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May 14, 2018

U. S. Nuclear Regulatory Commission
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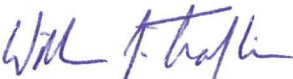
LaSalle County Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: 2017 Annual Radiological Environmental Operating Report

Enclosed is the Exelon Generation Company, LLC, 2017 Annual Radiological Environmental Operating Report for LaSalle County Station, submitted in accordance with Technical Specifications 5.6.2, "Annual Radiological Environmental Operating Report." The enclosed report contains the results of groundwater monitoring conducted in accordance with Exelon's Radiological Groundwater Protection Program, which is a voluntary program implemented in 2006. This information is being reported in accordance with a nuclear industry initiative.

There are no regulatory commitments in this letter. Should you have any questions concerning this report, please contact Mr. Guy V. Ford, Jr., Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,


William J. Trafton
Site Vice President
LaSalle County Station

Enclosure: LaSalle County Station Units 1 and 2 Annual Radiological Environmental Operating Report 1 January through 31 December 2017

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Annual Radiological Environmental Operating Report, and
Annual Radioactive Effluent Release Report:

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Docket No: 50-373
50-374

LASALLE COUNTY STATION UNITS 1 and 2

Annual Radiological
Environmental Operating Report

1 January through 31 December 2017

Prepared By
Teledyne Brown Engineering
Environmental Services



LaSalle County Station
Marseilles, IL 61341

May 2018

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I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program conducted for the LaSalle County Station (LSCS) by Exelon covers the period 1 January 2017 through 31 December 2017. During that time period, 1,498 analyses were performed on 1,391 samples. In assessing all the data gathered for this report and comparing these results with preoperational data, it was concluded that the operation of LSCS had no adverse radiological impact on the environment.

Surface water samples were analyzed for concentrations of gross beta, tritium and gamma-emitting nuclides. Ground/well water samples were analyzed for concentrations of tritium and gamma-emitting nuclides. No fission or activation products were detected. Gross beta and tritium activities detected were consistent with those detected in previous years.

Commercially and recreationally important fish species were sampled and analyzed for concentrations of gamma-emitting nuclides. No fission or activation products were detected in fish.

Sediment samples were analyzed for concentrations of gamma-emitting nuclides. Two sediment samples from the control location contained Cesium-137 (Cs-137) at a range of 94 – 269 pCi/kg dry. The Cs-137 concentrations were consistent with concentrations observed in previous years. Cs-137 is often found in environmental media, such as sediment, from nuclear weapons testing. No other fission or activation products were identified in sediment.

Air particulate samples were analyzed for concentrations of gross beta and gamma-emitting nuclides. No fission or activation products were detected.

High sensitivity Iodine-131 (I-131) analyses were performed on weekly air samples. All results were less than the minimum detectable activity for I-131.

Cow milk samples were analyzed for concentrations of I-131 and gamma-emitting nuclides. All I-131 results were below the minimum detectable activity. Concentrations of naturally occurring Potassium-40 (K-40) were consistent with those detected in previous years. No fission or activation products were found.

Food product samples were analyzed for concentrations of gamma-emitting nuclides. No fission or activation products were detected.

Vegetation samples were analyzed for concentrations of gamma-emitting nuclides. No fission or activation products were detected.

Environmental gamma radiation measurements were performed quarterly using Optically Stimulated Luminescence Dosimeters (OSLD) for the Radiological Environmental Monitoring Program (REMP). The results from the environmental gamma radiation monitoring program were consistent with those detected in previous years.

II. Introduction

The LaSalle County Station (LSCS), consists of two boiling water reactors, each rated for 3,546 MWt. Both units are owned and operated by Exelon Corporation and are located in LaSalle County, Illinois. Unit 1 went critical on 16 March 1982. Unit 2 went critical on 02 December 1983. The site is located in northern Illinois, approximately 75 miles southwest of Chicago, Illinois.

A Radiological Environmental Monitoring Program (REMP) for LSCS was initiated in 1982 (the preoperational period for most media covers the periods 1 January 1979 through 26 December 1981 and was summarized in a separate report.). This report covers those analyses performed by Teledyne Brown Engineering (TBE) and Landauer on samples collected during the period 1 January 2017 through 31 December 2017.

A. Objectives of the REMP

The objectives of the REMP are to:

1. Provide data on measurable levels of radiation and radioactive materials in the site environs.
2. Evaluate the relationship between quantities of radioactive material released from the plant and resultant radiation doses to individuals from principal pathways of exposure.

B. Implementation of the Objectives

The implementation of the objectives is accomplished by:

1. Identifying significant exposure pathways.
2. Establishing baseline radiological data of media within those pathways.
3. Continuously monitoring those media before and during Station operation to assess Station radiological effects (if any) on man and the environment.

III. Program Description

A. Sample Collection

Samples for the LSCS REMP were collected for Exelon Nuclear by Environmental Inc. (Midwest Labs). This section describes the general collection methods used by Environmental Inc. (Midwest Labs) to obtain

environmental samples for the LSCS REMP in 2017. Sample locations and descriptions can be found in Tables B-1 and B-2, and Figures B-1 through B-3, Appendix B.

Aquatic Environment

The aquatic environment was evaluated by performing radiological analyses on samples of surface water, ground/well water, fish, and sediment. Two gallon water samples were collected weekly from two surface water locations (L-21 and L-40) and composited for monthly and quarterly required analyses. Control location was L-21. Two ground/well water locations (L-27 and L-28) were also grab sampled quarterly. All samples were collected via grab sample. The samples were then transferred to new unused plastic containers. Both the grab container and the sample containers were rinsed with source water prior to actual sample collection. Fish samples were collected semiannually at three locations, L-34, L-35 and L-36 (Control). Sediment samples composed of recently deposited substrate were collected at three locations semiannually, L-21 (Control), L-40 and L-41.

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on samples of airborne particulate and iodine. Airborne particulate and iodine samples were collected and analyzed weekly at nine locations (L-01, L-03, L-04, L-05, L-06, L-07, L-08, L-10, and L-11A). The control location was L-10. Airborne particulate and iodine samples were obtained at each location, using a vacuum pump to pull air through a glass fiber particulate filter and iodine cartridge. The pumps were run continuously and sampled air at the rate of approximately one cubic foot per minute. The particulate filters and iodine cartridges were replaced weekly and sent to the laboratory for analysis.

Terrestrial Environment

The terrestrial environment was evaluated by performing radiological analyses on samples of milk and food product. Samples are typically collected biweekly at one milk location (L-42) from May through October, and monthly from November through April. The control location was L-42. All samples, when available, were collected in new unused two gallon plastic bottles from the bulk tank at each location, preserved with sodium bisulfite, and shipped promptly to the laboratory.

Food products were collected during the growing season at five locations (L-Quad Control, L-Quad 1, L-Quad 2, L-Quad 3 and L-Quad 4). The control location was L-Quad Control. Various types of samples were

collected and placed in new unused plastic bags, and sent to the laboratory for analysis.

Vegetation samples were collected monthly during the growing season from May through October at three locations (L-Veg C, L-ESE1, and L-ESE2). The control location was L-Veg C and was located in the lowest deposition sector (ENE sector) surrounding LaSalle. Various vegetation samples were also collected in the highest deposition sector (ESE sector) surrounding LaSalle. The samples were collected and placed in new unused plastic bags and sent to the laboratory for analysis.

Ambient Gamma Radiation

Beginning in the first quarter of 2012, Exelon changed the type of dosimetry used for the Radiological Environmental Monitoring Program (REMP). Optically Stimulated Luminescent Dosimetry (OSLD) were deployed and Thermo-luminescent Dosimetry (TLD) were discontinued. This change may cause step changes in readings, up or down, depending on site characteristics. However, the relative comparison to control locations remains valid. OSLD technology is different than that used in a TLD but has the same purpose (to measure direct radiation).

Each location consisted of 2 OSLD sets. The OSLDs were exchanged quarterly and sent to Landauer for analysis. The OSLD locations were placed on and around the LSCS site as follows:

An inner ring consisting of 16 locations (L-101, L-102, L-103, L-104, L-105, L-106, L-107, L-108, L-109, L-110, L-111B, L-112, L-113A, L-114, L-115 and L-116) near and within the site perimeter representing fence post doses (i.e., at locations where the doses will be potentially greater than maximum annual off-site doses from LSCS releases).

An outer ring consisting of 16 locations (L-201, L-202, L-203, L-204, L-205, L-206, L-207, L-208, L-209, L-210, L-211, L-212, L-213, L-214, L-215 and L-216) extending to approximately 5 miles from the site designed to measure possible exposures to nearby population.

An other set consisting of eight locations (L-01, L-03, L-04, L-05, L-06, L-07, L-08, and L-11A).

The balance of one location (L-10) representing the control area.

The specific OSLD locations were determined by the following criteria:

1. The presence of relatively dense population;
2. Site meteorological data taking into account distance and elevation

for each of the sixteen 22 ½ degree sectors around the site, where estimated annual dose from LSCS, if any, would be most significant;

3. On hills free from local obstructions and within sight of the vents (where practical);
4. And near the closest dwelling to the vents in the prevailing downwind direction.

(Two OSLDs were placed at each location approximately six feet above ground level.)

B. Sample Analysis

This section describes the general analytical methodologies used by Environmental Inc. (Midwest Labs) and TBE to collect and analyze, respectively, the environmental samples for radioactivity for the LSCS REMP in 2017. The analytical procedures used by the laboratory are listed in Table B-2.

In order to achieve the stated objectives, the current program includes the following analyses:

1. Concentrations of beta emitters in surface water and air particulates
2. Concentrations of gamma emitters in ground/well and surface water, air particulates, milk, fish, sediment and vegetation
3. Concentrations of tritium in ground/well and surface water
4. Concentrations of I-131 in air and milk
5. Ambient gamma radiation levels at various site environs

C. Data Interpretation

The radiological and direct radiation data collected prior to LaSalle County Station becoming operational were used as a baseline with which these operational data were compared. For the purpose of this report, LaSalle County Station was considered operational at initial criticality. In addition, data were compared to previous years' operational data for consistency and trending. Several factors were important in the interpretation of the data:

1. Lower Limit of Detection and Minimum Detectable Concentration

The lower limit of detection (LLD) is defined as the smallest concentration of radioactive material in a sample that would yield a net count (above background) that would be detected with only a 5% probability of falsely concluding that a blank observation represents a "real" signal. The LLD is intended as a before the fact (a priori) estimate of a system (including instrumentation, procedure and sample type) and not as an after the fact (a posteriori) criteria for the presence of activity. All analyses were designed to achieve the required LSCS detection capabilities for environmental sample analysis.

The minimum detectable concentration (MDC) is defined above with the exception that the measurement is an after the fact estimate of the presence of activity.

2. Net Activity Calculation and Reporting of Results

Net activity for a sample was calculated by subtracting background activity from the sample activity. Since the REMP measures extremely small changes in radioactivity in the environment, background variations may result in sample activity being lower than the background activity effecting a negative number. An MDC was reported in all cases where positive activity was not detected.

Gamma spectroscopy results for each type of sample were grouped as follows:

For surface water, food products, and vegetation:
12 nuclides including Mn-54, Co-58, Fe-59, Co-60, Zn-65, Zr-95, Nb-95, I-131, Cs-134, Cs-137, Ba-140, and La-140 were reported.

For ground/well water, fish, sediment, air particulate and milk: 11 nuclides including Mn-54, Co-58, Fe-59, Co-60, Zn-65, Zr-95, Nb-95, Cs-134, Cs-137, Ba-140, and La-140 were reported.

Means and standard deviations of the results were calculated. The standard deviations represent the variability of measured results for different samples rather than single analysis uncertainty.

D. Program Exceptions

For 2017, the LSCS REMP had a sample recovery rate of 98.1%. Sample anomalies and missed samples are listed in the tables below:

Table D-1 LISTING OF SAMPLE ANOMALIES

Sample Type	Location Code	Collection Date	Reason
A/I	L-04	06/15/17	No apparent reason for low timer reading of 156.2 hours. Low timer readings of this nature are consistent with weather-related power interruptions.
A/I	L-10	06/15/17	No apparent reason for low timer reading of 163.6 hours. Low timer readings of this nature are consistent with weather-related power interruptions.
A/I	L-05	11/22/17	No apparent reason for low timer reading of 30.5 hours. Low timer readings of this nature are consistent with weather-related power interruptions.

Table D-2 LISTING OF MISSED SAMPLES

Sample Type	Location Code	Collection Date	Reason
SW	L-40	01/11/17	No sample; water frozen.
OSLD	L-101-1	03/01/17	OSLD found missing during monthly visual check.
A/I	L-01	04/06/17	Samples lost in transit by shipper.
A/I	L-03	04/06/17	Samples lost in transit by shipper.
A/I	L-04	04/06/17	Samples lost in transit by shipper.
A/I	L-05	04/06/17	Samples lost in transit by shipper.
A/I	L-06	04/06/17	Samples lost in transit by shipper.
A/I	L-07	04/06/17	Samples lost in transit by shipper.
A/I	L-08	04/06/17	Samples lost in transit by shipper.
A/I	L-10	04/06/17	Samples lost in transit by shipper.
A/I	L-11A	04/06/17	Samples lost in transit by shipper.

Table D-2 LISTING OF MISSED SAMPLES (cont'd)

Sample Type	Location Code	Collection Date	Reason
OSLD	L-213-4	06/28/17	OSLD found missing during quarterly exchange.
OSLD	L-205-3	08/02/17	OSLD found missing during monthly check.
OSLD	L-210-2	09/06/17	OSLD found missing during monthly check.
A/I	L-05	11/22/17	Invalid samples due to low sample volume.
OSLD	L-205-4	12/06/17	OSLD found missing during monthly check.
SW	L-21	12/27/17	No sample; water frozen.
SW	L-40	12/27/17	No sample; water frozen.
OSLD	L-105-2	12/27/17	OSLD found missing during quarterly exchange.
OSLD	L-106-2	12/27/17	OSLD found missing during quarterly exchange.

Each program exception has been reviewed to understand the causes of the program exception. Occasional equipment breakdowns and power outages were unavoidable.

The overall sample recovery rate indicates that the appropriate procedures and equipment are in place to assure reliable program implementation.

E. Program Changes

There were no program changes in 2017.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were taken weekly and composited monthly at two locations (L-21 and L-40). Of these locations only L-40 located downstream, could be affected by LaSalle's effluent releases. The following analyses were performed:

Gross Beta

Samples from all locations were analyzed for concentrations of gross beta (Table C–I.1, Appendix C). Gross beta was detected in 24 out of 24 samples with a range of 3.4 to 8.5 pCi/L.

Concentrations detected were consistent with those detected in previous years (Figure C–1, Appendix C). The required LLD was met for all samples.

Tritium

Quarterly composites of weekly collections were analyzed for tritium activity (Table C–I.2, Appendix C). Tritium was detected in 2 of 8 samples. The concentrations ranged from 202 to 286 pCi/L. Concentrations detected were consistent with those detected in previous years (Figure C–2, Appendix C).

Gamma Spectrometry

Samples from both locations were analyzed for gamma-emitting nuclides (Table C–I.3, Appendix C). No nuclides were detected, and all required LLDs were met.

2. Ground/Well Water

Quarterly grab samples were collected at two locations (L-27 and L-28). Wells 4, 5 and 6 are associated with L-28. L-27 and L-28 Well 6 could be affected by LaSalle’s effluent releases. The following analyses were performed:

Tritium

Quarterly grab samples from the locations were analyzed for tritium activity (Table C–II.1, Appendix C). No tritium was detected and the contractually-required 200 pCi/L LLDs were met.

Gamma Spectrometry

Samples from all locations were analyzed for gamma-emitting nuclides (Table C–II.2, Appendix C). No nuclides were detected, and all required LLDs were met.

**Naturally occurring gamma-emitting radionuclides are not included in the Appendix C Tables.*

3. Fish

Fish samples were collected at three locations (L-34, L-35 and L-36) semiannually. Locations L-34 and L-35 could be affected by LaSalle's effluent releases. The following analysis was performed:

Gamma Spectrometry

The edible portion of fish samples from both locations was analyzed for gamma-emitting nuclides (Table C–III.1, Appendix C). Naturally occurring K-40* was found at all stations and ranged from 1,583 to 4,619 pCi/kg wet. No fission or activation products were found.

4. Sediment

Aquatic sediment samples were collected at three locations (L-21, L-40 and L-41) semiannually. Location L-21 is located upstream and is not affected by LaSalle's liquid effluent releases. Locations L-40 and L-41, located downstream, could be affected by LaSalle's effluent releases. The following analysis was performed:

Gamma Spectrometry

Sediment samples from the three locations were analyzed for gamma-emitting nuclides (Table C–IV.1, Appendix C). Naturally-occurring Be-7* was found at two stations with concentrations ranging from 812 to 3014 pCi/L. Naturally- occurring K-40* was found at all stations and ranged from 6804 to 17,520 pCi/kg dry. Cs-137 was found in 2 control location samples (L-21) with a concentration range of 94 - 269 pCi/L dry. The Cs-137 concentration is consistent with concentrations observed in previous years. Cs-137 is often found in environmental media, such as sediment, from nuclear weapons testing. No additional fission or activation products were found.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from nine locations on a weekly basis. The nine locations were

**Naturally occurring gamma-emitting radionuclides are not included in the Appendix C Tables.*

separated into four groups: Group I (onsite) represents locations within the LSCS site boundary (L-03 and L-05), Group II (near-site) represents the locations near the LSCS site (L-01 and L-06), Group III (far-field) represents the locations at an intermediate distance from LSCS (L-04, L-07, L-08, and L-11A) and Group IV (control) represents the control location at a remote distance (L-10). The following analyses were performed:

Gross Beta

Weekly samples were analyzed for concentrations of beta emitters (Table C–V.1 and C–V.2, Appendix C). Detectable gross beta activity was observed at all locations. Comparison of results among the four groups aid in determining the effects, if any, resulting from the operation of LSCS. The results from the onsite locations (Group I) ranged from 6 to 36E–3 pCi/m³ with a mean of 17E–3 pCi/m³. The results from the near-site location (Group II) ranged from 6 to 37E–3 pCi/m³ with a mean of 17E–3 pCi/m³. The results from the far-field locations (Group III) ranged from 6 to 38E–3 pCi/m³ with a mean of 18E–3 pCi/m³. The results from the control location (Group IV) ranged from 6 to 35E–3 pCi/m³ with a mean of 17E–3 pCi/m³. Comparison of the 2017 air particulate data with previous year’s data indicate no effects from the operation of LSCS (Figures C–3 through C-8, Appendix C). In addition, comparisons of the weekly mean values for 2017 indicate no notable differences among the four groups.

Gamma Spectrometry

Weekly samples were composited quarterly and analyzed for gamma-emitting nuclides (Table C–V.3, Appendix C). Naturally-occurring Be-7*, due to cosmic ray activity, was detected in 36 of 36 samples. These values ranged from 83 to 182 E–3 pCi/m³. All other nuclides were less than the MDC.

b. Airborne Iodine

Continuous air samples were collected from ten locations (L-01, L-03, L-04, L-05, L-06, L-07, L-08, L-10, and L-11A) and analyzed weekly for I-131 (Table C–VI.1, Appendix C). No I-131 was detected.

Naturally occurring gamma-emitting radionuclides are not included in the Appendix C Tables.

2. Terrestrial

a. Milk

Samples were collected from one location (L-42) biweekly May through October and monthly November through April. The following analyses were performed:

Iodine-131

Milk samples from the location were analyzed for concentrations of I-131 (Table C–VII.1, Appendix C). I-131 was not detected, and the required LLDs were met.

Gamma Spectrometry

Each milk sample was analyzed for concentrations of gamma-emitting nuclides (Table C–VII.2, Appendix C).

Naturally occurring K-40* activity was found in all samples and ranged from 912 to 1,349 pCi/l. No other nuclides were detected, and all required LLDs were met.

b. Food Products

Food product samples were collected at five locations (L-Quad C, L-Quad 1, L-Quad 2, L-Quad 3 and L-Quad 4) when available. Four locations, (L-Quad 1, L-Quad 2, L-Quad 3 and L-Quad 4) could be affected by LaSalle's effluent releases. The following analysis was performed:

Gamma Spectrometry

Samples from all available locations were analyzed for gamma-emitting nuclides (Table C–VIII.1, Appendix C). No nuclides were detected, and all required LLDs were met.

c. Vegetation

Vegetation samples were collected monthly during the growing season from May through October at three locations (L-Veg C, L-ESE1, and L-ESE2). The control location was L-Veg C and was located in the lowest deposition sector

Naturally occurring gamma-emitting radionuclides are not included in the Appendix C Tables.

(ENE sector) surrounding LaSalle. Various vegetation samples were also collected in the highest deposition sector (ESE sector) surrounding LaSalle. The following analyses were performed:

Gamma Spectrometry

Samples from all available locations were analyzed for gamma-emitting nuclides (Table C-VIII.2, Appendix C). No nuclides were detected, and all required LLDs were met.

C. Ambient Gamma Radiation

Ambient gamma radiation levels were measured utilizing Optically Stimulated Luminescence Dosimeters (OSLD). Forty-one OSLD locations were established around the site. Results of OSLD measurements are listed in Tables C-IX.1 to C-IX.3, Appendix C.

All OSLD measurements were at or below 32.0 mrem/quarter, with a range of 22.2 to 31.6.0 mrem/quarter. A comparison of the Inner Ring, Outer Ring, and Other data to the Control Location data, indicate that the ambient gamma radiation levels from the Control Location L-10 were comparable.

D. Land Use Survey

A Land Use Survey conducted during the August 2017 growing season around the LaSalle County Station (LSCS) was performed by Environmental Inc. (Midwest Labs) for Exelon Nuclear to comply with Radiological Effluent Control 12.5.2 of the LaSalle's Offsite Dose Calculation Manual. The purpose of the survey was to document the nearest resident, milk producing animal and garden of greater than 500 ft² in each of the sixteen 22 ½ degree sectors around the site. The distance and direction of all locations from the LSCS reactor buildings were positioned using Global Positioning System (GPS) technology. There were no changes required to the LSCS REMP as a result of this survey. The results of this survey are summarized below:

Distance in Miles from the LSCS Reactor Buildings			
Sector	Residence Miles	Livestock Miles	Milk Farm Miles
A N	3.9	4.0	-
B NNE	1.6	1.7	-
C NE	2.1	3.5	-
D ENE	3.3	3.8	-
E E	3.2	-	14.2
F ESE	1.4	-	-
G SE	1.7	5.1	-
H SSE	1.8	4.7	-
J S	1.5	-	-
K SSW	0.7	-	-
L SW	1.0	5.8	-
M WSW	1.5	-	-
N W	1.7	3.0	-
P WNW	0.9	3.0	-
Q NW	1.7	3.3	-
R NNW	1.7	4.5	-

E. Errata Data

There is no errata data for 2017.

F. Summary of Results – Inter-Laboratory Comparison Program

The TBE Laboratory analyzed Performance Evaluation (PE) samples of air particulate, air iodine, milk, soil, vegetation, and water matrices for various analytes. The PE samples supplied by Analytics Inc., Environmental Resource Associates (ERA) and Department of Energy (DOE) Mixed Analyte Performance Evaluation Program (MAPEP), were evaluated against the following pre-set acceptance criteria:

1. Analytics Evaluation Criteria

Analytics' evaluation report provides a ratio of TBE's result and Analytics' known value. Since flag values are not assigned by Analytics, TBE evaluates the reported ratios based on internal QC requirements based on the DOE MAPEP criteria.

2. ERA Evaluation Criteria

ERA's evaluation report provides an acceptance range for control and warning limits with associated flag values. ERA's acceptance limits are established per the USEPA, National Environmental Laboratory Accreditation Conference (NELAC), state-specific Performance Testing (PT) program requirements or ERA's SOP for

the Generation of Performance Acceptance Limits, as applicable. The acceptance limits are either determined by a regression equation specific to each analyte or a fixed percentage limit promulgated under the appropriate regulatory document.

3. DOE Evaluation Criteria

MAPEP's evaluation report provides an acceptance range with associated flag values. MAPEP defines three levels of performance:

- Acceptable (flag = "A") - result within $\pm 20\%$ of the reference value
- Acceptable with Warning (flag = "W") - result falls in the $\pm 20\%$ to $\pm 30\%$ of the reference value
- Not Acceptable (flag = "N") - bias is greater than 30% of the reference value

Note: The Department of Energy (DOE) Mixed Analyte Performance Evaluation Program (MAPEP) samples are created to mimic conditions found at DOE sites which do not resemble typical environmental samples obtained at commercial nuclear power facilities.

For the TBE laboratory, 168 out of 173 analyses performed met the specified acceptance criteria. Five analyses did not meet the specified acceptance criteria for the following reasons and were addressed through the TBE Corrective Action Program.

1. The ERA April 2017 two nuclides in water were evaluated as *Not Acceptable*. (NCR 17-09)
 - a. The Zn-65 result of 39.3 pCi/L, exceeded the lower acceptance limit of 47.2. The known value was unusually low for this study. The sample was run in duplicate on two different detectors. The results of each were 39.3 ± 18.2 pCi/L (46% error and lower efficiency) and 59.3 ± 8.23 pCi/L (13.9% error and higher efficiency). The result from the 2nd detector would have been well within the acceptable range (47.2 – 65.9) and 110.2% of the known value of 53.8 pCi/L. No client samples were affected by this failure.
 - b. The Sr-89 result of 40.7 pCi/L exceeded the lower acceptance limit of 53.8. All associated QC and recoveries were reviewed and no apparent cause could be determined for the failure. The prior three cross-check results were from 99 – 115% of the

known values and the one that followed this sample (November, 2017) was 114% of the known value. No client samples were affected by this failure.

2. The DOE MAPEP August 2017 air particulate U-238 result of 0.115 ± 0.025 Bq/sample was higher than the known value of 0.087 ± 0.002 with a ratio of 1.32, therefore the upper ratio of 1.30 (acceptable with warning) was exceeded. TBE's result with error easily overlaps with the acceptable range. MAPEP does not evaluate results with any associated error. Also, the spike level for this sample was very low (2.35 pCi) compared to TBE's normal LCS of 6 pCi. TBE considers this result as passing. No client samples were affected by this failure. (NCR 17-15)
3. The Analytics September 2017 soil Cr-51 result was evaluated as *Not Acceptable* (Ratio of TBE to known result at 0.65). The reported value was 0.230 ± 0.144 pCi/g and the known value was 0.355 ± 0.00592 pCi/g. The sample was counted overnight for 14 hours, however the Cr-51 was spiked at a very low level and had a counting error of 65%. Cr-51 has a 27-day half-life, making low-level quantification even more difficult. The error does not appear to have been taken into consideration for this result. If it had been evaluated with the error, the highest result would have been 105% of the reference value, which is acceptable. Also, the known value is significantly lower than TBE's typical MDC for this nuclide in a soil matrix and would typically not be reported to clients (unless specified). The results of all of the previous cross-checks have been in the acceptable (80 – 120%) range. TBE will evaluate further upon completion of the next ICP sample. No client samples were affected by this failure. (NCR 17-16)
4. The ERA November 2017 water Sr-90 sample was evaluated as *Not Acceptable*. TBE's result of 27.1 pCi/L exceeded the lower acceptance range (30.8 – 48.0 pCi/L). After reviewing the associated QC data for this sample, it was determined that although the spike recovery for Sr-90 was within our laboratory guidelines (70% -130%), both the spike result and our ERA result were biased low. The original cross-check sample was completely consumed and we were unable to reanalyze before submitting the result. We have modified our preparation process to avoid this situation for future cross-check samples. We also have enhanced LIMS programming to force a LCSD when a workgroup includes cross-check samples (as opposed to running a DUP). No client samples were affected by this failure. (NCR 17-19)

The Inter-Laboratory Comparison Program provides evidence of “in control” counting systems and methods, and that the laboratories are producing accurate and reliable data.

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT ANNUAL SUMMARY

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**TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR
THE LASALLE COUNTY STATION, 2017**

NAME OF FACILITY:		LASALLE COUNTY STATION		DOCKET NUMBER:		50-373 & 50-374		
LOCATION OF FACILITY:		MARSEILLES, IL		REPORTING PERIOD:		2017		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	GR-B	24	4	6 (12/12) 3.4 - 8.5	6.1 (12/12) 3.9 - 8.5	6.1 (12/12) 3.9 - 8.5	L-21 CONTROL ILLINOIS RIVER AT SENECA - UPSTREAM 4.0 MILES NE OF SITE	0
	H-3	8	200	244 (2/4) 202 - 286	<LLD	244 (2/4) 202 - 286	L-40 INDICATOR ILLINOIS RIVER - DOWNSTREAM 5.2 MILES NNW OF SITE	0
	GAMMA	24						
		MN-54		15	<LLD	<LLD	-	0
		CO-58		15	<LLD	<LLD	-	0
		FE-59		30	<LLD	<LLD	-	0
		CO-60		15	<LLD	<LLD	-	0
		ZN-65		30	<LLD	<LLD	-	0
		NB-95		15	<LLD	<LLD	-	0
		ZR-95		30	<LLD	<LLD	-	0
		I-131		15	<LLD	<LLD	-	0
		CS-134		15	<LLD	<LLD	-	0
		CS-137		18	<LLD	<LLD	-	0
	BA-140		60	<LLD	<LLD	-	0	
	LA-140		15	<LLD	<LLD	-	0	
GROUND WATER (PCI/LITER)	H-3	12	200	<LLD	<LLD	-		0
	GAMMA	12						
		MN-54		15	<LLD	<LLD	-	0
		CO-58		15	<LLD	<LLD	-	0
		FE-59		30	<LLD	<LLD	-	0
		CO-60		15	<LLD	<LLD	-	0
		ZN-65		30	<LLD	<LLD	-	0
		NB-95		15	<LLD	<LLD	-	0
		ZR-95		30	<LLD	<LLD	-	0
		CS-134		15	<LLD	<LLD	-	0
		CS-137		18	<LLD	<LLD	-	0
		BA-140		60	<LLD	<LLD	-	0
		LA-140		15	<LLD	<LLD	-	0

(M) The Mean Values are calculated using the positive values (values ≥ MDC). (F) Fraction of detectable measurement are indicated in parentheses.

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LOCATION OF FACILITY:		MARSEILLES, IL		REPORTING PERIOD:		2017		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR	CONTROL	LOCATION WITH HIGHEST ANNUAL MEAN (M)		NUMBER OF NONROUTINE REPORTED MEASUREMENTS
				LOCATIONS MEAN (M) (F) RANGE	LOCATION MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	
FISH (PCI/KG WET)	GAMMA	12						
	MN-54		130	<LLD	<LLD	-		0
	CO-58		130	<LLD	<LLD	-		0
	FE-59		260	<LLD	<LLD	-		0
	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	CS-134		130	<LLD	<LLD	-		0
	CS-137		150	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
SEDIMENT (PCI/KG DRY)	GAMMA	6						
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	FE-59		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0
	ZN-65		NA	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	CS-134		150	<LLD	<LLD	-		0
	CS-137		180	<LLD	182 (2/2)	182 (2/2)	L-21 CONTROL ILLINOIS RIVER AT SENECA - UPSTREAM 4.0 MILES NE OF SITE	0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
AIR PARTICULATE (E-3 PCI/CU.METER)	GR-B	458	10	17.4 (405/407) 5.9 - 37.6	16.8 (50/51) 5.7 - 34.8	18 (50/51) 6.5 - 33.4	L-04 INDICATOR RTE. 170 3.2 MILES E OF SITE	0

(M) The Mean Values are calculated using the positive values (values ≥ MDC). (F) Fraction of detectable measurement are indicated in parentheses.

**TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR
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NAME OF FACILITY:		LASALLE COUNTY STATION		DOCKET NUMBER:		50-373 & 50-374		
LOCATION OF FACILITY:		MARSEILLES, IL		REPORTING PERIOD:		2017		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M)		NUMBER OF NONROUTINE REPORTED MEASUREMENTS
						MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	
AIR PARTICULATE (E-3 PCI/CU.METER)	GAMMA	36						
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	FE-59		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0
	ZN-65		NA	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	CS-134		50	<LLD	<LLD	-		0
	CS-137		60	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
AIR IODINE (E-3 PCI/CU.METER)	GAMMA	458						
	I-131		70	<LLD	<LLD	-		0
MILK (PCI/LITER)	I-131	19	1	NA	<LLD	-		0
	GAMMA	19						
	MN-54		NA	NA	<LLD	-		0
	CO-58		NA	NA	<LLD	-		0
	FE-59		NA	NA	<LLD	-		0
	CO-60		NA	NA	<LLD	-		0
	ZN-65		NA	NA	<LLD	-		0
	NB-95		NA	NA	<LLD	-		0
	ZR-95		NA	NA	<LLD	-		0
	CS-134		15	NA	<LLD	-		0
	CS-137		18	NA	<LLD	-		0
	BA-140		60	NA	<LLD	-		0
	LA-140		15	NA	<LLD	-		0

(M) The Mean Values are calculated using the positive values (values ≥ MDC). (F) Fraction of detectable measurement are indicated in parentheses.

**TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR
THE LASALLE COUNTY STATION, 2017**

NAME OF FACILITY:		LASALLE COUNTY STATION		DOCKET NUMBER:		50-373 & 50-374		
LOCATION OF FACILITY:		MARSEILLES, IL		REPORTING PERIOD:		2017		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE		NUMBER OF NONROUTINE REPORTED MEASUREMENTS
						STATION # NAME DISTANCE AND DIRECTION		
FOOD PRODUCTS (PCI/KG WET)	GAMMA	19						
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	FE-59		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0
	ZN-65		NA	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	I-131		60	<LLD	<LLD	-		0
	CS-134		60	<LLD	<LLD	-		0
	CS-137		80	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
VEGETATION (PCI/KG WET)	GAMMA	54						
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	FE-59		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0
	ZN-65		NA	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	I-131		60	<LLD	<LLD	-		0
	CS-134		60	<LLD	<LLD	-		0
	CS-137		80	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
DIRECT RADIATION (MILLIREM/QTR.)	OSLD-QUARTERLY	329	NA	26.5 (321/321) 21.3 - 31.6	23.9 (8/8) 22.2 - 26.8	29.5 (4/4) 26.9 - 30.7	L-102-2 INDICATOR 0.6 MILES NNE	0

(M) The Mean Values are calculated using the positive values (values ≥ MDC). (F) Fraction of detectable measurement are indicated in parentheses.

APPENDIX B

LOCATION DESIGNATION, DISTANCE & DIRECTION, AND SAMPLE COLLECTION & ANALYTICAL METHODS

TABLE B-1:

Radiological Environmental Monitoring Program - Sampling Locations,
Distance and Direction, LaSalle County Station, 2017

Location	Location Description	Distance & Direction From Site
<u>A. Surface Water</u>		
L-21	Illinois River at Seneca, Upstream (control)	4.0 miles NE
L-40	Illinois River, Downstream (indicator)	5.2 miles NNW
<u>B. Ground/Well Water</u>		
L-27	LSCS Onsite Well (indicator)	0 miles at station
L-28-W4	Marseilles Well (control)	7.0 miles NNW
L-28-W5	Marseilles Well (control)	6.7 miles NNW
L-28-W6	Marseilles Well (indicator)	4.1 miles N
<u>C. Milk - bi-weekly / monthly</u>		
L-42	Biros Farm (control)	14.2 miles E
<u>D. Air Particulates / Air Iodine</u>		
L-01	Nearsite 1 (indicator)	1.5 miles NNW
L-03	Onsite 3 (indicator)	1.0 miles ENE
L-04	Rte. 170 (indicator)	3.2 miles E
L-05	Onsite 5 (indicator)	0.3 miles ESE
L-06	Nearsite 6 (indicator)	0.4 miles W
L-07	Seneca (indicator)	5.2 miles NNE
L-08	Marseilles (indicator)	6.0 miles NNW
L-10	Streator (control)	13.5 miles SW
L-11A	Ransom (indicator)	6.0 miles S
<u>E. Fish</u>		
L-34	LaSalle Cooling Lake (indicator)	2.0 miles E
L-35	Marseilles Pool of Illinois River, Downstream (indicator)	6.5 miles NNW
L-36	Illinois River, Upstream of Discharge (control)	4.3 miles NE
<u>F. Sediment</u>		
L-21	Illinois River at Seneca, Upstream (control)	4.0 miles NE
L-40	Illinois River, Downstream (indicator)	5.2 miles NNW
L-41	Illinois River, Downstream (indicator)	4.6 miles N
<u>G. Food Products</u>		
Quadrant 1	171 Valley View, Seneca IL	5.2 miles NE
Quadrant 1	281 E. Lincoln, Seneca IL	5.1 miles NE
Quadrant 2	106 W. Thomas, Ransom, IL	6.0 miles S
Quadrant 2	205 W. Plumb, Ransom IL	5.3 miles S
Quadrant 3	1814 E. 25 th Rd., Ransom IL	3.5 miles SW
Quadrant 4	2507 N. 2553 Rd., Marseilles IL	4.3 miles NNW
Control	Biros Farm	14.2 miles E
<u>H. Vegetation</u>		
L-Veg C	Control	9.5 miles ENE
L-ESE 1	Indicator	1.5 miles ESE
L-ESE 2	Indicator	6.0 miles ESE

TABLE B-1:

Radiological Environmental Monitoring Program - Sampling Locations,
Distance and Direction, LaSalle County Station, 2017

Location	Location Description	Distance & Direction From Site
<u>I. Environmental Dosimetry - OSLD</u>		
<u>Inner Ring</u>		
L-101-1 and -2		0.5 miles N
L-102-1 and -2		0.6 miles NNE
L-103-1 and -2		0.7 miles NE
L-104-1 and -2		0.8 miles ENE
L-105-1 and -2		0.7 miles E
L-106-1 and -2		1.4 miles ESE
L-107-1 and -2		0.8 miles SE
L-108-1 and -2		0.5 miles SSE
L-109-1 and -2		0.6 miles S
L-110-1 and -2		0.6 miles SSW
L-111b-1 and -2		0.8 miles SW
L-112-1 and -2		0.9 miles WSW
L-113a-1 and -2		0.8 miles W
L-114-1 and -2		0.9 miles WNW
L-115-1 and -2		0.7 miles NW
L-116-1 and -2		0.6 miles NNW
<u>Outer Ring</u>		
L-201-3 and -4		4.0 miles N
L-202-3 and -4		3.6 miles NNE
L-203-1 and -2		4.0 miles NE
L-204-1 and -2		3.2 miles ENE
L-205-1 and -2		3.2 miles ESE
L-205-3 and -4		5.1 miles E
L-206-1 and -2		4.3 miles SE
L-207-1 and -2		4.5 miles SSE
L-208-1 and -2		4.5 miles S
L-209-1 and -2		4.0 miles SSW
L-210-1 and -2		3.3 miles SW
L-211-1 and -2		4.5 miles WSW
L-212-1 and -2		4.0 miles W
L-213-3 and -4		4.9 miles W
L-214-3 and -4		5.1 miles WNW
L-215-3 and -4		5.0 miles NW
L-216-3 and -4		5.0 miles NNW
<u>Other</u>		
L-01-1 and -2	Nearsite 1 (indicator)	1.5 miles NNW
L-03-1 and -2	Onsite 3 (indicator)	1.0 miles ENE
L-04-1 and -2	Rte. 170 (indicator)	3.2 miles E
L-05-1 and -2	Onsite 5 (indicator)	0.3 miles ESE
L-06-1 and -2	Nearsite 6 (indicator)	0.4 miles W
L-07-1 and -2	Seneca (indicator)	5.2 miles NNE
L-08-1 and -2	Marseilles (indicator)	6.0 miles NNW
L-11A-1 and -2	Ransom (indicator)	6.0 miles S
<u>Control and Special Interest</u>		
L-10-1 and -2	Streator	13.5 miles SW

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, LaSalle County Station, 2017

Sample Medium	Analysis	Sampling Method	Analytical Procedure Number
Surface Water	Gamma Spectroscopy	Monthly composite from weekly grab samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis
Surface Water	Gross Beta	Monthly composite from weekly grab samples.	TBE, TBE-2008 Gross Alpha and/or gross beta activity in various matrices
Surface Water	Tritium	Quarterly composite from weekly grab samples.	TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation
Ground/Well Water	Gamma Spectroscopy	Quarterly grab samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis
Ground/Well Water	Tritium	Quarterly grab samples.	TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation
Fish	Gamma Spectroscopy	Semi-annual samples collected via electroshocking or other techniques	TBE-2007 Gamma emitting radioisotope analysis
Sediment	Gamma Spectroscopy	Semi-annual grab samples	TBE, TBE-2007 Gamma emitting radioisotope analysis
Air Particulates	Gross Beta	One-week composite of continuous air sampling through glass fiber filter paper	TBE, TBE-2008 Gross Alpha and/or gross beta activity in various matrices
Air Particulates	Gamma Spectroscopy	Quarterly composite of each station	TBE, TBE-2007 Gamma emitting radioisotope analysis
Air Iodine	Gamma Spectroscopy	Bi-weekly composite of continuous air sampling through charcoal filter	TBE, TBE-2007 Gamma emitting radioisotope analysis
Milk	I-131	Bi-weekly grab sample when cows are on pasture. Monthly all other times	TBE, TBE-2012 Radioiodine in various matrices
Milk	Gamma Spectroscopy	Bi-weekly grab sample when cows are on pasture. Monthly all other times	TBE, TBE-2007 Gamma emitting radioisotope analysis
Food Products	Gamma Spectroscopy	Annual grab samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis
Vegetation	Gamma Spectroscopy	Monthly grab samples during growing season	TBE, TBE-2007 Gamma emitting radioisotope analysis
OSLD	Optically Stimulated Luminescence Dosimetry	Quarterly OSLDs comprised of two Al ₂ O ₃ :C Landauer Incorporated elements.	Landauer Incorporated

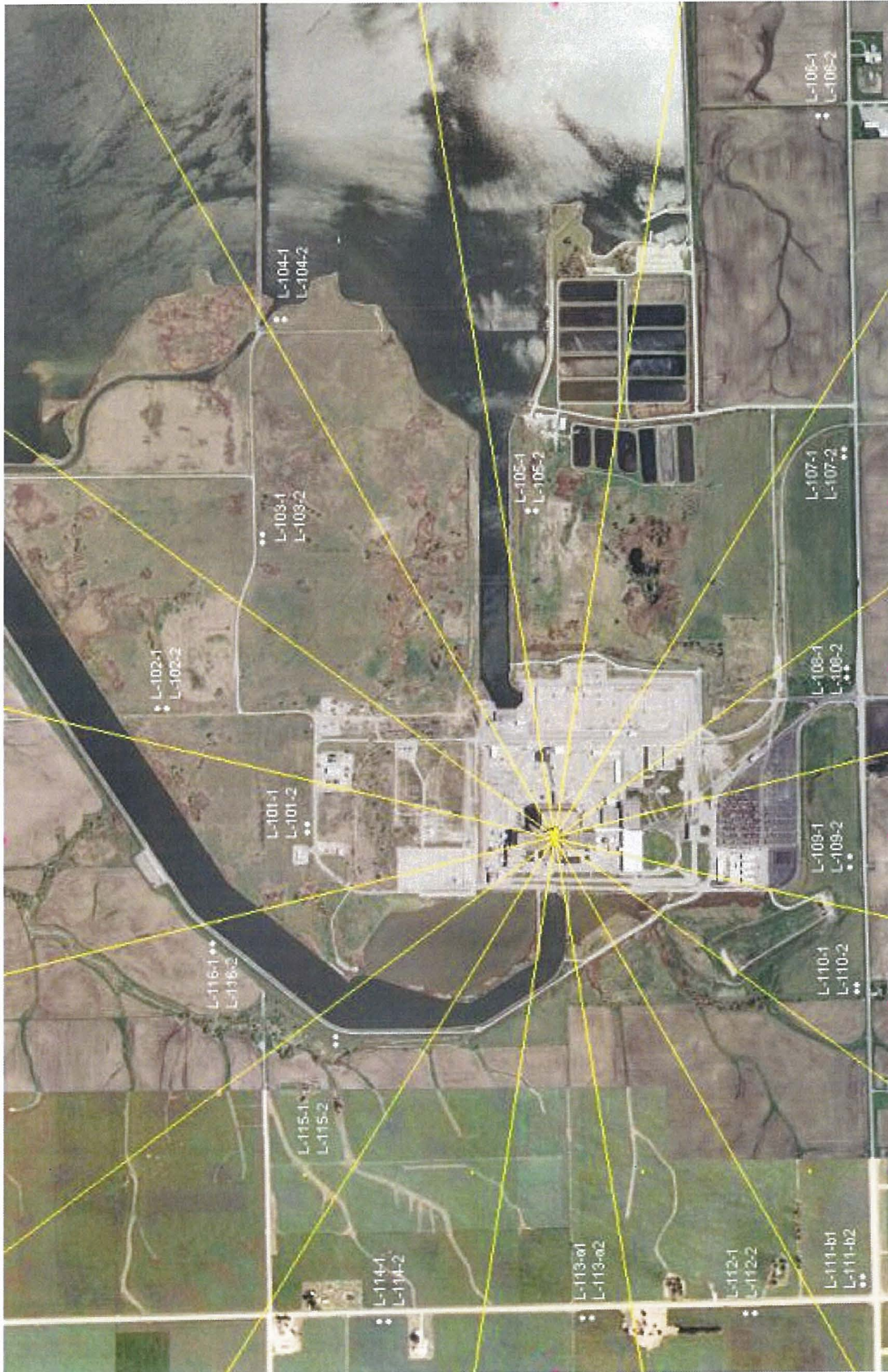


Figure B-1
Inner Ring OSLD Locations
of the LaSalle County Station, 2017

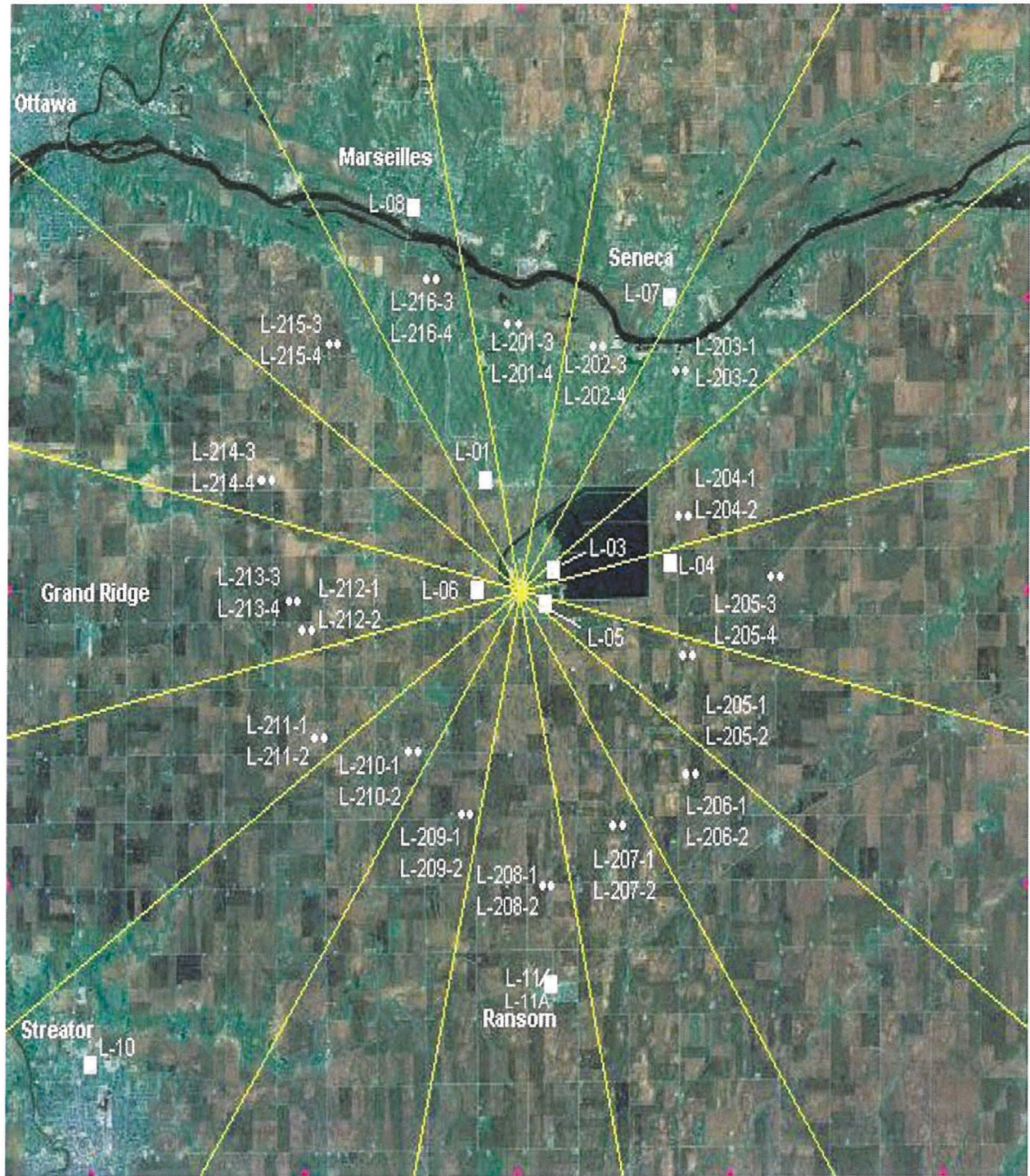


Figure B-2
 Outer Ring OSLD Locations and Fixed Air Sampling Locations
 of the LaSalle County Station, 2017

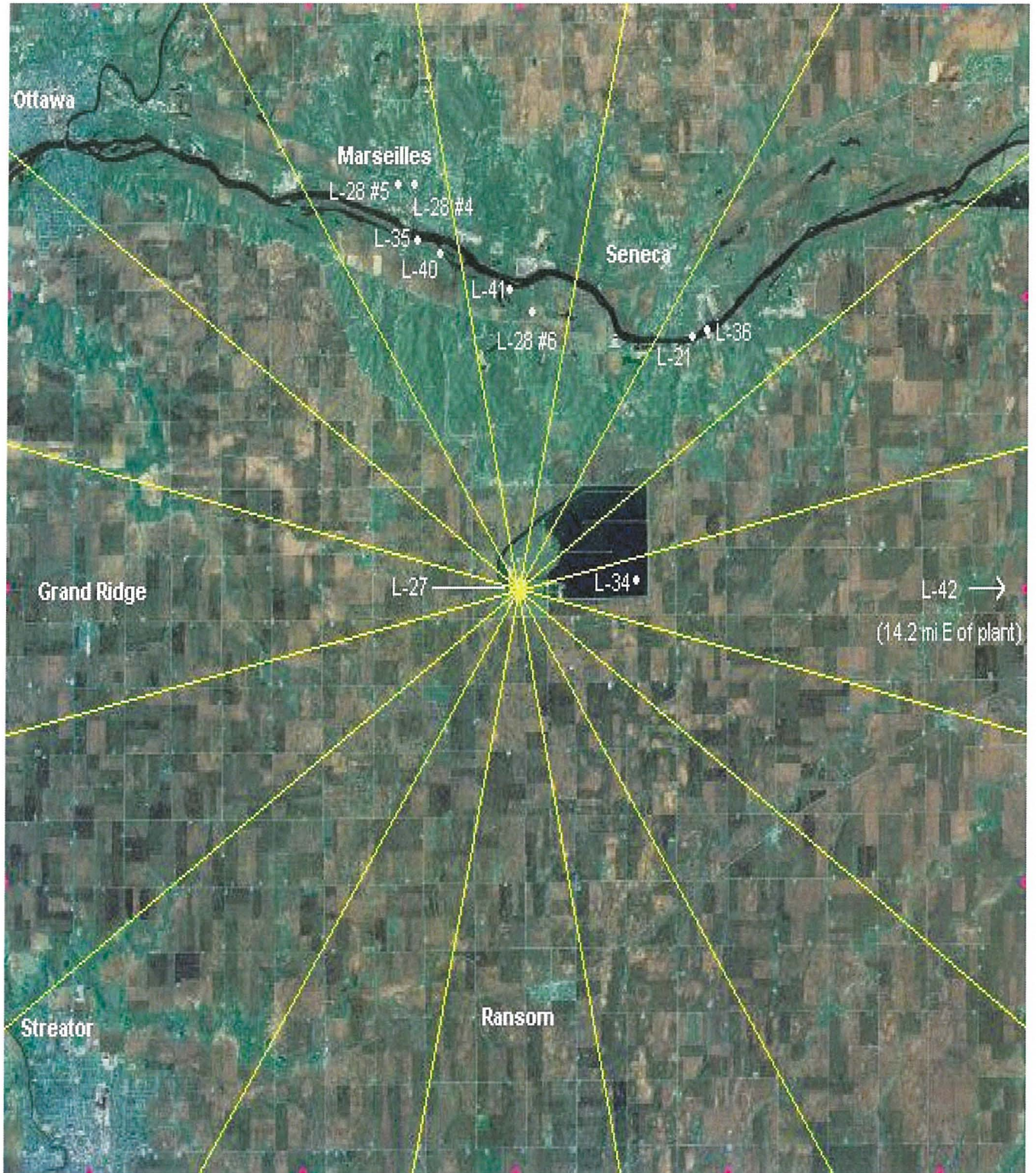


Figure B-3
 Ingestion and Waterborne Exposure Pathway Sample Locations
 of the LaSalle County Station, 2017



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APPENDIX C

DATA TABLES AND FIGURES – PRIMARY LABORATORY

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Table C-I.1 CONCENTRATIONS OF GROSS BETA IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

COLLECTION PERIOD	L-21	L-40
01/04/17 - 01/26/17	7.7 \pm 2.4	7.1 \pm 2.4
02/01/17 - 02/23/17	6.1 \pm 2.2	4.6 \pm 2.2
03/01/17 - 03/29/17	4.8 \pm 2.1	4.8 \pm 2.1
04/06/17 - 04/27/17	6.1 \pm 2.3	4.3 \pm 2.2
05/04/17 - 05/31/17	4.3 \pm 2.1	3.4 \pm 2.1
06/08/17 - 06/28/17	5.5 \pm 2.3	5.8 \pm 2.2
07/06/17 - 07/27/17	4.5 \pm 2.0	4.0 \pm 2.0
08/02/17 - 08/31/17	7.1 \pm 2.2	8.0 \pm 2.2
09/06/17 - 09/27/17	7.5 \pm 2.1	8.5 \pm 2.2
10/05/17 - 10/26/17	7.2 \pm 2.0	6.8 \pm 2.0
11/01/17 - 11/30/17	8.5 \pm 2.2	7.7 \pm 2.1
12/06/17 - 12/21/17	3.9 \pm 2.0	6.4 \pm 2.2
(1) MEAN \pm 2 STD DEV	6.1 \pm 3.0	6.0 \pm 3.4

Table C-I.2 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

COLLECTION PERIOD	L-21	L-40
01/04/17 - 03/29/17	< 188	< 183
04/06/17 - 06/28/17	< 193	202 \pm 126
07/06/17 - 09/27/17	< 188	< 185
10/05/17 - 12/21/17	< 195	286 \pm 133
(1) MEAN \pm 2 STD DEV	-	244 \pm 119

(1) THE MEAN AND TWO STANDARD DEVIATION ARE CALCULATED USING THE POSITIVE VALUES (VALUES \geq MDC)

Table C-I.3

**CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017**
RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

SITE	COLLECTION PERIOD	RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA											
		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
L-21	01/04/17 - 01/26/17	< 3	< 3	< 8	< 3	< 5	< 4	< 6	< 14	< 3	< 4	< 26	< 8
	02/01/17 - 02/23/17	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 13	< 3	< 3	< 23	< 9
	03/01/17 - 03/29/17	< 1	< 1	< 3	< 1	< 3	< 2	< 2	< 9	< 1	< 1	< 13	< 5
	04/06/17 - 04/27/17	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 19	< 6
	05/04/17 - 05/31/17	< 1	< 2	< 5	< 2	< 3	< 2	< 3	< 15	< 2	< 2	< 23	< 8
	06/08/17 - 06/28/17	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 10	< 2	< 2	< 17	< 5
	07/06/17 - 07/27/17	< 3	< 3	< 8	< 3	< 6	< 4	< 6	< 14	< 3	< 3	< 28	< 7
	08/02/17 - 08/31/17	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 11	< 2	< 2	< 19	< 6
	09/06/17 - 09/27/17	< 2	< 2	< 6	< 2	< 4	< 3	< 4	< 15	< 2	< 2	< 24	< 8
	10/05/17 - 10/26/17	< 2	< 2	< 6	< 2	< 5	< 3	< 4	< 9	< 2	< 2	< 17	< 6
	11/01/17 - 11/30/17	< 2	< 2	< 6	< 2	< 5	< 3	< 5	< 13	< 2	< 2	< 22	< 7
	12/06/17 - 12/21/17	< 2	< 2	< 6	< 2	< 5	< 3	< 4	< 14	< 2	< 2	< 23	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
L-40	01/04/17 - 01/26/17	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 11	< 3	< 3	< 19	< 7
	02/01/17 - 02/23/17	< 3	< 3	< 7	< 2	< 5	< 3	< 5	< 13	< 3	< 3	< 24	< 7
	03/01/17 - 03/29/17	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 10	< 2	< 1	< 16	< 5
	04/06/17 - 04/27/17	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 9	< 2	< 2	< 17	< 6
	05/04/17 - 05/31/17	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 14	< 2	< 2	< 21	< 7
	06/08/17 - 06/28/17	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 12	< 2	< 2	< 21	< 7
	07/06/17 - 07/27/17	< 3	< 4	< 8	< 3	< 8	< 4	< 6	< 15	< 4	< 4	< 29	< 8
	08/02/17 - 08/31/17	< 1	< 2	< 3	< 1	< 2	< 2	< 3	< 9	< 1	< 1	< 15	< 5
	09/06/17 - 09/27/17	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 23	< 7
	10/05/17 - 10/26/17	< 2	< 2	< 5	< 3	< 5	< 3	< 4	< 10	< 3	< 2	< 19	< 7
	11/01/17 - 11/30/17	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 18	< 6
	12/06/17 - 12/21/17	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 15	< 2	< 2	< 24	< 6
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

**Table C-II.1 CONCENTRATIONS OF TRITIUM IN GROUNDWELL WATER SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017**
RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

COLLECTION PERIOD	L-27	L-28-W4	L-28-W5	L-28-W6
01/11/17 - 01/11/17	< 183		< 187	< 189
04/12/17 - 04/12/17	< 197	< 193		< 193
07/12/17 - 07/12/17	< 189		< 188	< 190
10/11/17 - 10/11/17	< 179		< 182	< 181
<i>MEAN</i>	-	-	-	-

Table C-II.2

**CONCENTRATIONS OF GAMMA EMITTERS IN GROUND/WELL WATER SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017**

RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

SITE	COLLECTION PERIOD	RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA										
		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
L-27	01/11/17 - 01/11/17	< 6	< 6	< 15	< 6	< 13	< 6	< 13	< 6	< 7	< 34	< 8
	04/12/17 - 04/12/17	< 6	< 5	< 6	< 3	< 8	< 5	< 8	< 6	< 6	< 26	< 7
	07/12/17 - 07/12/17	< 7	< 5	< 13	< 6	< 10	< 7	< 9	< 6	< 6	< 30	< 9
	10/11/17 - 10/11/17	< 6	< 5	< 12	< 5	< 12	< 7	< 9	< 6	< 5	< 31	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-
L-28-W4	04/12/17 - 04/12/17	< 5	< 8	< 17	< 7	< 11	< 8	< 13	< 5	< 7	< 34	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-
L-28-W5	01/11/17 - 01/11/17	< 8	< 7	< 12	< 6	< 15	< 8	< 11	< 8	< 7	< 37	< 11
	07/12/17 - 07/12/17	< 7	< 7	< 15	< 7	< 17	< 8	< 13	< 7	< 8	< 35	< 12
	10/11/17 - 10/11/17	< 5	< 5	< 11	< 5	< 9	< 4	< 8	< 6	< 5	< 25	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-
L-28-W6	01/11/17 - 01/11/17	< 9	< 10	< 12	< 8	< 18	< 9	< 15	< 8	< 9	< 43	< 10
	04/12/17 - 04/12/17	< 6	< 6	< 13	< 3	< 12	< 6	< 9	< 7	< 6	< 30	< 8
	07/12/17 - 07/12/17	< 6	< 8	< 14	< 7	< 18	< 8	< 13	< 8	< 8	< 42	< 10
	10/11/17 - 10/11/17	< 5	< 6	< 13	< 5	< 10	< 6	< 9	< 5	< 6	< 27	< 12
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-III.1

**CONCENTRATIONS OF GAMMA EMITTERS IN FISH SAMPLES COLLECTED
IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF PC/KG WET ± 2 SIGMA**

SITE	COLLECTION		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
	PERIOD												
L-34													
<i>Channel Catfish</i>	05/03/17		< 44	< 45	< 87	< 25	< 69	< 31	< 68	< 36	< 38	< 185	< 49
<i>Common Carp</i>	05/03/17		< 66	< 73	< 119	< 59	< 173	< 66	< 134	< 67	< 62	< 363	< 84
<i>Channel Catfish</i>	10/23/17		< 67	< 56	< 146	< 50	< 128	< 72	< 108	< 61	< 63	< 324	< 94
<i>Common Carp</i>	10/23/17		< 43	< 43	< 79	< 51	< 104	< 43	< 65	< 50	< 51	< 220	< 61
	<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-
L-35													
<i>Freshwater Drum</i>	05/04/17		< 41	< 39	< 86	< 42	< 96	< 38	< 67	< 31	< 36	< 215	< 52
<i>Smallmouth Buffalo</i>	05/04/17		< 49	< 61	< 112	< 46	< 122	< 46	< 101	< 65	< 49	< 221	< 71
<i>Freshwater Drum</i>	10/23/17		< 50	< 53	< 96	< 56	< 101	< 53	< 90	< 77	< 62	< 285	< 124
<i>Smallmouth Buffalo</i>	10/23/17		< 77	< 90	< 134	< 87	< 192	< 95	< 150	< 92	< 83	< 368	< 113
	<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-
L-36													
<i>Largemouth Bass</i>	05/04/17		< 56	< 46	< 117	< 43	< 142	< 52	< 79	< 47	< 44	< 228	< 66
<i>Smallmouth Buffalo</i>	05/04/17		< 47	< 54	< 101	< 42	< 113	< 62	< 86	< 54	< 52	< 229	< 59
<i>Smallmouth Bass</i>	10/23/17		< 47	< 38	< 96	< 47	< 115	< 37	< 90	< 49	< 47	< 228	< 73
<i>Smallmouth Buffalo</i>	10/23/17		< 60	< 56	< 130	< 54	< 135	< 67	< 105	< 71	< 59	< 281	< 62
	<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-

Table C-IV.1

**CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017**

RESULTS IN UNITS OF PC/KG DRY ± 2 SIGMA

SITE	COLLECTION		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
	PERIOD												
L-21	05/27/17		< 63	< 66	< 135	< 74	< 141	< 72	< 113	< 82	94 ± 62	< 281	< 98
	10/18/17		< 99	< 104	< 206	< 69	< 225	< 115	< 143	< 120	269 ± 122	< 513	< 137
<i>(1) MEAN ± 2 STD DEV</i>			-	-	-	-	-	-	-	-	182 ± 248	-	-
L-40	05/27/17		< 93	< 81	< 182	< 72	< 202	< 91	< 156	< 88	< 84	< 452	< 125
	10/18/17		< 105	< 98	< 204	< 108	< 206	< 123	< 179	< 96	< 109	< 464	< 126
		<i>MEAN</i>	-	-	-	-	-	-	-	-	-	-	-
L-41	05/27/17		< 78	< 88	< 217	< 68	< 187	< 82	< 161	< 96	< 91	< 389	< 110
	10/20/17		< 54	< 51	< 98	< 54	< 154	< 62	< 94	< 61	< 55	< 232	< 66
		<i>MEAN</i>	-	-	-	-	-	-	-	-	-	-	-

(1) THE MEAN AND TWO STANDARD DEVIATION ARE CALCULATED USING THE POSITIVE VALUES (VALUES ≥ MDC)

Table C-V.1

**CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF E-3 PCI/CU METER ± 2 SIGMA**

COLLECTION PERIOD	GROUP I		GROUP II		GROUP III			GROUP IV	
	L-03	L-05	L-01	L-06	L-04	L-07	L-08	L-11A	L-10
01/04/17 - 01/11/17	27 ± 5	21 ± 5	22 ± 5	26 ± 5	24 ± 5	24 ± 5	31 ± 5	23 ± 5	29 ± 5
01/11/17 - 01/19/17	19 ± 4	17 ± 4	18 ± 4	18 ± 4	21 ± 4	22 ± 4	21 ± 4	18 ± 4	15 ± 4
01/19/17 - 01/26/17	13 ± 4	15 ± 4	18 ± 4	14 ± 4	16 ± 4	19 ± 4	19 ± 4	17 ± 4	15 ± 4
01/26/17 - 02/01/17	16 ± 4	16 ± 5	16 ± 4	18 ± 5	17 ± 5	14 ± 4	15 ± 4	15 ± 4	17 ± 5
02/01/17 - 02/09/17	15 ± 3	17 ± 4	17 ± 3	16 ± 3	19 ± 4	18 ± 4	19 ± 4	20 ± 4	16 ± 3
02/09/17 - 02/16/17	19 ± 4	18 ± 4	18 ± 4	19 ± 4	21 ± 5	22 ± 5	20 ± 4	18 ± 4	22 ± 5
02/16/17 - 02/23/17	20 ± 4	20 ± 4	21 ± 4	19 ± 4	21 ± 4	19 ± 4	21 ± 4	18 ± 4	17 ± 4
02/23/17 - 03/01/17	17 ± 4	17 ± 4	22 ± 5	18 ± 4	20 ± 5	17 ± 4	16 ± 4	15 ± 4	14 ± 4
03/01/17 - 03/09/17	16 ± 4	14 ± 4	15 ± 4	15 ± 4	16 ± 4	16 ± 4	17 ± 4	17 ± 4	14 ± 3
03/09/17 - 03/16/17	14 ± 4	15 ± 4	16 ± 4	15 ± 4	16 ± 4	16 ± 4	15 ± 4	16 ± 4	13 ± 4
03/16/17 - 03/23/17	14 ± 4	20 ± 5	20 ± 5	17 ± 5	19 ± 5	19 ± 5	19 ± 5	19 ± 5	19 ± 5
03/23/17 - 03/29/17	14 ± 4	16 ± 5	14 ± 5	18 ± 5	18 ± 5	15 ± 5	14 ± 5	14 ± 5	11 ± 4
03/29/17 - 04/06/17	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
04/06/17 - 04/12/17	12 ± 4	12 ± 4	10 ± 4	11 ± 4	14 ± 5	12 ± 4	11 ± 4	10 ± 4	9 ± 4
04/12/17 - 04/20/17	13 ± 4	13 ± 4	14 ± 4	14 ± 4	14 ± 4	14 ± 4	16 ± 4	11 ± 4	15 ± 4
04/20/17 - 04/27/17	8 ± 3	13 ± 4	12 ± 4	13 ± 4	11 ± 4	10 ± 4	12 ± 4	9 ± 4	14 ± 4
04/27/17 - 05/04/17	8 ± 3	9 ± 4	6 ± 3	10 ± 4	7 ± 3	7 ± 3	7 ± 3	8 ± 4	8 ± 3
05/04/17 - 05/10/17	13 ± 4	14 ± 4	14 ± 4	13 ± 4	16 ± 4	13 ± 4	15 ± 4	14 ± 4	15 ± 4
05/10/17 - 05/18/17	16 ± 4	18 ± 4	20 ± 4	18 ± 4	17 ± 4	16 ± 4	17 ± 4	17 ± 4	17 ± 4
05/18/17 - 05/25/17	6 ± 3	6 ± 4	7 ± 4	9 ± 4	6 ± 4	6 ± 4	7 ± 4	10 ± 4	6 ± 4
05/25/17 - 05/31/17	15 ± 4	19 ± 4	16 ± 4	20 ± 5	17 ± 5	18 ± 5	18 ± 5	16 ± 4	16 ± 4
05/31/17 - 06/08/17	16 ± 4	13 ± 4	14 ± 4	15 ± 4	16 ± 4	17 ± 4	17 ± 4	14 ± 4	14 ± 4
06/08/17 - 06/15/17	18 ± 4	18 ± 4	17 ± 4	16 ± 4	17 ± 4	16 ± 4	16 ± 4	16 ± 4	14 ± 4
06/15/17 - 06/22/17	11 ± 4	11 ± 4	10 ± 4	12 ± 4	12 ± 4	11 ± 4	8 ± 3	12 ± 4	11 ± 4
06/22/17 - 06/28/17	10 ± 4	9 ± 4	10 ± 4	7 ± 4	11 ± 4	11 ± 4	7 ± 4	9 ± 4	7 ± 3
06/28/17 - 07/06/17	24 ± 4	20 ± 4	22 ± 4	23 ± 4	19 ± 4	19 ± 4	21 ± 4	21 ± 4	18 ± 4
07/06/17 - 07/12/17	20 ± 5	22 ± 5	16 ± 5	17 ± 5	17 ± 5	14 ± 5	22 ± 5	18 ± 5	14 ± 4
07/12/17 - 07/19/17	13 ± 4	14 ± 4	15 ± 4	15 ± 4	14 ± 4	11 ± 4	13 ± 4	17 ± 4	15 ± 4
07/19/17 - 07/27/17	14 ± 3	11 ± 3	13 ± 3	13 ± 3	17 ± 4	16 ± 4	15 ± 4	16 ± 4	15 ± 3
07/27/17 - 08/02/17	15 ± 4	13 ± 4	17 ± 5	16 ± 5	16 ± 5	16 ± 5	19 ± 5	13 ± 4	19 ± 5
08/02/17 - 08/10/17	19 ± 4	15 ± 4	18 ± 4	15 ± 4	15 ± 4	17 ± 4	17 ± 4	18 ± 4	18 ± 4
08/10/17 - 08/17/17	18 ± 4	17 ± 4	18 ± 4	17 ± 4	17 ± 4	17 ± 4	21 ± 4	21 ± 4	20 ± 4
08/17/17 - 08/24/17	19 ± 4	19 ± 4	19 ± 4	19 ± 4	18 ± 4	18 ± 4	15 ± 4	18 ± 4	19 ± 4
08/24/17 - 08/31/17	20 ± 4	22 ± 4	18 ± 4	15 ± 4	16 ± 4	19 ± 4	17 ± 4	20 ± 4	17 ± 4
08/31/17 - 09/06/17	22 ± 5	19 ± 5	19 ± 5	18 ± 5	23 ± 5	23 ± 5	17 ± 5	20 ± 5	19 ± 5
09/06/17 - 09/14/17	21 ± 4	18 ± 4	19 ± 4	20 ± 4	18 ± 4	17 ± 4	21 ± 4	15 ± 4	17 ± 4
09/14/17 - 09/21/17	27 ± 5	24 ± 5	25 ± 5	20 ± 4	27 ± 5	27 ± 5	25 ± 5	26 ± 5	23 ± 4
09/21/17 - 09/27/17	32 ± 5	28 ± 5	29 ± 5	25 ± 5	31 ± 5	27 ± 5	29 ± 5	23 ± 5	28 ± 5
09/27/17 - 10/05/17	14 ± 4	16 ± 4	16 ± 4	15 ± 4	16 ± 4	16 ± 4	13 ± 3	13 ± 3	12 ± 3
10/05/17 - 10/11/17	21 ± 5	22 ± 5	21 ± 5	24 ± 5	22 ± 5	19 ± 5	16 ± 5	19 ± 5	21 ± 5
10/11/17 - 10/19/17	15 ± 3	16 ± 3	21 ± 4	16 ± 3	15 ± 3	17 ± 4	16 ± 4	19 ± 4	13 ± 3
10/19/17 - 10/26/17	16 ± 4	18 ± 4	16 ± 4	14 ± 4	18 ± 4	15 ± 4	18 ± 4	16 ± 4	10 ± 3
10/26/17 - 11/01/17	< 6	6 ± 4	9 ± 4	10 ± 4	< 6	6 ± 4	6 ± 4	9 ± 4	< 5
11/01/17 - 11/09/17	23 ± 4	17 ± 4	19 ± 4	20 ± 4	20 ± 4	18 ± 4	16 ± 4	20 ± 4	19 ± 4
11/09/17 - 11/16/17	19 ± 4	22 ± 4	22 ± 4	22 ± 4	24 ± 5	21 ± 4	19 ± 4	19 ± 4	22 ± 4
11/16/17 - 11/22/17	27 ± 5	(1)	28 ± 5	25 ± 5	24 ± 5	22 ± 5	25 ± 5	27 ± 5	24 ± 5
11/22/17 - 11/30/17	15 ± 4	15 ± 4	16 ± 4	18 ± 4	16 ± 4	18 ± 4	17 ± 4	19 ± 4	16 ± 4
11/30/17 - 12/06/17	25 ± 5	16 ± 5	22 ± 5	21 ± 5	21 ± 5	23 ± 5	18 ± 5	27 ± 5	23 ± 5
12/06/17 - 12/14/17	22 ± 4	18 ± 4	17 ± 4	19 ± 4	21 ± 4	21 ± 4	21 ± 4	21 ± 4	20 ± 4
12/14/17 - 12/21/17	17 ± 4	21 ± 4	21 ± 5	22 ± 5	19 ± 4	19 ± 4	22 ± 5	22 ± 5	16 ± 4
12/21/17 - 12/27/17	18 ± 5	18 ± 5	23 ± 5	23 ± 5	22 ± 5	23 ± 5	22 ± 5	16 ± 5	19 ± 5
12/27/17 - 01/04/18	35 ± 5	36 ± 5	35 ± 5	37 ± 5	33 ± 5	32 ± 4	37 ± 5	38 ± 5	35 ± 5
(2) MEAN ± 2 STD DEV	18 ± 12	17 ± 10	18 ± 11	17 ± 10	18 ± 10	17 ± 10	18 ± 12	17 ± 11	17 ± 11

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

(2) THE MEAN AND TWO STANDARD DEVIATION ARE CALCULATED USING THE POSITIVE VALUES (VALUES ≥ MDC)

Table C-V.2

**MONTHLY AND YEARLY MEAN VALUES OF GROSS BETA CONCENTRATIONS IN AIR
PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF E-3 PCI/CU METER ± 2 SIGMA**

GROUP I - ONSITE LOCATIONS				GROUP II - NEAR-SITE LOCATIONS				GROUP III - FAR-FIELD LOCATIONS				GROUP IV - CONTROL LOCATION							
COLLECTION PERIOD		MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD		MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD		MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD		MIN	MAX	MEAN ± 2SD
01/04/17 - 02/01/17		13	27	18 ± 9	01/04/17 - 02/01/17		14	26	19 ± 8	01/04/17 - 02/01/17		14	31	20 ± 9	01/04/17 - 02/01/17		15	29	19 ± 14
02/01/17 - 03/01/17		15	20	18 ± 3	02/01/17 - 03/01/17		16	22	19 ± 4	02/01/17 - 03/01/17		15	22	19 ± 4	02/01/17 - 03/01/17		14	22	17 ± 7
03/01/17 - 03/29/17		14	20	15 ± 4	03/01/17 - 03/29/17		14	20	16 ± 4	03/01/17 - 03/29/17		14	19	17 ± 4	03/01/17 - 03/29/17		11	19	14 ± 6
04/06/17 - 05/04/17		8	13	11 ± 4	04/06/17 - 05/04/17		6	14	11 ± 5	04/06/17 - 05/04/17		7	16	11 ± 5	04/06/17 - 05/04/17		8	15	12 ± 7
05/04/17 - 05/31/17		6	19	13 ± 10	05/04/17 - 05/31/17		7	20	15 ± 10	05/04/17 - 05/31/17		6	18	14 ± 9	05/04/17 - 05/31/17		6	17	13 ± 10
05/31/17 - 06/28/17		9	18	13 ± 7	05/31/17 - 06/28/17		7	17	13 ± 7	05/31/17 - 06/28/17		7	17	13 ± 7	05/31/17 - 06/28/17		7	14	12 ± 6
06/28/17 - 08/02/17		11	24	17 ± 9	06/28/17 - 08/02/17		13	23	17 ± 7	06/28/17 - 08/02/17		11	22	17 ± 6	06/28/17 - 08/02/17		14	19	16 ± 4
08/02/17 - 08/31/17		15	22	19 ± 4	08/02/17 - 08/31/17		15	19	17 ± 3	08/02/17 - 08/31/17		15	21	18 ± 4	08/02/17 - 08/31/17		17	20	18 ± 2
08/31/17 - 09/27/17		18	32	24 ± 10	08/31/17 - 09/27/17		18	29	22 ± 8	08/31/17 - 09/27/17		15	31	23 ± 10	08/31/17 - 09/27/17		17	28	22 ± 10
09/27/17 - 11/01/17		6	22	16 ± 9	09/27/17 - 11/01/17		9	24	16 ± 10	09/27/17 - 11/01/17		6	22	15 ± 8	09/27/17 - 10/26/17		10	21	14 ± 10
11/01/17 - 11/30/17		15	27	20 ± 9	11/01/17 - 11/30/17		16	28	21 ± 8	11/01/17 - 11/30/17		16	27	20 ± 7	11/01/17 - 11/30/17		16	24	20 ± 7
11/30/17 - 01/04/18		16	36	23 ± 14	11/30/17 - 01/04/18		17	37	24 ± 13	11/30/17 - 01/04/18		16	38	24 ± 12	11/30/17 - 01/04/18		16	35	23 ± 15
01/04/17 - 01/04/18		6	36	17 ± 11	01/04/17 - 01/04/18		6	37	17 ± 10	01/04/17 - 01/04/18		6	38	18 ± 11	01/04/17 - 01/04/18		6	35	17 ± 11

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Table C-V.3

**CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017**

RESULTS IN UNITS OF E-3 PCI/CU METER ± 2 SIGMA

SITE	COLLECTION		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
	PERIOD												
L-01	01/04/17 - 03/29/17		< 1	< 3	< 8	< 2	< 4	< 3	< 5	< 2	< 2	< 129	< 57
	04/06/17 - 06/28/17		< 3	< 5	< 12	< 3	< 7	< 6	< 10	< 3	< 3	< 243	< 78
	06/28/17 - 09/27/17		< 2	< 3	< 11	< 3	< 5	< 3	< 6	< 2	< 2	< 238	< 81
	09/27/17 - 01/04/18		< 1	< 3	< 9	< 2	< 5	< 3	< 6	< 1	< 2	< 210	< 117
		MEAN	-	-	-	-	-	-	-	-	-	-	-
L-03	01/04/17 - 03/29/17		< 2	< 4	< 12	< 3	< 5	< 3	< 5	< 2	< 3	< 137	< 64
	04/06/17 - 06/28/17		< 5	< 7	< 13	< 4	< 12	< 6	< 13	< 4	< 3	< 244	< 76
	06/28/17 - 09/27/17		< 5	< 8	< 18	< 3	< 12	< 7	< 11	< 5	< 4	< 409	< 120
	09/27/17 - 01/04/18		< 2	< 4	< 12	< 3	< 3	< 3	< 8	< 3	< 2	< 221	< 108
		MEAN	-	-	-	-	-	-	-	-	-	-	-
L-04	01/04/17 - 03/29/17		< 3	< 4	< 9	< 1	< 7	< 3	< 5	< 2	< 2	< 157	< 45
	04/06/17 - 06/28/17		< 2	< 4	< 12	< 4	< 7	< 4	< 8	< 3	< 2	< 191	< 67
	06/28/17 - 09/27/17		< 2	< 4	< 13	< 2	< 7	< 4	< 7	< 3	< 3	< 237	< 127
	09/27/17 - 01/04/18		< 4	< 7	< 23	< 4	< 13	< 8	< 14	< 4	< 4	< 462	< 152
		MEAN	-	-	-	-	-	-	-	-	-	-	-
L-05	01/04/17 - 03/29/17		< 4	< 6	< 17	< 2	< 13	< 6	< 9	< 5	< 4	< 240	< 76
	04/06/17 - 06/28/17		< 5	< 7	< 12	< 5	< 11	< 7	< 11	< 4	< 4	< 239	< 128
	06/28/17 - 09/27/17		< 4	< 4	< 14	< 3	< 8	< 5	< 7	< 4	< 3	< 304	< 77
	09/27/17 - 01/04/18		< 3	< 6	< 14	< 3	< 9	< 7	< 11	< 3	< 4	< 452	< 74
		MEAN	-	-	-	-	-	-	-	-	-	-	-
L-06	01/04/17 - 03/29/17		< 2	< 3	< 13	< 2	< 5	< 4	< 5	< 2	< 2	< 130	< 64
	04/06/17 - 06/28/17		< 3	< 4	< 11	< 3	< 8	< 5	< 10	< 3	< 2	< 202	< 56
	06/28/17 - 09/27/17		< 2	< 3	< 10	< 2	< 5	< 3	< 6	< 2	< 2	< 234	< 89
	09/27/17 - 01/04/18		< 2	< 3	< 10	< 2	< 6	< 4	< 6	< 2	< 2	< 249	< 111
		MEAN	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-V.3

**CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017**

RESULTS IN UNITS OF E-3 PCI/CU METER \pm 2 SIGMA

SITE	COLLECTION		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
	PERIOD												
L-07	01/04/17 - 03/29/17		< 3	< 5	< 10	< 3	< 8	< 3	< 6	< 3	< 2	< 149	< 55
	04/06/17 - 06/28/17		< 3	< 6	< 17	< 4	< 10	< 7	< 12	< 4	< 4	< 172	< 97
	06/28/17 - 09/27/17		< 4	< 7	< 18	< 5	< 10	< 7	< 11	< 4	< 4	< 458	< 176
	09/27/17 - 01/04/18		< 2	< 3	< 14	< 3	< 7	< 4	< 9	< 3	< 3	< 264	< 97
		MEAN	-	-	-	-	-	-	-	-	-	-	-
L-08	01/04/17 - 03/29/17		< 4	< 6	< 18	< 3	< 8	< 6	< 10	< 4	< 3	< 194	< 108
	04/06/17 - 06/28/17		< 3	< 4	< 14	< 3	< 6	< 3	< 5	< 3	< 2	< 171	< 84
	06/28/17 - 09/27/17		< 3	< 6	< 17	< 2	< 8	< 5	< 11	< 3	< 2	< 326	< 111
	09/27/17 - 01/04/18		< 2	< 5	< 15	< 3	< 7	< 5	< 8	< 3	< 3	< 323	< 95
		MEAN	-	-	-	-	-	-	-	-	-	-	-
L-10	01/04/17 - 03/29/17		< 3	< 3	< 10	< 3	< 8	< 5	< 9	< 3	< 3	< 195	< 44
	04/06/17 - 06/28/17		< 3	< 4	< 13	< 3	< 8	< 5	< 11	< 3	< 3	< 162	< 86
	06/28/17 - 09/27/17		< 3	< 4	< 11	< 3	< 5	< 4	< 8	< 3	< 2	< 292	< 72
	09/27/17 - 01/04/18		< 2	< 3	< 10	< 1	< 6	< 3	< 5	< 2	< 2	< 185	< 80
		MEAN	-	-	-	-	-	-	-	-	-	-	-
L-11A	01/04/17 - 03/29/17		< 2	< 4	< 11	< 2	< 7	< 4	< 7	< 2	< 1	< 159	< 49
	04/06/17 - 06/28/17		< 3	< 4	< 15	< 3	< 8	< 5	< 10	< 3	< 3	< 207	< 74
	06/28/17 - 09/27/17		< 3	< 4	< 14	< 2	< 9	< 6	< 8	< 3	< 3	< 369	< 149
	09/27/17 - 01/04/18		< 3	< 4	< 6	< 3	< 8	< 4	< 7	< 3	< 2	< 268	< 85
		MEAN	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-VI.1

**CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF E-3 PCI/CU METER ± 2 SIGMA**

COLLECTION PERIOD	GROUP I		GROUP II		GROUP III			GROUP IV	
	L-03	L-05	L-01	L-06	L-04	L-07	L-08	L-11A	L-10
01/04/17 - 01/11/17	< 66	< 69	< 65	< 24	< 66	< 61	< 62	< 61	< 62
01/11/17 - 01/19/17	< 25	< 48	< 45	< 48	< 46	< 60	< 62	< 61	< 62
01/19/17 - 01/26/17	< 40	< 41	< 41	< 18	< 41	< 53	< 53	< 51	< 52
01/26/17 - 02/01/17	< 48	< 50	< 19	< 51	< 49	< 58	< 60	< 58	< 59
02/01/17 - 02/09/17	< 59	< 62	< 59	< 56	< 59	< 55	< 56	< 31	< 57
02/09/17 - 02/16/17	< 58	< 63	< 30	< 61	< 60	< 59	< 59	< 59	< 60
02/16/17 - 02/23/17	< 57	< 58	< 25	< 58	< 59	< 57	< 58	< 58	< 56
02/23/17 - 03/01/17	< 57	< 58	< 32	< 61	< 61	< 59	< 59	< 59	< 58
03/01/17 - 03/09/17	< 43	< 46	< 44	< 47	< 44	< 47	< 46	< 48	< 18
03/09/17 - 03/16/17	< 54	< 55	< 56	< 23	< 57	< 60	< 59	< 60	< 59
03/16/17 - 03/23/17	< 23	< 57	< 56	< 56	< 54	< 42	< 41	< 41	< 41
03/23/17 - 03/29/17	< 57	< 57	< 59	< 63	< 60	< 63	< 64	< 64	< 27
03/29/17 - 04/12/17	< 52	< 52	< 30	< 53	< 54	< 56	< 55	< 55	< 53
04/06/17 - 04/06/17	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
04/12/17 - 04/20/17	< 31	< 62	< 62	< 62	< 61	< 58	< 58	< 57	< 59
04/20/17 - 04/27/17	< 52	< 55	< 25	< 55	< 53	< 62	< 62	< 60	< 62
04/27/17 - 05/04/17	< 16	< 39	< 39	< 39	< 39	< 35	< 35	< 37	< 35
05/04/17 - 05/10/17	< 61	< 61	< 63	< 26	< 64	< 67	< 66	< 68	< 65
05/10/17 - 05/18/17	< 42	< 18	< 44	< 44	< 44	< 45	< 44	< 42	< 44
05/18/17 - 05/25/17	< 58	< 62	< 60	< 25	< 60	< 66	< 65	< 62	< 64
05/25/17 - 05/31/17	< 22	< 55	< 56	< 57	< 58	< 42	< 41	< 41	< 40
05/31/17 - 06/08/17	< 37	< 39	< 39	< 54	< 40	< 54	< 54	< 54	< 23
06/08/17 - 06/15/17	< 54	< 56	< 55	< 49	< 58	< 51	< 50	< 21	< 51
06/15/17 - 06/22/17	< 63	< 64	< 33	< 65	< 64	< 63	< 63	< 61	< 62
06/22/17 - 06/28/17	< 57	< 60	< 60	< 33	< 62	< 63	< 61	< 60	< 58
06/28/17 - 07/06/17	< 20	< 48	< 48	< 50	< 49	< 53	< 53	< 51	< 51
07/06/17 - 07/12/17	< 65	< 68	< 66	< 45	< 66	< 47	< 25	< 44	< 18
07/12/17 - 07/19/17	< 52	< 52	< 53	< 63	< 53	< 65	< 65	< 62	< 21
07/19/17 - 07/27/17	< 63	< 68	< 65	< 56	< 64	< 57	< 56	< 54	< 20
07/27/17 - 08/02/17	< 59	< 58	< 26	< 61	< 63	< 50	< 50	< 47	< 47
08/02/17 - 08/10/17	< 64	< 66	< 66	< 35	< 65	< 64	< 64	< 62	< 60
08/10/17 - 08/17/17	< 56	< 59	< 56	< 61	< 57	< 62	< 62	< 60	< 24
08/17/17 - 08/24/17	< 63	< 66	< 65	< 60	< 66	< 61	< 62	< 61	< 32
08/24/17 - 08/31/17	< 49	< 51	< 51	< 26	< 50	< 50	< 50	< 49	< 48
08/31/17 - 09/06/17	< 41	< 41	< 18	< 42	< 43	< 39	< 39	< 37	< 36
09/06/17 - 09/14/17	< 57	< 60	< 31	< 60	< 60	< 61	< 61	< 60	< 57
09/14/17 - 09/21/17	< 20	< 20	< 18	< 21	< 21	< 25	< 25	< 24	< 23
09/21/17 - 09/27/17	< 36	< 38	< 33	< 38	< 40	< 62	< 62	< 59	< 58
09/27/17 - 10/05/17	< 58	< 57	< 25	< 55	< 55	< 43	< 42	< 42	< 40
10/05/17 - 10/11/17	< 65	< 64	< 26	< 62	< 61	< 45	< 45	< 41	< 41
10/11/17 - 10/19/17	< 41	< 22	< 43	< 39	< 40	< 48	< 47	< 49	< 46
10/19/17 - 10/26/17	< 40	< 39	< 39	< 49	< 39	< 51	< 52	< 49	< 17
10/26/17 - 11/01/17	< 57	< 54	< 58	< 59	< 59	< 63	< 62	< 59	< 30
11/01/17 - 11/09/17	< 57	< 55	< 24	< 55	< 57	< 37	< 37	< 36	< 35
11/09/17 - 11/16/17	< 57	< 56	< 55	< 56	< 58	< 58	< 58	< 56	< 20
11/16/17 - 11/22/17	< 47	(1)	< 26	< 47	< 48	< 53	< 53	< 52	< 50
11/22/17 - 11/30/17	< 68	< 68	< 29	< 69	< 69	< 45	< 44	< 44	< 42
11/30/17 - 12/06/17	< 58	< 56	< 58	< 39	< 60	< 40	< 40	< 38	< 31
12/06/17 - 12/14/17	< 51	< 51	< 18	< 52	< 52	< 53	< 54	< 51	< 51
12/14/17 - 12/21/17	< 25	< 60	< 60	< 59	< 60	< 65	< 63	< 64	< 62
12/21/17 - 12/27/17	< 61	< 62	< 26	< 62	< 64	< 52	< 53	< 51	< 51
12/27/17 - 01/04/18	< 58	< 60	< 24	< 55	< 57	< 29	< 32	< 31	< 31
MEAN	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

**Table C-VII.1 CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED
IN THE VICINITY OF LASALLE COUNTY STATION, 2017**
RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

<u>COLLECTION PERIOD</u>	<u>CONTROL FARM L-42</u>
01/04/17	< 0.6
02/01/17	< 0.8
03/01/17	< 0.5
04/20/17	< 0.7
05/04/17	< 0.8
05/18/17	< 0.7
05/31/17	< 0.8
06/15/17	< 1.0
06/28/17	< 0.7
07/12/17	< 0.4
07/27/17	< 0.8
08/10/17	< 0.6
08/24/17	< 0.6
09/06/17	< 0.4
09/21/17	< 0.4
10/05/17	< 0.8
10/19/17	< 0.4
11/01/17	< 0.8
12/06/17	< 0.7
MEAN	-

Table C-VII.2

**CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED
IN THE VICINITY OF LASALLE COUNTY STATION, 2017**

RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

SITE	COLLECTION		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
	PERIOD												
L-42	01/04/17		< 7	< 8	< 15	< 8	< 17	< 8	< 13	< 6	< 7	< 33	< 6
	02/01/17		< 8	< 7	< 11	< 8	< 15	< 8	< 11	< 6	< 7	< 29	< 11
	03/01/17		< 6	< 7	< 15	< 7	< 13	< 7	< 14	< 7	< 8	< 41	< 10
	04/20/17		< 5	< 7	< 12	< 6	< 13	< 6	< 10	< 5	< 6	< 25	< 7
	05/04/17		< 6	< 7	< 17	< 7	< 15	< 8	< 10	< 8	< 7	< 33	< 8
	05/18/17		< 9	< 7	< 16	< 9	< 18	< 7	< 14	< 8	< 8	< 31	< 10
	05/31/17		< 5	< 5	< 10	< 4	< 11	< 5	< 8	< 6	< 5	< 25	< 5
	06/15/17		< 6	< 7	< 12	< 7	< 15	< 7	< 12	< 7	< 7	< 25	< 8
	06/28/17		< 9	< 11	< 25	< 12	< 21	< 9	< 17	< 12	< 9	< 46	< 13
	07/12/17		< 10	< 11	< 23	< 10	< 21	< 10	< 18	< 11	< 9	< 47	< 14
	07/27/17		< 10	< 11	< 26	< 13	< 21	< 9	< 17	< 9	< 9	< 38	< 13
	08/10/17		< 6	< 6	< 15	< 7	< 15	< 5	< 10	< 6	< 6	< 29	< 9
	08/24/17		< 8	< 7	< 16	< 7	< 23	< 9	< 12	< 11	< 8	< 33	< 12
	09/06/17		< 5	< 6	< 11	< 6	< 12	< 6	< 10	< 5	< 5	< 43	< 13
	09/21/17		< 7	< 9	< 20	< 8	< 20	< 8	< 14	< 8	< 9	< 41	< 15
	10/05/17		< 8	< 8	< 19	< 8	< 20	< 9	< 15	< 9	< 8	< 38	< 13
	10/19/17		< 10	< 10	< 22	< 9	< 20	< 9	< 16	< 11	< 10	< 47	< 12
11/01/17		< 5	< 6	< 14	< 6	< 14	< 5	< 9	< 6	< 6	< 26	< 9	
12/06/17		< 9	< 9	< 20	< 9	< 22	< 9	< 16	< 10	< 8	< 39	< 10	

Table C-VIII.1

**CONCENTRATIONS OF GAMMA EMITTERS IN FOOD PRODUCT SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
	PERIOD													
L-QUAD CONTROL														
<i>Cucumbers</i>	08/10/17		< 23	< 19	< 48	< 21	< 51	< 22	< 42	< 37	< 25	< 23	< 107	< 23
<i>Green Cabbage</i>	08/10/17		< 31	< 24	< 66	< 30	< 66	< 33	< 47	< 46	< 32	< 30	< 130	< 44
<i>Potatoes</i>	08/10/17		< 26	< 26	< 51	< 21	< 47	< 25	< 46	< 40	< 28	< 29	< 108	< 28
	<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-	-
L-QUAD 1														
<i>Cabbage</i>	08/10/17		< 22	< 23	< 48	< 22	< 54	< 21	< 45	< 42	< 24	< 25	< 128	< 33
<i>Green Onions</i>	08/10/17		< 33	< 31	< 65	< 35	< 64	< 33	< 53	< 56	< 37	< 34	< 163	< 49
<i>Kale</i>	08/10/17		< 37	< 32	< 65	< 29	< 75	< 36	< 57	< 59	< 36	< 34	< 168	< 37
<i>Beet Greens</i>	08/15/17		< 38	< 44	< 80	< 39	< 80	< 33	< 67	< 34	< 36	< 40	< 139	< 41
<i>Beets</i>	08/15/17		< 42	< 34	< 65	< 42	< 55	< 41	< 49	< 42	< 46	< 34	< 138	< 45
	<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-	-
L-QUAD 2														
<i>Green Cabbage</i>	07/12/17		< 15	< 12	< 33	< 18	< 25	< 12	< 27	< 20	< 15	< 12	< 63	< 22
<i>Horseradish</i>	07/19/17		< 29	< 34	< 86	< 30	< 88	< 38	< 53	< 40	< 40	< 38	< 135	< 42
	<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-	-
L-QUAD 3														
<i>Beet Greens</i>	07/27/17		< 36	< 33	< 80	< 43	< 83	< 32	< 69	< 58	< 38	< 41	< 165	< 49
<i>Red Beets</i>	07/27/17		< 40	< 38	< 95	< 47	< 85	< 45	< 66	< 56	< 39	< 39	< 179	< 46
	<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-	-
L-QUAD 4														
<i>Beets/Green Onions</i>	06/22/17		< 26	< 30	< 49	< 32	< 63	< 24	< 58	< 41	< 26	< 33	< 131	< 36
<i>Brussels Sprouts</i>	06/22/17		< 34	< 30	< 68	< 32	< 61	< 28	< 46	< 49	< 32	< 33	< 119	< 34
<i>Green Cabbage</i>	06/22/17		< 27	< 28	< 55	< 29	< 74	< 32	< 51	< 42	< 38	< 34	< 111	< 33
<i>Brussels Sprouts</i>	07/19/17		< 47	< 40	< 73	< 56	< 116	< 50	< 75	< 54	< 48	< 52	< 169	< 64
<i>Collard Greens</i>	07/19/17		< 42	< 48	< 104	< 44	< 92	< 48	< 87	< 54	< 60	< 55	< 192	< 45
<i>Green Onion</i>	07/19/17		< 44	< 36	< 76	< 43	< 83	< 40	< 76	< 45	< 43	< 42	< 141	< 24
<i>Potatoes</i>	07/19/17		< 28	< 32	< 70	< 26	< 53	< 32	< 58	< 33	< 31	< 27	< 116	< 41
	<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-	-

Table C-VIII.2

**CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA**

SITE	COLLECTION	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
	PERIOD												
L-VEG C													
<i>Pokeweed</i>	05/18/17	< 28	< 25	< 54	< 28	< 51	< 27	< 47	< 42	< 28	< 26	< 123	< 34
<i>Thistle leaves</i>	05/18/17	< 24	< 20	< 49	< 22	< 51	< 25	< 41	< 39	< 29	< 27	< 110	< 30
<i>Wild lettuce</i>	05/18/17	< 32	< 36	< 76	< 36	< 72	< 39	< 64	< 54	< 38	< 40	< 156	< 36
<i>Dogwood leaves</i>	06/22/17	< 31	< 32	< 62	< 31	< 67	< 33	< 57	< 47	< 38	< 34	< 143	< 42
<i>Goldenrod</i>	06/22/17	< 32	< 29	< 64	< 30	< 69	< 31	< 57	< 46	< 33	< 33	< 140	< 39
<i>Purple Clover</i>	06/22/17	< 33	< 29	< 55	< 36	< 76	< 33	< 53	< 39	< 36	< 31	< 129	< 33
<i>Catalpa leaves</i>	07/19/17	< 36	< 36	< 64	< 41	< 73	< 38	< 67	< 57	< 38	< 41	< 178	< 54
<i>Purple Clover</i>	07/19/17	< 31	< 32	< 62	< 35	< 73	< 32	< 55	< 57	< 37	< 31	< 161	< 50
<i>Thistle</i>	07/19/17	< 31	< 31	< 69	< 31	< 67	< 34	< 56	< 51	< 35	< 33	< 147	< 42
<i>Catalpa leaves</i>	08/17/17	< 28	< 30	< 61	< 31	< 61	< 31	< 51	< 49	< 33	< 29	< 134	< 38
<i>Clover</i>	08/17/17	< 34	< 33	< 65	< 32	< 69	< 34	< 62	< 55	< 36	< 36	< 168	< 44
Queen Anne's Lace													
<i>(wild carrot)</i>	08/17/17	< 28	< 29	< 63	< 30	< 63	< 32	< 55	< 55	< 35	< 31	< 152	< 47
<i>Clover leaves</i>	09/14/17	< 29	< 27	< 59	< 27	< 61	< 30	< 52	< 54	< 32	< 31	< 155	< 45
<i>Dandelion greens</i>	09/14/17	< 31	< 30	< 64	< 32	< 64	< 33	< 55	< 55	< 33	< 30	< 150	< 45
<i>Thistle</i>	09/14/17	< 28	< 28	< 57	< 26	< 62	< 29	< 50	< 57	< 31	< 30	< 149	< 39
<i>Dandelion greens</i>	10/19/17	< 32	< 35	< 71	< 35	< 69	< 34	< 64	< 58	< 38	< 35	< 165	< 48
<i>Field Grass</i>	10/19/17	< 25	< 26	< 54	< 26	< 54	< 27	< 44	< 41	< 28	< 26	< 114	< 35
<i>Purple Clover</i>	10/19/17	< 31	< 32	< 63	< 36	< 65	< 31	< 55	< 49	< 34	< 33	< 142	< 40
<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-	-
L-ESE 1													
<i>Dogwood leaves</i>	05/18/17	< 23	< 27	< 50	< 26	< 55	< 24	< 44	< 42	< 29	< 27	< 122	< 34
<i>Pokeweed</i>	05/18/17	< 22	< 21	< 44	< 23	< 48	< 23	< 36	< 32	< 22	< 22	< 95	< 29
<i>Wildflower Plantain</i>	05/18/17	< 31	< 32	< 68	< 28	< 72	< 32	< 56	< 56	< 35	< 33	< 144	< 40
<i>Goldenrod</i>	06/22/17	< 29	< 28	< 55	< 31	< 65	< 30	< 49	< 42	< 33	< 32	< 122	< 39
<i>Mullein Weed</i>	06/22/17	< 32	< 30	< 71	< 35	< 71	< 32	< 59	< 45	< 36	< 34	< 147	< 41
<i>Purple Coneflower</i>	06/22/17	< 29	< 27	< 52	< 31	< 56	< 29	< 44	< 40	< 28	< 28	< 124	< 28
<i>Purple Coneflower</i>	07/19/17	< 34	< 31	< 75	< 32	< 80	< 31	< 56	< 51	< 36	< 37	< 151	< 35
Queen Anne's Lace													
<i>(wild carrot)</i>	07/19/17	< 31	< 31	< 61	< 32	< 65	< 34	< 56	< 55	< 34	< 33	< 149	< 40
<i>Yellow Coneflower</i>	07/19/17	< 34	< 34	< 67	< 35	< 67	< 34	< 55	< 56	< 40	< 32	< 161	< 45
<i>Mullein weed</i>	08/17/17	< 30	< 28	< 61	< 30	< 69	< 31	< 55	< 52	< 34	< 29	< 145	< 39
<i>Purple Coneflower</i>	08/17/17	< 24	< 26	< 52	< 25	< 55	< 25	< 45	< 47	< 28	< 25	< 131	< 31
Queen Anne's Lace													
<i>(wild carrot)</i>	08/17/17	< 23	< 22	< 46	< 22	< 47	< 22	< 41	< 39	< 26	< 24	< 113	< 29
<i>Goldenrod</i>	09/14/17	< 26	< 25	< 55	< 26	< 50	< 27	< 47	< 59	< 28	< 27	< 151	< 45
<i>Mullein weed</i>	09/14/17	< 30	< 29	< 55	< 29	< 59	< 30	< 52	< 55	< 34	< 31	< 159	< 39
<i>Prairie Aster</i>	09/14/17	< 31	< 29	< 63	< 30	< 64	< 31	< 53	< 57	< 35	< 29	< 153	< 42
<i>Catalpa leaves</i>	10/19/17	< 31	< 31	< 58	< 33	< 67	< 33	< 55	< 51	< 32	< 32	< 145	< 44
<i>Mullein weed</i>	10/19/17	< 32	< 32	< 71	< 32	< 67	< 32	< 54	< 55	< 35	< 34	< 154	< 49
<i>Queen Anne's Lace</i>	10/19/17	< 34	< 34	< 67	< 39	< 68	< 36	< 58	< 58	< 37	< 37	< 164	< 47
<i>MEAN</i>		-	-	-	-	-	-	-	-	-	-	-	-

Table C-VIII.2

**CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA**

SITE	COLLECTION	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
	PERIOD												
L-ESE 2													
<i>Buckhorn Plantain</i>	05/18/17	< 21	< 20	< 50	< 23	< 54	< 22	< 40	< 34	< 25	< 23	< 101	< 33
<i>Dandelion leaves</i>	05/18/17	< 27	< 28	< 58	< 26	< 61	< 28	< 51	< 46	< 32	< 33	< 133	< 34
<i>Field clover</i>	05/18/17	< 31	< 28	< 59	< 29	< 67	< 32	< 55	< 55	< 33	< 33	< 147	< 34
Chicory	06/22/17	< 26	< 25	< 51	< 25	< 61	< 27	< 47	< 39	< 28	< 28	< 117	< 26
Corn leaves	06/22/17	< 33	< 32	< 62	< 30	< 71	< 30	< 53	< 39	< 37	< 32	< 128	< 38
Purple Clover	06/22/17	< 28	< 27	< 56	< 29	< 65	< 27	< 50	< 41	< 30	< 29	< 121	< 33
Dandelion greens	07/19/17	< 31	< 32	< 63	< 32	< 77	< 35	< 58	< 58	< 37	< 35	< 170	< 37
Dogwood leaves	07/19/17	< 36	< 35	< 78	< 38	< 76	< 38	< 64	< 59	< 40	< 36	< 159	< 50
Purple Clover	07/19/17	< 41	< 41	< 77	< 46	< 74	< 44	< 72	< 59	< 47	< 39	< 197	< 70
Chicory	08/17/17	< 30	< 29	< 64	< 29	< 68	< 32	< 53	< 56	< 34	< 34	< 155	< 41
Dogwood leaves	08/17/17	< 28	< 26	< 57	< 30	< 57	< 30	< 46	< 49	< 30	< 29	< 129	< 41
Purple Clover	08/17/17	< 30	< 31	< 66	< 30	< 67	< 32	< 54	< 58	< 33	< 33	< 153	< 42
Buckhorn Plantain	09/14/17	< 25	< 25	< 49	< 29	< 55	< 26	< 44	< 59	< 27	< 26	< 155	< 39
Chicory	09/14/17	< 27	< 28	< 59	< 29	< 56	< 30	< 45	< 60	< 29	< 26	< 168	< 41
Purple Clover	09/14/17	< 25	< 24	< 49	< 22	< 49	< 26	< 41	< 58	< 26	< 25	< 144	< 46
Dandelion greens	10/19/17	< 33	< 36	< 72	< 37	< 77	< 34	< 63	< 51	< 40	< 36	< 153	< 47
Field Grass	10/19/17	< 35	< 34	< 70	< 36	< 75	< 39	< 63	< 57	< 37	< 39	< 169	< 40
Purple Clover	10/19/17	< 24	< 23	< 49	< 22	< 53	< 25	< 44	< 43	< 26	< 25	< 115	< 29
MEAN		-	-	-	-	-	-	-	-	-	-	-	-

Table C-IX.1 QUARTERLY OSLD RESULTS FOR LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF MILLIREM/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
L-01-1	27.2 + 1.8	26.9	28.5	27.1	26.4
L-01-2	26.8 + 3.2	24.4	27.3	28.1	27.2
L-03-1	26.4 + 2.4	25.6	27.5	27.2	25.1
L-03-2	25.4 + 1.7	24.2	25.7	25.6	26.1
L-04-1	25.7 + 4.0	23.9	25.3	28.5	25.0
L-04-2	27.1 + 2.9	26.2	25.7	27.5	28.9
L-05-1	24.9 + 3.1	23.1	24.1	25.7	26.6
L-05-2	25.5 + 3.0	23.7	24.9	26.4	27.1
L-06-1	27.4 + 5.0	25.6	28.2	30.6	25.2
L-06-2	28.1 + 1.2	27.4	27.9	28.9	28.0
L-07-1	26.9 + 1.3	26.3	27.8	27.0	26.5
L-07-2	27.1 + 3.9	25.9	25.2	29.5	27.9
L-08-1	26.2 + 2.0	25.4	25.3	27.1	27.1
L-08-2	26.3 + 1.9	25.0	26.0	27.1	26.9
L-10-1	24.0 + 3.3	23.1	23.3	23.2	26.5
L-10-2	23.9 + 4.2	22.6	23.8	26.8	22.2
L-11A-1	25.4 + 3.1	23.5	25.2	27.3	25.5
L-11A-2	24.7 + 4.1	22.4	24.9	27.3	24.1
L-101-1	27.5 + 1.5	(1)	27.9	26.6	27.9
L-101-2	27.2 + 2.8	25.2	27.5	28.1	28.1
L-102-1	27.9 + 3.5	27.2	28.2	30.1	26.0
L-102-2	29.5 + 3.5	26.9	29.9	30.4	30.7
L-103-1	26.4 + 3.5	24.1	28.3	26.9	26.1
L-103-2	26.4 + 2.5	25.7	25.3	28.1	26.4
L-104-1	27.0 + 5.4	24.6	26.7	25.9	30.8
L-104-2	25.4 + 2.1	24.9	24.1	26.1	26.3
L-105-1	27.9 + 0.7	27.4	28.1	28.2	27.9
L-105-2	27.4 + 2.5	26.2	27.4	28.7	(1)
L-106-1	27.0 + 1.2	26.5	27.1	27.8	26.6
L-106-2	27.2 + 8.3	23.3	26.7	31.6	(1)
L-107-1	27.4 + 5.5	25.1	26.2	31.3	26.8
L-107-2	26.3 + 1.9	25.8	27.2	26.9	25.1
L-108-1	26.8 + 2.1	27.2	27.2	27.6	25.3
L-108-2	22.8 + 3.5	22.9	21.7	25.2	21.3
L-109-1	27.6 + 3.7	24.9	28.0	29.1	28.3
L-109-2	26.9 + 4.5	25.5	24.5	29.0	28.6
L-110-1	27.4 + 2.1	28.4	28.1	26.8	26.2
L-110-2	25.7 + 1.5	25.5	26.4	26.1	24.7
L-111B-1	27.9 + 2.4	28.2	28.7	28.6	26.1
L-111B-2	27.5 + 2.0	27.6	28.7	27.4	26.3
L-112-1	25.2 + 2.8	23.6	27.0	25.0	25.0
L-112-2	27.2 + 3.0	26.5	26.5	29.4	26.3
L-113A-1	28.3 + 4.6	25.9	26.7	30.3	30.2
L-113A-2	27.5 + 4.1	27.3	24.7	28.5	29.5
L-114-1	27.3 + 2.7	28.0	26.8	28.8	25.7
L-114-2	28.0 + 2.6	26.9	27.2	29.8	27.9
L-115-1	25.6 + 3.2	23.7	24.9	26.5	27.2

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-IX.1 QUARTERLY OSLD RESULTS FOR LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF MILLIREM/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
L-115-2	24.3 + 3.7	23.6	23.6	27.1	23.0
L-116-1	25.7 + 3.2	24.4	27.8	24.4	26.0
L-116-2	25.4 + 2.8	23.8	27.2	25.5	25.1
L-201-3	22.5 + 3.0	21.6	21.4	22.4	24.7
L-201-4	27.2 + 3.7	28.2	25.8	29.2	25.4
L-202-3	23.7 + 3.6	21.8	23.3	23.7	26.1
L-202-4	24.8 + 1.6	24.0	25.4	24.3	25.6
L-203-1	26.1 + 2.7	24.8	26.0	25.5	28.0
L-203-2	27.4 + 1.8	26.3	28.0	28.3	27.0
L-204-1	27.5 + 1.6	26.9	28.2	26.6	28.1
L-204-2	27.4 + 2.5	26.7	26.2	29.0	27.7
L-205-1	25.0 + 1.5	24.1	25.9	24.9	25.1
L-205-2	26.3 + 1.2	25.5	26.8	26.2	26.8
L-205-3	25.3 + 3.7	23.2	26.7	(1)	25.9
L-205-4	25.8 + 1.5	24.9	26.2	26.2	(1)
L-206-1	27.3 + 2.1	27.2	26.3	28.8	26.9
L-206-2	26.7 + 3.1	24.7	26.4	28.3	27.4
L-207-1	26.8 + 2.6	25.6	25.7	28.1	27.6
L-207-2	27.1 + 2.3	27.6	27.5	27.8	25.3
L-208-1	25.9 + 2.3	25.7	25.2	27.6	25.2
L-208-2	27.9 + 3.1	27.6	26.7	30.2	27.2
L-209-1	26.3 + 1.4	25.9	25.5	27.1	26.5
L-209-2	25.9 + 1.6	24.9	25.7	26.8	26.3
L-210-1	28.0 + 3.6	27.5	26.2	27.7	30.5
L-210-2	27.4 + 1.8	28.3	26.5	(1)	27.3
L-211-1	26.8 + 3.8	24.6	25.9	27.7	28.9
L-211-2	27.1 + 3.0	25.4	29.0	27.0	26.9
L-212-1	26.7 + 1.4	25.9	26.4	27.6	26.8
L-212-2	27.5 + 2.7	25.7	28.7	28.3	27.2
L-213-3	26.0 + 5.2	22.9	25.7	29.3	26.1
L-213-4	25.1 + 4.0	23.1	(1)	27.1	25.0
L-214-3	25.7 + 4.0	24.2	24.8	28.6	25.0
L-214-4	27.0 + 2.5	26.7	25.4	28.3	27.7
L-215-3	27.3 + 4.1	26.1	28.9	29.2	25.1
L-215-4	27.4 + 4.8	24.2	29.7	27.0	28.6
L-216-3	27.1 + 1.7	27.2	26.4	28.3	26.6
L-216-4	27.4 + 1.5	26.9	26.7	28.2	27.9

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-IX.2 MEAN QUARTERLY OSLD RESULTS FOR THE INNER RING, OUTER RING, OTHER AND CONTROL LOCATIONS FOR LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF MILLIREM/QUARTER ± 2 STANDARD DEVIATIONS OF THE STATION DATA

COLLECTION PERIOD	INNER RING ± 2 S.D.	OUTER RING	OTHER	CONTROL
JAN-MAR	25.7 ± 3.1	25.5 ± 3.5	25.0 ± 2.9	22.9 ± 0.7
APR-JUN	26.8 ± 3.4	26.3 ± 3.2	26.2 ± 2.8	23.6 ± 0.7
JUL-SEP	27.9 ± 3.7	27.4 ± 3.4	27.6 ± 2.6	25.0 ± 5.1
OCT-DEC	26.7 ± 4.2	26.7 ± 2.6	26.5 ± 2.5	24.4 ± 6.1

Table C-IX.3 SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF MILLIREM/QUARTER

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
INNER RING	125	21.3	31.6	26.8 ± 3.9
OUTER RING	132	21.4	30.5	26.5 ± 3.4
OTHER	64	22.4	30.6	26.3 ± 3.2
CONTROL	8	22.2	26.8	23.9 ± 3.5

INNER RING STATIONS - L-101-1, L-101-2, L-102-1, L-102-2, L-103-1, L-103-2, L-104-1, L-104-2, L-105-1, L-105-2, L-106-1, L-106-2, L-107-1, L-107-2, L-108-1, L-108-2, L109-1, L109-2, L110-1, L110-2, L-111B-1, L-111B-2, L-112-1, L-112-2, L113A-1, L-113A-2, L114-1, L-114-2, L-115-1, L-115-2, L-116-1, L-116-2

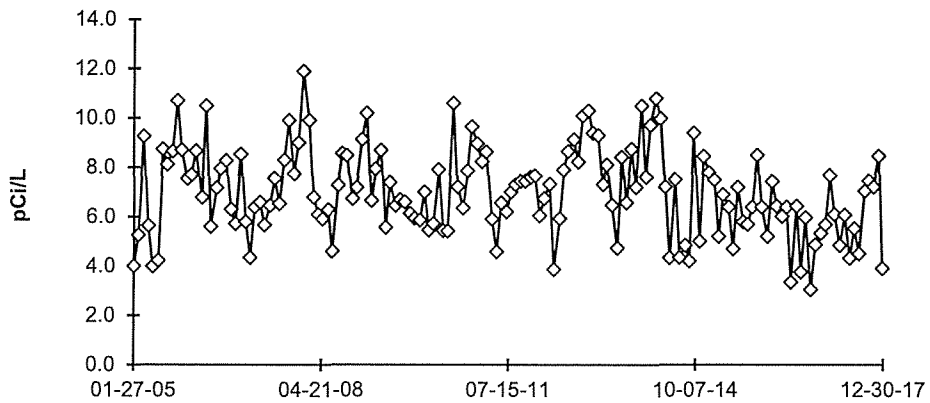
OUTER RING STATIONS - L-201-3, L-201-4, L-202-3, L-202-4, L-203-1, L-203-2, L-204-1, L-204-2, L205-1, L-205-2, L-205-3, L-205-4, L-206-1, L-206-2, L-207-1, L207-2, L208-1, L208-2, L209-1, L209-2, L210-1, L-210-2, L-211-1, L-211-2, L-212-1, L-212-2, L-213-3, L-213-4, L-214-3, L-214-4, L-215-3, L-215-4, L-2016-3, L-216-4

OTHER STATIONS - L-01-1, L-01-2, L-03-1, L-03-2, L-04-1, L-04-2, L-05-1, L-05-2, L-06-1, L-06-2, L-07-1, L-07-2, L-08-1, L-08-2, L-11A-1, L-11A-2

CONTROL STATIONS - L-10-1, L-10-2

FIGURE C-1
Surface Water - Gross Beta - Stations L-21 (C) and L-40
Collected in the Vicinity of LSCS, 2005 - 2017

L-21 (C) Illinois River at Seneca



L-40 Illinois River Downstream

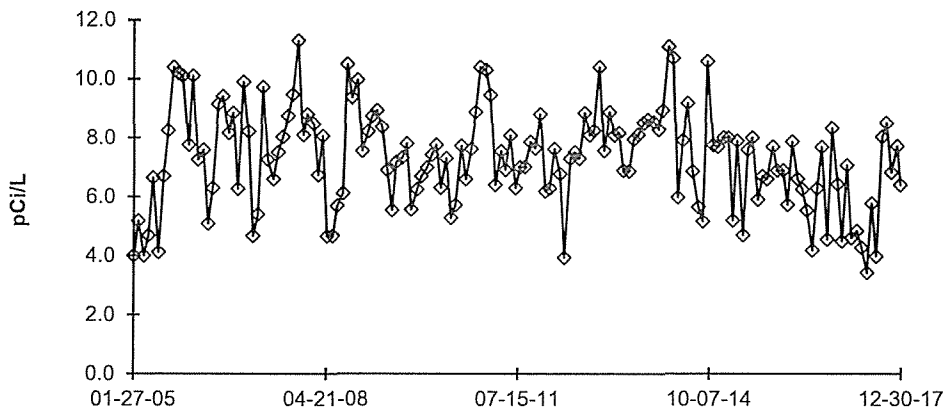
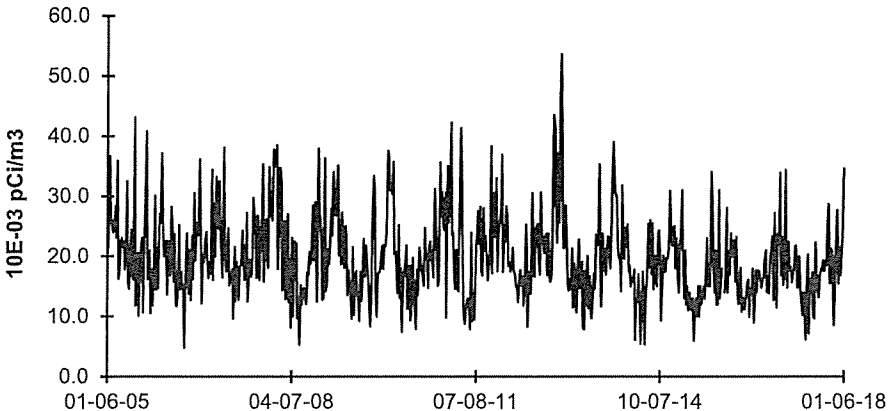


FIGURE C-3
Air Particulate - Gross Beta - Stations L-01 and L-03
Collected in the Vicinity of LSCS, 2005 - 2017

L-01 Nearsite No. 1



L-03 Onsite No. 3

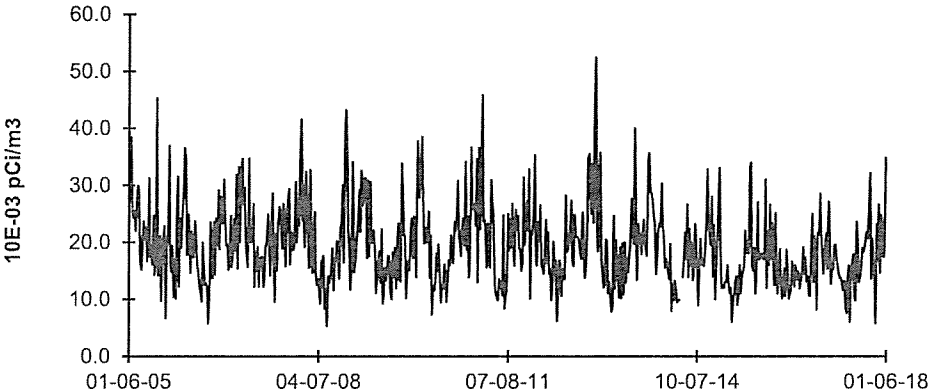
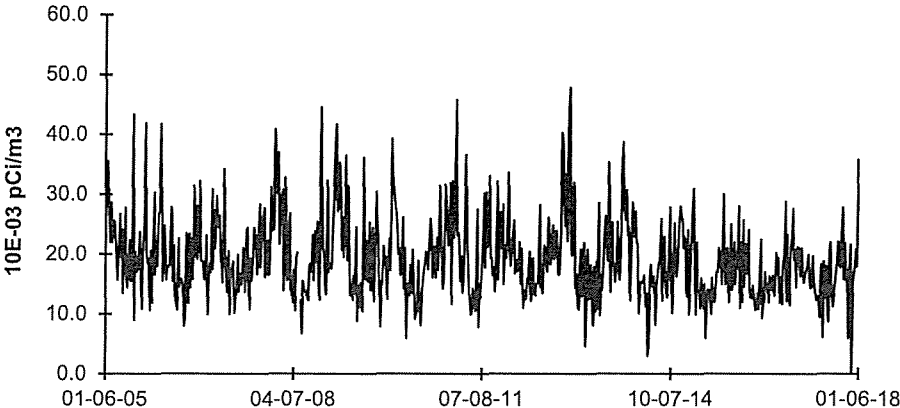


FIGURE C-4
Air Particulate - Gross Beta - Stations L-05 and L-06
Collected in the Vicinity of LSCS, 2005 - 2017

L-05 Onsite No. 5



L-06 Nearsite No. 6

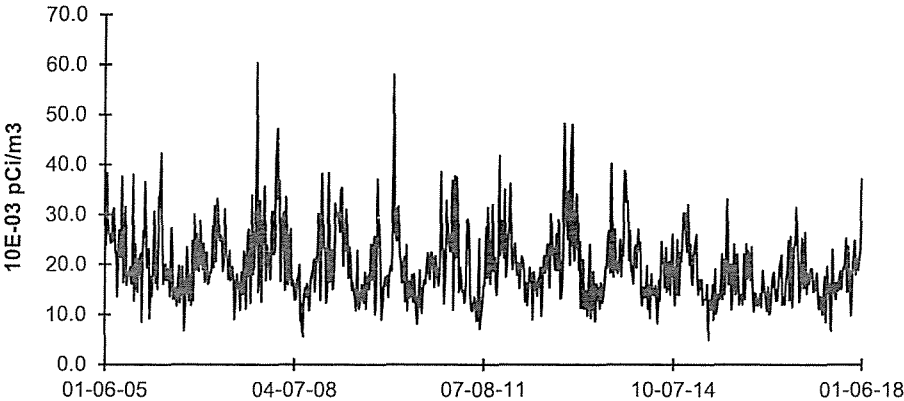


FIGURE C-5
Air Particulate - Gross Beta - Station L-10 (C)
Collected in the Vicinity of LSCS, 2005 - 2017

L-10 (C) Streator

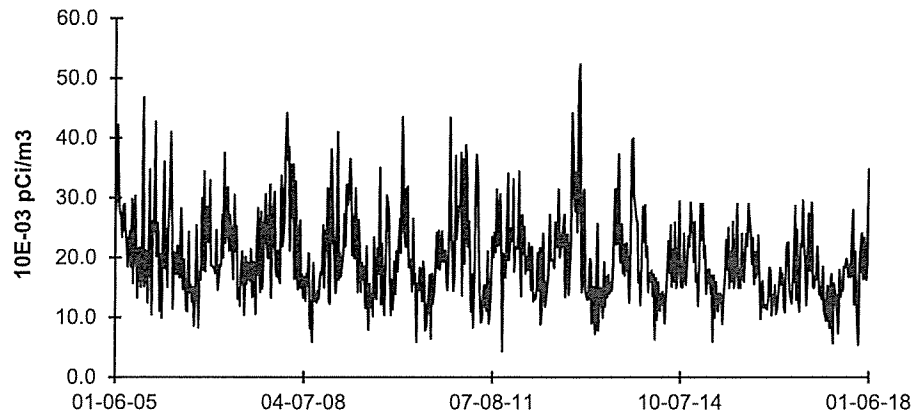
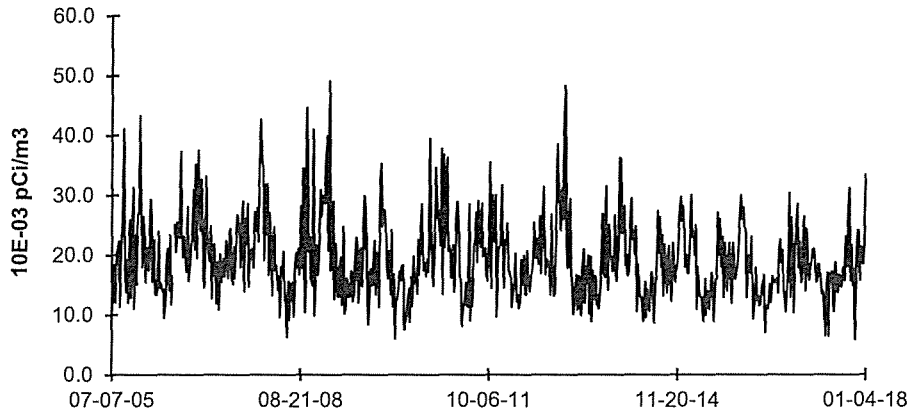


FIGURE C-6
Air Particulate - Gross Beta - Stations L-04 and L-07
Collected in the Vicinity of LSCS, 2005 - 2017

L-04 Rte. 170



L-07 Seneca

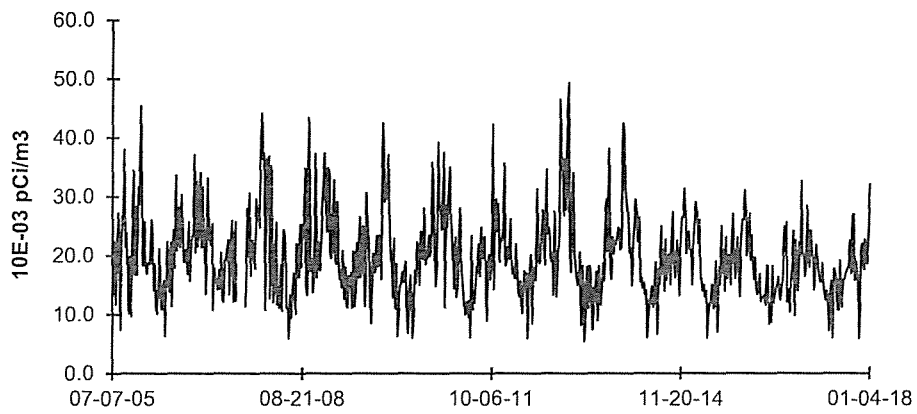
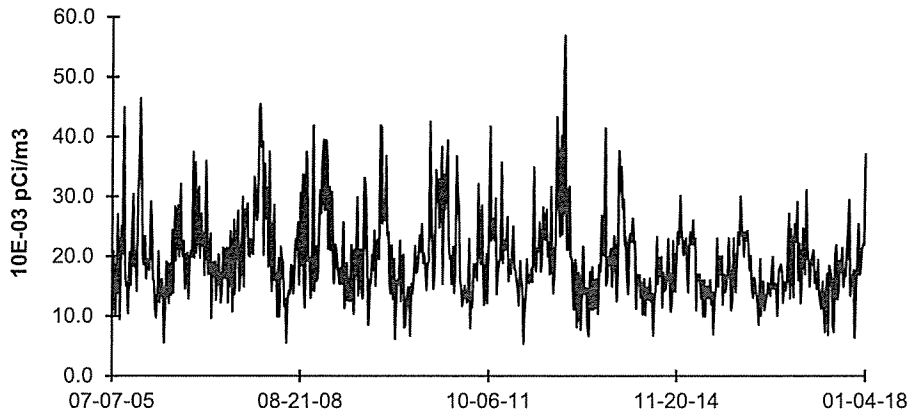
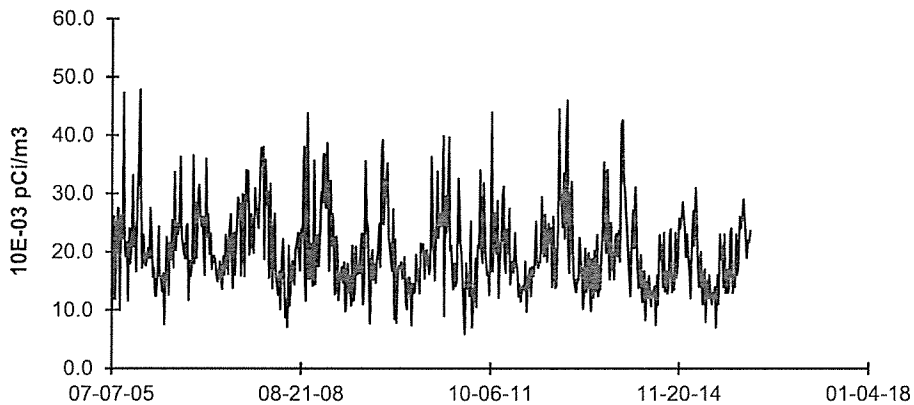


FIGURE C-7
Air Particulate - Gross Beta - Stations L-08 and L-11
Collected in the Vicinity of LSCS, 2005 - 2017

L-08 Marseilles



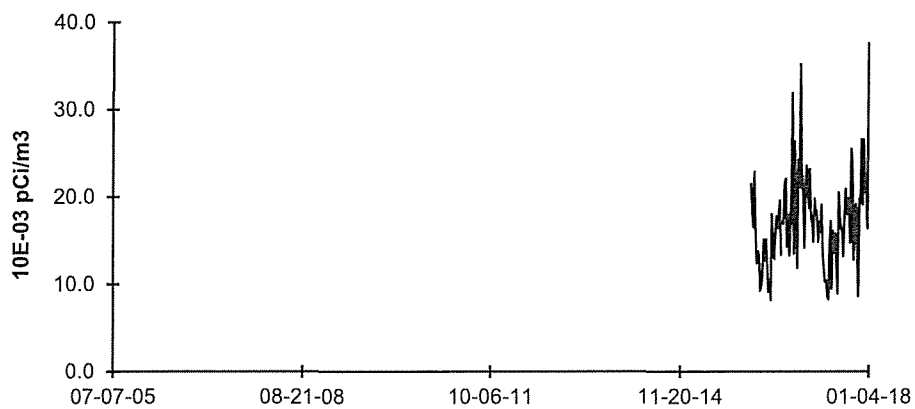
L-11 Ransom (1)



(1) Air monitoring station L-11 was retired on 01/21/16

FIGURE C-8
Air Particulate - Gross Beta - Station L-11A
Collected in the Vicinity of LSCS, 2016 - 2017

L-11A Ransom (1)



(1) Air monitoring station L-11A was placed in service on 01/14/16

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APPENDIX D

INTER-LABORATORY COMPARISON PROGRAM

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TABLE D-1

**Analytics Environmental Radioactivity Cross Check Program
Teledyne Brown Engineering Environmental Services, 2017**

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Reported Value	Known Value ^(a)	Ratio of TBE to Analytics Result	Evaluation ^(b)		
March 2017	E11811	Milk	Sr-89	pCi/L	87	97.7	0.89	A		
			Sr-90	pCi/L	12.4	16.2	0.77	W		
	E11812	Milk	Ce-141	pCi/L	135	145	0.93	A		
			Co-58	pCi/L	153	150	1.02	A		
			Co-60	pCi/L	182	183	1.00	A		
			Cr-51	pCi/L	258	290	0.89	A		
			Cs-134	pCi/L	104	120	0.87	A		
			Cs-137	pCi/L	142	140	1.02	A		
			Fe-59	pCi/L	135	129	1.05	A		
			I-131	pCi/L	92.6	97.9	0.95	A		
			Mn-54	pCi/L	173	164	1.05	A		
			Zn-65	pCi/L	208	199	1.04	A		
			E11813	Charcoal	I-131	pCi	92	93.9	0.98	A
			E11814	AP	Ce-141	pCi	99.9	101	0.99	A
					Co-58	pCi	95.4	104	0.92	A
Co-60	pCi	140			127	1.10	A			
Cr-51	pCi	211			201	1.05	A			
Cs-134	pCi	82.1			83.2	0.99	A			
Cs-137	pCi	92.8			97.0	0.96	A			
Fe-59	pCi	107			89.3	1.20	A			
Mn-54	pCi	106			114	0.93	A			
Zn-65	pCi	137	138	0.99	A					
E11816	Soil	Ce-141	pCi/g	0.258	0.250	1.03	A			
		Co-58	pCi/g	0.241	0.258	0.93	A			
		Co-60	pCi/g	0.312	0.315	0.99	A			
		Cr-51	pCi/g	0.439	0.500	0.88	A			
		Cs-134	pCi/g	0.176	0.207	0.85	A			
		Cs-137	pCi/g	0.304	0.317	0.96	A			
		Fe-59	pCi/g	0.210	0.222	0.95	A			
		Mn-54	pCi/g	0.292	0.283	1.03	A			
		Zn-65	pCi/g	0.353	0.344	1.03	A			
E11815	Water	Fe-55	pCi/L	1600	1890	0.85	A			

(a) The Analytics known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation

(b) Analytics evaluation based on TBE internal QC limits:

A = Acceptable - reported result falls within ratio limits of 0.80-1.20

W = Acceptable with warning - reported result falls within 0.70-0.80 or 1.20-1.30

N = Not Acceptable - reported result falls outside the ratio limits of < 0.70 and > 1.30

TABLE D-1

**Analytics Environmental Radioactivity Cross Check Program
Teledyne Brown Engineering Environmental Services, 2017**

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Reported Value	Known Value ^(a)	Ratio of TBE to Analytics Result	Evaluation ^(b)		
June 2017	E11844	Milk	Sr-89	pCi/L	81.3	92.6	0.88	A		
			Sr-90	pCi/L	12.1	13.5	0.90	A		
June 2017	E11846	Milk	Ce-141	pCi/L	142	151	0.94	A		
			Co-58	pCi/L	147	155	0.95	A		
			Co-60	pCi/L	185	191	0.97	A		
			Cr-51	pCi/L	321	315	1.02	A		
			Cs-134	pCi/L	168	188	0.89	A		
			Cs-137	pCi/L	148	150	0.99	A		
			Fe-59	pCi/L	116	115	1.01	A		
			I-131	pCi/L	102	93.6	1.09	A		
			Mn-54	pCi/L	168	172	0.98	A		
			Zn-65	pCi/L	195	204	0.96	A		
			E11847	Charcoal	I-131	pCi	87.9	84.8	1.04	A
			E11845	AP	Sr-89	pCi	70.8	79.1	0.90	A
					Sr-90	pCi	9.10	11.5	0.79	W
E11848	AP	Ce-141	pCi	112	116	0.96	A			
		Co-58	pCi	119	119	1.00	A			
		Co-60	pCi	171	146	1.17	A			
		Cr-51	pCi	270	241	1.12	A			
		Cs-134	pCi	152	144	1.05	A			
		Cs-137	pCi	114	115	0.99	A			
		Fe-59	pCi	94.1	88.3	1.07	A			
		Mn-54	pCi	139	132	1.06	A			
Zn-65	pCi	141	156	0.90	A					
E11849	Water	Fe-55	pCi/L	1840	1890	0.97	A			
July 2017	E11901	AP	GR-A	pCi	50.1	44.2	1.13	A		
			GR-B	pCi	218	233	0.93	A		

(a) The Analytics known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation

(b) Analytics evaluation based on TBE internal QC limits:

A = Acceptable - reported result falls within ratio limits of 0.80-1.20

W = Acceptable with warning - reported result falls within 0.70-0.80 or 1.20-1.30

N = Not Acceptable - reported result falls outside the ratio limits of < 0.70 and > 1.30

TABLE D-1

**Analytics Environmental Radioactivity Cross Check Program
Teledyne Brown Engineering Environmental Services, 2017**

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Reported Value	Known Value ^(a)	Ratio of TBE to Analytics Result	Evaluation ^(b)			
September 2017	E11914	Milk	Sr-89	pCi/L	84.3	82.7	1.02	A			
			Sr-90	pCi/L	12.6	12.1	1.04	A			
September 2017	E11915	Milk	Ce-141	pCi/L	93.9	87.0	1.08	A			
			Co-58	pCi/L	115	117	0.98	A			
			Co-60	pCi/L	265	262	1.01	A			
			Cr-51	pCi/L	273	217	1.26	W			
			Cs-134	pCi/L	186	201	0.93	A			
			Cs-137	pCi/L	175	172	1.02	A			
			Fe-59	pCi/L	137	125	1.09	A			
			I-131	pCi/L	78.0	71.0	1.10	A			
			Mn-54	pCi/L	128	123	1.04	A			
			Zn-65	pCi/L	206	184	1.12	A			
			E11916	Charcoal	I-131	pCi	71.9	64.4	1.12	A	
			September 2017	E11917	AP	Ce-141	pCi	80.1	86.3	0.93	A
						Co-58	pCi	110	116	0.95	A
Co-60	pCi	277				260	1.07	A			
Cr-51	pCi	275				215	1.28	W			
Cs-134	pCi	192				199	0.96	A			
Cs-137	pCi	165				170	0.97	A			
Fe-59	pCi	122				124	0.98	A			
Mn-54	pCi	120				122	0.99	A			
Zn-65	pCi	175	183	0.96	A						
E11918	Water	Fe-55	pCi/L	1630	1630	1.00	A				
September 2017	E11919	Soil	Ce-141	pCi/g	0.136	0.142	0.96	A			
			Co-58	pCi/g	0.179	0.191	0.94	A			
			Co-60	pCi/g	0.405	0.429	0.94	A			
			Cr-51	pCi/g	0.230	0.355	0.65	N ⁽¹⁾			
			Cs-134	pCi/g	0.272	0.328	0.83	A			
			Cs-137	pCi/g	0.336	0.356	0.94	A			
			Fe-59	pCi/g	0.210	0.205	1.02	A			
			Mn-54	pCi/g	0.210	0.201	1.05	A			
Zn-65	pCi/g	0.301	0.301	1.00	A						

(a) The Analytics known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation

(b) Analytics evaluation based on TBE internal QC limits:

A = Acceptable - reported result falls within ratio limits of 0.80-1.20

W = Acceptable with warning - reported result falls within 0.70-0.80 or 1.20-1.30

N = Not Acceptable - reported result falls outside the ratio limits of < 0.70 and > 1.30

(1) See NCR 17-16

TABLE D-1

**Analytics Environmental Radioactivity Cross Check Program
Teledyne Brown Engineering Environmental Services, 2017**

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Reported Value	Known Value ^(a)	Ratio of TBE to Analytics Result	Evaluation ^(b)
December 2017	E12054	Milk	Sr-89	pCi/L	92.1	92.3	1.00	A
			Sr-90	pCi/L	18.3	16.9	1.09	A
	E12055	Milk	Ce-141	pCi/L	97.8	98.3	0.99	A
			Co-58	pCi/L	92.3	89.9	1.03	A
			Co-60	pCi/L	176	173	1.02	A
			Cr-51	pCi/L	226	242	0.93	A
			Cs-134	pCi/L	118	125	0.95	A
			Cs-137	pCi/L	148	141	1.05	A
			Fe-59	pCi/L	123	113	1.08	A
			I-131	pCi/L	66.0	57.8	1.14	A
			Mn-54	pCi/L	173	161	1.08	A
			Zn-65	pCi/L	233	211	1.10	A
				E12056	Charcoal	I-131	pCi	48.1
	E12057A	AP	Ce-141	pCi	108	111	0.97	A
			Co-58	pCi	89.5	102	0.88	A
			Co-60	pCi	223	196	1.14	A
			Cr-51	pCi	311	274	1.13	A
			Cs-134	pCi	141	142	1.00	A
			Cs-137	pCi	162	160	1.01	A
			Fe-59	pCi	121	129	0.94	A
			Mn-54	pCi	177	182	0.97	A
	E12058	Water	Fe-55	pCi/L	1970	1740	1.13	A
	E12059	AP	Sr-89	pCi	71.2	87.4	0.81	A
			Sr-90	pCi	12.9	16.0	0.81	A

(a) The Analytics known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation

(b) Analytics evaluation based on TBE internal QC limits:

A = Acceptable - reported result falls within ratio limits of 0.80-1.20

W = Acceptable with warning - reported result falls within 0.70-0.80 or 1.20-1.30

N = Not Acceptable - reported result falls outside the ratio limits of < 0.70 and > 1.30

TABLE D-2

**DOE's Mixed Analyte Performance Evaluation Program (MAPEP)
Teledyne Brown Engineering Environmental Services, 2017**

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Reported Value	Known Value ^(a)	Acceptance Range	Evaluation ^(b)	
February 2017	17-MaS36	Soil	Ni-63	Bq/kg	-5.512		(1)	A	
			Sr-90	Bq/kg	571	624	437 - 811	A	
	17-MaW36	Water	Am-241	Bq/L	0.693	0.846	0.592 - 1.100	A	
			Ni-63	Bq/L	13.4	12.2	8.5 - 15.9	A	
			Pu-238	Bq/L	0.7217	0.703	0.492 - 0.914	A	
			Pu-239/240	Bq/L	0.9277	0.934	0.654 - 1.214	A	
	17-RdF36	AP	U-234/233	Bq/sample	0.0911	0.104	0.073 - 0.135	A	
			U-238	Bq/sample	0.0967	0.107	0.075 - 0.139	A	
	17-RdV36	Vegetation	Cs-134	Bq/sample	6.44	6.95	4.87 - 9.04	A	
			Cs-137	Bq/sample	4.61	4.60	3.22 - 5.98	A	
			Co-57	Bq/sample	-0.0229		(1)	A	
			Co-60	Bq/sample	8.52	8.75	6.13 - 11.38	A	
			Mn-54	Bq/sample	3.30	3.28	2.30 - 4.26	A	
			Sr-90	Bq/sample	1.30	1.75	1.23 - 2.28	W	
			Zn-65	Bq/sample	5.45	5.39	3.77 - 7.01	A	
	August 2017	17-MaS37	Soil	Ni-63	Bq/kg	1130	1220	854 - 1586	A
				Sr-90	Bq/kg	296	289	202 - 376	A
17-MaW37		Water	Am-241	Bq/L	0.838	0.892	0.624 - 1.160	A	
			Ni-63	Bq/L	-0.096		(1)	A	
			Pu-238	Bq/L	0.572	0.603	0.422 - 0.784	A	
			Pu-239/240	Bq/L	0.863	0.781	0.547 - 1.015	A	
17-RdF37		AP	U-234/233	Bq/sample	0.103	0.084	0.059 - 0.109	W	
			U-238	Bq/sample	0.115	0.087	0.061 - 0.113	N ⁽²⁾	
17-RdV37		Vegetation	Cs-134	Bq/sample	2.34	2.32	1.62 - 3.02	A	
			Cs-137	Bq/sample	0.05		(1)	A	
			Co-57	Bq/sample	3.32	2.8	2.0 - 3.6	A	
			Co-60	Bq/sample	2.09	2.07	1.45 - 2.69	A	
			Mn-54	Bq/sample	2.90	2.62	1.83 - 3.41	A	
			Sr-90	Bq/sample	1.17	1.23	0.86 - 1.60	A	
			Zn-65	Bq/sample	6.07	5.37	3.76 - 6.98	A	

(a) The MAPEP known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation

(b) DOE/MAPEP evaluation:

A = Acceptable - reported result falls within ratio limits of 0.80-1.20

W = Acceptable with warning - reported result falls within 0.70-0.80 or 1.20-1.30

N = Not Acceptable - reported result falls outside the ratio limits of < 0.70 and > 1.30

(1) False positive test

(2) See NCR 17-15

TABLE D-3

**ERA Environmental Radioactivity Cross Check Program
Teledyne Brown Engineering Environmental Services, 2017**

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Reported Value	Known Value ^(a)	Acceptance Limits	Evaluation ^(b)
March 2017	MRAD-26	AP	GR-A	pCi/sample	76.3	85.5	28.6 - 133	A
April 2017	RAD-109	Water	Ba-133	pCi/L	49.2	49.7	40.8 - 55.1	A
			Cs-134	pCi/L	83.2	90.1	74.0 - 99.1	A
			Cs-137	pCi/L	202	206	185 - 228	A
			Co-60	pCi/L	51.2	54.7	49.2 - 62.7	A
			Zn-65	pCi/L	39.3	53.8	47.2 - 65.9	N ⁽¹⁾
			GR-A	pCi/L	53.6	75.0	39.5 - 92.3	A
			GR-B	pCi/L	42.7	38.5	25.5 - 46.0	A
			U-Nat	pCi/L	50.1	55.6	45.2 - 61.7	A
			H-3	pCi/L	7080	6850	5920 - 7540	A
			Sr-89	pCi/L	40.7	66.2	53.8 - 74.3	N ⁽¹⁾
			Sr-90	pCi/L	26.9	26.7	19.3 - 31.1	A
			I-131	pCi/L	26.7	29.9	24.9 - 34.9	A
September 2017	MRAD-27	AP	GR-A	pCi/sample	40.9	50.1	16.8 - 77.8	A
		AP	GR-B	pCi/sample	58.0	61.8	39.1 - 90.1	A
October 2017	RAD-111	Water	Ba-133	pCi/L	71.3	73.7	61.7 - 81.1	A
			Cs-134	pCi/L	43.0	53.0	42.8 - 58.3	A
			Cs-137	pCi/L	48.2	52.9	47.6 - 61.1	A
			Co-60	pCi/L	69.0	69.5	62.6 - 78.9	A
			Zn-65	pCi/L	335	348	313 - 406	A
			GR-A	pCi/L	32.5	35.6	18.3 - 45.8	A
			GR-B	pCi/L	24.3	25.6	16.0 - 33.6	A
			U-Nat	pCi/L	36.6	37.0	30.0 - 40.9	A
			H-3	pCi/L	6270	6250	5390 - 6880	A
November 2017	111317O	Water	Sr-89	pCi/L	57.1	50.0	39.4 - 57.5	A
			Sr-90	pCi/L	27.1	41.8	30.8 - 48.0	N ⁽²⁾

(a) The ERA known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.

(b) ERA evaluation:

A = Acceptable - Reported value falls within the Acceptance Limits

N = Not Acceptable - Reported value falls outside of the Acceptance Limits

(1) See NCR 17-09

(2) See NCR 17-19

APPENDIX E

EFFLUENT DATA

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Station Releases

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INTRODUCTION

LaSalle County Station, a two-unit BWR, is located near Marseilles, Illinois in LaSalle County, 3.5 miles south of the Illinois River. Both units are rated at 3546 MWt. Unit 1 loaded fuel in March 1982. Unit 2 loaded fuel in late December 1983. The Station is designed to keep releases to the environment at levels below those specified in the regulations.

Liquid effluents, although no longer batch released from LaSalle County Station, were designed to be released to the Illinois River in controlled batches after radioassay of each batch. Gaseous effluents are released to the atmosphere after delay allowing time for short-lived (noble) gases to decay. Releases to the atmosphere are sampled and analyzed on a routine basis. The gaseous effluent samples are analyzed for particulate, iodine, noble gas, and tritium activity. The particulate and iodine sample results are obtained from continuously collected composite samples. The noble gas and tritium sample results are obtained from routine grab samples. The results of effluent analyses are summarized on a monthly basis and reported to the Nuclear Regulatory Commission as required per Technical Specifications. Airborne concentrations of noble gases, tritium, I-131, and particulate radioactivity in offsite areas are calculated using effluent and meteorological data.

Environmental monitoring is conducted by sampling at indicator and control (background) locations in the vicinity of LaSalle County Station to measure changes in radiation or radioactivity levels that may be attributable to station operations. If significant changes attributable to LaSalle County Station are measured, these changes are correlated with effluent releases. External gamma radiation exposure from noble gases and internal dose from I-131 in milk are the critical pathways at this site; however, an environmental monitoring program is conducted which also includes these and many other pathways which are less significant in terms of radiation protection.

SUMMARY

Gaseous effluents for the period contributed to only a small fraction of the LaSalle County Station Radiological Effluent Controls Limits. Liquid effluents had no contribution to offsite dose, as no liquid batch radioactive discharges were conducted. Calculations of environmental concentrations based on effluent, Illinois River flow, and meteorological data for the period indicate that consumption by the public of radionuclides attributable to LaSalle County Station does not exceed regulatory limits. Radiation exposure from radionuclides released to the atmosphere represented the critical pathway for the period with a maximum individual total dose estimated to be $9.55E-01$ mrem for the year, where a shielding factor of 0.7 and an occupancy factor of 0.95 are assumed for the nearest resident. The assessment of radiation doses is performed in accordance with the Offsite Dose Calculation Manual (ODCM), specifically, a comparison of preoperational studies with operational controls or with previous environmental surveillance reports and an assessment of the observed impacts of the plant operation on the environment. Control locations are basis for "preoperational data." The results of analysis confirm that the station is operating in compliance with 10 CFR 50 Appendix I, 10 CFR 20 and 40 CFR 190.

1.0 EFFLUENTS

1.1 Gaseous Effluents to the Atmosphere

Measured concentrations of noble gases, radioiodine, and particulate radioactivity released to the atmosphere during the year, are listed in Table 1.1-1. A total of 1.57E+03 curies of fission and activation gases were released with an average release rate of 5.00E+01 $\mu\text{Ci}/\text{sec}$.

A total of 4.29E-02 curies of I-131 were released during the year with an average release rate of 1.37E-03 $\mu\text{Ci}/\text{sec}$.

A total of 1.37E-03 curies of beta-gamma emitters were released as airborne particulate matter with an average release rate of 4.33E-05 $\mu\text{Ci}/\text{sec}$. Alpha-emitting radionuclides were below the lower limit of detection (LLD). Carbon-14 released in 2017 was calculated separately with a total of 3.38E+01 curies released with an average release rate of 1.07E+00 $\mu\text{Ci}/\text{sec}$.

A total of 1.75E+01 curies of tritium were released with an average release rate of 5.57E-01 $\mu\text{Ci}/\text{sec}$.

1.2 Liquids Released to Illinois River

There were no liquid batch releases in 2017. Continuous release path activity was below applicable Lower Limits of Detection.

2.0 SOLID RADIOACTIVE WASTE

Solid radioactive wastes were shipped by truck to a disposal facility or to a waste processor. For further detail, refer the LaSalle 2017 Annual Radioactive Effluent Release Report (ARERR). This report was submitted to the USNRC by the required date of May 1st, 2018.

3.0 DOSE TO MAN

3.1 Gaseous Effluent Pathways

Table 3.1-1 summarizes the doses resulting from releases of airborne radioactivity via the different exposure pathways.

3.1.1 Noble Gases

3.1.1.1 Gamma Dose Rates

Unit 1 and Unit 2 gaseous releases at LaSalle County Station are reported as Unit 1 releases due to a single station vent stack (SVS) release point. Offsite Gamma air and whole body dose rates are shown in Table 3.1-1 and were calculated based on measured release rates, isotopic composition of the noble gases and average meteorological data for the period. Doses based on concurrent meteorological data are shown in Table 3.4-1. Based on measured effluents and meteorological data, the maximum total body dose to an individual would be 1.40E-02 mrem (Table 3.1-1) for the year, with an occupancy factor of 0.95 and a shielding factor of 0.7 included. The maximum total body dose based on measured effluents and concurrent meteorological data would be 1.90E-02 mrem (Table 3.4-1).

The maximum gamma air dose was 2.10E-02 mrad from Table 3.1-1, and the maximum gamma air dose from concurrent meteorological data was 3.02E-03 mrad (Table 3.4-1).

3.1.1.2 Beta Air and Skin Dose Rates

The range of beta particles in air is relatively small (on the order of a few meters or less); consequently, plumes of gaseous effluents may be considered "infinite" for purpose of calculating the dose from beta radiation incident on the skin. However, the actual dose to sensitive skin tissues is difficult to calculate due to the effect of the beta particle energies, thickness of inert skin and clothing covering sensitive tissues. For purposes of this report the skin is taken to have a thickness of 7.0 mg/cm² and an occupancy factor of 1.0 is used. The skin dose (from beta and gamma radiation) for the year was 2.36E-02 mrem from Table 3.1-1, and the skin dose from concurrent meteorological data was 3.04E-03 mrem (Table 3.4-1). The maximum offsite beta dose for the year

was 9.18E-04 mrad from Table 3.1-1, and the maximum offsite beta dose from concurrent meteorological data was 9.59E-04 mrad (Table 3.4-1).

3.1.2 Radioactive Iodine

The human thyroid exhibits a significant capacity to concentrate ingested or inhaled iodine. The radioiodine, I-131, released during routing operation of the plant, may be made available to man resulting in a dose to the thyroid. The principal pathway of interest for this radionuclide is ingestion of radioiodine in milk.

3.1.2.1 Dose to Thyroid

The hypothetical thyroid dose to a maximum exposed individual living near the station via ingestion of milk was calculated. The radionuclide considered was I-131 and the source of milk was taken to be the nearest dairy farm with the cows pastured from May through October. The maximum thyroid dose due to I-131 was 2.12E-01 mrem for the year.

3.2 Liquid Effluent Pathways

The three principal pathways through the aquatic environment for potential doses to man from liquid waste are ingestion of potable water, eating aquatic foods, and exposure while on the shoreline. Not all of these pathways are significant or applicable at a given time but a reasonable approximation of the dose can be made by adjusting the dose formula for season of the year or type and degree of use of the aquatic environment. NRC developed equations* were used to calculate the doses to the whole body, lower gastro-intestinal tracts, thyroid, bone and skin; specific parameters for use in the equations are given in the Offsite Dose Calculation Manual. The maximum whole body dose was 0.00E+00 mrem and organ dose was 0.00E+00 for the year mrem (Table 3.2-1).

3.3 Assessment of Dose to Member of Public

During the period January to December 2017, LaSalle County Station did not exceed these limits as shown in Table 3.1-1 and Table 3.2-1 (based on annual average meteorological data), and

as shown in Table 3.3-1:

- The Radiological Effluent Technical Standards (RETS) limits on dose or dose commitment to an individual due to radioactive materials in liquid effluents from each reactor unit (1.5 mrem to the whole body or 5 mrem to any organ during any calendar year; 3 mrem to the whole body or 10 mrem to any organ during the calendar year).
- The RETS limits on air dose in noble gases released in gaseous effluents to a member of the public from each reactor unit (5 mrad for gamma radiation or 10 mrad for beta radiation during any calendar quarter; 10 mrad for gamma radiation or 20 mrad for beta radiation during a calendar year).
- The RETS limits on dose to a member of the public due to iodine-131, iodine-133, tritium and radionuclides in particulate form with half-lives greater than eight days in gaseous effluents released from each reactor unit (7.5 mrem to any organ during any calendar quarter; 15 mrem to any organ during any calendar year).
- The 10 CFR 20 limit on Total Effective Dose Equivalent to individual members of the public (100 mrem).

4.0 SITE METEOROLOGY

A summary of the site meteorological measurements taken during each calendar quarter of the year is given in Appendix F. The data are presented as cumulative joint frequency distributions of the wind direction for the 375' level and wind speed class by atmospheric stability class determined from the temperature difference between the 375' and 33' levels. Data recovery for these measurements was 99.7% during 2017.

*Nuclear Regulatory Commission, Regulatory Guide 1.109 (Rev. 1)

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APPENDIX E-1

DATA TABLES AND FIGURES

Table 1.1-1

LASALLE COUNTY NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2017)
UNIT 1 AND UNIT 2
DOCKET NUMBERS 50-373 AND 50-374
GASEOUS EFFLUENTS SUMMATION OF ALL RELEASES

A. Fission & Activation Gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter4	Est. Total Error %
1. Total Release	Ci	6.70E+02	2.68E+02	3.11E+02	3.22E+02	2.50E+01
2. Average release rate for the period	μCi/sec	8.62E+01	3.41E+01	3.91E+01	4.05E+01	
3. Percent of ODCM limit	%	*	*	*	*	

B. Iodine						
1. Total Iodine – 131	Ci	2.57E-02	5.39E-03	7.24E-03	4.55E-03	1.50E+01
2. Average release rate for the period	μCi/sec	3.30E-03	6.85E-04	9.11E-04	5.73E-04	
3. Percent of ODCM limit	%	*	*	*	*	

C. Particulates						
1. Particulates with half-lives > 8 days	Ci	3.30E-04	3.42E-04	2.52E-04	4.41E-04	3.50E+01
2. Average release rate for the period	μCi/sec	4.24E-05	4.35E-05	3.18E-05	5.55E-05	
3. Percent of ODCM limit	%	*	*	*	*	

D. Tritium						
1. Total Release	Ci	4.94E+00	5.18E+00	3.25E+00	4.16E+00	1.50E+01
2. Average release rate for the period	μCi/sec	6.35E-01	6.59E-01	4.09E-01	5.23E-01	
3. Percent of ODCM limit	%	*	*	*	*	

E. Gross Alpha						
1. Total Release	Ci	<LLD	<LLD	<LLD	<LLD	N/A
2. Average release rate for the period	μCi/sec	<LLD	<LLD	<LLD	<LLD	
3. Percent of ODCM limit	%	*	*	*	*	

F. Carbon-14						
1. Total Release	Ci	8.45E+00	8.45E+00	8.45E+00	8.45E+00	
2. Average release rate for the period	μCi/sec	1.09E+00	1.08E+00	1.06E+00	1.06E+00	
3. Percent of ODCM limit	%	*	*	*	*	

*** This information is contained in the Radiological Impact on Man section of the report.

"<" Indicates activity of sample is less than LLD given in μCi/ml

The LaSalle County Nuclear Power Station maximum expected annual dose from Carbon-14 has been calculated using the maximum gross thermal capacity at full power operation. The resultant bounding doses are based upon site specific assumptions of source term.

Table 1.2-1
LASALLE COUNTY NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2017)
LIQUID RELEASES
UNIT 1 AND UNIT 2
SUMMATION OF ALL LIQUID RELEASES

A. Fission & Activation Products	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter4	Est. Total Error %
1. Total Release (not including tritium, gases & alpha)	Ci	<LLD	<LLD	<LLD	<LLD	N/A
2. Average diluted concentration during period	μCi/mL	<LLD	<LLD	<LLD	<LLD	
3. Percent of applicable limit	%	*	*	*	*	

B. Tritium						
1. Total Release	Ci	<LLD	<LLD	<LLD	<LLD	N/A
2. Average diluted concentration during period	μCi/mL	<LLD	<LLD	<LLD	<LLD	
3. Percent of applicable limit	%	*	*	*	*	

C. Dissolved & Entrained Gases						
1. Total Release	Ci	<LLD	<LLD	<LLD	<LLD	N/A
2. Average diluted concentration during period	μCi/mL	<LLD	<LLD	<LLD	<LLD	
3. Percent of applicable limit	%	*	*	*	*	

D. Gross Alpha Activity						
1. Total Release	Ci	<LLD	<LLD	<LLD	<LLD	N/A
2. Average release rate for the period	μCi/mL	<LLD	<LLD	<LLD	<LLD	
3. Percent of ODCM limit	%	*	*	*	*	

E. Volume of Waste Released (prior to dilution)	Liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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F. Volume of Dilution Water Used During Period	Liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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""*"" This information is contained in the Radiological Impact on Man section of the report.
 ""<"" Indicates activity of sample is less than LLD given in μCi/ml

Table 2.1-1

LASALLE COUNTY NUCLEAR POWER STATION
SOLID WASTE ANNUAL REPORT (2017)

Table 2.1-1 deliberately deleted. For solid waste disposal detail, refer to the LaSalle County Station 2017 Annual Radiological Effluent Release Report (ARERR).

Table 3.1-1

LASALLE COUNTY NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2017)
 RADIOLOGICAL IMPACT ON MAN
 MAXIMUM DOSES RESULTING FROM GASEOUS RELEASES AND COMPLIANCE STATUS

Infant Receptor	Quarterly Limit	Units	1st Quarter	% of Limit	2nd Quarter	% of Limit	3rd Quarter	% of Limit	4th Quarter	% of Limit	Annual Limit	% of Limit
Gamma Air	5.00E+00	mRad	5.11E-03	0.102	5.08E-03	0.102	5.86E-03	0.117	4.98E-03	0.100	1.00E+01	0.210
Beta Air	1.00E+01	mRad	3.21E-04	0.003	1.82E-04	0.002	2.14E-04	0.002	2.02E-04	0.002	2.00E+01	0.005
NG Total Body	2.50E+00	mRem	3.41E-03	0.136	3.39E-03	0.135	3.91E-03	0.156	3.32E-03	0.133	5.00E+00	0.280
NG Skin	7.50E+00	mRem	5.78E-03	0.077	5.69E-03	0.076	6.57E-03	0.088	5.58E-03	0.074	1.50E+01	0.157
NNG Organ	7.50E+00	mRem	1.24E-01	1.648	2.77E-02	0.370	3.70E-02	0.494	2.36E-02	0.315	1.50E+01	1.413
Child Receptor	Quarterly Limit	Units	1st Quarter	% of Limit	2nd Quarter	% of Limit	3rd Quarter	% of Limit	4th Quarter	% of Limit	Annual Limit	% of Limit
Gamma Air	5.00E+00	mRad	5.11E-03	0.102	5.08E-03	0.102	5.86E-03	0.117	4.98E-03	0.100	1.00E+01	0.210
Beta Air	1.00E+01	mRad	3.21E-04	0.003	1.82E-04	0.002	2.14E-04	0.002	2.02E-04	0.002	2.00E+01	0.005
NG Total Body	2.50E+00	mRem	3.41E-03	0.136	3.39E-03	0.135	3.91E-03	0.156	3.32E-03	0.133	5.00E+00	0.280
NG Skin	7.50E+00	mRem	5.78E-03	0.077	5.69E-03	0.076	6.57E-03	0.088	5.58E-03	0.074	1.50E+01	0.157
NNG Organ	7.50E+00	mRem	5.11E-02	0.681	1.16E-02	0.154	1.54E-02	0.205	9.86E-03	0.131	1.50E+01	0.586
Teenager Receptor	Quarterly Limit	Units	1st Quarter	% of Limit	2nd Quarter	% of Limit	3rd Quarter	% of Limit	4th Quarter	% of Limit	Annual Limit	% of Limit
Gamma Air	5.00E+00	mRad	5.11E-03	0.102	5.08E-03	0.102	5.86E-03	0.117	4.98E-03	0.100	1.00E+01	0.210
Beta Air	1.00E+01	mRad	3.21E-04	0.003	1.82E-04	0.002	2.14E-04	0.002	2.02E-04	0.002	2.00E+01	0.005
NG Total Body	2.50E+00	mRem	3.41E-03	0.136	3.39E-03	0.135	3.91E-03	0.156	3.32E-03	0.133	5.00E+00	0.280
NG Skin	7.50E+00	mRem	5.78E-03	0.077	5.69E-03	0.076	6.57E-03	0.088	5.58E-03	0.074	1.50E+01	0.157
NNG Organ	7.50E+00	mRem	2.58E-02	0.344	5.77E-03	0.077	7.71E-03	0.103	4.92E-03	0.066	1.50E+01	0.295
Adult Receptor	Quarterly Limit	Units	1st Quarter	% of Limit	2nd Quarter	% of Limit	3rd Quarter	% of Limit	4th Quarter	% of Limit	Annual Limit	% of Limit
Gamma Air	5.00E+00	mRad	5.11E-03	0.102	5.08E-03	0.102	5.86E-03	0.117	4.98E-03	0.100	1.00E+01	0.210
Beta Air	1.00E+01	mRad	3.21E-04	0.003	1.82E-04	0.002	2.14E-04	0.002	2.02E-04	0.002	2.00E+01	0.005
NG Total Body	2.50E+00	mRem	3.41E-03	0.136	3.39E-03	0.135	3.91E-03	0.156	3.32E-03	0.133	5.00E+00	0.280
NG Skin	7.50E+00	mRem	5.78E-03	0.077	5.69E-03	0.076	6.57E-03	0.088	5.58E-03	0.074	1.50E+01	0.157
NNG Organ	7.50E+00	mRem	1.63E-02	0.217	3.63E-03	0.048	4.86E-03	0.065	3.09E-03	0.041	1.50E+01	0.186

E-1.5

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The LaSalle County Nuclear Power Station maximum expected annual dose from Carbon-14 has been calculated using the maximum gross thermal capacity at full power operation. The resultant bounding doses are based upon site specific assumptions of source term.

Table 3.2-1

LASALLE COUNTY NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2017)
 RADIOLOGICAL IMPACT ON MAN
 MAXIMUM DOSES RESULTING FROM LIQUID RELEASES AND COMPLIANCE STATUS

Infant Receptor	Quarterly Limit	Units	1st Quarter	% of Limit	2nd Quarter	% of Limit	3 rd Quarter	% of Limit	4th Quarter	% of Limit	Annual Limit	% of Limit
10CFR50 Appendix I compliance												
Total Body	1.50E+00	mRem	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	3.00E+00	0.00
Organ	5.00E+00	mRem	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	1.00E+01	0.00
40CFR141 compliance (nearest public drinking water)												
Total Body		mRem	0.00E+00		0.00E+00		0.00E+00		0.00E+00		4.00E+00	0.00
Organ		mRem	0.00E+00		0.00E+00		0.00E+00		0.00E+00		4.00E+00	0.00
Child Receptor	Quarterly Limit	Units	1st Quarter	% of Limit	2nd Quarter	% of Limit	3 rd Quarter	% of Limit	4th Quarter	% of Limit	Annual Limit	% of Limit
10CFR50 Appendix I compliance												
Total Body	1.50E+00	mRem	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	3.00E+00	0.00
Organ	5.00E+00	mRem	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	1.00E+01	0.00
40CFR141 compliance (nearest public drinking water)												
Total Body		mRem	0.00E+00		0.00E+00		0.00E+00		0.00E+00		4.00E+00	0.00
Organ		mRem	0.00E+00		0.00E+00		0.00E+00		0.00E+00		4.00E+00	0.00
Teenager Receptor	Quarterly Limit	Units	1st Quarter	% of Limit	2nd Quarter	% of Limit	3 rd Quarter	% of Limit	4th Quarter	% of Limit	Annual Limit	% of Limit
10CFR50 Appendix I compliance												
Total Body	1.50E+00	mRem	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	3.00E+00	0.00
Organ	5.00E+00	mRem	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	1.00E+01	0.00
40CFR141 compliance (nearest public drinking water)												
Total Body		mRem	0.00E+00		0.00E+00		0.00E+00		0.00E+00		4.00E+00	0.00
Organ		mRem	0.00E+00		0.00E+00		0.00E+00		0.00E+00		4.00E+00	0.00
Adult Receptor	Quarterly Limit	Units	1st Quarter	% of Limit	2nd Quarter	% of Limit	3 rd Quarter	% of Limit	4th Quarter	% of Limit	Annual Limit	% of Limit
10CFR50 Appendix I compliance												
Total Body	1.50E+00	mRem	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	3.00E+00	0.00
Organ	5.00E+00	mRem	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	0.00E+00	0.00	1.00E+01	0.00
40CFR141 compliance (nearest public drinking water)												
Total Body		mRem	0.00E+00		0.00E+00		0.00E+00		0.00E+00		4.00E+00	0.00
Organ		mRem	0.00E+00		0.00E+00		0.00E+00		0.00E+00		4.00E+00	0.00

E-1.6

Table 3.3-1

LASALLE COUNTY NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2017)
RADIOLOGICAL IMPACT ON MAN
MAXIMUM DOSES RESULTING FROM RELEASES AND COMPLIANCE STATUS

10CFR20 / 40CFR190 Compliance

	1 st Quarter Dose (mRem)	2 nd Quarter Dose (mRem)	3 rd Quarter Dose (mRem)	4 th Quarter Dose (mRem)	Annual Dose (mRem)	Annual Limit (mRem/yr)	% Annual Limit
Unit 1							
40CFR190 Compliance							
U1 D ^{Ex}	9.40E-02	9.60E-02	1.00E-01	1.02E-01	3.92E-01	25	1.57
10CFR20 Compliance							
U1 D ^{Tot}	2.18E-01	1.24E-01	1.37E-01	1.25E-01	6.04E-01	100	0.60
40CFR190 Compliance							
Bone	7.15E-03	6.91E-03	6.93E-03	6.89E-03	2.79E-02	25	0.11
Liver	1.85E-03	1.55E-03	1.58E-03	1.54E-03	6.52E-03	25	0.03
Thyroid	1.24E-01	2.77E-02	3.70E-02	2.36E-02	2.12E-01	75	0.28
Kidney	1.91E-03	1.56E-03	1.60E-03	1.55E-03	6.62E-03	25	0.03
Lung	1.47E-03	1.47E-03	1.47E-03	1.47E-03	5.88E-03	25	0.02
GI-LLI	1.48E-03	1.47E-03	1.47E-03	1.47E-03	5.90E-03	25	0.02
Unit 2							
40CFR190 Compliance							
U2 D ^{Ex}	6.11E-02	9.40E-02	9.68E-02	9.89E-02	3.51E-01	25	1.40
10CFR20 Compliance							
U2 D ^{Tot}	6.11E-02	9.40E-02	9.68E-02	9.89E-02	3.51E-01	100	0.35
40CFR190 Compliance							
Bone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00
Liver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00
Thyroid	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	75	0.00
Kidney	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00
Lung	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00
GI-LLI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00

Table 3.4-1

LASALLE COUNTY NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2017)
RADIOLOGICAL IMPACT ON MAN
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
BASED ON CONCURRENT METEOROLOGICAL DATA

Doses Resulting From Airborne Releases

The following are the maximum annual calculated cumulative offsite doses resulting from LaSalle County Station airborne releases:

LaSalle County Generating Station:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	3.020 E-03 mrad	East-Southeast
beta air ⁽²⁾	9.590 E-04 mrad	East-Southeast
whole body ⁽³⁾	1.900 E-02 mrem	East-Southeast
skin ⁽⁴⁾	3.040 E-03 mrem	East-Southeast
organ ⁽⁵⁾ (infant-thyroid)	1.120 E+00 mrem	East-Southeast

Compliance Status

10 CFR 50 Appendix I	Yearly Objective	% of Appendix I
gamma air	10.0 mrad	0.03
beta air	20.0 mrad	0.00
whole body	5.0 mrem	0.38
skin	15.0 mrem	0.02
organ	15.0 mrem	7.47

(1) Gamma Air Dose – GASPAR II, NUREG-0597
(2) Beta Air Dose – GASPAR II, NUREG-0597
(3) Whole Body Dose – GASPAR II, NUREG-0597
(4) Skin Dose – GASPAR II, NUREG-0597
(5) Inhalation and Food Pathways Dose – GASPAR II, NUREG-0597

APPENDIX F

METEOROLOGICAL DATA

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Extremely Unstable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

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

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Moderately Unstable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	1	0	0	0	1
ESE	0	0	2	0	1	0	3
SE	0	0	1	2	1	0	4
SSE	0	0	1	2	2	0	5
S	0	1	2	0	0	0	3
SSW	0	0	1	1	1	0	3
SW	0	0	2	0	1	1	4
WSW	0	0	3	1	0	0	4
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	5	0	0	5
NNW	0	0	0	2	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	1	13	14	6	1	35

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Slightly Unstable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	2	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	2	0	0	0	2
E	0	0	3	1	0	0	4
ESE	0	0	0	0	0	0	0
SE	0	0	0	2	1	0	3
SSE	0	0	0	4	1	0	5
S	0	2	4	0	0	0	6
SSW	0	4	7	3	0	0	14
SW	0	0	1	2	0	0	3
WSW	0	0	1	0	1	0	2
W	0	0	0	3	1	0	4
WNW	0	0	1	7	0	0	8
NW	0	0	4	4	0	0	8
NNW	0	0	0	1	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	6	23	29	4	0	62

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Neutral - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	13	43	16	0	0	72
NNE	0	20	26	1	0	0	47
NE	1	3	15	15	0	0	34
ENE	1	4	13	15	3	1	37
E	1	9	15	10	1	0	36
ESE	1	10	13	2	1	0	27
SE	2	8	4	5	1	0	20
SSE	0	5	3	14	4	0	26
S	2	7	8	8	16	0	41
SSW	0	5	8	15	10	0	38
SW	0	2	17	12	0	0	31
WSW	1	2	6	4	10	0	23
W	2	9	18	25	10	5	69
WNW	0	10	58	110	21	0	199
NW	1	7	41	38	9	3	99
NNW	0	3	59	37	0	0	99
Variable	0	0	0	0	0	0	0
Total	12	117	347	327	86	9	898

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 38
 Hours of missing stability measurements in all stability classes: 2

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Slightly Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	26	11	5	0	0	43
NNE	3	16	14	1	0	0	34
NE	0	0	18	4	0	0	22
ENE	1	5	25	20	9	1	61
E	2	9	39	11	7	0	68
ESE	0	10	15	7	5	0	37
SE	1	5	13	7	0	0	26
SSE	0	2	6	23	7	0	38
S	2	2	11	29	17	8	69
SSW	0	3	6	21	3	5	38
SW	1	4	7	16	1	1	30
WSW	1	4	12	14	4	1	36
W	1	9	27	25	11	9	82
WNW	2	18	32	20	27	7	106
NW	0	11	37	9	2	4	63
NNW	0	5	11	5	0	0	21
Variable	0	0	0	0	0	0	0
Total	15	129	284	217	93	36	774

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Moderately Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	2	0	0	0	4
NNE	0	2	0	0	0	0	2
NE	0	3	0	0	0	0	3
ENE	0	0	1	0	0	0	1
E	0	2	7	0	0	0	9
ESE	0	5	2	0	0	0	7
SE	1	10	7	2	0	0	20
SSE	1	8	8	0	0	0	17
S	0	5	9	1	0	0	15
SSW	1	3	7	3	0	0	14
SW	1	7	12	2	0	0	22
WSW	0	7	6	13	0	0	26
W	0	22	7	2	0	0	31
WNW	1	10	3	2	1	1	18
NW	0	5	2	0	0	0	7
NNW	1	2	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	6	93	73	25	1	1	199

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Extremely Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	3	0	0	0	0	4
NNE	0	2	0	0	0	0	2
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	1	5	0	0	0	6
ESE	0	5	1	0	0	0	6
SE	1	11	11	0	0	0	23
SSE	0	2	2	0	0	0	4
S	0	3	7	0	0	0	10
SSW	0	6	9	1	0	0	16
SW	0	6	6	6	0	0	18
WSW	0	5	10	5	0	0	20
W	1	13	3	0	0	0	17
WNW	0	4	0	0	0	0	4
NW	0	1	0	0	0	0	1
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	3	63	55	12	0	0	133

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Extremely Unstable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Moderately Unstable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Slightly Unstable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Neutral - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	21	37	18	0	78
NNE	0	3	40	18	11	0	72
NE	0	5	4	19	19	0	47
ENE	1	1	5	21	20	14	62
E	0	4	7	15	10	10	46
ESE	0	7	5	12	12	7	43
SE	0	4	7	10	6	2	29
SSE	1	7	2	9	13	6	38
S	0	7	7	12	9	36	71
SSW	0	2	12	14	7	27	62
SW	0	3	6	24	9	3	45
WSW	0	4	4	12	8	13	41
W	1	6	10	18	36	30	101
WNW	0	3	13	62	83	36	197
NW	1	1	22	79	50	23	176
NNW	0	1	13	39	16	1	70
Variable	0	0	0	0	0	0	0
Total	4	60	178	401	327	208	1178

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 90
 Hours of missing stability measurements in all stability classes: 2

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Slightly Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	9	4	2	0	16
NNE	0	7	4	5	0	0	16
NE	0	4	2	9	1	0	16
ENE	1	6	5	9	1	0	22
E	0	1	7	14	13	0	35
ESE	0	3	6	15	11	4	39
SE	0	1	8	7	7	4	27
SSE	0	1	2	12	19	16	50
S	0	1	2	11	7	41	62
SSW	0	1	3	4	12	23	43
SW	0	0	5	11	12	16	44
WSW	0	0	3	8	12	14	37
W	0	2	5	12	17	32	68
WNW	0	2	11	18	11	40	82
NW	0	4	10	23	20	11	68
NNW	0	1	4	7	5	1	18
Variable	0	0	0	0	0	0	0
Total	1	35	86	169	150	202	643

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 21
 Hours of missing stability measurements in all stability classes: 2

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Moderately Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	1	1	1	4
NNE	0	1	3	1	0	0	5
NE	0	1	1	0	0	0	2
ENE	0	0	0	0	0	0	0
E	0	1	0	0	0	0	1
ESE	0	0	0	1	0	0	1
SE	0	2	1	2	3	0	8
SSE	0	0	1	11	3	4	19
S	0	0	2	6	6	4	18
SSW	0	0	6	9	4	3	22
SW	0	0	10	5	4	4	23
WSW	0	4	2	7	0	5	18
W	0	1	2	4	2	1	10
WNW	0	0	1	2	1	0	4
NW	0	0	6	3	0	0	9
NNW	0	0	1	1	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	10	37	53	24	22	146

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

LaSalle County Generating Station

Period of Record: January - March, 2017
 Stability Class - Extremely Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	0	1	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	3	0	0	0	0	3
E	0	0	0	0	0	0	0
ESE	0	2	0	0	0	0	2
SE	0	1	0	0	0	0	1
SSE	0	0	0	8	5	1	14
S	0	0	1	4	1	0	6
SSW	0	0	0	2	1	0	3
SW	0	0	0	2	0	7	9
WSW	0	0	0	1	1	7	9
W	0	0	0	0	5	1	6
WNW	0	0	0	1	0	0	1
NW	0	0	1	0	0	0	1
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	6	4	18	14	16	58

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

LaSalle County Generating Station

Period of Record: April - June, 2017

Stability Class - Extremely Unstable - 200Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	2	8	0	0	10
ENE	0	0	0	4	0	0	4
E	0	0	0	1	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	1	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	0	6	6	2	14
SSW	0	0	1	5	13	0	19
SW	0	0	1	11	5	0	17
WSW	0	0	1	1	0	0	2
W	0	0	0	8	2	0	10
WNW	0	0	0	7	0	0	7
NW	0	0	0	1	0	0	1
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	6	53	26	2	87

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

LaSalle County Generating Station

Period of Record: April - June, 2017
 Stability Class - Moderately Unstable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	7	0	0	7
NNE	0	0	1	0	0	0	1
NE	0	0	0	6	0	0	6
ENE	0	0	0	2	0	0	2
E	0	0	1	0	0	0	1
ESE	0	0	5	1	0	0	6
SE	0	0	2	5	0	0	7
SSE	0	0	2	0	1	1	4
S	0	0	0	1	4	0	5
SSW	0	0	5	2	2	0	9
SW	0	1	6	8	1	3	19
WSW	0	4	5	8	1	0	18
W	0	1	5	14	2	0	22
WNW	0	0	9	18	1	0	28
NW	0	1	6	2	0	0	9
NNW	0	0	1	2	0	0	3
Variable	0	0	0	0	0	0	0
Total	0	7	48	76	12	4	147

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

LaSalle County Generating Station

Period of Record: April - June, 2017

Stability Class - Slightly Unstable - 200Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	9	5	0	0	15
NNE	0	1	3	2	0	0	6
NE	0	0	3	2	0	0	5
ENE	0	0	0	2	0	0	2
E	0	2	2	2	0	0	6
ESE	0	0	7	0	0	0	7
SE	0	3	3	2	0	0	8
SSE	0	4	2	0	1	0	7
S	0	2	5	2	2	1	12
SSW	0	3	4	6	4	0	17
SW	0	4	5	6	3	0	18
WSW	0	3	3	8	1	0	15
W	0	5	8	10	2	0	25
WNW	0	1	12	20	5	0	38
NW	0	2	3	1	0	0	6
NNW	0	0	6	4	0	0	10
Variable	0	0	0	0	0	0	0
Total	0	31	75	72	18	1	197

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

LaSalle County Generating Station

Period of Record: April - June, 2017
 Stability Class - Neutral - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	7	13	7	0	0	27
NNE	1	14	23	11	3	0	52
NE	0	8	25	39	13	2	87
ENE	1	13	15	11	11	3	54
E	1	3	15	13	8	0	40
ESE	1	4	12	6	0	0	23
SE	0	4	10	5	0	0	19
SSE	0	8	9	4	1	1	23
S	0	3	7	6	3	3	22
SSW	2	3	11	12	7	0	35
SW	0	5	10	13	11	1	40
WSW	1	8	9	14	12	1	45
W	0	7	26	19	10	0	62
WNW	1	12	20	29	17	0	79
NW	0	11	11	4	1	0	27
NNW	0	8	15	14	12	0	49
Variable	0	0	0	0	0	0	0
Total	8	118	231	207	109	11	684

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

LaSalle County Generating Station

Period of Record: April - June, 2017

Stability Class - Slightly Stable - 200Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	24	7	8	3	0	43
NNE	0	23	26	4	0	0	53
NE	1	8	18	8	0	0	35
ENE	1	9	13	11	2	0	36
E	1	22	37	19	2	0	81
ESE	1	4	12	1	1	0	19
SE	0	5	7	1	0	0	13
SSE	2	2	6	5	0	0	15
S	0	2	10	17	3	0	32
SSW	0	5	23	32	5	0	65
SW	1	4	23	22	10	3	63
WSW	0	7	25	9	0	0	41
W	0	7	18	8	5	0	38
WNW	1	6	15	12	9	0	43
NW	0	6	14	3	0	0	23
NNW	1	7	10	3	0	0	21
Variable	0	0	0	0	0	0	0
Total	10	141	264	163	40	3	621

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

LaSalle County Generating Station

Period of Record: April - June, 2017

Stability Class - Moderately Stable - 200Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	5	0	0	0	0	7
NNE	0	8	0	0	0	0	8
NE	2	1	1	0	0	0	4
ENE	1	2	1	0	0	0	4
E	4	17	21	0	0	0	42
ESE	3	13	2	0	0	0	18
SE	2	4	1	2	0	0	9
SSE	3	4	3	4	0	0	14
S	3	5	10	12	0	0	30
SSW	1	9	26	3	0	0	39
SW	0	7	14	4	0	0	25
WSW	0	6	20	0	0	0	26
W	0	22	25	1	0	0	48
WNW	1	11	1	0	0	0	13
NW	1	3	0	0	0	0	4
NNW	0	4	2	0	0	0	6
Variable	0	0	0	0	0	0	0
Total	23	121	127	26	0	0	297

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

LaSalle County Generating Station

Period of Record: April - June, 2017
 Stability Class - Extremely Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	3	0	0	0	0	4
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	1	5	0	0	0	0	6
ESE	0	13	7	0	0	0	20
SE	1	12	2	0	0	0	15
SSE	0	16	0	0	0	0	16
S	0	8	4	0	0	0	12
SSW	0	3	9	0	0	0	12
SW	0	11	4	0	0	0	15
WSW	0	7	9	0	0	0	16
W	0	11	9	1	0	0	21
WNW	0	7	0	0	0	0	7
NW	1	2	0	0	0	0	3
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	4	99	44	1	0	0	148

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

LaSalle County Generating Station

Period of Record: April - June, 2017

Stability Class - Extremely Unstable - 375Ft-33Ft Delta-T (F)

Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: April - June, 2017
 Stability Class - Moderately Unstable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	1	0	2	3
ENE	0	0	0	0	3	0	3
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	2	2	4
SSW	0	0	0	1	2	4	7
SW	0	0	0	4	3	1	8
WSW	0	0	0	0	0	0	0
W	0	0	0	0	3	0	3
WNW	0	0	0	0	2	0	2
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	0	6	15	9	30

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

LaSalle County Generating Station

Period of Record: April - June, 2017

Stability Class - Slightly Unstable - 375Ft-33Ft Delta-T (F)

Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: April - June, 2017
 Stability Class - Neutral - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	11	13	20	10	6	61
NNE	0	10	21	16	10	9	66
NE	0	7	9	36	50	38	140
ENE	0	14	10	17	19	19	79
E	0	6	10	14	17	8	55
ESE	0	1	19	14	5	3	42
SE	0	3	13	15	4	0	35
SSE	1	8	8	8	3	3	31
S	0	3	5	7	9	14	38
SSW	1	4	3	16	16	19	59
SW	1	7	12	23	17	20	80
WSW	0	12	14	22	28	13	89
W	0	9	10	39	30	14	102
WNW	0	7	18	38	47	29	139
NW	0	2	19	23	13	11	68
NNW	0	2	10	18	14	16	60
Variable	0	0	0	0	0	0	0
Total	4	106	194	326	292	222	1144

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

LaSalle County Generating Station

Period of Record: April - June, 2017
 Stability Class - Slightly Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	6	8	4	1	20
NNE	0	4	9	2	8	0	23
NE	3	3	12	10	14	0	42
ENE	0	3	18	10	2	0	33
E	0	5	10	26	10	3	54
ESE	0	3	12	9	11	1	36
SE	0	1	3	3	6	1	14
SSE	0	0	2	3	5	4	14
S	0	1	2	3	6	26	38
SSW	0	2	5	13	20	42	82
SW	0	4	7	12	39	31	93
WSW	0	2	7	13	19	2	43
W	0	2	11	17	5	6	41
WNW	0	0	3	27	15	5	50
NW	0	3	2	4	8	0	17
NNW	2	2	2	6	8	0	20
Variable	0	0	0	0	0	0	0
Total	5	36	111	166	180	122	620

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

LaSalle County Generating Station

Period of Record: April - June, 2017
 Stability Class - Moderately Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	1	4	1	0	0	8
NNE	2	0	1	3	0	0	6
NE	0	2	0	1	0	0	3
ENE	0	2	1	2	0	0	5
E	0	1	6	6	1	0	14
ESE	0	2	4	4	2	0	12
SE	0	1	4	7	9	3	24
SSE	0	1	3	6	3	0	13
S	0	2	4	9	4	4	23
SSW	0	2	10	6	4	7	29
SW	0	3	5	6	4	3	21
WSW	0	1	2	10	2	0	15
W	0	0	0	8	13	4	25
WNW	0	1	1	11	8	0	21
NW	1	2	7	1	0	0	11
NNW	1	0	8	1	0	0	10
Variable	0	0	0	0	0	0	0
Total	6	21	60	82	50	21	240

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

LaSalle County Generating Station

Period of Record: April - June, 2017
 Stability Class - Extremely Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: July - September,, 2017

Stability Class - Extremely Unstable - 200Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	2	0	0	0	2
ENE	0	0	3	4	0	0	7
E	0	0	1	5	0	0	6
ESE	0	0	3	0	0	0	3
SE	0	0	1	0	0	0	1
SSE	0	1	1	0	0	0	2
S	0	3	7	1	0	0	11
SSW	0	1	13	1	0	0	15
SW	0	1	2	4	1	0	8
WSW	0	1	11	2	3	0	17
W	0	1	8	7	0	0	16
WNW	0	1	9	10	0	0	20
NW	0	0	5	2	0	0	7
NNW	0	0	0	2	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	9	67	38	4	0	118

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Moderately Unstable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	9	1	0	0	10
NNE	0	0	4	0	0	0	4
NE	0	0	6	0	0	0	6
ENE	0	0	3	0	0	0	3
E	0	1	6	0	0	0	7
ESE	0	2	4	1	0	0	7
SE	0	3	4	0	0	0	7
SSE	0	4	1	0	0	0	5
S	0	6	6	1	0	0	13
SSW	0	6	10	0	0	0	16
SW	0	4	7	1	1	0	13
WSW	0	9	7	0	0	0	16
W	0	7	7	1	0	0	15
WNW	0	6	10	8	0	0	24
NW	0	3	4	3	0	0	10
NNW	0	0	4	1	0	0	5
Variable	0	0	0	0	0	0	0
Total	0	51	92	17	1	0	161

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

LaSalle County Generating Station

Period of Record: July - September, 2017

Stability Class - Slightly Unstable - 200Ft-33Ft Delta-T (F)

Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	3	0	0	0	5
NNE	0	1	9	0	0	0	10
NE	0	4	4	0	0	0	8
ENE	0	5	6	0	0	0	11
E	1	9	3	0	0	0	13
ESE	0	4	5	0	0	0	9
SE	0	6	4	0	0	0	10
SSE	0	6	5	0	0	0	11
S	0	9	3	1	0	0	13
SSW	0	4	2	0	0	0	6
SW	1	7	2	2	0	0	12
WSW	0	5	5	5	0	0	15
W	1	13	3	2	0	0	19
WNW	0	9	8	3	0	0	20
NW	0	6	5	2	0	0	13
NNW	0	5	19	1	0	0	25
Variable	0	0	0	0	0	0	0
Total	3	95	86	16	0	0	200

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Neutral - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	15	12	0	0	0	31
NNE	1	32	21	2	0	0	56
NE	5	17	19	0	0	0	41
ENE	2	19	16	14	0	0	51
E	3	23	7	0	0	0	33
ESE	3	18	7	0	0	0	28
SE	1	14	6	0	0	0	21
SSE	5	12	7	3	0	0	27
S	2	12	3	1	0	0	18
SSW	2	9	15	0	0	0	26
SW	3	12	12	4	0	0	31
WSW	3	12	11	3	0	0	29
W	1	9	15	12	0	0	37
WNW	1	9	19	9	0	0	38
NW	1	11	19	3	0	0	34
NNW	2	11	33	7	0	0	53
Variable	0	0	0	0	0	0	0
Total	39	235	222	58	0	0	554

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Slightly Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	20	9	0	0	0	31
NNE	3	34	5	0	0	0	42
NE	2	15	18	0	0	0	35
ENE	2	6	19	3	0	0	30
E	0	32	27	0	0	0	59
ESE	4	14	0	0	0	0	18
SE	3	12	3	0	0	0	18
SSE	4	12	4	0	0	0	20
S	5	8	8	0	0	0	21
SSW	4	8	9	3	0	0	24
SW	2	12	10	4	0	0	28
WSW	2	8	26	3	1	0	40
W	1	15	21	2	0	0	39
WNW	2	14	7	0	0	0	23
NW	5	17	11	1	0	0	34
NNW	3	13	4	1	0	0	21
Variable	0	0	0	0	0	0	0
Total	44	240	181	17	1	0	483

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Moderately Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	21	0	0	0	0	23
NNE	0	17	0	0	0	0	17
NE	1	1	0	0	0	0	2
ENE	1	2	0	0	0	0	3
E	0	33	16	0	0	0	49
ESE	3	24	0	0	0	0	27
SE	2	13	0	0	0	0	15
SSE	2	15	0	0	0	0	17
S	3	13	7	0	0	0	23
SSW	2	14	4	0	0	0	20
SW	2	16	4	1	0	0	23
WSW	1	13	13	0	0	0	27
W	2	14	5	0	0	0	21
WNW	11	23	6	0	0	0	40
NW	3	8	0	0	0	0	11
NNW	6	5	0	0	0	0	11
Variable	0	0	0	0	0	0	0
Total	41	232	55	1	0	0	329

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Extremely Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	3	0	0	0	0	3
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	1
E	1	23	5	0	0	0	29
ESE	1	25	0	0	0	0	26
SE	5	56	1	0	0	0	62
SSE	2	36	1	0	0	0	39
S	1	48	1	0	0	0	50
SSW	1	37	8	0	0	0	46
SW	2	18	10	0	0	0	30
WSW	1	10	13	0	0	0	24
W	1	27	4	0	0	0	32
WNW	2	17	0	0	0	0	19
NW	0	2	0	0	0	0	2
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	18	302	43	0	0	0	363

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

LaSalle County Generating Station

Period of Record: July - September, 2017

Stability Class - Extremely Unstable - 375Ft-33Ft Delta-T (F)
Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Moderately Unstable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Slightly Unstable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	3	7	0	0	10
NNE	0	0	0	2	0	0	2
NE	0	0	0	6	0	0	6
ENE	0	0	0	6	2	0	8
E	0	0	2	4	0	0	6
ESE	0	1	3	1	0	0	5
SE	0	1	5	1	0	0	7
SSE	0	0	3	0	0	0	3
S	0	1	8	1	2	0	12
SSW	0	1	9	6	0	0	16
SW	0	1	0	5	0	1	7
WSW	0	0	8	3	4	1	16
W	0	1	1	14	3	0	19
WNW	0	0	9	8	2	0	19
NW	0	0	1	12	4	0	17
NNW	0	0	0	2	2	0	4
Variable	0	0	0	0	0	0	0
Total	0	6	52	78	19	2	157

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Neutral - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	9	12	11	3	0	36
NNE	0	17	17	22	3	0	59
NE	0	12	15	28	4	0	59
ENE	2	11	26	27	15	0	81
E	3	19	22	5	1	0	50
ESE	1	18	15	1	0	0	35
SE	2	17	16	6	0	0	41
SSE	0	11	14	2	3	0	30
S	3	14	25	4	3	0	49
SSW	2	16	12	13	5	0	48
SW	4	15	16	13	5	2	55
WSW	0	15	20	13	4	0	52
W	0	28	11	14	9	1	63
WNW	2	18	14	27	10	2	73
NW	0	15	18	37	10	1	81
NNW	0	7	27	27	4	0	65
Variable	0	0	0	0	0	0	0
Total	20	242	280	250	79	6	877

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Slightly Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	3	11	3	1	20
NNE	1	9	7	18	5	0	40
NE	2	9	14	25	16	0	66
ENE	0	2	18	29	8	0	57
E	0	8	18	20	12	0	58
ESE	0	3	9	14	1	0	27
SE	3	7	15	10	0	0	35
SSE	1	6	8	6	2	0	23
S	1	6	6	9	6	0	28
SSW	1	4	7	4	7	3	26
SW	2	6	11	13	11	6	49
WSW	2	5	7	10	20	3	47
W	0	5	4	25	11	0	45
WNW	0	4	10	7	4	1	26
NW	1	8	12	16	6	5	48
NNW	2	4	10	10	2	0	28
Variable	0	0	0	0	0	0	0
Total	16	88	159	227	114	19	623

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Moderately Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	1	8	0	0	11
NNE	3	3	0	1	0	0	7
NE	0	4	7	3	2	0	16
ENE	0	3	2	2	0	0	7
E	0	2	4	1	4	0	11
ESE	0	2	14	12	10	0	38
SE	0	4	12	17	8	0	41
SSE	0	1	14	11	8	0	34
S	1	4	11	18	15	1	50
SSW	0	2	10	17	4	0	33
SW	0	2	7	10	9	2	30
WSW	0	5	9	16	4	0	34
W	0	6	12	8	8	0	34
WNW	0	2	7	10	3	0	22
NW	1	1	7	16	2	1	28
NNW	0	0	6	2	5	0	13
Variable	0	0	0	0	0	0	0
Total	5	43	123	152	82	4	409

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

LaSalle County Generating Station

Period of Record: July - September, 2017
 Stability Class - Extremely Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	0	0	0	0	0	1
NNE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	1	0	1
SE	0	0	2	6	5	0	13
SSE	0	0	3	16	7	0	26
S	0	0	3	9	3	1	16
SSW	0	2	6	14	4	0	26
SW	0	0	1	13	3	3	20
WSW	0	1	2	3	0	0	6
W	0	0	1	0	0	0	1
WNW	0	1	3	0	0	0	4
NW	0	2	1	0	0	0	3
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	1	8	23	61	23	4	120

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Extremely Unstable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

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

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

LaSalle County Generating Station

Period of Record: October - December, 2017

Stability Class - Moderately Unstable - 200Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

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

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Slightly Unstable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	1	3	0	0	4
ENE	0	0	1	0	0	0	1
E	0	0	1	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	1	1	0	0	2
SSE	0	1	1	3	0	0	5
S	0	1	1	4	0	0	6
SSW	0	1	2	0	1	0	4
SW	0	0	2	2	0	0	4
WSW	0	0	1	7	0	0	8
W	0	0	6	0	0	0	6
WNW	0	0	1	4	0	0	5
NW	0	0	1	2	0	0	3
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	3	19	26	1	0	49

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Neutral - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	27	41	0	1	0	69
NNE	0	11	23	0	0	0	34
NE	0	9	24	6	1	0	40
ENE	0	4	19	8	0	0	31
E	0	4	9	1	0	0	14
ESE	0	8	11	6	0	0	25
SE	1	12	13	9	0	0	35
SSE	1	5	19	6	7	0	38
S	0	7	18	12	4	1	42
SSW	1	3	14	11	10	4	43
SW	1	13	16	12	9	1	52
WSW	0	9	23	20	8	0	60
W	2	18	30	43	11	4	108
WNW	1	19	20	76	9	1	126
NW	1	5	27	36	7	1	77
NNW	1	13	65	32	23	0	134
Variable	0	0	0	0	0	0	0
Total	9	167	372	278	90	12	928

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Slightly Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	11	12	3	0	0	28
NNE	3	9	17	1	0	0	30
NE	1	3	2	1	0	0	7
ENE	2	2	6	3	0	0	13
E	0	14	19	3	0	0	36
ESE	0	7	8	1	0	0	16
SE	1	9	11	3	0	0	24
SSE	2	11	27	12	1	0	53
S	2	6	29	28	8	1	74
SSW	2	10	25	16	19	4	76
SW	1	8	18	35	7	1	70
WSW	0	13	25	24	2	0	64
W	0	10	25	21	4	9	69
WNW	2	15	32	17	23	4	93
NW	1	8	29	5	0	0	43
NNW	0	12	12	4	4	0	32
Variable	0	0	0	0	0	0	0
Total	19	148	297	177	68	19	728

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Moderately Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	4	0	0	0	0	4
NNE	0	1	0	0	0	0	1
NE	2	0	0	0	0	0	2
ENE	3	0	0	0	0	0	3
E	2	5	5	0	0	0	12
ESE	2	5	0	0	0	0	7
SE	4	7	2	0	0	0	13
SSE	1	7	9	2	0	0	19
S	2	10	6	6	0	0	24
SSW	0	17	3	10	2	0	32
SW	0	10	12	12	1	0	35
WSW	2	10	14	10	0	0	36
W	1	12	6	3	0	0	22
WNW	0	11	18	1	0	0	30
NW	1	2	4	0	0	0	7
NNW	0	2	1	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	20	103	80	44	3	0	250

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Extremely Stable - 200Ft-33Ft Delta-T (F)
 Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	3	0	0	0	0	0	3
ENE	1	0	0	0	0	0	1
E	0	6	1	0	0	0	7
ESE	0	10	2	0	0	0	12
SE	1	24	2	0	0	0	27
SSE	3	18	5	0	0	0	26
S	2	10	9	0	0	0	21
SSW	0	10	29	1	0	0	40
SW	1	8	17	0	0	0	26
WSW	0	8	5	0	0	0	13
W	0	14	3	0	0	0	17
WNW	0	3	3	0	0	0	6
NW	0	1	0	0	0	0	1
NNW	1	6	0	0	0	0	7
Variable	0	0	0	0	0	0	0
Total	12	119	76	1	0	0	208

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Extremely Unstable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Moderately Unstable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Slightly Unstable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

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

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Neutral - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	4	17	45	8	3	77
NNE	0	6	25	35	6	0	72
NE	0	4	8	26	12	4	54
ENE	0	6	8	25	5	4	48
E	1	4	16	7	1	0	29
ESE	0	3	8	4	2	1	18
SE	0	8	9	13	8	0	38
SSE	0	2	17	19	9	9	56
S	2	4	7	20	14	15	62
SSW	0	1	13	13	20	21	68
SW	0	5	19	14	23	17	78
WSW	0	6	15	19	31	11	82
W	0	7	22	23	33	27	112
WNW	0	6	17	25	68	41	157
NW	1	1	25	38	62	31	158
NNW	1	7	16	35	13	24	96
Variable	0	0	0	0	0	0	0
Total	5	74	242	361	315	208	1205

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Slightly Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	4	1	2	4	0	12
NNE	0	5	3	9	0	0	17
NE	0	2	1	2	0	0	5
ENE	1	5	0	2	0	1	9
E	0	1	3	5	10	0	19
ESE	1	2	4	1	7	2	17
SE	0	4	8	2	3	0	17
SSE	0	2	1	13	19	9	44
S	0	2	11	15	25	46	99
SSW	2	1	7	18	12	39	79
SW	1	7	10	21	14	39	92
WSW	0	5	17	11	12	22	67
W	1	3	8	11	25	14	62
WNW	2	3	8	15	29	24	81
NW	2	4	4	15	15	4	44
NNW	2	1	4	12	13	0	32
Variable	0	0	0	0	0	0	0
Total	13	51	90	154	188	200	696

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Moderately Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	3	4	0	0	0	8
NNE	0	0	4	0	1	0	5
NE	1	0	0	1	0	0	2
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	1	1	0	2	1	0	5
SE	0	1	3	5	1	0	10
SSE	0	1	1	7	5	4	18
S	2	2	4	8	7	4	27
SSW	0	0	3	7	10	7	27
SW	1	8	6	5	11	5	36
WSW	0	1	5	11	3	8	28
W	0	0	1	5	1	0	7
WNW	0	0	1	4	8	2	15
NW	0	0	1	2	5	1	9
NNW	0	1	0	1	0	0	2
Variable	0	0	0	0	0	0	0
Total	6	18	33	58	53	31	199

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

LaSalle County Generating Station

Period of Record: October - December, 2017
 Stability Class - Extremely Stable - 375Ft-33Ft Delta-T (F)
 Winds Measured at 375 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	0	0	0	1
NNE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	1	1	0	0	0	2
SE	0	1	2	2	2	4	11
SSE	2	0	0	1	0	3	6
S	1	0	0	2	3	0	6
SSW	0	1	0	5	5	0	11
SW	0	0	6	12	7	0	25
WSW	1	0	1	2	1	0	5
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	1	2	2	0	0	0	5
NNW	0	0	1	1	0	0	2
Variable	0	0	0	0	0	0	0
Total	6	6	14	25	18	7	76

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

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APPENDIX G

ERRATA DATA

There is no errata data for 2017.

APPENDIX H

ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

LASALLE COUNTY STATION UNITS 1 and 2

Annual Radiological
Groundwater Protection Program Report

1 January through 31 December 2017

Prepared By
Teledyne Brown Engineering
Environmental Services



LaSalle County Station
Marseilles, IL 61341

May 2018

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I. Summary and Conclusions

In 2006, Exelon instituted a comprehensive program to evaluate the impact of station operations on groundwater and surface water in the vicinity of LaSalle County Station. This evaluation involved numerous station personnel and contractor support personnel. Following baseline sampling and subsequent recommendations, LaSalle's Radiological Groundwater Protection Program (RGPP) program now consists of the four surface water and twenty groundwater well sampling locations. The results for LaSalle's RGPP sampling efforts in 2017 are included in this report.

This is the twelfth in a series of annual reports on the status of the RGPP conducted at LaSalle County Station. This report covers groundwater and surface water samples, collected from the environment, both on and off station property in 2017. During that time period, 329 analyses were performed on 93 samples from 24 locations (4 surface water and 20 groundwater monitoring locations). The monitoring was conducted by station personnel.

In assessing all the data gathered for this report, it was concluded that the operation of LaSalle County Station had no adverse radiological impact on the environment, and there are no known active releases into the groundwater at LaSalle County Station.

Strontium-89 and Strontium-90 were not detected in any groundwater samples during 2017.

No gamma-emitting radionuclides attributable to licensed plant operations were detected in any of the groundwater or surface water samples.

In the case of tritium, Exelon specified that its laboratories achieve a lower limit of detection (LLD) 100 times lower than that required by federal regulation.

Tritium was not detected in surface water samples at concentrations greater than the United States Environmental Protection Agency (USEPA) drinking water standard (and the Nuclear Regulatory Commission Reporting Limit) of 20,000 pCi/L. Tritium levels were detected at concentrations greater than the LLD of 200 pCi/L in 3 of 16 surface water samples analyzed. The tritium concentrations ranged from <LLD to 251 ± 133 pCi/L. Tritium levels were detected at concentrations greater than the LLD of 200 pCi/L in 20 of 77 groundwater samples analyzed. The tritium concentrations ranged from <LLD to $8,050 \pm 866$ pCi/L. The elevated tritium levels (>200 pCi/L) being observed in groundwater are associated with the U1 CY tank leak that occurred in the June/July 2010 timeframe, as documented in the Station's 10 CFR 50.75(g) report.

Gross alpha and gross beta analyses in the dissolved and suspended fractions were performed on groundwater samples throughout the year in 2017. Gross

alpha (dissolved) was detected in 1 of 16 samples affecting 1 of 12 groundwater locations analyzed. The concentration was 20.0 ± 7.3 pCi/L.

Gross alpha (suspended) was detected in 5 of 16 samples affecting 5 of 12 groundwater locations analyzed. The concentrations ranged from 1.6 to 5.7 pCi/L.

Gross beta (dissolved) was detected in 10 of 16 samples affecting 8 of 12 groundwater locations analyzed. The concentrations ranged from 2.0 to 17.9 pCi/L.

Gross beta (suspended) was detected in 7 of 16 samples affecting 5 of 12 groundwater locations analyzed. The concentrations ranged from 1.9 to 14.6 pCi/L.

Hard-to-detect analyses were performed on 12 of the groundwater sampling locations in accordance with the LaSalle RGPP and to aid in establishing background levels. The analyses included Fe-55, Ni-63, Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-234, U-235, and U-238. The isotopes of U-234 and U-238 were detected in six samples of each, affecting 4 of 12 groundwater locations. The U-234 concentrations ranged from 0.20 to 1.01 pCi/L. The U-238 concentrations ranged from 0.26 to 0.96 pCi/L. U-234 and U-238 are commonly found in groundwater at low concentrations due to the naturally-occurring Radium (Uranium) Decay Series.

II. Introduction

The LaSalle County Station (LSCS), consisting of two boiling water reactors, each rated for 3,546 MWt, owned and operated by Exelon Corporation, is located in LaSalle County, Illinois. Unit 1 went critical on March 16, 1982. Unit 2 went critical on December 2, 1983. The site is located in northern Illinois, approximately 75 miles southwest of Chicago, Illinois.

This report covers those analyses performed by Teledyne Brown Engineering (TBE) on samples collected in 2017.

A. Objectives of the RGPP

The long-term objectives of the RGPP are as follows:

1. Identify suitable locations to monitor and evaluate potential impacts from station operations before significant radiological impact to the environment and potential drinking water sources.
2. Understand the local hydrogeologic regime in the vicinity of the station

and maintain up-to-date knowledge of flow patterns on the surface and shallow subsurface.

3. Perform routine water sampling and radiological analysis of water from selected locations.
4. Report new leaks, spills, or other detections with potential radiological significance to stakeholders in a timely manner.
5. Regularly assess analytical results to identify adverse trends.
6. Take necessary corrective actions to protect groundwater resources.

B. Implementation of the Objectives

The objectives identified have been implemented at LaSalle County Station as discussed below:

1. Exelon and its consultant identified locations as described in the 2006 Phase 1 study. Phase 1 studies were conducted by Conestoga Rovers and Associates (CRA) and the results and conclusions were made available to state and federal regulators.
2. The LaSalle County Station reports describe the local hydrogeologic regime. Periodically, the flow patterns on the surface and shallow subsurface are updated based on ongoing measurements.
3. LaSalle County Station will continue to perform routine sampling and radiological analysis of water from selected locations.
4. LaSalle County Station has implemented procedures to identify and report new leaks, spills, or other detections with potential radiological significance in a timely manner.
5. LaSalle County Station staff and consulting hydrogeologist assess analytical results on an ongoing basis to identify adverse trends.

C. Program Description

1. Sample Collection

Sample locations can be found in Figure A–1, Appendix A.

Groundwater and Surface Water

Samples of water are collected, managed, transported and analyzed in accordance with approved procedures following EPA methods. Both groundwater and surface samples water are collected. Sample locations, sample collection frequencies and analytical frequencies are controlled in accordance with approved station procedures. Contractor and/or station personnel are trained in the collection, preservation management, and shipment of samples, as well as in documentation of sampling events. Analytical laboratories are subject to internal quality assurance programs, industry cross-check programs, as well as nuclear industry audits. Station personnel review and evaluate all analytical data deliverables as data are received.

Analytical data results are reviewed by both station personnel and an independent hydrogeologist for adverse trends or changes to hydrogeologic conditions.

D. Characteristics of Tritium (H-3)

Tritium (chemical symbol H-3) is a radioactive isotope of hydrogen. The most common form of tritium is tritium oxide, which is also called "tritiated water." The chemical properties of tritium are essentially those of ordinary hydrogen.

Tritiated water behaves the same as ordinary water in both the environment and the body. Tritium can be taken into the body by drinking water, breathing air, eating food, or absorption through skin. Once tritium enters the body, it disperses quickly and is uniformly distributed throughout the body. Tritium is excreted primarily through urine with a clearance rate characterized by an effective biological half-life of about 14 days. Within one month or so after ingestion, essentially all tritium is cleared. Organically bound tritium (tritium that is incorporated in organic compounds) can remain in the body for a longer period.

Tritium is produced naturally in the upper atmosphere when cosmic rays strike air molecules. Tritium is also produced during nuclear weapons explosions, as a by-product in reactors producing electricity, and in special production reactors, where the isotopes lithium-7 and/or boron-10 are activated to produce tritium. Like normal water, tritiated water is colorless and odorless. Tritiated water behaves chemically and physically like non-tritiated water in the subsurface, and therefore tritiated water will travel at the same velocity as the average groundwater velocity.

Tritium has a half-life of approximately 12.3 years. It decays

spontaneously to helium-3 (^3He). This radioactive decay releases a beta particle (low-energy electron). The radioactive decay of tritium is the source of the health risk from exposure to tritium. Tritium is one of the least dangerous radionuclides because it emits very weak radiation and leaves the body relatively quickly. Since tritium is almost always found as water, it goes directly into soft tissues and organs. The associated dose to these tissues is generally uniform and is dependent on the water content of the specific tissue.

III. Program Description

A. Sample Analysis

This section describes the general analytical methodologies used by TBE to analyze the environmental samples for radioactivity for the LaSalle County Station RGPP in 2017. Sample and analysis and frequency is based upon well location, assessed risk and site hydrogeology as described in the RGPP.

In order to achieve the stated objectives, the current program includes the following analyses:

1. Concentrations of gamma emitters in groundwater and surface water
2. Concentrations of strontium in groundwater
3. Concentrations of tritium in groundwater and surface water
4. Concentrations of Gross Alpha, Dissolved and Suspended and Gross Beta, Dissolved and Suspended in groundwater
5. Concentrations of Am-241 in groundwater
6. Concentrations of Cm-242 and Cm-243/244 in groundwater
7. Concentrations of Pu-238 and PU-239/240 in groundwater
8. Concentrations of U-234, U-235 and U-238 in groundwater
9. Concentrations of Fe-55 in groundwater
10. Concentrations of Ni-63 in groundwater

B. Data Interpretation

The radiological data collected prior to LaSalle County Station becoming operational were used as a baseline with which these operational data were compared. For the purpose of this report, LaSalle County Station was considered operational at initial criticality. Several factors were important in the interpretation of the data:

1. Lower Limit of Detection and Minimum Detectable Concentration

The lower limit of detection (LLD) is specified by federal regulation as a minimum sensitivity value that must be achieved routinely by the analytical parameter.

2. Laboratory Measurements Uncertainty

The estimated uncertainty in measurement of tritium in environmental samples is frequently on the order of 50% of the measurement value.

Statistically, the exact value of a measurement is expressed as a range with a stated level of confidence. The convention is to report results with a 95% level of confidence. The uncertainty comes from calibration standards, sample volume or weight measurements, sampling uncertainty and other factors. Exelon reports the uncertainty of a measurement created by statistical process (counting error) as well as all sources of error (Total Propagated Uncertainty or TPU). Each result has two values calculated. Exelon reports the TPU by following the result with plus or minus \pm the estimated sample standard deviation, as TPU, that is obtained by propagating all sources of analytical uncertainty in measurements.

Analytical uncertainties are reported at the 95% confidence level in this report for reporting consistency with the AREOR.

C. Background Analysis

A pre-operational radiological environmental monitoring program (pre-operational REMP) was conducted to establish background radioactivity levels prior to operation of the Station. The environmental media sampled and analyzed during the pre-operational REMP were atmospheric radiation, fall-out, domestic water, surface water, precipitation, marine life, and foodstuffs. The results of the monitoring were detailed in the report entitled, Environmental Radiological Monitoring for LaSalle County

Nuclear Power Station, Commonwealth Edison Company, Annual Reports for the years 1979 and 1981. The pre-operational REMP contained analytical results from samples collected from the surface water and groundwater.

1. Background Concentrations of Tritium

The purpose of the following discussion is to summarize background measurements of tritium in various media performed by others. Additional detail may be found by consulting references (CRA 2006).

a. Tritium Production

Tritium is created in the environment from naturally occurring processes both cosmic and subterranean, as well as from anthropogenic (i.e., man-made) sources. In the upper atmosphere, "Cosmogenic" tritium is produced from the bombardment of stable nuclides and combines with oxygen to form tritiated water, which will then enter the hydrologic cycle. Below ground, "lithogenic" tritium is produced by the bombardment of natural lithium present in crystalline rocks by neutrons produced by the radioactive decay of naturally abundant uranium and thorium. Lithogenic production of tritium is usually negligible compared to other sources due to the limited abundance of lithium in rock. The lithogenic tritium is introduced directly to groundwater.

A major anthropogenic source of tritium and strontium-90 comes from the former atmospheric testing of thermonuclear weapons. Levels of tritium in precipitation increased significantly during the 1950s and early 1960s, and later with additional testing, resulting in the release of significant amounts of tritium to the atmosphere. The Canadian heavy water nuclear power reactors, other commercial power reactors, nuclear research and weapons production continue to influence tritium concentrations in the environment.

b. Precipitation Data

Precipitation samples are routinely collected at stations around the world for the analysis of tritium and other radionuclides. Two publicly available databases that provide tritium concentrations in precipitation are Global Network of Isotopes in Precipitation (GNIP) and USEPA's RadNet database. GNIP provides tritium precipitation concentration

data for samples collected world wide from 1960 to 2006. RadNet provides tritium precipitation concentration data for samples collected at stations throughout the U.S. from 1960 up to and including 2006. Based on GNIP data for sample stations located in the U.S. Midwest, tritium concentrations peaked around 1963. This peak, which approached 10,000 pCi/L for some stations, coincided with the atmospheric testing of thermonuclear weapons. Tritium concentrations in surface water showed a sharp decline up until 1975 followed by a gradual decline since that time. Tritium concentrations in Midwest precipitation have typically been below 100 pCi/L since around 1980. LaSalle's 1979 or 1981 pre-operational REMP showed precipitation tritium concentrations >300 pCi/L. Tritium concentrations in wells may still be above the 200 pCi/L detection limit from the external causes described above. Water from previous years and decades is naturally captured in groundwater, so some well water sources today are affected by the surface water from the 1960s that was elevated in tritium.

c. Surface Water Data

Tritium concentrations are routinely measured in large surface water bodies, including Lake Michigan and the Mississippi River. Illinois surface water data were typically less than 100 pCi/L. Illinois River H-3 results have shown >200 pCi/L, as evidenced in LaSalle's REMP program sample results. This is attributable to releases from Braidwood and Dresden upstream.

The USEPA RadNet surface water data typically has a reported 'Combined Standard Uncertainty' of 35 to 50 pCi/L. According to USEPA, this corresponds to a ± 70 to 100 pCi/L 95% confidence bound on each given measurement. Therefore, the typical background data provided may be subject to measurement uncertainty of approximately ± 70 to 100 pCi/L.

The radio-analytical laboratory is counting tritium results to an Exelon specified LLD of 200 pCi/L. Typically, the lowest positive measurement will be reported within a range of 40 – 240 pCi/L or 140 ± 100 pCi/L. Clearly, these sample results cannot be distinguished as different from background at this concentration.

IV. Results and Discussion

A. Groundwater Results

Groundwater

Samples were collected from onsite wells throughout the year in accordance with the station radiological groundwater protection program. Analytical results and anomalies are discussed below.

Tritium

Samples from 20 locations were analyzed for tritium activity. Tritium values ranged from <LLD to 8,050 pCi/L. The highest tritium activity was found at well TW-LS-118S. Based on the hydrogeological study conducted at LaSalle, there is no feasible pathway into a drinking water supply. Based on established aquifer flow paths the location most representative of potential offsite release into groundwater was also less than the detection limit (Table B-I.1, Appendix B).

Strontium

A total of 17 samples from 12 groundwater locations were analyzed for Sr-89 and Sr-90. The results were less than the required detection limit of 10 pCi/L for Sr-89 and less than the required detection limit of 1.0 pCi/liter for Sr-90 (Table B-I.1, Appendix B).

Gross Alpha and Gross Beta (dissolved and suspended)

Gross alpha and gross beta analyses in the dissolved and suspended fractions were performed on groundwater samples throughout the year in 2017. Gross alpha (dissolved) was detected in 1 of 16 samples affecting 1 of 12 groundwater locations. The concentration was 20.0 ± 7.3 pCi/L. Gross alpha (suspended) was detected in 5 of 16 samples affecting 5 of 12 groundwater locations analyzed. The concentrations ranged from 1.6 to 5.7 pCi/L. Gross beta (dissolved) was detected in 10 of 16 samples affecting 8 of 12 groundwater locations analyzed. The concentrations ranged from 2.0 to 17.9 pCi/L. Gross beta (suspended) was detected in 7 of 16 samples affecting 5 of 12 groundwater locations analyzed. The concentrations ranged from 1.9 to 14.6 pCi/L. These concentrations of gross alpha and gross beta, which are slightly above detectable levels, are considered to be background and are not the result of plant effluents (Table B-I.1, Appendix B).

Gamma Emitters

No gamma emitting nuclides were detected in any of the samples analyzed (Table B-1.2, Appendix B).

Hard-To-Detect

Hard-to-detect analyses were performed on 12 of the groundwater sampling locations in accordance with the LaSalle RGPP and to aid in establishing background levels. The analyses included Fe-55, Ni-63, Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-234, U-235, and U-238. U-234 was detected in 6 of 10 samples, affecting 4 of 12 groundwater locations. The concentrations ranged from 0.20 to 1.01 pCi/L. U-238 was detected 6 of 10 samples, affecting 4 of 12 groundwater locations. The concentrations ranged from 0.26 to 0.96 pCi/L. U-234 and U-238 are commonly found in groundwater at low concentrations due to the naturally occurring Radium (Uranium) Decay Series. The concentrations of U-234 and U-238 discussed above are considered to be background and are not the result of plant effluents (Table B-1.3, Appendix B).

All other hard-to-detect nuclides were not detected at concentrations greater than their respective minimum detectable concentrations.

B. Surface Water Results

Surface Water

Samples were collected from on and off-site surface water locations throughout the year in accordance with the station radiological groundwater protection program. Analytical results and anomalies are discussed below.

Tritium

Samples from 4 locations were analyzed for tritium activity. Three (3) of 16 samples from 2 surface water locations indicated activity above the minimum detectable concentration (MDC). The concentrations ranged from 184 to 251 pCi/L. Based on the hydrogeological study conducted at LaSalle, there is no feasible pathway into a drinking water supply. Based on established aquifer flow paths, the location most representative of potential offsite release into groundwater was also less than the detection limit. (Table B-II.1, Appendix B).

Strontium

Sr-89 and Sr-90 analyses were not performed on surface water samples in 2017.

Gross Alpha and Gross Beta (dissolved and suspended)

Gross Alpha and Gross Beta analyses in the dissolved and suspended fractions were not performed on surface water samples in 2017.

Gamma Emitters

No gamma-emitting nuclides were detected at concentrations greater than their respective minimum detectable concentrations. (Table B-II.2, Appendix B).

C. Drinking Water Well Survey

A drinking water well survey was conducted during the summer 2006 by CRA (CRA 2006) around the LaSalle County Station. This survey concluded that no residents in the vicinity of the plant utilize the shallow water aquifer as a drinking water supply. Site hydrological studies of aquifer flow and permeation rates from the shallow aquifer to the deep aquifer concluded that there is no feasible dose receptor via a ground water pathway at LaSalle.

D. Summary of Results – Inter-Laboratory Comparison Program

Inter-Laboratory Comparison Program results for TBE and Environmental Inc. (Midwest Labs) are presented in the AREOR.

E. Leaks, Spills, and Releases

There were no new leaks identified at LaSalle Station during the reporting period.

F. Trends

Analysis results from samples continue to be trended in order to assess impact to groundwater at LaSalle Station. There were no new leaks identified in the reporting period. Sample data from the plume arising from the historic 2010 U1 CY tank leak is being trended per the LaSalle RGPP. The plume had been dispersing with groundwater flow, and extraction wells have been installed to provide additional control of the

plume migration (see Section H.3. below). Currently, no tritium has migrated offsite, and tritium migration offsite is not expected.

G. Investigations

No new investigations were carried out during the reporting period.

H. Actions Taken

1. Compensatory Actions

No compensatory actions were taken during the reporting period.

2. Installation of Monitoring Wells

No new monitoring wells have been installed during the reporting period.

3. Actions to Recover/Reverse Plumes

Two (2) extraction wells (RW-LS-100S and RW-LS-101S) were installed to control the migration of the tritium plume near U1 CY tank. RW-LS-100S became operational in October 2012. RW-LS-101S became operational in April 2014.

APPENDIX A

LOCATION DESIGNATION

TABLE A-1 LaSalle County Station Groundwater Monitoring Sample Point List, 2017

Site	Site Type
SW-LS-101	Surface Water
SW-LS-102	Surface Water
SW-LS-103	Surface Water
SW-LS-104	Surface Water
SW-LS-105	Surface Water
SW-LS-106	Surface Water
MW-LS-101S	Monitoring Well
MW-LS-102S	Monitoring Well
MW-LS-103S	Monitoring Well
MW-LS-104S	Monitoring Well
MW-LS-105S	Monitoring Well
MW-LS-106S	Monitoring Well
MW-LS-107S	Monitoring Well
MW-LS-108S	Monitoring Well
MW-LS-109S	Monitoring Well
MW-LS-110S	Monitoring Well
MW-LS-111S	Monitoring Well
MW-LS-112S	Monitoring Well
MW-LS-113S	Monitoring Well
HP-2	Monitoring Well
HP-5	Monitoring Well
HP-7	Monitoring Well
HP-10	Monitoring Well
RW-LS-100S	Extraction Well
RW-LS-101S	Extraction Well
TW-LS-114S	Monitoring Well
TW-LS-115S	Monitoring Well
TW-LS-116S	Monitoring Well
TW-LS-117S	Monitoring Well
TW-LS-118S	Monitoring Well
TW-LS-119S	Monitoring Well
TW-LS-120S	Monitoring Well
TW-LS-121S	Monitoring Well

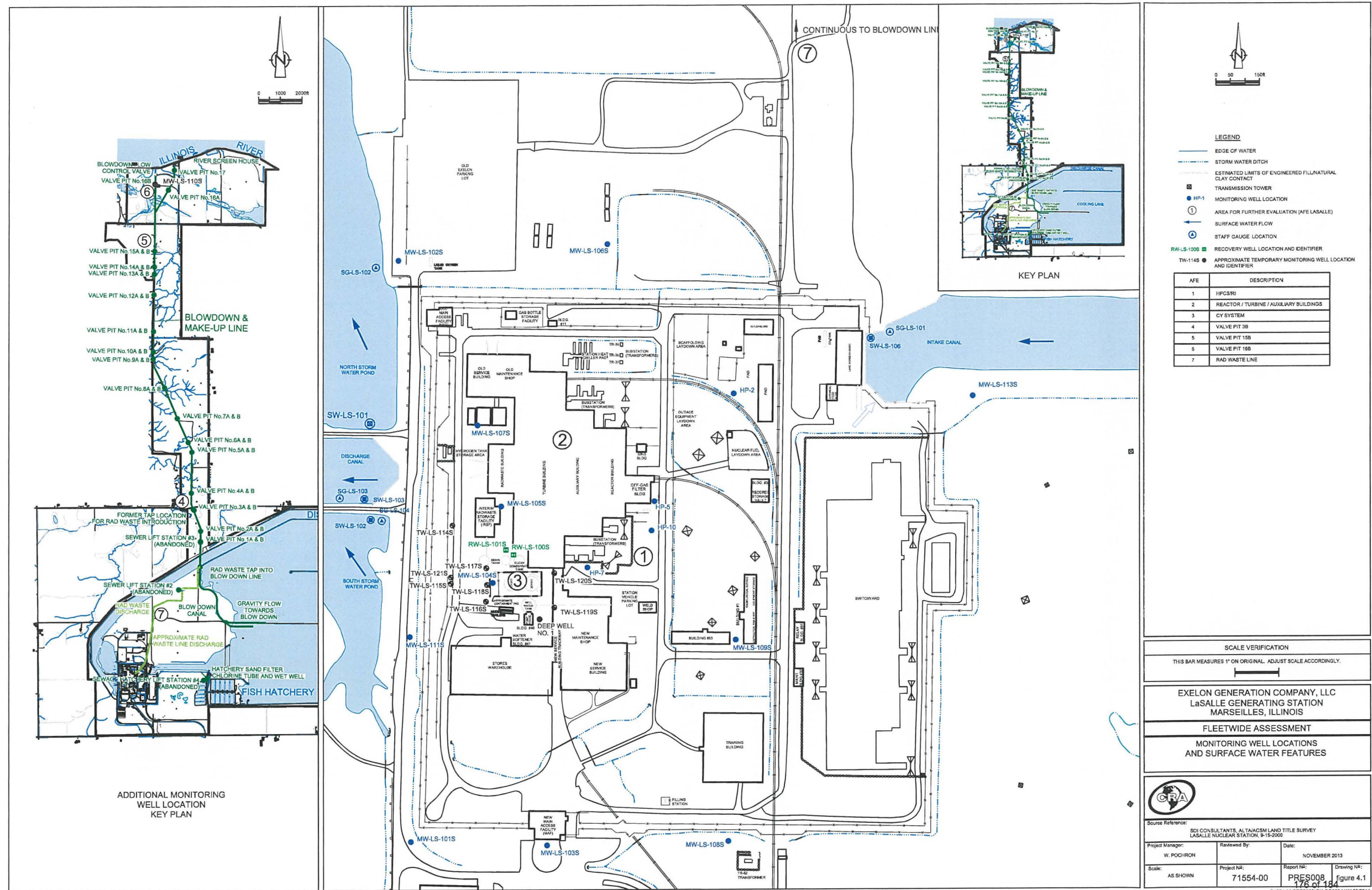


Figure A-1

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APPENDIX B

DATA TABLES

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TABLE B-I.1

**CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA, AND GROSS BETA IN
GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA**

SITE	COLLECTION		H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)	Gr-B (Dis)	Gr-B (Sus)
	DATE								
HP-2	03/05/17		< 188						
HP-2	06/14/17		< 177	< 6.5	< 0.5	< 0.9	< 0.4	7.6 ± 1.2	< 1.5
HP-2	09/13/17		< 182						
HP-2	12/04/17		< 196						
HP-5	03/05/17		< 187						
HP-5	06/13/17		< 181	< 5.1	< 0.5	< 2.3	1.7 ± 0.8	< 1.8	< 1.5
HP-5	09/12/17		< 179						
HP-5	12/04/17		< 194						
HP-7	03/05/17		< 190						
HP-7	06/13/17		< 177	< 5.8	< 0.7	< 1.6	4.0 ± 1.3	4.5 ± 1.0	4.4 ± 1.4
HP-7	09/12/17		< 181						
HP-7	12/04/17		< 199						
HP-10	03/05/17		< 186						
HP-10	06/13/17		< 173	< 5.0	< 0.5	< 2.3	1.6 ± 1.0	< 1.9	< 2.5
HP-10	09/12/17		< 180						
HP-10	12/04/17		< 193						
MW-LS-104S	03/04/17		4100 ± 473						
MW-LS-104S	06/12/17		3810 ± 432	< 7.0	< 0.8	< 1.3	< 0.7	< 3.2	< 1.4
MW-LS-104S	09/11/17		5900 ± 642	< 9.1	< 0.9	< 1.1	< 0.7	2.0 ± 1.1	2.2 ± 1.1
MW-LS-104S	12/04/17		4200 ± 482	< 7.2	< 0.8	< 1.4	< 1.8	< 1.6	3.7 ± 1.8
MW-LS-105S	03/04/17		< 185						
MW-LS-105S	06/13/17		< 180	< 5.0	< 0.5	< 1.1	5.7 ± 2.2	< 1.3	14.6 ± 2.9
MW-LS-105S	09/12/17		< 182						
MW-LS-105S	12/04/17		< 198						
MW-LS-106S	03/05/17		< 188						
MW-LS-106S	06/15/17		< 178						
MW-LS-107S	03/04/17		< 185						
MW-LS-107S	06/13/17		< 179	< 6.1	< 0.6	< 10.6	< 2.7	13.8 ± 5.6	6.3 ± 2.5
MW-LS-107S	09/12/17		< 181						
MW-LS-107S	12/04/17		< 197						
MW-LS-111S	03/05/17		< 187						
MW-LS-111S	06/15/17		< 176	< 4.7	< 0.8	20.0 ± 7.3	2.2 ± 0.8	17.9 ± 4.3	11.9 ± 1.7
MW-LS-111S	09/12/17		< 181						
MW-LS-111S	12/04/17		< 200						
OIL SEPARATOR	03/04/17		227 ± 126						
OIL SEPARATOR	06/12/17		< 174						
OIL SEPARATOR	09/11/17		< 179						
OIL SEPARATOR	12/04/17		< 197						
RW-LS-100S	03/04/17		5190 ± 578						
RW-LS-100S	06/12/17		4960 ± 543	< 6.5	< 0.7				
RW-LS-100S	09/11/17		3540 ± 408	< 6.5	< 0.7	< 1.1	< 0.7	7.8 ± 1.3	< 1.4
RW-LS-100S	12/04/17		2240 ± 288	< 8.1	< 0.8	< 1.2	< 0.7	3.8 ± 1.2	< 1.4
RW-LS-101S	03/04/17		5480 ± 609						
RW-LS-101S	09/11/17		915 ± 158	< 8.4	< 0.9	< 1.4	< 0.7	8.1 ± 1.3	< 1.4
RW-LS-101S	09/11/17	<i>Recount</i>	990 ± 171						
RW-LS-101S	09/11/17	<i>Reanalysis</i>	1100 ± 183						
RW-LS-101S	12/04/17		5360 ± 594	< 4.8	< 0.6	< 1.6	< 0.7	6.8 ± 1.1	< 1.4

Bolded values indicate LLD was not met due to high solids content in the sample

TABLE B-I.1 CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA, AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

SITE	COLLECTION		H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)	Gr-B (Dis)	Gr-B (Sus)
	DATE								
TW-LS-114S	03/04/17		< 185						
TW-LS-114S	06/13/17		< 174						
TW-LS-114S	09/12/17		< 184						
TW-LS-114S	12/04/17		< 195						
TW-LS-115S	03/04/17		< 187						
TW-LS-115S	06/13/17		< 179						
TW-LS-115S	09/12/17		< 180						
TW-LS-115S	12/04/17		< 194						
TW-LS-116S	03/04/17		7260 \pm 786						
TW-LS-116S	06/12/17		6540 \pm 701						
TW-LS-116S	09/11/17		6050 \pm 652						
TW-LS-116S	12/04/17		7020 \pm 761	< 5.8	< 0.5	< 1.4	< 0.7	2.0 \pm 1.1	1.9 \pm 1.0
TW-LS-117S	03/04/17		< 185						
TW-LS-117S	06/13/17		< 180						
TW-LS-117S	09/12/17		< 181						
TW-LS-117S	12/04/17		< 196						
TW-LS-118S	03/04/17		8050 \pm 866						
TW-LS-118S	06/12/17		5600 \pm 607						
TW-LS-118S	09/11/17		7970 \pm 849						
TW-LS-118S	12/04/17		4740 \pm 533	< 4.3	< 0.6	< 1.0	< 0.7	< 1.4	< 1.4
TW-LS-119S	03/04/17		< 187						
TW-LS-119S	06/12/17		< 176						
TW-LS-119S	09/11/17		< 181						
TW-LS-119S	12/04/17		< 197						
TW-LS-120S	03/04/17		< 189						
TW-LS-120S	06/12/17		< 177						
TW-LS-120S	09/11/17		< 183						
TW-LS-120S	12/05/17		< 197						
TW-LS-121S	03/04/17		< 185						
TW-LS-121S	06/12/17		< 175						
TW-LS-121S	09/11/17		< 183						
TW-LS-121S	12/04/17		< 197						

TABLE B-I.2

**CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER
 SAMPLES COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017
 RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA**

SITE	COLLECTION	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
	DATE														
HP-2	06/14/17	< 51	< 48	< 5	< 5	< 13	< 5	< 11	< 6	< 10	< 14	< 7	< 6	< 33	< 12
HP-5	06/13/17	< 45	< 56	< 5	< 5	< 12	< 6	< 10	< 6	< 10	< 15	< 6	< 5	< 35	< 12
HP-7	06/13/17	< 42	< 38	< 4	< 5	< 9	< 4	< 7	< 4	< 7	< 12	< 5	< 5	< 27	< 9
HP-10	06/13/17	< 38	< 48	< 4	< 4	< 11	< 4	< 8	< 5	< 7	< 12	< 5	< 4	< 26	< 10
MW-LS-104S	06/12/17	< 28	< 24	< 3	< 3	< 6	< 3	< 5	< 3	< 6	< 11	< 3	< 3	< 22	< 8
MW-LS-104S	09/11/17	< 14	< 23	< 1	< 1	< 3	< 1	< 3	< 2	< 2	< 14	< 1	< 1	< 19	< 7
MW-LS-104S	12/04/17	< 9	< 6	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 45	< 1	< 1	< 26	< 8
MW-LS-105S	06/13/17	< 45	< 42	< 4	< 5	< 9	< 4	< 9	< 5	< 7	< 14	< 4	< 5	< 26	< 10
MW-LS-106S	06/15/17	< 47	< 88	< 5	< 5	< 12	< 6	< 14	< 5	< 11	< 14	< 6	< 5	< 31	< 11
MW-LS-107S	06/13/17	< 54	< 111	< 6	< 6	< 12	< 5	< 12	< 6	< 10	< 15	< 7	< 7	< 38	< 11
MW-LS-111S	06/15/17	< 50	< 121	< 5	< 5	< 10	< 7	< 8	< 6	< 10	< 14	< 5	< 6	< 34	< 10
RW-LS-100S	06/12/17	< 27	< 42	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 12	< 3	< 3	< 23	< 7
RW-LS-100S	09/11/17	< 14	< 11	< 1	< 1	< 4	< 1	< 3	< 1	< 3	< 15	< 1	< 1	< 20	< 5
RW-LS-100S	12/04/17	< 10	< 7	< 1	< 1	< 2	< 1	< 1	< 1	< 2	< 54	< 1	< 1	< 38	< 11
RW-LS-101S	09/11/17	< 14	< 9	< 1	< 2	< 3	< 1	< 2	< 2	< 3	< 14	< 1	< 1	< 20	< 6
RW-LS-101S	12/04/17	< 14	< 22	< 1	< 1	< 4	< 1	< 2	< 1	< 2	< 61	< 1	< 1	< 42	< 11
TW-LS-116S	12/04/17	< 10	< 17	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 52	< 1	< 1	< 42	< 12
TW-LS-118S	12/04/17	< 10	< 5	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 53	< 1	< 1	< 38	< 11

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***Bolded values** indicate LLD was not able to be met due to the age of the samples at the time of analysis
 Samples were received 01/23/18 and were counted for 935 minutes in order to reach the lowest detection limit possible.*

TABLE B-I.3 CONCENTRATIONS OF HARD-TO-DETECTS IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE GROUNDWATER PROTECTION PROGRAM, LASALLE COUNTY STATION, 2017
RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION		Am-241	Cm-242	Cm-243/244	Pu-238	Pu-239/240	U-234	U-235	U-238	Fe-55	Ni-63
	DATE											
HP-2	06/14/17										< 184	< 4
HP-5	06/13/17										< 142	< 4
HP-7	06/13/17										< 98	< 4
HP-10	06/13/17										< 105	< 4
MW-LS-104S	06/12/17		< 0.06	< 0.03	< 0.03	< 0.04	< 0.15	0.58 ± 0.19	< 0.02	0.61 ± 0.19	< 194	< 4
MW-LS-104S	09/11/17		< 0.08	< 0.02	< 0.09	< 0.14	< 0.10	0.71 ± 0.24	< 0.09	0.91 ± 0.28	< 194	< 3
MW-LS-104S	12/04/17		< 0.10	< 0.04	< 0.08	< 0.09	< 0.04	0.79 ± 0.34	< 0.04	0.96 ± 0.35	< 195	< 5
MW-LS-105S	06/13/17										< 195	< 4
MW-LS-107S	06/13/17										< 124	< 3
MW-LS-111S	06/15/17										< 121	< 3
RW-LS-100S	06/12/17		< 0.08	< 0.02	< 0.02	< 0.05	< 0.14	0.20 ± 0.11	< 0.04	< 0.10	< 194	< 4
RW-LS-100S	09/11/17		< 0.03	< 0.14	< 0.05	< 0.05	< 0.08	< 0.04	< 0.11	< 0.16	< 193	< 3
RW-LS-100S	12/04/17		< 0.09	< 0.05	< 0.01	< 0.13	< 0.04	< 0.15	< 0.10	0.26 ± 0.13	< 195	< 4
RW-LS-101S	09/11/17		< 0.05	< 0.02	< 0.09	< 0.15	< 0.15	< 0.09	< 0.13	< 0.16	< 189	< 3
RW-LS-101S	12/04/17		< 0.06	< 0.01	< 0.06	< 0.11	< 0.06	< 0.16	< 0.16	< 0.18	< 158	< 4
TW-LS-116S	12/04/17		< 0.04	< 0.04	< 0.08	< 0.15	< 0.10	1.01 ± 0.32	< 0.16	0.72 ± 0.28	< 195	< 5
TW-LS-118S	12/04/17		< 0.12	< 0.02	< 0.04	< 0.14	< 0.11	0.44 ± 0.17	< 0.12	0.38 ± 0.18	< 198	< 5

**TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017**
RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

SITE	COLLECTION	
	DATE	H-3
SW-LS-101	03/05/17	< 188
SW-LS-101	06/15/17	< 174
SW-LS-101	09/12/17	< 184
SW-LS-101	12/04/17	< 196
SW-LS-102	03/05/17	< 186
SW-LS-102	06/15/17	< 179
SW-LS-102	09/12/17	< 183
SW-LS-102	12/04/17	< 193
SW-LS-103	03/05/17	< 184
SW-LS-103	06/15/17	< 177
SW-LS-103	09/12/17	< 185
SW-LS-103	12/04/17	251 \pm 133
SW-LS-106	03/05/17	< 184
SW-LS-106	06/14/17	184 \pm 119
SW-LS-106	09/13/17	202 \pm 123
SW-LS-106	12/06/17	< 199

TABLE B-II.2

**CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES
COLLECTED IN THE VICINITY OF LASALLE COUNTY STATION, 2017**

RESULTS IN UNITS OF PCI/LITER \pm 2 SIGMA

SITE	COLLECTION	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
	DATE														
SW-LS-101	06/15/17	< 53	< 53	< 6	< 6	< 14	< 5	< 12	< 6	< 10	< 15	< 6	< 6	< 37	< 9
SW-LS-102	06/15/17	< 51	< 95	< 5	< 6	< 12	< 6	< 12	< 6	< 11	< 14	< 7	< 6	< 35	< 11
SW-LS-103	06/15/17	< 59	< 96	< 6	< 6	< 13	< 8	< 13	< 5	< 10	< 15	< 6	< 6	< 37	< 11
SW-LS-106	06/14/17	< 53	< 45	< 5	< 5	< 11	< 6	< 9	< 6	< 10	< 14	< 7	< 6	< 34	< 14