station Quarterly Composite	05-15-2014	-	0.0774	<0.0345	<0.00177	<0.012	<0.00153	<0.00483	-	<0.00151	-	-
Air	Pilgrim Station	05-20-2014	<0.0454	-	-	-	-	-	-	-	-	0.00380	0.0184
Air	Pilgrim Station	05-27-2014	<0.0317	-	-	-	-	-	-	-	-	0.00191	0.0148
Air	Pilgrim Station	06-03-2014	<0.0265	-	-	-	-	-	-	-	-	0.00095	0.0135
Air	Pilgrim Station	06-10-2014	<0.0389	-	-	-	-	-	-	-	-	-0.00021	0.0149
Air	Pilgrim Station	06-17-2014	<0.0278	-	-	-	-	-	-	-	-	-0.00110	0.0110
Air	Pilgrim Station	06-25-2014	<0.0306	-	-	-	-	-	-	-	-	0.00000	0.0164
Air	Pilgrim Station	07-01-2014	<0.0330	-	-	-	-	-	-	-	-	-0.00087	0.0158
Air	Pilgrim Station	07-08-2014	<0.0389	-	-	-	-	-	-	-	-	0.00491	0.0183
Air	Pilgrim Station	07-15-2014	<0.0379	-	-	-	-	-	-	-	-	0.00303	0.0109
Air	Pilgrim Station	07-22-2014	<0.0425	-	-	-	-	-	-	-	-	0.00419	0.0167
Air	Pilgrim Station	07-29-2014	<0.0376	-	-	-	-	-	-	-	-	0.00471	0.0180
Air	Pilgrim Station	08-05-2014	<0.0359	-	-	-	-	-	-	-	-	0.00463	0.0177

- " = Not analyzed

* I-131 = iodine 131; Be-7 = Beryllium 7; 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; 3-H = Tritium

"<" = value is less than the listed MDA value, with the exception of Alpha and Beta where exact values sampled are provided

Sample Type	Location	Date	I-131* (pCi/m3)	Be-7* (pCi/m3)	K-40* (pCi/m3)	Mn-54* (pCi/m3)	Fe-59* (pCi/m3)	Co-60* (pCi/m3)	Zn-65* (pCi/m3)	Cs-134* (pCi/m3)	Cs-137* (pCi/m3)	Gross Alpha (pCi/m3)	Gross Beta (pCi/m3)
Air	Pilgrim Station	08-12-2014	<0.0396	-	-	-	-	-	-	-	-	0.00574	0.0157
Air	Pilgrim Station Quarterly Composite	08-15-2014	-	<0.22	0.1080	<0.00176	<0.179	<0.0011	<0.00525	-	<0.000953	-	-
Air	Pilgrim Station	08-19-2014	<0.0328	-	-	-	-	-	-	-	-	0.00540	0.0144
Air	Pilgrim Station	08-26-2014	<0.0300	-	-	-	-	-	-	-	-	0.00141	0.0137
Air	Pilgrim Station	09-02-2014	<0.0201	-	-	-	-	-	-	-	-	0.00286	0.0126
Air	Pilgrim Station	09-09-2014	<0.0330	-	-	-	-	-	-	-	-	0.00245	0.0123
Air	Pilgrim Station	09-16-2014	<0.0252	-	-	-	-	-	-	-	-	0.00174	0.0100
Air	Pilgrim Station	09-23-2014	<0.0254	-	-	-	-	-	-	-	-	0.00283	0.0104
Air	Pilgrim Station	09-30-2014	<0.0258	-	-	-	-	-	-	-	-	0.00752	0.0245
Air	Pilgrim Station	10-08-2014	<0.0218	-	-	-	-	-	-	-	-	0.00382	0.0166
Air	Pilgrim Station	10-14-2014	<0.0244	-	-	-	-	-	-	-	-	0.00301	0.0138
Air	Pilgrim Station	10-21-2014	<0.0267	-	-	-	-	-	-	-	-	0.00501	0.0185
Air	Pilgrim Station	10-28-2014	<0.0202	-	-	-	-	-	-	-	-	0.00215	0.0108
Air	Pilgrim Station	11-04-2014	<0.0310	-	-	-	-	-	-	-	-	0.00921	0.0247
Air	Pilgrim Station	11-12-2014	<0.0221	-	-	-	-	-	-	-	-	0.00845	0.0210
Air	Pilgrim Station Quarterly Composite	11-15-2014	-	<0.108	<0.0252	<0.00153	<0.0457	<0.00108	<0.00432	-	<0.001	-	-
Air	Pilgrim Station	11-19-2014	<0.0258	-	-	-	-	-	-	-	-	0.00316	0.0159
Air	Pilgrim Station	11-25-2014	<0.0258	-	-	-	-	-	-	-	-	0.00450	0.0225
Air	Pilgrim Station	12-02-2014	<0.0256	-	-	-	-	-	-	-	-	0.00281	0.0165
Air	Pilgrim Station	12-09-2014	<0.0271	-	-	-	-	-	-	-	-	0.00284	0.0168
Air	Pilgrim Station	12-16-2014	<0.0253	-	-	-	-	-	-	-	-	0.00067	0.0100
Air	Pilgrim Station	12-24-2014	<0.0293	-	-	-	-	-	-	-	-	0.00022	0.0100
Air	Pilgrim Station	12-31-2014	<0.0248	-	-	-	-	-	-	-	-	0.00302	0.0181
Air	Background	01-07-2014	<0.0317	-	-	-	-	-	-	-	-	0.00797	0.0201
Air	Background	01-14-2014	<0.0295	-	-	-	-	-	-	-	-	0.00955	0.0237
Air	Background	01-21-2014	<0.0315	-	-	-	-	-	-	-	-	0.00936	0.0261
Air	Background	01-29-2014	<0.0309	-	-	-	-	-	-	-	-	0.00641	0.0179
Air	Background	02-04-2014	<0.0331	-	-	-	-	-	-	-	-	0.00939	0.0317
Air	Background	02-11-2014	<0.0330	-	-	-	-	-	-	-	-	0.00881	0.0255
Air	Background Quarterly Composite	02-15-2014	-	0.0742	<0.0293	<0.0017	<0.03	<0.00131	<0.00493	-	<0.00127	-	-
Air	Background	02-18-2014	<0.0339	-	-	-	-	-	-	-	-	0.00518	0.0226
Air	Background	02-26-2014	<0.0423	-	-	-	-	-	-	-	-	0.00588	0.0207
Air	Background	03-04-2014	<0.0596	-	-	-	-	-	-	-	-	0.00988	0.0329

- = Not analyzed

* I-131 = iodine 131; Be-7 = Beryllium 7; 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; 3-H = Tritium

"<" = value is less than the listed MDA value, with the exception of Alpha and Beta where exact values sampled are provided

Sample Type	Location	Date	I-131* (pCi/m3)	Be-7* (pCi/m3)	K-40* (pCi/m3)	Mn-54* (pCi/m3)	Fe-59* (pCi/m3)	Co-60* (pCi/m3)	Zn-65* (pCi/m3)	Cs-134* (pCi/m3)	Cs-137* (pCi/m3)	Gross Alpha (pCi/m3)	Gross Beta (pCi/m3)
Air	Background	03-11-2014	<0.0312	-	-	-	-	-	-	-	-	0.00439	0.0180
Air	Background	03-18-2014	<0.0329	-	-	-	-	-	-	-	-	0.00592	0.0238
Air	Background	03-25-2014	<0.0361	-	-	-	-	-	-	-	-	0.00240	0.0132
Air	Background	04-01-2014	0.0486	-	-	-	-	-	-	-	-	0.00450	0.0202
Air	Background	04-08-2014	<0.0350	-	-	-	-	-	-	-	-	0.00465	0.0178
Air	Background	04-15-2014	<0.0448	-	-	-	-	-	-	-	-	0.00500	0.0214
Air	Background	04-22-2014	<0.0367	-	-	-	-	-	-	-	-	0.00361	0.0175
Air	Background	04-29-2014	<0.0373	-	-	-	-	-	-	-	-	0.00124	0.0150
Air	Background	05-06-2014	<0.0264	-	-	-	-	-	-	-	-	0.00176	0.0106
Air	Background	05-13-2014	<0.0322	-	-	-	-	-	-	-	-	0.00159	0.0177
Air	Background Quarterly Composite	05-15-2014	-	0.0956	<0.0176	<0.000986	<0.0068	<0.000923	<0.00266	-	<0.0008	-	-
Air	Background	05-20-2014	<0.0378	-	-	-	-	-	-	-	-	0.00132	0.0152
Air	Background	05-27-2014	<0.0253	-	-	-	-	-	-	-	-	0.00018	0.0136
Air	Background	06-03-2014	<0.0277	-	-	-	-	-	-	-	-	0.00088	0.0154
Air	Background	06-10-2014	<0.0252	-	-	-	-	-	-	-	-	0.00044	0.0119
Air	Background	06-17-2014	<0.0255	-	-	-	-	-	-	-	-	0.00009	0.0122
Air	Background	06-24-2014	<0.0224	-	-	-	-	-	-	-	-	0.00105	0.0142
Air	Background	07-01-2014	<0.0305	-	-	-	-	-	-	-	-	0.00272	0.0184
Air	Background	07-08-2014	<0.0216	-	-	-	-	-	-	-	-	0.00864	0.0179
Air	Background	07-15-2014	<0.0200	-	-	-	-	-	-	-	-	0.00584	0.0180
Air	Background	07-22-2014	<0.0217	-	-	-	-	-	-	-	-	0.00535	0.0145
Air	Background	07-29-2014	<0.0258	-	-	-	-	-	-	-	-	0.00753	0.0204
Air	Background	08-05-2014	<0.0311	-	-	-	-	-	-	-	-	0.00535	0.0182
Air	Background	08-12-2014	<0.0304	-	-	-	-	-	-	-	-	0.00592	0.0177
Air	Background Quarterly Composite	08-15-2014	-	<0.429	<0.029	<0.00223	<0.231	<0.00136	<0.00702	-	<0.00126	-	-
Air	Background	08-19-2014	<0.0255	-	-	-	-	-	-	-	-	0.00413	0.0152
Air	Background	08-26-2014	<0.0213	-	-	-	-	-	-	-	-	0.00272	0.0116
Air	Background	09-02-2014	<0.0250	-	-	-	-	-	-	-	-	0.00468	0.0169
Air	Background	09-09-2014	<0.0221	-	-	-	-	-	-	-	-	0.00692	0.0191
Air	Background	09-16-2014	<0.0233	-	-	-	-	-	-	-	-	0.00079	0.0094
Air	Background	09-23-2014	<0.0321	-	-	-	-	-	-	-	-	0.00340	0.0172
Air	Background	09-30-2014	<0.0230	-	-	-	-	-	-	-	-	0.00565	0.0236
Air	Background	10-07-2014	<0.0223	-	-	-	-	-	-	-	-	0.00607	0.0189
Air	Background	10-14-2014	<0.0226	-	-	-	-	-	-	-	-	0.00901	0.0228

- = Not analyzed

* I-131 = iodine 131; Be-7 = Beryllium 7; 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; 3-H = Tritium

"<" = value is less than the listed MDA value, with the exception of Alpha and Beta where exact values sampled are provided

Sample Type	Location	Date	I-131* (pCi/m3)	Be-7* (pCi/m3)	K-40* (pCi/m3)	Mn-54* (pCi/m3)	Fe-59* (pCi/m3)	Co-60* (pCi/m3)	Zn-65* (pCi/m3)	Cs-134* (pCi/m3)	Cs-137* (pCi/m3)	Gross Alpha (pCi/m3)	Gross Beta (pCi/m3)
Air	Background	10-21-2014	<0.0221	-	-	-	-	-	-	-	-	0.00901	0.0213
Air	Background	10-28-2014	<0.0256	-	-	-	-	-	-	-	-	0.00385	0.0141
Air	Background	11-04-2014	<0.0226	-	-	-	-	-	-	-	-	0.00545	0.0229
Air	Background	11-10-2014	<0.0287	-	-	-	-	-	-	-	-	0.00624	0.0223
Air	Background Quarterly Composite	11-15-2014	-	<0.105	<0.0262	<0.00151	<0.0451	<0.00106	<0.00421	-	<0.00102	-	-
Air	Background	11-18-2014	<0.0239	-	-	-	-	-	-	-	-	0.00320	0.0163
Air	Background	11-25-2014	<0.0329	-	-	-	-	-	-	-	-	0.00784	0.0268
Air	Background	12-02-2014	<0.0290	-	-	-	-	-	-	-	-	0.00306	0.0175
Air	Background	12-09-2014	<0.0219	-	-	-	-	-	-	-	-	0.00378	0.0214
Air	Background	12-16-2014	<0.0303	-	-	-	-	-	-	-	-	0.00236	0.0145
Air	Background	12-23-2014	<0.0255	-	-	-	-	-	-	-	-	0.00424	0.0159
Air	Background	12-30-2014	<0.0234	-	-	-	-	-	-	-	-	0.00443	0.0185

- " = Not analyzed

* I-131 = iodine 131; Be-7 = Beryllium 7; 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; 3-H = Tritium

"<" = value is less than the listed MDA value, with the exception of Alpha and Beta where exact values sampled are provided

Table 4. Seabrook Nuclear Power Station 2014 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)	3-H* (pCi/L)
Raw milk	Rowley	01-08-2014	1410	-	-	-	-	<6.46	<7.42	<6.92	<22.3	-
Raw milk	Rowley	02-12-2014	1390	-	-	-	-	<6.36	<7.62	<7.12	<22.8	-
Raw milk	Rowley	03-12-2014	1350	-	-	-	-	<5.98	<6.56	<6.69	<26.1	-
Raw milk	Rowley	04-09-2014	1540	-	-	-	-	<7.47	<7.95	<8.00	<27.1	-
Raw milk	Rowley	05-07-2014	1440	-	-	-	-	<6.31	<6.85	<6.59	<22.3	-
Raw milk	Rowley	06-04-2014	1350	-	-	-	-	<5.13	<6.12	<5.49	<18.8	-
Raw milk	Rowley	07-02-2014	1320	-	-	-	-	<4.46	<4.86	<4.76	<15.4	-
Raw milk	Rowley	08-19-2014	1390	-	-	-	-	<5.16	<5.83	<5.57	<19.3	-
Raw milk	Rowley	09-10-2014	1340	-	-	-	-	<3.81	<4.15	<4.06	<13.7	-
Raw milk	Rowley	10-02-2014	1340	-	-	-	-	<5.27	<6.05	<5.51	<19.4	-
Raw milk	Rowley	11-12-2014	1500	-	-	-	-	<4.05	<4.34	<4.30	<14.6	-
Raw milk	Rowley	12-03-2014	1380	-	-	-	-	<4.28	<4.11	<4.72	<15.2	-
Surface Water	Ipswich Bay (background)	01-21-2014	250	<6.43	<12.7	<5.8	<16	<12.3	-	<5.6	-	-
Surface Water	Ipswich Bay (background) Quarterly Composite	02-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	Ipswich Bay (background)	02-20-2014	386	<5.2	<12.9	<6.19	<19.3	<8.55	-	<6.79	-	-
Surface Water	Ipswich Bay (background)	03-18-2014	312	<5.8	<11.1	<5.5	<13.2	<5.9	-	<5.2	-	-
Surface Water	Ipswich Bay (background)	04-21-2014	273	<4.4	<15.1	<5.8	<17.2	<25.1	-	<6.2	-	-
Surface Water	Ipswich Bay (background) Quarterly Composite	05-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	Ipswich Bay (background) Quarterly Composite	05-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	Ipswich Bay (background)	05-21-2014	292	<4.36	<9.7	<4.6	<12.6	<8.5	-	<4.7	-	-
Surface Water	Ipswich Bay (background)	06-23-2014	312	<4.21	<9.62	<4.06	<11.1	<13.4	-	<4.41	-	-
Surface Water	Ipswich Bay (background)	07-21-2014	264	<3.78	<8.57	<4.22	<11	<5.7	-	<4.47	-	-
Surface Water	Ipswich Bay (background) Quarterly Composite	08-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	Ipswich Bay (background)	08-19-2014	282	<4.33	<10.7	<3.79	<9.56	<25.7	-	<3.7	-	-
Surface Water	Ipswich Bay (background)	09-23-2014	355	<4.25	<9.38	<4.23	<11.5	<9.92	-	<4.49	-	-
Surface Water	Ipswich Bay (background)	10-20-2014	337	<5.31	<9.14	<4.38	<10.8	<8.8	-	<4.35	-	-
Surface Water	Ipswich Bay (background) Quarterly Composite	11-15-2014	-	-	-	-	-	-	-	-	-	<300
Surface Water	Ipswich Bay (background)	11-17-2014	258	<3.64	<17.5	<5.11	<13.5	<143	-	<5.16	-	-
Surface Water	Ipswich Bay (background)	12-22-2014	230	<0	<8.04	<3.67	<9.98	<6.45	-	<3.82	-	-

"-" 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.

Table 5. Seabrook Nuclear Power Station 2014 Environmental Monitoring Data – Solid Samples

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)	05-21-2014	690	27,600	<13	<31.8	<14.9	<37.7	144	<12.9
Chondrus	Ipswich Bay (background)	12-15-2014	295	18,400	<15.5	<38.2	<17.7	<47.1	28.8	<15.6
Modiolus	Ipswich Bay (background)	05-21-2014	<59.3	1,770	<5.13	<16.6	<5.12	<14.0	-	<4.94
Mytilus	Ipswich Bay (background)	05-23-2014	<87.5	1,430	<6.08	<26.5	<6.43	<16.8	-	<5.4
Mytilus	Ipswich Bay (background)	11-17-2014	<99.6	1,430	<6.47	<29.6	<6.27	<20.7	-	<6.21
Modiolus	Ipswich Bay (background)	12-15-2014	<58.7	1,140	<4.87	<16.5	<5.1	<14.7	-	<5.12
Skatewings	Ipswich Bay (background)	05-21-2014	<1210	2,110	<79.3	<374	<66.8	<195	-	<70.7
Flounder	Ipswich Bay (background)	08-19-2014	<163	4,190	<7.7	<58	<7.2	<23.6	-	<7.28
Skatewings	Ipswich Bay (background)	12-02-2014	<2850	2,550	<135	<940	<122	<352	-	<114
Lobster	Ipswich Bay (background)	05-27-2014	<76.8	1,980	<4.86	<24.7	<4.84	<14.7	-	<4.34
Lobster	Ipswich Bay (background)	11-21-2014	<137	1,860	<5.58	<45.7	<5.03	<17.4	-	<4.8
Sediment(Beach)	Ipswich (background)	05-21-2014	-	14,200	-	-	<24.8	-	-	<23.2
Sediment(Beach)	Ipswich (background)	05-21-2014	-	15,300	-	-	<23.9	-	-	<24.0
Sediment(Beach)	Ipswich (background)	05-21-2014	-	14,700	-	-	<23.7	-	-	<22.9
Sediment (Subtidal)	Ipswich (background)	05-21-2014	-	12,200	-	-	<34.9	-	-	<39.5
Sediment (Subtidal)	Ipswich (background)	05-21-2014	-	13,100	-	-	<35.3	-	-	<33.6
Sediment (Subtidal)	Ipswich (background)	05-21-2014	-	12,200	-	-	<31.5	-	-	<31.7
Sediment(Beach)	Ipswich (background)	11-17-2014	-	14,900	-	-	<31.1	-	-	<17.6
Sediment(Beach)	Ipswich (background)	11-17-2014	-	15,300	-	-	<32.1	-	-	<30.3
Sediment(Beach)	Ipswich (background)	11-17-2014	-	16,300	-	-	<25.3	-	-	<24.6
Sediment (Subtidal)	Ipswich (background)	12-15-2014	-	11,500	-	-	<31.0	-	-	<34.9
Sediment (Subtidal)	Ipswich (background)	12-15-2014	-	11,600	-	-	<36.8	-	-	<39.4
Sediment (Subtidal)	Ipswich (background)	12-15-2014	-	11,500	-	-	<28.2	-	-	<27.5
Strawberries	Salisbury	07-02-2014	<45	1,140	<5.5	<10.6	<6.2	<14.8	-	<5.88
Strawberries	Ipswich (background)	07-02-2014	<38.5	1,080	<4.46	<10.4	<4.59	<11.9	-	<4.87
Green Beans	Salisbury	07-22-2014	<51.3	1,870	<6.14	<13.2	<6.52	<16.9	-	<6.38
Zucchini	Ipswich (background)	07-22-2014	<3.79	218	<0.457	<1.05	<0.5	<1.36	-	<0.488
Kale	Salisbury	08-19-2014	<60.2	4,630	<7.34	<15.8	<7.58	<20.7	-	<7.64
Swiss Chard	Ipswich (background)	08-19-2014	299	6,300	<9.2	<21.2	<10.5	<27.7	-	<9.58

- = Not analyzed

* I-131 = iodine 131; Be-7 = Beryllium 7; 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; 3-H = Tritium

"<" = value is less than the listed MDA value, with the exception of Alpha and Beta where exact values sampled are included

Table 6. Seabrook 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-134* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Salisbury Fire Station	01-01-2014	<0.0388	-	-	-	-	-	-	-	-	0.00955	0.0307
Air	Salisbury Fire Station	01-08-2014	<0.0300	-	-	-	-	-	-	-	-	0.00798	0.0270
Air	Salisbury Fire Station	01-15-2014	<0.0315	-	-	-	-	-	-	-	-	0.00567	0.0223
Air	Salisbury Fire Station	01-22-2014	<0.0345	-	-	-	-	-	-	-	-	0.00728	0.0255
Air	Salisbury Fire Station	01-29-2014	<0.0460	-	-	-	-	-	-	-	-	0.00435	0.0199
Air	Salisbury Fire Station	02-06-2014	<0.0725	-	-	-	-	-	-	-	-	0.00473	0.0369
Air	Salisbury Fire Station	02-12-2014	<0.0365	-	-	-	-	-	-	-	-	0.00740	0.0294
Air	Salisbury Fire Station - Quarterly Composite	02-15-2014	-	0.0805	<0.029	<0.00167	<0.0309	<0.0013	<0.00493	-	<0.00128	-	-
Air	Salisbury Fire Station	02-19-2014	<0.0680	-	-	-	-	-	-	-	-	0.00259	0.0199
Air	Salisbury Fire Station	02-26-2014	<0.0322	-	-	-	-	-	-	-	-	0.00002	0.0098
Air	Salisbury Fire Station	03-12-2014	<0.0487	-	-	-	-	-	-	-	-	0.00148	0.0142
Air	Salisbury Fire Station	03-05-2014	<0.0465	-	-	-	-	-	-	-	-	0.00474	0.0332
Air	Salisbury Fire Station	03-19-2014	<0.0299	-	-	-	-	-	-	-	-	0.00184	0.0222
Air	Salisbury Fire Station	03-26-2014	<0.0360	-	-	-	-	-	-	-	-	0.00254	0.0189
Air	Salisbury Fire Station	04-02-2014	<0.0351	-	-	-	-	-	-	-	-	0.00118	0.0186
Air	Salisbury Fire Station	04-09-2014	<0.0267	-	-	-	-	-	-	-	-	0.00314	0.0154
Air	Salisbury Fire Station	04-16-2014	<0.0347	-	-	-	-	-	-	-	-	0.00458	0.0181
Air	Salisbury Fire Station	04-23-2014	<0.0386	-	-	-	-	-	-	-	-	0.00330	0.0183
Air	Salisbury Fire Station	04-30-2014	<0.0512	-	-	-	-	-	-	-	-	0.00044	0.0095
Air	Salisbury Fire Station	05-07-2014	<0.0353	-	-	-	-	-	-	-	-	0.00163	0.0090
Air	Salisbury Fire Station	05-14-2014	<0.0338	-	-	-	-	-	-	-	-	0.00300	0.0148
Air	Salisbury Fire Station - Quarterly Composite	05-15-2014	-	0.0788	<0.025	<0.00119	<0.00777	<0.000985	<0.0031	-	<0.000971	-	-
Air	Salisbury Fire Station	05-21-2014	<0.0373	-	-	-	-	-	-	-	-	0.00163	0.0123
Air	Salisbury Fire Station	05-28-2014	<0.0218	-	-	-	-	-	-	-	-	0.00100	0.0101
Air	Salisbury Fire Station	06-04-2014	<0.0260	-	-	-	-	-	-	-	-	0.00100	0.0120
Air	Salisbury Fire Station	06-11-2014	<0.0267	-	-	-	-	-	-	-	-	0.00044	0.0125
Air	Salisbury Fire Station	06-18-2014	<0.0307	-	-	-	-	-	-	-	-	0.00037	0.0135
Air	Salisbury Fire Station	06-25-2014	<0.0281	-	-	-	-	-	-	-	-	0.00019	0.0146
Air	Salisbury Fire Station	07-02-2014	<0.0279	-	-	-	-	-	-	-	-	0.00171	0.0213
Air	Salisbury Fire Station	07-09-2014	<0.0218	-	-	-	-	-	-	-	-	0.00665	0.0214
Air	Salisbury Fire Station	07-15-2014	<0.0317	-	-	-	-	-	-	-	-	0.00536	0.0190
Air	Salisbury Fire Station	07-22-2014	<0.0355	-	-	-	-	-	-	-	-	0.00315	0.0132
Air	Salisbury Fire Station	07-30-2014	<0.0267	-	-	-	-	-	-	-	-	0.00609	0.0211

- " = Not analyzed

* I-131 = iodine 131; Be-7 = Beryllium 7; 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; 3-H = Tritium

"<" = value is less than the listed MDA value, with the exception of Alpha and Beta where exact values sampled are included

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-134* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Salisbury Fire Station	08-06-2014	<0.0237	-	-	-	-	-	-	-	-	0.00715	0.0243
Air	Salisbury Fire Station	08-13-2014	<0.0335	-	-	-	-	-	-	-	-	0.00450	0.0167
Air	Salisbury Fire Station - Quarterly Composite	08-15-2014	-	<0.408	<0.00287	<0.00222	<0.229	<0.00138	<0.00667	-	<0.00124	-	-
Air	Salisbury Fire Station	08-19-2014	<0.0400	-	-	-	-	-	-	-	-	0.00228	0.0160
Air	Salisbury Fire Station	08-27-2014	<0.0279	-	-	-	-	-	-	-	-	0.00361	0.0166
Air	Salisbury Fire Station	09-03-2014	<0.0317	-	-	-	-	-	-	-	-	0.00576	0.0270
Air	Salisbury Fire Station	09-10-2014	<0.0288	-	-	-	-	-	-	-	-	0.00516	0.0221
Air	Salisbury Fire Station	09-17-2014	<0.0377	-	-	-	-	-	-	-	-	0.00257	0.0172
Air	Salisbury Fire Station	09-23-2014	<0.0364	-	-	-	-	-	-	-	-	0.00337	0.0205
Air	Salisbury Fire Station	10-02-2014	<0.0211	-	-	-	-	-	-	-	-	0.00629	0.0210
Air	Salisbury Fire Station	10-08-2014	<0.0323	-	-	-	-	-	-	-	-	0.00410	0.0180
Air	Salisbury Fire Station	10-15-2014	<0.0328	-	-	-	-	-	-	-	-	0.00563	0.0198
Air	Salisbury Fire Station	10-22-2014	<0.0310	-	-	-	-	-	-	-	-	0.00381	0.0176
Air	Salisbury Fire Station	10-29-2014	<0.0383	-	-	-	-	-	-	-	-	0.00105	0.0089
Air	Salisbury Fire Station	11-05-2014	<0.0347	-	-	-	-	-	-	-	-	0.00492	0.0181
Air	Salisbury Fire Station	11-11-2014	<0.0410	-	-	-	-	-	-	-	-	0.00656	0.0217
Air	Salisbury Fire Station - Quarterly Composite	11-15-2014	-	<0.138	<0.0288	<0.00199	<0.058	<0.00133	<0.0055	-	<0.00125	-	-
Air	Salisbury Fire Station	11-19-2014	<0.0299	-	-	-	-	-	-	-	-	0.00593	0.0176
Air	Salisbury Fire Station	11-26-2014	<0.0361	-	-	-	-	-	-	-	-	0.00606	0.0260
Air	Salisbury Fire Station	12-03-2014	<0.0321	-	-	-	-	-	-	-	-	0.00204	0.0161
Air	Salisbury Fire Station	12-11-2014	<0.0212	-	-	-	-	-	-	-	-	0.00454	0.0159
Air	Salisbury Fire Station	12-16-2014	<0.0549	-	-	-	-	-	-	-	-	0.00202	0.0182
Air	Salisbury Fire Station	12-24-2014	<0.0206	-	-	-	-	-	-	-	-	0.00146	0.0147
Air	Salisbury Fire Station	12-31-2014	<0.0284	-	-	-	-	-	-	-	-	0.00483	0.0201
Air	Background	01-07-2014	-	-	-	-	-	-	-	-	-	0.00797	0.0201
Air	Background	01-14-2014	-	-	-	-	-	-	-	-	-	0.00955	0.0237
Air	Background	01-21-2014	-	-	-	-	-	-	-	-	-	0.00936	0.0261
Air	Background	01-29-2014	-	-	-	-	-	-	-	-	-	0.00641	0.0179
Air	Background	02-04-2014	-	-	-	-	-	-	-	-	-	0.00939	0.0317
Air	Background	02-11-2014	-	-	-	-	-	-	-	-	-	0.00881	0.0255
Air	Background Quarterly Composite	02-15-2014	-	0.0742	<0.0293	<0.0017	<0.03	<0.00131	<0.00493	-	<0.00127	-	-
Air	Background	02-18-2014	-	-	-	-	-	-	-	-	-	0.00518	0.0226
Air	Background	02-26-2014	-	-	-	-	-	-	-	-	-	0.00588	0.0207

- " = Not analyzed

* I-131 = iodine 131; Be-7 = Beryllium 7; 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; 3-H = Tritium

"<" = value is less than the listed MDA value, with the exception of Alpha and Beta where exact values sampled are included

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-134* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Background	03-04-2014	-	-	-	-	-	-	-	-	-	0.00988	0.0329
Air	Background	03-11-2014	-	-	-	-	-	-	-	-	-	0.00439	0.0180
Air	Background	03-18-2014	-	-	-	-	-	-	-	-	-	0.00592	0.0238
Air	Background	03-25-2014	-	-	-	-	-	-	-	-	-	0.00240	0.0132
Air	Background	04-01-2014	-	-	-	-	-	-	-	-	-	0.00450	0.0202
Air	Background	04-08-2014	-	-	-	-	-	-	-	-	-	0.00465	0.0178
Air	Background	04-15-2014	-	-	-	-	-	-	-	-	-	0.00500	0.0214
Air	Background	04-22-2014	-	-	-	-	-	-	-	-	-	0.00361	0.0175
Air	Background	04-29-2014	-	-	-	-	-	-	-	-	-	0.00124	0.0150
Air	Background	05-06-2014	-	-	-	-	-	-	-	-	-	0.00176	0.0106
Air	Background	05-13-2014	-	-	-	-	-	-	-	-	-	0.00159	0.0177
Air	Background Quarterly Composite	05-15-2014	-	0.0956	<0.0176	<0.000986	<0.0068	<0.000983	<0.00266	-	<0.0008	-	-
Air	Background	05-20-2014	-	-	-	-	-	-	-	-	-	0.00132	0.0152
Air	Background	05-27-2014	-	-	-	-	-	-	-	-	-	0.00018	0.0136
Air	Background	06-03-2014	-	-	-	-	-	-	-	-	-	0.00088	0.0154
Air	Background	06-10-2014	-	-	-	-	-	-	-	-	-	0.00044	0.0119
Air	Background	06-17-2014	-	-	-	-	-	-	-	-	-	0.00009	0.0122
Air	Background	06-24-2014	-	-	-	-	-	-	-	-	-	0.00105	0.0142
Air	Background	07-01-2014	-	-	-	-	-	-	-	-	-	0.00272	0.0184
Air	Background	07-08-2014	-	-	-	-	-	-	-	-	-	0.00864	0.0179
Air	Background	07-15-2014	-	-	-	-	-	-	-	-	-	0.00584	0.0180
Air	Background	07-22-2014	-	-	-	-	-	-	-	-	-	0.00535	0.0145
Air	Background	07-29-2014	-	-	-	-	-	-	-	-	-	0.00753	0.0204
Air	Background	08-05-2014	-	-	-	-	-	-	-	-	-	0.00535	0.0182
Air	Background	08-12-2014	-	-	-	-	-	-	-	-	-	0.00592	0.0177
Air	Background Quarterly Composite	08-15-2014	-	<0.429	<0.029	<0.00223	<0.231	<0.00136	<0.00702	-	<0.00126	-	-
Air	Background	08-19-2014	-	-	-	-	-	-	-	-	-	0.00413	0.0152
Air	Background	08-26-2014	-	-	-	-	-	-	-	-	-	0.00272	0.0116
Air	Background	09-02-2014	-	-	-	-	-	-	-	-	-	0.00468	0.0169
Air	Background	09-09-2014	-	-	-	-	-	-	-	-	-	0.00692	0.0191
Air	Background	09-16-2014	-	-	-	-	-	-	-	-	-	0.00079	0.0094
Air	Background	09-23-2014	-	-	-	-	-	-	-	-	-	0.00340	0.0172
Air	Background	09-30-2014	-	-	-	-	-	-	-	-	-	0.00565	0.0236
Air	Background	10-07-2014	-	-	-	-	-	-	-	-	-	0.00607	0.0189

- " = Not analyzed

* I-131 = iodine 131; Be-7 = Beryllium 7; 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; 3-H = Tritium

"<" = value is less than the listed MDA value, with the exception of Alpha and Beta where exact values sampled are included

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-134* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Background	10-14-2014	-	-	-	-	-	-	-	-	-	0.00901	0.0228
Air	Background	10-21-2014	-	-	-	-	-	-	-	-	-	0.00901	0.0213
Air	Background	10-28-2014	-	-	-	-	-	-	-	-	-	0.00385	0.0141
Air	Background	11-04-2014	-	-	-	-	-	-	-	-	-	0.00545	0.0229
Air	Background	11-10-2014	-	-	-	-	-	-	-	-	-	0.00624	0.0223
Air	Background Quarterly Composite	11-15-2014	-	<0.105	<0.0262	<0.00151	<0.0451	<0.00106	<0.00421	-	<0.00102	-	-
Air	Background	11-18-2014	-	-	-	-	-	-	-	-	-	0.00320	0.0163
Air	Background	11-25-2014	-	-	-	-	-	-	-	-	-	0.00784	0.0268
Air	Background	12-02-2014	-	-	-	-	-	-	-	-	-	0.00306	0.0175
Air	Background	12-09-2014	-	-	-	-	-	-	-	-	-	0.00378	0.0214
Air	Background	12-16-2014	-	-	-	-	-	-	-	-	-	0.00236	0.0145
Air	Background	12-23-2014	-	-	-	-	-	-	-	-	-	0.00424	0.0159
Air	Background	12-30-2014	-	-	-	-	-	-	-	-	-	0.00443	0.0185

- = Not analyzed

* I-131 = iodine 131; Be-7 = Beryllium 7; 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; 3-H = Tritium

"<" = value is less than the listed MDA value, with the exception of Alpha and Beta where exact values sampled are included

Table 7. Vermont Yankee Power Station – 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)
Milk	Bernardston	01-29-2014	1350					<6.19	<6.43	<6.31	<21.2	
Milk	Bernardston	02-27-2014	1560					<8.11	<9.09	<8.63	<29.9	
Milk	Bernardston	03-19-2014	1320					<6.05	<7	<6.86	<21.5	
Milk	Bernardston	04-30-2014	1360					<6.56	<6.36	<6.64	<21.9	
Milk	Bernardston	05-28-2014	1410					<4.46	<5.04	<4.88	<15.9	
Milk	Bernardston	06-25-2014	1290					<4.27	<4.61	<4.81	<14.9	
Milk	Bernardston	07-23-2014	1260					<4.32	<4.33	<4.67	<14.7	
Milk	Bernardston	08-12-2014	1270					<4.29	<4.39	<4.64	<15	
Milk	Bernardston	09-25-2014	1380					<4.36	<4.5	<4.75	<15.2	
Milk	Bernardston	10-23-2014	1240					<4.25	<4.49	<4.66	<15.2	
Milk	Bernardston	11-18-2014	1400					<3.57	<4.09	<3.92	<13.3	
Milk	Bernardston	12-12-2014	1370					<7.82	<5.27	<5.47	<23.8	
Surface Water	Millers River, Athol (background)	03-19-2014	261	<7.46	<14.4	<7.17	<19	<8.22		<7.75		
Surface Water	Millers River, Athol (background)	05-28-2014	<115	<5.11	<10.5	<4.95	<14	<8.01		<5.33		
Surface Water	Millers River, Athol (background)	08-12-2014	<73.8	<3.58	<6.84	<3.57	<8.71	<4.55		<3.83		
Surface Water	Millers River, Athol (background)	11-18-2014	<71.1	<3.61	<7.79	<3.71	<10	<6.11		<3.88		
Surface Water	Connecticut River, Northfield	03-19-2014	1130	<5.58	<11.1	<5.65	<14.4	<6.01		<6.2		
Surface Water	Connecticut River, Northfield	05-28-2014	<69.8	<3.74	<7.14	<3.86	<10.6	<4.08		<3.9		
Surface Water	Connecticut River, Northfield	08-12-2014	<116	<4.98	<9.89	<5.05	<12.4	<5.62		<5.2		
Surface Water	Connecticut River, Northfield	11-18-2014	<108	<4.13	<8.39	<4.22	<10.4	<5.38		<4.4		
Surface Water	Connecticut River, Gill	03-19-2014	189	<7.7	<15.4	<7.7	<20.7	<8.9		<8.0		
Surface Water	Connecticut River, Gill	05-28-2014	<106	<4.3	<8.7	<4.1	<11.8	<6.4		<4.5		
Surface Water	Connecticut River, Gill	08-12-2014	<73	<3.4	<7.0	<3.6	<9.3	<4.1		<3.8		
Surface Water	Connecticut River, Gill	11-18-2014	<108	<4.2	<8.8	<4.3	<11.4	<7.0		<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

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.

Table 8. Vermont Yankee Power Station 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)	Cs-137* (pCi/Kg)
Fish (composite)	Athol, Miller's River (background)	06-25-2014	<1210	3,930	<53	<371	<36	<120	49.4
Fish (composite)	Gill/Northfield, CT River	07-01-2014	<1200	4,570	<49.8	<374	<43.4	<140	<44.9
Fish (bass)	Gill/Northfield, CT River	07-01-2014	<992	3,900	<41.4	<304	<34.6	<114	88.8
Fish (composite)	Gill/Northfield, CT River	10-07-2014	<496	3,490	<31.8	<134	<28	<87.9	<30.7
Fish (composite)	Athol Miller's River (background)	10-08-2014	<770	4,350	<33.8	<208	<44.2	<125	50.1
Sediment	Northfield-Conn. River	5/28/2014	-	7,930	-	-	<27.3	-	35.2
Sediment	Northfield-Conn. River	9/24/2014	-	7,440	-	-	<24.5	-	<17.4
Sediment	Gill-Conn. River	5/28/2014	-	8,070	-	-	<23.4	-	<20.1
Sediment	Gill-Conn. River	9/24/2014	-	6,520	-	-	<31.6	-	<34.0
Sediment	Athol-Millers River (background)	5/28/2014	-	11,400	-	-	<41.5	-	136
Sediment	Athol-Millers River (background)	9/24/2014	-	12,300	-	-	<38.1	-	124
Apples	Colrain (background)	09-24-2014	<40.5	1,120	<4.4	<10.7	<4.35	<12	<4.54
Sugar Pumpkin	Northfield	09-24-2014	<43.7	3,000	<4.48	<13.8	<5.15	<6.39	<4.21
Apples	Northfield	09-24-2014	49.8	1,380	<4.69	<11.3	<4.74	<12.9	<4.68
Grass	Northfield, Connecticut River	05-28-2014	540	13,800	<19.9	<47.8	<21.9	-	<21.1
Grass	Gill, Connecticut River	05-28-2014	2580	17,000	<26.2	<61.3	<28.6	-	<28.6
Grass	Northfield, Transfer Station	05-28-2014	1210	21,300	<27.2	<66.3	<29.1	-	<28
Grass	Athol, Millers River (background)	05-28-2014	1580	22,900	<24.3	<62.9	<28.3	-	50
Grass	Northfield, Transfer Station	09-24-2014	2460	12,100	<15.9	<39	<18	-	<16.2
Grass	Northfield, Connecticut River	09-24-2014	1060	12,300	<11.4	<28.8	<13.1	-	9.29
Grass	Gill, Connecticut River	09-24-2014	1150	11,200	<11.9	<29	<12.1	-	<9.45
Grass	Athol, Millers River (background)	09-24-2014	2900	13,200	<13.3	<33.9	<15.3	-	22.7
Silage/Corn	Bernardston	11-18-2014	2020	11,200	<36	<94.1	<39	<107	<36.9

"-" 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.

Table 9. Vermont Yankee Power Plant – 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-134* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Northfield / VY	01-07-2014	<0.0408	-	-	-	-	-	-	-	-	0.00754	0.0258
Air	Northfield / VY	01-14-2014	<0.0748	-	-	-	-	-	-	-	-	0.00809	0.0276
Air	Northfield / VY	01-22-2014	<0.0355	-	-	-	-	-	-	-	-	0.00747	0.0286
Air	Northfield / VY	01-29-2014	<0.0402	-	-	-	-	-	-	-	-	0.00466	0.024
Air	Northfield / VY	02-04-2014	<0.0529	-	-	-	-	-	-	-	-	0.00408	0.0315
Air	Northfield / VY	02-11-2014	<0.0498	-	-	-	-	-	-	-	-	0.00673	0.0301
Air	Northfield/ VY Quarterly composite	02-15-2014		0.115	<0.0173	<0.00124	<0.0219	<0.001	<0.00337	-	<0.000893		
Air	Northfield / VY	02-18-2014	<0.0450	-	-	-	-	-	-	-	-	0.00377	0.0256
Air	Northfield / VY	02-27-2014	<0.0357	-	-	-	-	-	-	-	-	0.00333	0.0241
Air	Northfield / VY	03-04-2014	<0.0533	-	-	-	-	-	-	-	-	0.00606	0.0372
Air	Northfield / VY	03-11-2014	<0.0408	-	-	-	-	-	-	-	-	0.00496	0.0297
Air	Northfield / VY	03-19-2014	<0.0394	-	-	-	-	-	-	-	-	0.00225	0.0247
Air	Northfield / VY	03-25-2014	<0.0393	-	-	-	-	-	-	-	-	0.00219	0.0228
Air	Northfield / VY	04-02-2014	<0.0283	-	-	-	-	-	-	-	-	0.00162	0.0194
Air	Northfield / VY	04-08-2014	<0.0390	-	-	-	-	-	-	-	-	0.00591	0.0203
Air	Northfield / VY	04-15-2014	<0.0279	-	-	-	-	-	-	-	-	0.00627	0.0236
Air	Northfield / VY	04-22-2014	<0.0538	-	-	-	-	-	-	-	-	0.00487	0.0207
Air	Northfield / VY	04-30-2014	<0.0243	-	-	-	-	-	-	-	-	0.00288	0.0154
Air	Northfield / VY	05-06-2014	<0.0396	-	-	-	-	-	-	-	-	0.00130	0.01300
Air	Northfield / VY	05-13-2014	<0.0449	-	-	-	-	-	-	-	-	0.00242	0.0220
Air	Northfield/ VY Quarterly composite	05-15-2014		0.0981	<0.0248	<0.00109	<0.00749	<0.000998	<0.00306	-	<0.00095		
Air	Northfield / VY	05-20-2014	<0.0411	-	-	-	-	-	-	-	-	0.00242	0.0166
Air	Northfield / VY	05-28-2014	<0.0218	-	-	-	-	-	-	-	-	0.00269	0.0165
Air	Northfield / VY	06-03-2014	<0.0355	-	-	-	-	-	-	-	-	0.00099	0.0163
Air	Northfield / VY	06-10-2014	<0.0255	-	-	-	-	-	-	-	-	0.00332	0.0174
Air	Northfield / VY	06-17-2014	<0.0312	-	-	-	-	-	-	-	-	0.00201	0.0151

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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-134* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Northfield / VY	06-25-2014	<0.0269	-	-	-	-	-	-	-	-	0.00324	0.0179
Air	Northfield / VY	07-01-2014	<0.0344	-	-	-	-	-	-	-	-	0.00261	0.0216
Air	Northfield / VY	07-08-2014	<0.0489	-	-	-	-	-	-	-	-	0.00792	0.0202
Air	Northfield / VY	07-15-2014	<0.0236	-	-	-	-	-	-	-	-	0.00739	0.0196
Air	Northfield / VY	07-23-2014	<0.0235	-	-	-	-	-	-	-	-	0.00934	0.0201
Air	Northfield / VY	07-29-2014	<0.0424	-	-	-	-	-	-	-	-	0.00791	0.0214
Air	Northfield / VY	08-05-2014	<0.0372	-	-	-	-	-	-	-	-	0.0100	0.0224
Air	Northfield / VY	08-12-2014	<0.0327	-	-	-	-	-	-	-	-	0.00672	0.0193
Air	Northfield/ VY Quarterly composite	08-15-2014	-	<0.270	0.0958	<0.00149	<0.151	<0.000977	<0.00443	-	<0.000818	-	-
Air	Northfield / VY	08-19-2014	<0.0355	-	-	-	-	-	-	-	-	0.00412	0.0142
Air	Northfield / VY	08-26-2014	<0.0265	-	-	-	-	-	-	-	-	0.00497	0.0174
Air	Northfield / VY	09-02-2014	<0.0285	-	-	-	-	-	-	-	-	0.00707	0.0236
Air	Northfield / VY	09-09-2014	<0.0278	-	-	-	-	-	-	-	-	0.00536	0.0225
Air	Northfield / VY	09-16-2014	<0.0251	-	-	-	-	-	-	-	-	0.00261	0.0132
Air	Northfield / VY	09-23-2014	<0.0333	-	-	-	-	-	-	-	-	0.00557	0.0204
Air	Northfield / VY	10-01-2014	<0.0239	-	-	-	-	-	-	-	-	0.00700	0.0245
Air	Northfield / VY	10-08-2014	<0.0364	-	-	-	-	-	-	-	-	0.00974	0.0208
Air	Northfield / VY	10-15-2014	<0.0366	-	-	-	-	-	-	-	-	0.00812	0.0222
Air	Northfield / VY	10-22-2014	<0.0315	-	-	-	-	-	-	-	-	0.00723	0.0177
Air	Northfield / VY	10-28-2014	<0.0359	-	-	-	-	-	-	-	-	0.00450	0.0157
Air	Northfield / VY	11-05-2014	<0.0318	-	-	-	-	-	-	-	-	0.0103	0.0230
Air	Northfield / VY	11-12-2014	<0.0255	-	-	-	-	-	-	-	-	0.0102	0.0255
Air	Northfield/ VY Quarterly composite	11-15-2014	-	0.0706	0.106	<0.0013	<0.0387	<0.000998	<0.00366	-	<0.000855	-	-
Air	Northfield / VY	11-19-2014	<0.0424	-	-	-	-	-	-	-	-	0.00607	0.0175
Air	Northfield / VY	11-25-2014	<0.0600	-	-	-	-	-	-	-	-	0.00864	0.0310
Air	Northfield / VY	12-03-2014	<0.0336	-	-	-	-	-	-	-	-	0.00689	0.0240
Air	Northfield / VY	12-10-2014	<0.0370	-	-	-	-	-	-	-	-	0.00682	0.0217

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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-134* (pCi/m ³)	Cs-137* (pCi/m ³)	Gross Alpha (pCi/m ³)	Gross Beta (pCi/m ³)
Air	Northfield / VY	12-17-2014	<0.0230	-	-	-	-	-	-	-	-	0.00551	0.0204
Air	Northfield / VY	12-24-2014	<0.0277	-	-	-	-	-	-	-	-	0.00421	0.0184
Air	Northfield / VY	12-31-2014	<0.0371	-	-	-	-	-	-	-	-	0.0053	0.0212
Air	Background	01-07-2014	<0.0317	-	-	-	-	-	-	-	-	0.00797	0.0201
Air	Background	01-14-2014	<0.0295	-	-	-	-	-	-	-	-	0.00955	0.0237
Air	Background	01-21-2014	<0.0315	-	-	-	-	-	-	-	-	0.00936	0.0261
Air	Background	01-29-2014	<0.0309	-	-	-	-	-	-	-	-	0.00641	0.0179
Air	Background	02-04-2014	<0.0331	-	-	-	-	-	-	-	-	0.00939	0.0317
Air	Background	02-11-2014	<0.0330	-	-	-	-	-	-	-	-	0.00881	0.0255
Air	Background Quarterly Composite	02-15-2014	-	0.0742	<0.0293	<0.0017	<0.03	<0.00131	<0.00493	-	<0.00127	-	-
Air	Background	02-18-2014	<0.0339	-	-	-	-	-	-	-	-	0.00518	0.0226
Air	Background	02-26-2014	<0.0423	-	-	-	-	-	-	-	-	0.00588	0.0207
Air	Background	03-04-2014	<0.0596	-	-	-	-	-	-	-	-	0.00988	0.0329
Air	Background	03-11-2014	<0.0312	-	-	-	-	-	-	-	-	0.00439	0.0180
Air	Background	03-18-2014	<0.0329	-	-	-	-	-	-	-	-	0.00592	0.0238
Air	Background	03-25-2014	<0.0361	-	-	-	-	-	-	-	-	0.00240	0.0132
Air	Background	04-01-2014	<0.0486	-	-	-	-	-	-	-	-	0.00450	0.0202
Air	Background	04-08-2014	<0.0350	-	-	-	-	-	-	-	-	0.00465	0.0178
Air	Background	04-15-2014	<0.0448	-	-	-	-	-	-	-	-	0.00500	0.0214
Air	Background	04-22-2014	<0.0367	-	-	-	-	-	-	-	-	0.00361	0.0175
Air	Background	04-29-2014	<0.0373	-	-	-	-	-	-	-	-	0.00124	0.0150
Air	Background	05-06-2014	<0.0264	-	-	-	-	-	-	-	-	0.00176	0.0106
Air	Background	05-13-2014	<0.0322	-	-	-	-	-	-	-	-	0.00159	0.0177
Air	Background Quarterly Composite	05-15-2014	-	0.0956	<0.0176	<0.000986	<0.0068	<0.000923	<0.00266	-	<0.0008	-	-
Air	Background	05-20-2014	<0.0378	-	-	-	-	-	-	-	-	0.00132	0.0152
Air	Background	05-27-2014	<0.0253	-	-	-	-	-	-	-	-	0.00018	0.0136
Air	Background	06-03-2014	<0.0277	-	-	-	-	-	-	-	-	0.00088	0.0154

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Air	Background	06-10-2014	<0.0252	-	-	-	-	-	-	-	-	0.00044	0.0119
Air	Background	06-17-2014	<0.0255	-	-	-	-	-	-	-	-	0.000087	0.0122
Air	Background	06-24-2014	<0.0224	-	-	-	-	-	-	-	-	0.00105	0.0142
Air	Background	07-01-2014	<0.0305	-	-	-	-	-	-	-	-	0.00272	0.0184
Air	Background	07-08-2014	<0.0216	-	-	-	-	-	-	-	-	0.00864	0.0179
Air	Background	07-15-2014	<0.0200	-	-	-	-	-	-	-	-	0.00584	0.018
Air	Background	07-22-2014	<0.0217	-	-	-	-	-	-	-	-	0.00535	0.0145
Air	Background	07-29-2014	<0.0258	-	-	-	-	-	-	-	-	0.00753	0.0204
Air	Background	08-05-2014	<0.0311	-	-	-	-	-	-	-	-	0.00535	0.0182
Air	Background	08-12-2014	<0.0304	-	-	-	-	-	-	-	-	0.00592	0.0177
Air	Background Quarterly Composite	08-15-2014	-	<0.429	<0.029	<0.00223	<0.231	<0.00136	<0.00702	-	<0.00126	-	-
Air	Background	08-19-2014	<0.0255	-	-	-	-	-	-	-	-	0.00413	0.0152
Air	Background	08-26-2014	<0.0213	-	-	-	-	-	-	-	-	0.00272	0.0116
Air	Background	09-02-2014	<0.0250	-	-	-	-	-	-	-	-	0.00468	0.0169
Air	Background	09-09-2014	<0.0221	-	-	-	-	-	-	-	-	0.00692	0.0191
Air	Background	09-16-2014	<0.0233	-	-	-	-	-	-	-	-	0.00079	0.00944
Air	Background	09-23-2014	<0.0321	-	-	-	-	-	-	-	-	0.00340	0.0172
Air	Background	09-30-2014	<0.0230	-	-	-	-	-	-	-	-	0.00565	0.0236
Air	Background	10-07-2014	<0.0223	-	-	-	-	-	-	-	-	0.00607	0.0189
Air	Background	10-14-2014	<0.0226	-	-	-	-	-	-	-	-	0.00901	0.0228
Air	Background	10-21-2014	<0.0221	-	-	-	-	-	-	-	-	0.00901	0.0213
Air	Background	10-28-2014	<0.0256	-	-	-	-	-	-	-	-	0.00385	0.0141
Air	Background	11-04-2014	<0.0226	-	-	-	-	-	-	-	-	0.00545	0.0229
Air	Background	11-10-2014	<0.0287	-	-	-	-	-	-	-	-	0.00624	0.0223
Air	Background Quarterly Composite	11-15-2014	-	<0.105	<0.0262	<0.00151	<0.0451	<0.00106	<0.00421	-	<0.00102	-	-
Air	Background	11-18-2014	<0.0239	-	-	-	-	-	-	-	-	0.00320	0.0163
Air	Background	11-25-2014	<0.0329	-	-	-	-	-	-	-	-	0.00784	0.0268

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Air	Background	12-02-2014	<0.0290	-	-	-	-	-	-	-	-	0.00306	0.0175
Air	Background	12-09-2014	<0.0219	-	-	-	-	-	-	-	-	0.00378	0.0214
Air	Background	12-16-2014	<0.0303	-	-	-	-	-	-	-	-	0.00236	0.0145
Air	Background	12-23-2014	<0.0255	-	-	-	-	-	-	-	-	0.00424	0.0159
Air	Background	12-30-2014	<0.0234	-	-	-	-	-	-	-	-	0.00443	0.0185

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