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U.S. Nuclear Regulatory Commission
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Dresden Nuclear Power Station Units 1, 2, and 3
Facility Operation License No. DPR-2
Renewed Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-010, 50-237, and 50-249

Subject: Dresden Nuclear Power Station 2020 Annual Radiological Environmental Operating Report

Enclosed is the Exelon Dresden Nuclear Power Station 2020 Annual Radiological Environmental Operating Report, submitted in accordance with Section 6.9.A.3 of the Unit 1 Dresden Nuclear Power Station Technical Specifications and Section 5.6.2, "Annual Radiological Environmental Operation Report," of the Units 2 and 3 Technical Specifications. This report provides the results of the radiological environmental monitoring program for the 2020 calendar year.

In addition, Appendix F of the 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.

Should you have any questions concerning this letter, please contact DJ Walker, Regulatory Assurance Department, at (815) 416-2812.

Respectfully,

Peter J. Karaba
Site Vice President
Dresden Nuclear Power Station

Attachment – 2020 Annual Radiological Environmental Operating Report

Docket No: 50-010
50-237
50-249

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 and 3

Annual Radiological
Environmental Operating Report

1 January through 31 December 2020

Prepared By
Teledyne Brown Engineering
Environmental Services

Dresden Nuclear Power Station
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May 2020

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I. Summary and Conclusions

In 2020, the Dresden Nuclear Power Station calculated a Total Body dose to the nearest resident of 7.40E+00 mRem/yr from all sources of the uranium fuel cycle with a limit of 25 mRem/yr, which is 29.6% of the limit. Dose contributions were from Unit 1, operation of Units 2 and 3, storage tanks, Independent Spent Fuel Storage Installation (ISFSI) pads, C-14, and the neighboring GE Facility. More detailed information can be found in the Dresden 2020 Annual Radioactive Effluent Release Report.

Surface water samples were analyzed for concentrations of gross beta, tritium and gamma emitting nuclides. Ground water samples were analyzed for concentrations of tritium (H-3) and gamma emitting nuclides. No anthropogenic gamma-emitting nuclides were detected. Gross beta and tritium activities detected were consistent with those detected in previous years.

Fish (commercially and recreationally important species), and sediment samples were analyzed for concentrations of gamma-emitting nuclides. No fission or activation products were detected.

Air particulate samples were analyzed for concentrations of gross beta and gamma-emitting nuclides. Gross beta results at the indicator locations were consistent with those at the control location. 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 less than the minimum detectable activity. No fission or activation products were detected. Food product 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 Luminescent Dosimetry (OSLD). The relative comparison to control locations remains valid.

This report on the Radiological Environmental Monitoring Program conducted for the Dresden Nuclear Power Station (DNPS) of Exelon Generation, LLC covers the period 1 January 2020 through 31 December 2020. During that time period 1,911 analyses were performed on 1,775 samples. In assessing all the data gathered for this report it was concluded that the operation of DNPS had no adverse radiological impact on the environment.

II. Introduction

The Dresden Nuclear Power Station (DNPS), consisting of one retired reactor and two operating boiling water reactors owned and operated by Exelon Generation, LLC, is located in Grundy County, Illinois. Unit No. 1 went critical in 1960 and was retired in 1978. Unit No. 2 went critical on 16 June 1970. Unit No. 3 went critical on 02 November 1971. The site is located in northern Illinois, approximately 12 miles southwest of Joliet, Illinois at the confluence of the Des Plaines and Kankakee Rivers where they form the Illinois River.

This report covers those analyses performed by Teledyne Brown Engineering (TBE) and Landauer on samples collected during the period 1 January 2020 through 31 December 2020.

An assessment of the station's radioactive effluent monitoring results and radiation dose via the principle pathways of exposure resulting from plant emissions of radioactivity including the maximum noble gas gamma and beta air doses in the unrestricted area, an annual summary of meteorological conditions including wind speed, wind direction and atmospheric stability and the result of the 40CFR190 uranium fuel cycle dose analysis for the calendar year are published in the station's Annual Radioactive Effluent Release Report.

A. Objective of the Radiological Environmental Monitoring Program (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 DNPS REMP were collected for Exelon Generation, LLC by Environmental Incorporated Midwest Laboratory (EIML). This section describes the general collection methods used by EIML to obtain environmental samples for the DNPS REMP in 2020. Sample locations and descriptions can be found in Appendix B, Table B–1 and Figures B–1 and B-2. The collection methods used by EIML are listed in Table B-2.

Aquatic Environment

The aquatic environment was evaluated by performing radiological analyses on samples of surface water (SW), ground water (GW), fish (FI) and sediment (SS). Samples were collected from three surface water locations (D-21, D-52 and D-57) and composited for analysis. Control locations were D-52 and D-57. Samples were collected quarterly from three well water locations (D-23, D-24 and D-35). A single sample from well D-22 was taken in January 2020. All samples were collected in new unused plastic bottles, which were rinsed with source water prior to collection. Fish samples comprising the flesh of largemouth bass, smallmouth bass, smallmouth buffalo, common carp and channel catfish were collected semiannually at two locations, D-28 and D-46 (Control). Sediment samples composed of recently deposited substrate were collected at one location semiannually, D-27.

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on samples of air particulate and airborne iodine (AP/AI). Airborne iodine and particulate samples were collected at fourteen locations (D-01, D-02, D-03, D-04, D-07, D-08, D-10, D-12, D-14, D-45, D–53, D-55, D-56 and D-58). The control location was D-12. Airborne iodine and particulate samples were obtained at each location using a vacuum pump with charcoal and glass fiber filters attached. The pumps were run continuously and sampled air at the rate of approximately one cubic foot per minute. The air filters and air iodine samples were replaced weekly and sent to the laboratory for analysis.

Terrestrial Environment

Milk (M) samples are typically collected biweekly at one control location (D-25) from May through October and monthly from November through April. Other than D-25, there are no additional milking animals within 10 km (6.2 miles) of the site. All milk samples from D-25 were collected in new unused two gallon plastic bottles from the bulk tank, preserved with sodium bisulfite and shipped promptly to the laboratory. Food products (FL) were collected July through October at six locations (D-25, D-40,

D-41, D-42, D-43 and D-44). The control location was D-25. Various types of broadleaf vegetation samples were collected and placed in new unused plastic bags and sent to the laboratory for analysis.

Ambient Gamma Radiation

Each location consisted of two OSLD sets. The OSLD locations were placed on and around the DNPS site as follows:

An inner ring consisting of 17 locations (D-58, D-101, D-102, D-103, D-104, D-105, D-106, D-107, D-108, D-109, D-110, D-111, D-112a, D-113, D-114, D-115 and D-116) at or near the site boundary.

An outer ring consisting of 16 locations (D-201, D-202, D-203, D-204, D-205, D-206, D-207, D-208, D-209, D-210, D-211, D-212, D-213, D-214, D-215 and D-216) approximately 5 to 10 km (3.1 to 6.2 miles) from the site.

Other locations consisting of OSLD sets at the 13 air sampler locations (D-01, D-02, D-03, D-04, D-07, D-08, D-10, D-14, D-45, D-53, D-55, D-56 and D-58).

The balance of one location (D-12) represents the control area OSLD set.

The OSLDs were exchanged quarterly and sent to Landauer for analysis.

B. Sample Analysis

This section describes the general analytical methodologies used by TBE to analyze the environmental samples for radioactivity for the DNPS REMP in 2020. The analytical procedures used by the laboratory are listed in Appendix B 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 and surface water, air particulates, milk, fish, sediment and vegetation.
3. Concentrations of tritium in ground and surface water.
4. Concentrations of I-131 in air and milk.
5. Ambient gamma radiation levels at various site environs.

C. Data Interpretation

For the purpose of this report, Dresden Nuclear Power 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) was 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 was intended as a before the fact estimate of a system (including instrumentation, procedure and sample type) and not as an after the fact criteria for the presence of activity. All analyses were designed to achieve the required DNPS detection capabilities for environmental sample analysis.

The minimum detectable concentration (MDC) is calculated the same as the LLD 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 groundwater, surface water, and vegetation twelve nuclides, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Nb-95, Zr-95, I-131, Cs-134, Cs-137, Ba-140 and La-140 were reported.

For fish, sediment, air particulate and milk eleven nuclides, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Nb-95, Zr-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 2020 the DNPS REMP had a sample recovery rate greater than 99% (1,775 of 1,785 samples collected). Sample anomalies and missed samples are listed in the following tables:

Table D-1 LISTING OF SAMPLE ANOMALIES

Sample Type	Location Code	Collection Date	Reason
AP/AI	D-12	04/17/20	Lower reading of 89.08 hrs. ComEd crew working at the station. LLD sample met.
AP/AI	D-03	10/09/20	Low reading of 67.56 hrs; pump found not running; crews working to restore power.
AP/AI	D-03	10/16/20	No power at this station due to power supply malfunction.
AP/AI	D-03	10/23/20	Lower reading of 104.2 hrs caused by power malfunction earlier in the week. It was discovered during troubleshooting that the power surge weeks before blew the fuse on the pump. The pump was replaced midweek.
AP/AI	D-53	10/30/20	No sample; power surge burned the fuse. Pump was exchanged and surge protectors were installed on all air sampling stations.
AP/AI	D-02	10/02/20	Hose detached possibly due to vibrations. Filter discarded, all couplings checked and reinforced.

Table D-2 LISTING OF ODCM REQUIRED MISSED SAMPLES

There were no missed ODCM-required samples in 2020

Each program exception was reviewed to understand the causes of the program exception. No sampling or maintenance errors were identified during the reporting period. 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 2020.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were composited or taken weekly and composited for analysis at three locations (D-21, D-52 and D-57). Of these locations only D-21, located downstream, could be affected by Dresden's effluent releases. The following analyses were performed:

Gross Beta

Monthly composites from all locations were analyzed for concentrations of gross beta (Table C–I.1, Appendix C). Gross Beta was detected in 35 of 36 samples. The values ranged from 3.6 to 15.5 pCi/l. Concentrations detected were consistent with those detected in previous years. (Figures C-1, C–2 and C–3, Appendix C)

Tritium

Quarterly composites from all locations were analyzed for tritium activity (Table C–I.2, Appendix C). Three samples at indicator station D-21 were positive for tritium with concentrations ranging between 232 and 273 pCi/L. Two samples at control station D-57 were positive for tritium with concentrations of 268 to 362 pCi/L. No samples from station D-52 were positive for tritium. Concentrations detected were consistent with those detected in previous years.
(Figures C–4, C–5 and C-6, Appendix C)

Gamma Spectrometry

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

2. Ground Water

Quarterly grab samples were collected at locations D-22, D-24 and D-35. A single sample was collected at location D-23 in January. These locations could be affected by Dresden's effluent releases and by sources upstream on the Kankakee River. The following analyses were performed:

Tritium

All were analyzed for tritium activity (Table C–II.1, Appendix C). Tritium was not detected in any sample. Results were consistent with those in previous years. (Figure C–7, Appendix C)

Gamma Spectrometry

All samples were analyzed for gamma-emitting nuclides. No nuclides were detected and all required LLDs were met.
(Table C-II.2, Appendix C)

3. Fish

Fish samples comprised of largemouth bass, smallmouth bass, smallmouth buffalo, common carp and channel catfish were collected at two locations (D-28 and D-46) semiannually. Location D-28 could be affected by Dresden'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). Only naturally-occurring nuclides (not shown on tables) were found at both locations. No fission or activation products were detected.

4. Sediment

Aquatic sediment samples were collected at one location (D-27) semiannually. This downstream location could be affected by Dresden's effluent releases. The following analysis was performed:

Gamma Spectrometry

Sediment samples from the location were analyzed for gamma-emitting nuclides (Table C–IV.1, Appendix C). No fission or activation products were detected.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from fourteen locations on a weekly basis. The fourteen locations were separated into four groups: On-site samplers (D-01, D-02 and D-03), Near-field samplers within 3.1 miles of the site (D-04, D-07, D-45, D-53, D-56 and D-58), Far-field samplers between 5 and 10 km (3.1 and 6.2 miles) from the site (D-08, D-10, D-14 and D-55) and the Control sampler between 10 and 30 km (6.2 and 18.6 miles) from the site (D-12). 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 DNPS. The results from the On-Site locations ranged from 7.0E-3 to 4.3E-2 pCi/m^3 with a mean of 1.8E-2 pCi/m^3. The results from the Near-Field locations ranged from 6.0E-3 to 3.9E-2 pCi/m^3 with a mean of 1.7E-2 pCi/m^3. The results from the Far-Field locations ranged from 5.0E-3 to 4.2E-2 pCi/m^3 with a mean of 1.7E-2 pCi/m^3. The results from the Control location ranged from 7.3E-3 to 3.9E-2 pCi/m^3 with a mean of 1.8E-2 pCi/m^3. Comparison of the 2020 air particulate data with previous year's data indicate no effects from the operation of DNPS. In addition a comparison of the weekly mean values for 2020 indicate no notable differences among the four groups. (Figures C–8 through C-14, Appendix C)

Gamma Spectrometry

Samples were composited quarterly and analyzed for gamma emitting nuclides (Table C–V.3, Appendix C). Only naturally-occurring nuclides (not shown on the tables) were found in these composite samples. No anthropogenic nuclides were detected and all required LLDs were met. These samples were consistent with historical quarterly results. All other nuclides were less than the MDC.

b. Airborne Iodine

Continuous air samples were collected from fourteen locations (D-01, D-02, D-03, D-04, D-07, D-08, D-10, D-12, D-14, D-45, D-53, D-55, D-56 and D-58) and analyzed weekly for I-131. All results were less than the MDC for I-131.
(Table C–VI.1, Appendix C)

2. Terrestrial

a. Milk

Milk (M) samples are typically collected biweekly at one control location (D-25) from May through October and monthly from November through April. Other than D-25, there are no additional milking animals within 10 kilometers (6.2 miles) of the site. The following analyses were performed:

Iodine-131

Milk samples from location D-25 were analyzed for concentrations of I-131. No I-131 was detected and the LLD was met.
(Table C–VII.1, Appendix C)

Gamma Spectrometry

Milk samples from location D-25 were analyzed for concentrations of gamma emitting nuclides. Only naturally-occurring nuclides (not shown on the tables) were found in all samples. No other gamma emitting nuclides were detected and all required LLDs were met. (Table C–VII.2, Appendix C)

b. Food Products

Food product samples were collected at six locations (D-25, D-40, D-41, D-42 D-43 and D-44) when available. The Control location is D-25 and the other 5 locations could be affected by Dresden's effluent releases. The following analysis was performed:

Gamma Spectrometry

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

C. Ambient Gamma Radiation

Forty-six OSLD locations were established around the site. Results of OSLD measurements are listed in Table C–IX.1, Appendix C.

Most OSLD measurements were below 28 mrem/quarter, with a range of 10.4 to 27.8 mrem/quarter. A comparison of the Inner Ring, Outer Ring and Other locations' data to the Control Location data, indicate that the ambient gamma radiation levels from the Control location (D-12) were comparable.

D. Land Use Survey

A Land Use Survey conducted on August 22, 2020 around the Dresden Nuclear Power Station (DNPS) was performed by EIML for Exelon Generation, LLC to comply with Section 12.6.2 of the Dresden Offsite Dose Calculation Manual (ODCM). The purpose of the survey was to document the nearest resident or industrial facility, milk producing animal, and livestock in each of the sixteen 22 ½ degree sectors within 10 km (6.2 miles) around the site. There were no changes required to the DNPS REMP as a result of this survey. The results are summarized as follows:

Distance in Miles from the DNPS Reactor Buildings				
Sector		Residence Miles	Livestock Miles	Milk Farm Miles
A	N	1.5	1.4	-
B	NNE	0.8	-	-
C	NE	0.8	5.8	-
D	ENE	0.7	1.7	-
E	E	1.1	-	-
F	ESE	1.0	-	-
G	SE	0.6	-	-
H	SSE	0.5	-	-
J	S	0.5	-	-
K	SSW	3.3	-	-
L	SW	3.6	-	11.4
M	WSW	5.9	-	-
N	W	3.5	0.5	-
P	WNW	3.2	0.5	-
Q	NW	2.2	0.5	-
R	NNW	0.8	1.0	-

E. Errata Data

There was no errata data in 2020.

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:

A. 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.

B. 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.

C. 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 ± 20% of the reference value
- Acceptable with Warning (flag = "W") - result falls in the ± 20% to ± 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, 126 out of 133 analyses performed met the specified acceptance criteria. Seven analyses did not meet the specified acceptance criteria for the following reasons and were addressed through the TBE Corrective Action Program. A summary is found below:

1. The MAPEP February 2020 AP U-233/234 and U-238 results were evaluated as *Not Acceptable*. The reported value for U-233/234 was 0.0416 ± 0.0102 Bq/sample and the known result was 0.075 Bq/sample (acceptance range 0.053 - 0.098). The reported value for U-238 was 0.0388 ± 0.00991 Bq/sample and the known result was 0.078 Bq/sample (acceptance range 0.055 - 0.101). This sample was run as the workgroup duplicate and had RPD's of 10.4% (U-234) and 11.7% (U-238). After the known results were obtained, the sample was relogged. The filter was completely digested with tracer added originally; the R1 results were almost identical. It was concluded that the recorded tracer amount was actually double, causing the results to be skewed. Lab worksheets have been modified to verify actual tracer amount vs. LIMS data. TBE changed vendors for this cross-check to ERA MRAD during the 2nd half of 2020. Results were acceptable at 97.8% for U-234 and 106% for U-238. (NCR 20-13)

2. The Analytics September 2020 milk Sr-89 result was evaluated as *Not Acceptable*. The reported value was 62.8 pCi/L and the known result was

95.4 (66%). All QC data was reviewed and there were no anomalies. This was the first failure for milk Sr-89 since 2013 and there have only been 3 upper/lower boundary warnings since that time. It is believed that there may have been some Sr-89 loss during sample prep. The December 2020 result was at 92% of the known. (NCR 20-19)

3. The ERA October 2020 water I-131 result was evaluated as *Not Acceptable*. The reported value was 22.9 pCi/L and the known result was 28.2 (acceptance range 23.5 - 33.1). The reported result was 81% of the known, which passes TBE QC criteria. This was the first failure for water I-131. (NCR 20-17)

4. The ERA October 2020 water Gross Alpha and Gross Beta results were evaluated as *Not Acceptable*. The reported/acceptable values and ranges are as follows:

	Reported	Known	Range
Gross Alpha	40.0	26.2	13.3 - 34.7
Gross Beta	47.5	69.1	48.0 - 76.0

All QC data was reviewed with no anomalies and a cause for failure could not be determined. This was the first failure for water Gross Beta. A Quick Response follow-up cross-check was analyzed as soon as possible with acceptable results at 96.8% for Gross Alpha and 102% for Gross Beta. (NCR 20-18)

5. The MAPEP August 2020 soil Ni-63 result was evaluated as *Not Acceptable*. The reported value was 438 ± 21.1 Bq/kg and the known result was 980 Bq/kg (acceptance range 686 - 1274). It is believed that some Ni-63 loss occurred during the sample prep step. (NCR 20-20)

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

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APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING

REPORT SUMMARY

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TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR DRESDEN NUCLEAR POWER STATION, 2020

NAME OF FACILITY: DRESDEN | **DOCKET NUMBER:** 50-010, 50-237 & 50-249
LOCATION OF FACILITY: MORRIS IL | **REPORTING PERIOD:** 2020

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS 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	LOCATION WITH HIGHEST ANNUAL MEAN (M) STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER	**GR-B**	36	**4**	*6.8*	*7.7*	*9.6*	D-52 CONTROL	0
(PCI/LITER)				*(12/12)*	*(23/24)*	*(12/12)*	DESPLAINES RIVER AT WILL ROAD (CONTROL)	
				4.0 - 11.8	*3.6 - 15.5*	*5.4 - 15.5*	1.1 MILES ESE OF SITE	
	H-3	12	**2000**	*253*	*315*	*315*	D-57 CONTROL	0
				(3/4)	*(2/8)*	*(2/4)*	KANKAKEE RIVER AT WILL ROAD (CONTROL)	
				232 - 273	*268 - 362*	*268 - 362*	2.0 MILES SE OF SITE	
	GAMMA	36						
	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	**H-3**	13	**2000**	*NA*	*NA*	*NA*		0
(PCI/LITER)								
	GAMMA	13						
	MN-54		**15**	<LLD	*NA*	-		0
	CO-58		**15**	<LLD	*NA*	-		0
	FE-59		**30**	<LLD	*NA*	-		0
	CO-60		**15**	<LLD	*NA*	-		0
	ZN-65		**30**	<LLD	*NA*	-		0
	NB-95		**15**	<LLD	*NA*	-		0
	ZR-95		**30**	<LLD	*NA*	-		0
	I-131		**15**	<LLD	*NA*	-		0
	CS-134		**15**	<LLD	*NA*	-		0
	CS-137		**18**	<LLD	*NA*	-		0
	BA-140		**60**	<LLD	*NA*	-		0
	LA-140		**15**	<LLD	*NA*	-		0

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

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR DRESDEN NUCLEAR POWER STATION, 2020

NAME OF FACILITY:	**DRESDEN**			**DOCKET NUMBER:**		**50-010, 50-237 & 50-249**		
LOCATION OF FACILITY:	**MORRIS IL**			**REPORTING PERIOD:**		**2020**		
				INDICATOR	**CONTROL**			
MEDIUM OR			REQUIRED	**LOCATIONS**	**LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		NUMBER OF
PATHWAY SAMPLED	TYPES OF	NUMBER OF	LOWER LIMIT	MEAN (M)	MEAN (M)	MEAN (M)	STATION #	NONROUTINE
(UNIT OF	ANALYSIS	ANALYSIS	OF DETECTION	(F)	(F)	(F)	NAME	REPORTED
MEASUREMENT)	PERFORMED	PERFORMED	(LLD)	*RANGE*	*RANGE*	*RANGE*	DISTANCE AND DIRECTION	MEASUREMENTS
FISH	**GAMMA**	8						
(PCI/KG WET)	*MN-54*		**130**	<LLD	*NA*	-		0
	CO-58		**130**	<LLD	*NA*	-		0
	FE-59		**260**	<LLD	*NA*	-		0
	CO-60		**130**	<LLD	*NA*	-		0
	ZN-65		**260**	<LLD	*NA*	-		0
	NB-95		*NA*	<LLD	*NA*	-		0
	ZR-95		*NA*	<LLD	*NA*	-		0
	CS-134		**130**	<LLD	*NA*	-		0
	CS-137		**150**	<LLD	*NA*	-		0
	BA-140		*NA*	<LLD	*NA*	-		0
	LA-140		*NA*	<LLD	*NA*	-		0
SEDIMENT	**GAMMA**	2						
(PCI/KG DRY)	*MN-54*		*NA*	<LLD	*NA*	-		0
	CO-58		*NA*	<LLD	*NA*	-		0
	FE-59		*NA*	<LLD	*NA*	-		0
	CO-60		*NA*	<LLD	*NA*	-		0
	ZN-65		*NA*	<LLD	*NA*	-		0
	NB-95		*NA*	<LLD	*NA*	-		0
	ZR-95		*NA*	<LLD	*NA*	-		0
	CS-134		**150**	<LLD	*NA*	-		0
	CS-137		**180**	<LLD	*NA*	-		0
	BA-140		*NA*	<LLD	*NA*	-		0
	LA-140		*NA*	<LLD	*NA*	-		0
AIR PARTICULATE	**GR-B**	723	10	17	18	18	D-02 INDICATOR	0
(E-3 PCI/CU.M)				(669/671)	(52/52)	(51/51)	ONSITE 2	
				5 - 43	*7 - 39*	*7 - 43*	0.3 MILES NNE OF SITE	
	GAMMA	56						
	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

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

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR DRESDEN NUCLEAR POWER STATION, 2020

NAME OF FACILITY: DRESDEN | **DOCKET NUMBER:** 50-010, 50-237 & 50-249
LOCATION OF FACILITY: MORRIS IL | **REPORTING PERIOD:** 2020

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS 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	LOCATION WITH HIGHEST ANNUAL MEAN (M) STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
AIR IODINE	**GAMMA**	723						
(E-3 PCI/CU.M)	*I-131*		**70**	<LLD	<LLD	-		0
MILK	**I-131 (LOW LVL)**	19	**1**	NA	<LLD	-		0
(PCI/LITER)								
	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
VEGETATION	**GAMMA**	67						
(PCI/KG WET)	*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	**OSLD-QUARTERLY**	184	*NA*	19.2	18.8	23.3	D-110 INDICATOR	0
(MILLI-ROENTGEN/QTR.)				(180/180)	(4/4)	(4/4)		
				10.4 - 27.8	*14.1 - 23.0*	*18.7 - 27.4*	0.9 MILES SSW	

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

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APPENDIX B

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

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TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Dresden Nuclear Power Station, 2020

Location	Location Description	Distance & Direction From Site
A.	Surface Water	
D-21	Illinois River at EJ&E Bridge (indicator)	1.4 miles WNW
D-52	DesPlaines River at Will Road, Upstream (control)	1.1 miles ESE
D-57	Kankakee River at Will Road (control)	2.0 miles SE
B.	Ground/Well Water	
D-22	8150 N. Thorsen Road (indicator)	0.8 miles SSE
D-23	Thorsen Well (indicator)	0.7 miles S
D-24	8177 N. Thorsen Road (indicator)	0.6 miles SSE
D-35	Dresden Lock & Dam Morris, IL (indicator)	0.8 miles NW
C.	Milk - bi-weekly / monthly	
D-25	Vince Biros Farm, Reed Road (control)	11.3 miles SW
D.	Air Particulates / Air Iodine	
D-01	Onsite Station 1 (indicator)	0.8 miles NW
D-02	Onsite Station 2 (indicator)	0.3 miles NNE
D-03	Onsite Station 3 (indicator)	0.4 miles S
D-04	Collins Road, on Station property(indicator)	0.8 miles W
D-07	Clay Products, Dresden Road (indicator)	2.6 miles S
D-08	Jugtown Road, Prairie Parks (indicator)	3.8 miles SW
D-10	Goose Lake Road, Goose Lake Village (indicator)	3.5 miles SSW
D-12	Quarry Road, Lisbon (control)	10.5 miles NW
D-14	Center Street, Channahon (indicator)	3.7 miles NE
D-45	McKinley Woods Road, Channahon (indicator)	1.7 miles ENE
D-53	Will Road, Hollyhock (indicator)	2.1 miles SSE
D-55	Ridge Road, Minooka (indicator)	4.3 miles N
D-56	Will Road, Wildfeather (indicator)	1.7 miles SE
D-58	Will Road, Marina (indicator)	1.1 miles ESE
E.	Fish	
D-28	Dresden Pool of Illinois River, Downstream (indicator)	0.9 miles NNW
D-46	DesPlaines River, Upstream (control)	1.2 miles ESE
F.	Sediment	
D-27	Illinois River at Dresden Lock and Dam, Downstream (indicator)	0.8 miles NW
G.	Vegetation	
D-25	Vince Biros Farm, Reed Road	11.3 miles SW
D-40	7715 E Hansel Road	0.9 miles NNW
D-41	8100 E Blanchard Circle	0.5 miles SSE
D-42	Dresden Site Garden	0.4 miles N
D-43	25158 W Elm St	3.3 miles NE
D-44	9980 Ridge Road	3.0 miles N

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Dresden Nuclear Power Station, 2020

Location	Location Description	Distance & Direction From Site
H.	Environmental Dosimetry - OSLD	
Inner Ring		
D-58		1.1 miles ESE
D-101		1.0 miles N
D-102		1.3 miles NNE
D-103		1.2 miles NE
D-104		1.7 miles ENE
D-105		1.5 miles E
D-106		1.1 miles ESE
D-107		1.4 miles SE
D-108		1.9 miles SSE
D-109		0.8 miles S
D-110		0.9 miles SSW
D-111		0.6 miles SW
D-112		0.7 miles WSW
D-113		0.9 miles W
D-114		0.9 miles WNW
D-115		0.8 miles NW
D-116		1.0 miles NNW
Outer Ring		
D-201		4.8 miles N
D-202		5.1 miles NNE
D-203		4.7 miles NE
D-204		5.0 miles ENE
D-205		4.0 miles E
D-206		3.5 miles ESE
D-207		4.2 miles SE
D-208		4.9 miles SSE
D-209		4.1 miles S
D-210		4.9 miles SSW
D-211		4.8 miles SW
D-212		6.0 miles WSW
D-213		4.5 miles W
D-214		5.0 miles WNW
D-215		4.8 miles NW
D-216		4.9 miles NNW
Other Locations		
D-01	Onsite 1	0.8 miles NW
D-02	Onsite 2	0.3 miles NNE
D-03	Onsite 3	0.4 miles S
D-04	Collins Road, on Station property	0.8 miles W
D-07	Clay Products, Dresden Road	2.6 miles S
D-08	Jugtown Road, Prairie Parks	3.8 miles SW
D-10	Goose Lake Road, Goose Lake Village	3.5 miles SSW
D-14	Center Street, Channahon	3.7 miles NE
D-45	McKinley Woods Road, Channahon	1.7 miles ENE
D-53	Will Road, Hollyhock	2.1 miles SSE
D-55	Ridge Road, Minooka	4.3 miles N
D-56	Will Road, Wildfeather	1.7 miles SE
D-58	Will Road, Marina	1.1 miles ESE
Control		
D-12	Lisbon	10.5 miles NW

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Dresden Nuclear Power Station, 2020

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Surface Water	Gamma Spectroscopy	Monthly composite sample or monthly composite from weekly grab samples	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual TBE, TBE-2023 Compositing of samples EIML-COMP-01 procedure for compositing water and milk samples	2 gallon	TBE, TBE-2007 Gamma-Emitting Radioisotope Analysis
Surface Water	Gross Beta	Monthly composite sample or monthly composite from weekly grab samples	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual TBE, TBE-2023 Compositing of samples EIML-COMP-01 procedure for compositing water and milk samples	2 gallon	TBE, TBE-2008 Gross Alpha and/or Gross Beta Activity in Various Matrices
Surface Water	Tritium	Quarterly composite of monthly composite samples	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual TBE, TBE-2023 Compositing of samples EIML-COMP-01 procedure for compositing water and milk samples	500 ml	TBE, TBE-2011 Tritium Analysis in Drinking Water by Liquid Scintillation
Ground Water	Gamma Spectroscopy	Quarterly grab samples	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	2 gallon	TBE, TBE-2007 Gamma-Emitting Radioisotope Analysis
Ground Water	Tritium	Quarterly grab samples	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	500 ml	TBE, TBE-2011 Tritium Analysis in Drinking Water by Liquid Scintillation
Fish	Gamma Spectroscopy	Samples collected twice annually via electroshocking or other techniques	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	1000 grams (wet)	TBE, TBE-2007 Gamma-Emitting Radioisotope Analysis
Sediment	Gamma Spectroscopy	Semi-annual grab samples	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	500 grams (dry)	TBE, TBE-2007 Gamma-Emitting Radioisotope Analysis

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Dresden Nuclear Power Station, 2020

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Dredging Spoils	Gamma Spectroscopy	Annual grab samples if dredging occurred within 1 mile of Dresden Station during the year.	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	500 grams (dry)	TBE, TBE-2007 Gamma-Emitting Radioisotope Analysis
Air Particulates	Gross Beta	One-week of continuous air sampling through glass fiber filter paper	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	1 filter (approximately 280 cubic meters weekly)	TBE, TBE-2008 Gross Alpha and/or Gross Beta Activity in Various Matrices
Air Particulates	Gamma Spectroscopy	Quarterly composite of each station	TBE, TBE-2023 Compositing of samples Env. Inc., AP-03 Procedure for compositing air particulate filters for gamma spectroscopic analysis	13 filters	TBE, TBE-2007 Gamma-Emitting Radioisotope Analysis
Air Iodine	Gamma Spectroscopy	One- or two-week composite of continuous air sampling through charcoal filter	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	1 filter (approximately 280 cubic meters weekly)	TBE, TBE-2007 Gamma-Emitting Radioisotope Analysis
Milk	I-131	Bi-weekly grab sample May through October; Monthly all other times	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	2 gallon	TBE, TBE-2012 Radioiodine in Various Matrices
Milk	Gamma Spectroscopy	Bi-weekly grab sample May through October; Monthly all other times	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	2 gallon	TBE, TBE-2007 Gamma-Emitting Radioisotope Analysis
Food Products	Gamma Spectroscopy	Annual grab samples.	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	1000 grams	TBE, TBE-2007 Gamma-Emitting Radioisotope Analysis
OSLD	Optically Stimulated Luminescence Dosimetry	Quarterly OSLDs comprised of two Al_2O_3:C Landauer Incorporated elements.	EIML-SPM-1, Environmental Incorporated Midwest Laboratory Sampling Procedures Manual	2 dosimeters at each location	Landauer Incorporated

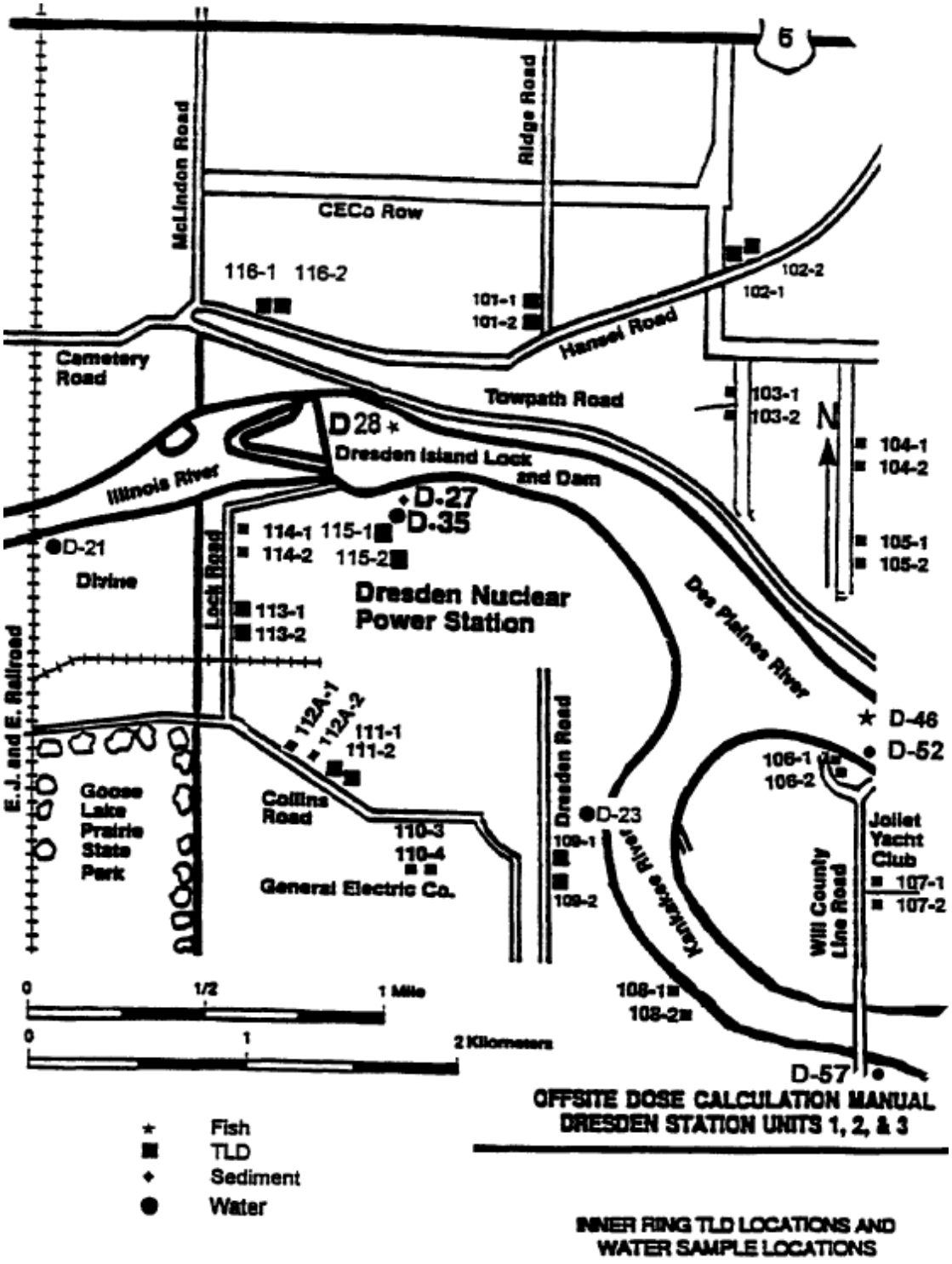

Figure B-1
Dresden Station Inner Ring OSLD Locations, Fish, Water, and Sediment Location, 2020

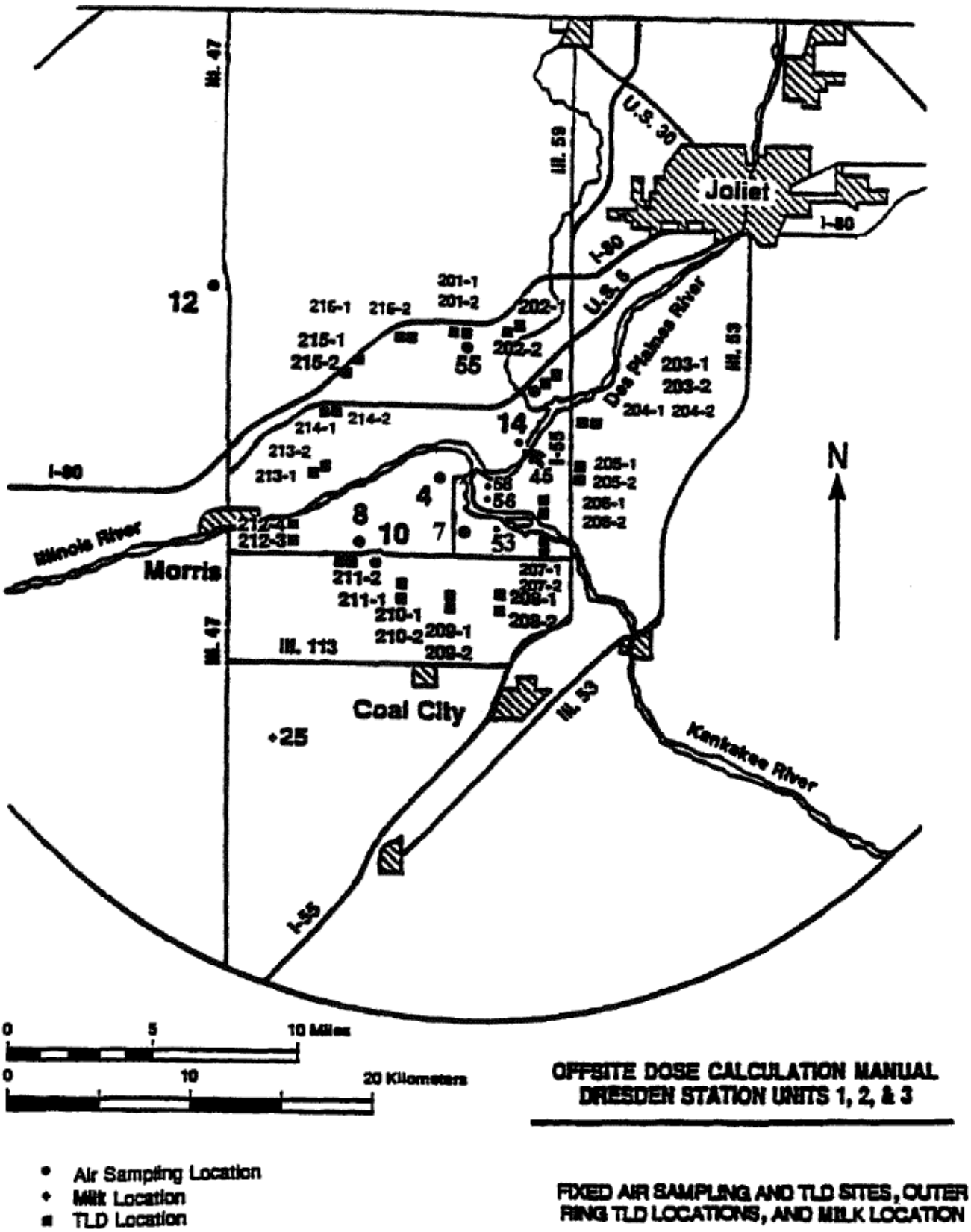

Figure B-2
Dresden Station Fixed Air Sampling and
OSLD Sites, Outer Ring OSLD Locations and Milk Location, 2020

APPENDIX C

DATA TABLES AND FIGURES

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Table C-I.1 **CONCENTRATIONS OF GROSS BETA IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	D-21	D-52	D-57
12/27/19 - 01/31/20	5.2 ± 2.1	15.5 ± 3.0	5.1 ± 1.9
01/31/20 - 02/28/20	4.4 ± 2.1	5.4 ± 2.3	< 2.5
02/28/20 - 03/27/20	4.0 ± 2.3	13.3 ± 3.2	8.5 ± 2.4
03/27/20 - 04/24/20	8.9 ± 2.4	13.0 ± 2.7	7.0 ± 1.9
04/24/20 - 05/29/20	7.8 ± 2.4	6.9 ± 2.3	7.4 ± 2.5
05/29/20 - 06/26/20	5.0 ± 2.3	6.3 ± 2.5	3.6 ± 2.2
06/26/20 - 07/31/20	8.5 ± 2.3	7.3 ± 2.1	4.0 ± 1.8
07/31/20 - 08/28/20	7.0 ± 2.1	8.6 ± 2.3	4.6 ± 2.0
08/28/20 - 09/25/20	6.9 ± 2.4	9.8 ± 2.5	3.9 ± 2.1
09/25/20 - 10/30/20	7.2 ± 2.3	7.6 ± 2.3	3.8 ± 1.9
10/30/20 - 11/27/20	11.8 ± 2.7	15.3 ± 2.9	8.2 ± 2.3
11/27/20 - 12/24/20	4.8 ± 1.8	6.8 ± 2.0	5.1 ± 1.9
MEAN ± 2 STD DEV	6.8 ± 4.6	9.6 ± 7.3	5.6 ± 3.7

Table C-I.2 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	D-21	D-52	D-57
12/27/19 - 03/27/20	273 ± 110	< 158	< 155
03/27/20 - 06/26/20	254 ± 123	< 181	362 ± 126
06/26/20 - 06/26/20	< 196		< 185
07/03/20 - 09/25/20		< 184	
09/25/20 - 12/24/20	232 ± 127	< 190	268 ± 131
MEAN ± 2 STD DEV	253 ± 41	-	315 ± 133

THE MEAN AND 2 STANDARD DEVIATION ARE CALCULATED USING THE POSITIVE VALUES

Table C-I.3

CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER + 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
D-21	12/27/19 - 01/31/20	< 5	< 5	< 15	< 6	< 14	< 8	< 13	< 11	< 8	< 5	< 28	< 12
	01/31/20 - 02/28/20	< 7	< 6	< 14	< 7	< 12	< 6	< 10	< 10	< 8	< 6	< 29	< 9
	02/28/20 - 03/27/20	< 6	< 7	< 15	< 7	< 10	< 8	< 13	< 9	< 8	< 8	< 30	< 10
	03/27/20 - 04/24/20	< 5	< 5	< 12	< 7	< 12	< 8	< 11	< 9	< 7	< 7	< 27	< 10
	04/24/20 - 05/29/20	< 6	< 5	< 13	< 7	< 9	< 7	< 12	< 9	< 8	< 7	< 24	< 7
	05/29/20 - 06/26/20	< 6	< 7	< 13	< 6	< 13	< 6	< 11	< 11	< 6	< 7	< 26	< 8
	06/26/20 - 07/31/20	< 7	< 7	< 12	< 6	< 15	< 8	< 13	< 11	< 5	< 8	< 26	< 11
	07/31/20 - 08/28/20	< 5	< 7	< 18	< 8	< 11	< 7	< 15	< 10	< 9	< 8	< 29	< 8
	08/28/20 - 09/25/20	< 6	< 7	< 16	< 9	< 17	< 7	< 12	< 9	< 8	< 7	< 31	< 11
	09/25/20 - 10/30/20	< 6	< 8	< 17	< 6	< 13	< 8	< 13	< 10	< 8	< 9	< 26	< 9
	10/30/20 - 11/27/20	< 7	< 7	< 13	< 8	< 16	< 9	< 12	< 11	< 7	< 8	< 26	< 12
	11/27/20 - 12/24/20	< 7	< 8	< 16	< 9	< 14	< 7	< 13	< 11	< 8	< 7	< 30	< 12
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
D-52	01/04/20 - 01/31/20	< 6	< 9	< 13	< 7	< 14	< 7	< 11	< 9	< 8	< 8	< 32	< 7
	02/07/20 - 02/28/20	< 7	< 7	< 13	< 5	< 11	< 8	< 11	< 10	< 7	< 7	< 30	< 6
	03/06/20 - 03/27/20	< 7	< 7	< 13	< 9	< 13	< 6	< 12	< 10	< 8	< 8	< 31	< 8
	04/03/20 - 04/24/20	< 6	< 6	< 11	< 6	< 12	< 6	< 10	< 9	< 7	< 6	< 30	< 8
	05/01/20 - 05/29/20	< 6	< 6	< 15	< 9	< 15	< 8	< 12	< 9	< 7	< 7	< 33	< 13
	06/05/20 - 06/26/20	< 5	< 5	< 12	< 6	< 12	< 5	< 9	< 8	< 6	< 6	< 28	< 8
	07/03/20 - 07/31/20	< 5	< 7	< 11	< 8	< 13	< 7	< 12	< 9	< 8	< 7	< 21	< 7
	08/07/20 - 08/28/20	< 6	< 8	< 11	< 7	< 13	< 7	< 12	< 10	< 9	< 8	< 32	< 10
	09/04/20 - 09/25/20	< 7	< 6	< 13	< 7	< 14	< 6	< 9	< 8	< 6	< 7	< 28	< 9
	10/02/20 - 10/30/20	< 8	< 7	< 10	< 8	< 15	< 8	< 13	< 10	< 8	< 9	< 27	< 10
	11/06/20 - 11/27/20	< 7	< 7	< 14	< 6	< 10	< 5	< 10	< 9	< 6	< 7	< 26	< 10
	12/04/20 - 12/24/20	< 5	< 6	< 9	< 8	< 13	< 7	< 10	< 10	< 8	< 9	< 28	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
D-57	01/31/20 - 01/31/20	< 7	< 6	< 13	< 7	< 18	< 6	< 11	< 9	< 9	< 7	< 28	< 10
	02/28/20 - 02/28/20	< 5	< 7	< 15	< 8	< 16	< 7	< 10	< 8	< 6	< 8	< 31	< 8
	03/27/20 - 03/27/20	< 6	< 5	< 10	< 8	< 10	< 7	< 11	< 8	< 7	< 4	< 27	< 10
	04/24/20 - 04/24/20	< 6	< 7	< 13	< 7	< 14	< 8	< 11	< 9	< 7	< 7	< 30	< 12
	05/29/20 - 05/29/20	< 7	< 8	< 18	< 9	< 13	< 9	< 15	< 12	< 9	< 8	< 37	< 9
	06/26/20 - 06/26/20	< 7	< 6	< 12	< 8	< 14	< 6	< 12	< 8	< 9	< 8	< 27	< 10
	07/31/20 - 07/31/20	< 7	< 7	< 17	< 7	< 13	< 7	< 14	< 12	< 6	< 9	< 33	< 6
	08/28/20 - 08/28/20	< 7	< 7	< 11	< 8	< 12	< 8	< 13	< 10	< 7	< 7	< 30	< 9
	09/25/20 - 09/25/20	< 6	< 5	< 9	< 5	< 10	< 6	< 11	< 9	< 7	< 7	< 27	< 9
	10/30/20 - 10/30/20	< 7	< 5	< 12	< 9	< 13	< 7	< 15	< 7	< 7	< 6	< 24	< 12
	11/27/20 - 11/27/20	< 8	< 5	< 15	< 10	< 18	< 9	< 12	< 12	< 6	< 9	< 28	< 13
	12/24/20 - 12/24/20	< 8	< 6	< 13	< 8	< 15	< 8	< 13	< 10	< 8	< 7	< 33	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

Table C-II.1 **CONCENTRATIONS OF TRITIUM IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	D-22	D-23	D-24	D-35
01/11/20 - 01/31/20	< 182	< 187	< 181	< 186
04/10/20 - 04/10/20	< 191		< 192	< 191
07/10/20 - 07/10/20	< 189		< 185	< 186
10/09/20 - 10/09/20	< 182		< 178	< 186
MEAN				

Tables C-II.2

CONCENTRATIONS OF GAMMA EMITTERS IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
D-22	01/31/20 - 01/31/20	< 7	< 9	< 14	< 12	< 16	< 8	< 9	< 10	< 8	< 9	< 35	< 11
	04/10/20 - 04/10/20	< 7	< 9	< 14	< 9	< 16	< 7	< 14	< 11	< 7	< 9	< 35	< 9
	07/10/20 - 07/10/20	< 7	< 8	< 17	< 7	< 12	< 8	< 13	< 10	< 9	< 8	< 37	< 11
	10/09/20 - 10/09/20	< 6	< 6	< 14	< 9	< 13	< 5	< 13	< 9	< 10	< 7	< 37	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
D-23	01/11/20 - 01/11/20	< 8	< 6	< 16	< 7	< 14	< 7	< 11	< 9	< 9	< 7	< 33	< 11
D-24	01/24/20 - 01/24/20	< 7	< 5	< 13	< 7	< 13	< 7	< 11	< 9	< 7	< 7	< 30	< 7
	04/10/20 - 04/10/20	< 5	< 8	< 13	< 5	< 14	< 9	< 13	< 10	< 10	< 7	< 30	< 9
	07/10/20 - 07/10/20	< 6	< 6	< 11	< 6	< 16	< 5	< 11	< 10	< 10	< 6	< 25	< 12
	10/09/20 - 10/09/20	< 8	< 7	< 9	< 9	< 12	< 10	< 14	< 11	< 9	< 8	< 29	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
D-35	01/11/20 - 01/11/20	< 6	< 6	< 15	< 8	< 11	< 7	< 10	< 8	< 6	< 6	< 23	< 11
	04/10/20 - 04/10/20	< 7	< 7	< 18	< 7	< 20	< 8	< 10	< 9	< 7	< 6	< 27	< 15
	07/10/20 - 07/10/20	< 9	< 8	< 13	< 8	< 16	< 7	< 14	< 10	< 8	< 9	< 29	< 10
	10/09/20 - 10/09/20	< 8	< 8	< 18	< 8	< 13	< 8	< 13	< 10	< 8	< 8	< 28	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

Table C-III.1

CONCENTRATIONS OF GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/KG WET + 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
D-28	*PREDATOR*											
Largemouth Bass	05/13/20	< 39	< 45	< 99	< 41	< 84	< 40	< 76	< 43	< 50	< 246	< 40
Smallmouth Bass	10/09/20	< 81	< 74	< 163	< 68	< 145	< 79	< 119	< 71	< 79	< 320	< 111
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-28	*BOTTOM FEEDER*											
Smallmouth Buffalo	05/13/20	< 37	< 37	< 78	< 40	< 75	< 38	< 65	< 45	< 38	< 181	< 41
Common Carp	10/09/20	< 42	< 41	< 86	< 60	< 106	< 40	< 96	< 51	< 41	< 216	< 66
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-46	*PREDATOR*											
Largemouth Bass	10/09/20	< 74	< 80	< 150	< 77	< 140	< 80	< 117	< 84	< 66	< 344	< 102
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-46	*BOTTOM FEEDER*											
Channel Catfish	05/13/20	< 43	< 40	< 88	< 39	< 92	< 47	< 84	< 49	< 45	< 224	< 36
Common Carp	05/13/20	< 43	< 50	< 55	< 36	< 86	< 47	< 66	< 44	< 52	< 230	< 44
Common Carp	10/09/20	< 66	< 50	< 142	< 34	< 95	< 78	< 91	< 88	< 71	< 315	< 85
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-IV.1

CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/KG DRY ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
D-27	06/08/20	< 129	< 141	< 216	< 140	< 292	< 124	< 224	< 147	< 169	< 473	< 154
	10/13/20	< 63	< 66	< 140	< 75	< 118	< 68	< 124	< 86	< 96	< 319	< 110
	MEAN	-	-	-	-	-	-	-	-		-	-

Table C-V.1 **CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020**

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

COLLECTION PERIOD	GROUP I			GROUP II					
	D-01	D-02	D-03	D-04	D-07	D-45	D-53	D-56	D-58
01/04/20 - 01/11/20	8 ± 4	9 ± 4	8 ± 4	8 ± 4	13 ± 4	8 ± 4	8 ± 4	7 ± 4	7 ± 4
01/11/20 - 01/17/20	17 ± 5	19 ± 5	20 ± 5	20 ± 5	21 ± 5	23 ± 5	19 ± 5	16 ± 4	18 ± 5
01/17/20 - 01/24/20	21 ± 5	20 ± 4	24 ± 5	21 ± 5	27 ± 5	23 ± 5	19 ± 4	19 ± 4	21 ± 4
01/24/20 - 01/31/20	12 ± 4	17 ± 4	17 ± 4	17 ± 4	11 ± 4	15 ± 4	13 ± 4	17 ± 4	16 ± 4
01/31/20 - 02/07/20	12 ± 4	9 ± 4	13 ± 4	12 ± 4	11 ± 4	11 ± 4	10 ± 4	6 ± 4	11 ± 4
02/07/20 - 02/14/20	13 ± 4	15 ± 4	17 ± 4	16 ± 4	13 ± 4	17 ± 4	14 ± 4	14 ± 4	15 ± 4
02/14/20 - 02/21/20	17 ± 5	17 ± 4	22 ± 5	20 ± 5	19 ± 5	17 ± 5	12 ± 4	14 ± 5	16 ± 4
02/21/20 - 02/28/20	19 ± 4	22 ± 5	25 ± 5	24 ± 5	23 ± 5	21 ± 4	17 ± 4	21 ± 5	22 ± 5
02/28/20 - 03/06/20	9 ± 4	11 ± 4	10 ± 4	11 ± 4	10 ± 4	13 ± 4	9 ± 4	7 ± 4	9 ± 4
03/06/20 - 03/13/20	16 ± 4	19 ± 4	19 ± 4	18 ± 4	17 ± 4	22 ± 4	16 ± 4	16 ± 4	19 ± 4
03/13/20 - 03/20/20	9 ± 4	14 ± 4	15 ± 4	12 ± 4	12 ± 4	15 ± 4	10 ± 4	10 ± 4	11 ± 4
03/20/20 - 03/27/20	12 ± 4	12 ± 4	13 ± 4	15 ± 4	16 ± 4	14 ± 4	11 ± 4	9 ± 4	9 ± 4
03/27/20 - 04/03/20	10 ± 4	7 ± 4	10 ± 4	10 ± 4	8 ± 4	10 ± 4	7 ± 4	6 ± 4	10 ± 4
04/03/20 - 04/10/20	15 ± 4	16 ± 4	17 ± 5	16 ± 4	18 ± 5	17 ± 4	16 ± 4	13 ± 4	14 ± 4
04/10/20 - 04/17/20	13 ± 4	15 ± 4	19 ± 4	18 ± 4	18 ± 4	23 ± 5	13 ± 4	15 ± 4	15 ± 4
04/17/20 - 04/24/20	13 ± 4	11 ± 4	14 ± 4	16 ± 4	13 ± 4	15 ± 4	12 ± 4	12 ± 4	13 ± 4
04/24/20 - 05/01/20	13 ± 4	16 ± 4	17 ± 4	14 ± 4	17 ± 4	12 ± 4	13 ± 4	11 ± 3	11 ± 3
05/01/20 - 05/08/20	7 ± 4	11 ± 4	11 ± 4	11 ± 4	10 ± 4	13 ± 4	8 ± 4	8 ± 4	9 ± 4
05/08/20 - 05/15/20	8 ± 3	13 ± 4	10 ± 4	11 ± 4	11 ± 4	14 ± 4	11 ± 4	10 ± 4	11 ± 4
05/15/20 - 05/22/20	7 ± 4	10 ± 4	9 ± 4	9 ± 4	9 ± 4	11 ± 4	< 6	< 6	7 ± 4
05/22/20 - 05/29/20	13 ± 4	14 ± 4	17 ± 4	13 ± 4	14 ± 4	16 ± 4	12 ± 4	10 ± 3	10 ± 3
05/29/20 - 06/05/20	11 ± 4	17 ± 4	14 ± 4	11 ± 4	14 ± 4	15 ± 4	10 ± 3	11 ± 4	11 ± 4
06/05/20 - 06/12/20	10 ± 3	12 ± 4	15 ± 4	10 ± 3	11 ± 3	12 ± 4	10 ± 3	12 ± 4	11 ± 3
06/12/20 - 06/19/20	22 ± 4	17 ± 4	16 ± 4	14 ± 4	17 ± 4	19 ± 4	16 ± 4	13 ± 4	16 ± 4
06/19/20 - 06/26/20	24 ± 5	20 ± 5	22 ± 5	19 ± 5	15 ± 4	25 ± 5	19 ± 5	13 ± 4	14 ± 4
06/26/20 - 07/03/20	16 ± 4	18 ± 4	16 ± 4	16 ± 4	15 ± 4	19 ± 4	13 ± 4	12 ± 4	13 ± 4
07/03/20 - 07/10/20	24 ± 5	30 ± 5	25 ± 5	20 ± 4	27 ± 5	21 ± 4	22 ± 4	19 ± 4	20 ± 4
07/10/20 - 07/17/20	19 ± 4	16 ± 4	16 ± 4	16 ± 4	18 ± 4	19 ± 4	15 ± 4	21 ± 4	13 ± 4
07/17/20 - 07/24/20	17 ± 4	20 ± 4	17 ± 4	15 ± 4	15 ± 4	17 ± 4	15 ± 4	15 ± 4	18 ± 4
07/24/20 - 07/31/20	18 ± 4	17 ± 4	9 ± 4	16 ± 4	14 ± 4	20 ± 4	13 ± 4	15 ± 4	18 ± 4
07/31/20 - 08/07/20	13 ± 4	12 ± 4	10 ± 4	10 ± 4	9 ± 4	15 ± 4	10 ± 4	14 ± 4	11 ± 4
08/07/20 - 08/14/20	26 ± 5	24 ± 5	25 ± 5	22 ± 4	23 ± 4	25 ± 5	22 ± 4	27 ± 5	23 ± 4
08/14/20 - 08/21/20	19 ± 4	18 ± 4	20 ± 4	19 ± 4	19 ± 4	20 ± 4	16 ± 4	22 ± 4	14 ± 4
08/21/20 - 08/28/20	27 ± 5	28 ± 5	30 ± 6	20 ± 5	28 ± 5	22 ± 5	21 ± 5	33 ± 6	20 ± 5
08/28/20 - 09/04/20	17 ± 4	18 ± 4	17 ± 4	14 ± 4	18 ± 4	14 ± 4	14 ± 3	16 ± 4	11 ± 3
09/04/20 - 09/11/20	11 ± 3	13 ± 3	12 ± 3	10 ± 3	13 ± 3	9 ± 3	8 ± 3	11 ± 3	8 ± 3
09/11/20 - 09/18/20	14 ± 4	16 ± 4	15 ± 4	13 ± 4	17 ± 4	14 ± 4	15 ± 4	18 ± 4	14 ± 4
09/18/20 - 09/25/20	22 ± 4	27 ± 5	25 ± 4	20 ± 4	26 ± 5	24 ± 4	20 ± 4	24 ± 4	26 ± 4
09/25/20 - 10/02/20	11 ± 4	8 ± 4	14 ± 4	11 ± 4	12 ± 4	10 ± 4	10 ± 4	13 ± 4	13 ± 4
10/02/20 - 10/09/20	16 ± 4	15 ± 4	22 ± 6	14 ± 4	16 ± 4	14 ± 4	17 ± 4	17 ± 4	15 ± 4
10/09/20 - 10/16/20	25 ± 5	25 ± 5	*(1)*	18 ± 4	28 ± 5	18 ± 4	20 ± 4	21 ± 5	19 ± 4
10/16/20 - 10/23/20	16 ± 4	18 ± 4	*(1)*	18 ± 4	22 ± 5	16 ± 4	24 ± 7	23 ± 5	15 ± 4
10/23/20 - 10/30/20	18 ± 5	*(1)*	*(1)*	13 ± 4	16 ± 4	11 ± 4	*(1)*	17 ± 5	17 ± 4
10/30/20 - 11/06/20	35 ± 5	33 ± 5	35 ± 5	37 ± 6	30 ± 5	30 ± 5	27 ± 5	30 ± 5	28 ± 5
11/06/20 - 11/13/20	18 ± 4	24 ± 4	20 ± 4	20 ± 4	20 ± 4	18 ± 4	20 ± 4	21 ± 4	20 ± 4
11/13/20 - 11/20/20	19 ± 4	27 ± 5	22 ± 5	23 ± 5	24 ± 5	22 ± 5	21 ± 5	30 ± 5	19 ± 4
11/20/20 - 11/27/20	19 ± 5	27 ± 5	22 ± 5	27 ± 5	26 ± 5	16 ± 5	15 ± 4	24 ± 5	20 ± 5
11/27/20 - 12/04/20	20 ± 4	23 ± 5	20 ± 4	24 ± 5	22 ± 4	18 ± 4	16 ± 4	23 ± 5	18 ± 4
12/04/20 - 12/11/20	36 ± 6	43 ± 6	38 ± 6	31 ± 6	36 ± 6	31 ± 6	33 ± 6	39 ± 6	29 ± 5
12/11/20 - 12/18/20	16 ± 4	22 ± 4	14 ± 4	16 ± 4	21 ± 4	16 ± 4	12 ± 4	17 ± 4	15 ± 4
12/18/20 - 12/24/20	26 ± 5	40 ± 6	31 ± 6	30 ± 5	33 ± 6	34 ± 6	22 ± 5	36 ± 6	28 ± 5
12/24/20 - 01/02/21	14 ± 3	19 ± 4	21 ± 4	15 ± 3	18 ± 4	13 ± 3	15 ± 3	15 ± 3	15 ± 3
MEAN ± 2 STD DEV	17 ± 13	18 ± 15	18 ± 13	17 ± 12	18 ± 13	17 ± 11	15 ± 11	17 ± 15	15 ± 11

THE MEAN AND 2 STANDARD DEVIATION ARE CALCULATED USING THE POSITIVE VALUES

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-V.1 **CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020**

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

COLLECTION	GROUP III				GROUP IV
PERIOD	D-08	D-10	D-14	D-55	D-12
01/04/20 - 01/11/20	9 ± 4	8 ± 4	9 ± 4	13 ± 4	11 ± 4
01/11/20 - 01/17/20	17 ± 4	19 ± 5	15 ± 4	22 ± 5	20 ± 5
01/17/20 - 01/24/20	23 ± 5	19 ± 4	23 ± 5	24 ± 5	22 ± 5
01/24/20 - 01/31/20	13 ± 4	12 ± 4	14 ± 4	17 ± 4	21 ± 6
01/31/20 - 02/07/20	12 ± 4	11 ± 4	12 ± 4	13 ± 4	10 ± 5
02/07/20 - 02/14/20	14 ± 4	11 ± 4	16 ± 4	15 ± 4	17 ± 4
02/14/20 - 02/21/20	16 ± 4	18 ± 5	15 ± 4	21 ± 5	23 ± 5
02/21/20 - 02/28/20	19 ± 4	19 ± 4	21 ± 5	23 ± 5	23 ± 5
02/28/20 - 03/06/20	9 ± 4	9 ± 4	10 ± 4	13 ± 4	13 ± 4
03/06/20 - 03/13/20	15 ± 4	15 ± 4	15 ± 4	20 ± 4	20 ± 4
03/13/20 - 03/20/20	9 ± 4	9 ± 4	13 ± 4	17 ± 4	11 ± 4
03/20/20 - 03/27/20	8 ± 4	10 ± 4	11 ± 4	12 ± 4	10 ± 4
03/27/20 - 04/03/20	5 ± 3	10 ± 4	8 ± 4	11 ± 4	9 ± 4
04/03/20 - 04/10/20	17 ± 4	16 ± 4	15 ± 4	19 ± 5	16 ± 4
04/10/20 - 04/17/20	18 ± 4	14 ± 4	16 ± 4	17 ± 4	11 ± 6
04/17/20 - 04/24/20	10 ± 4	10 ± 4	11 ± 4	13 ± 4	13 ± 4
04/24/20 - 05/01/20	15 ± 4	13 ± 4	15 ± 4	17 ± 4	18 ± 4
05/01/20 - 05/08/20	10 ± 4	9 ± 4	10 ± 4	11 ± 4	12 ± 4
05/08/20 - 05/15/20	10 ± 4	9 ± 3	11 ± 4	13 ± 4	11 ± 4
05/15/20 - 05/22/20	7 ± 4	7 ± 4	6 ± 4	6 ± 4	7 ± 4
05/22/20 - 05/29/20	11 ± 4	11 ± 3	16 ± 4	14 ± 4	15 ± 4
05/29/20 - 06/05/20	13 ± 4	12 ± 4	11 ± 4	13 ± 4	14 ± 4
06/05/20 - 06/12/20	10 ± 3	11 ± 3	11 ± 3	13 ± 4	13 ± 4
06/12/20 - 06/19/20	14 ± 4	17 ± 4	16 ± 4	14 ± 4	15 ± 4
06/19/20 - 06/26/20	19 ± 5	18 ± 5	17 ± 4	18 ± 5	23 ± 5
06/26/20 - 07/03/20	16 ± 4	14 ± 4	15 ± 4	18 ± 4	18 ± 4
07/03/20 - 07/10/20	21 ± 5	21 ± 4	23 ± 5	21 ± 4	26 ± 5
07/10/20 - 07/17/20	18 ± 4	18 ± 4	19 ± 4	18 ± 4	20 ± 4
07/17/20 - 07/24/20	17 ± 4	17 ± 4	17 ± 4	16 ± 4	23 ± 5
07/24/20 - 07/31/20	13 ± 4	14 ± 4	18 ± 4	16 ± 4	17 ± 4
07/31/20 - 08/07/20	13 ± 4	9 ± 4	13 ± 4	15 ± 4	20 ± 4
08/07/20 - 08/14/20	23 ± 4	25 ± 5	23 ± 4	28 ± 5	28 ± 5
08/14/20 - 08/21/20	16 ± 4	19 ± 4	21 ± 4	18 ± 4	21 ± 4
08/21/20 - 08/28/20	22 ± 5	24 ± 5	25 ± 5	24 ± 5	30 ± 6
08/28/20 - 09/04/20	16 ± 4	16 ± 4	14 ± 4	15 ± 4	13 ± 3
09/04/20 - 09/11/20	10 ± 3	10 ± 3	12 ± 3	12 ± 3	12 ± 3
09/11/20 - 09/18/20	12 ± 4	14 ± 4	18 ± 4	14 ± 4	18 ± 4
09/18/20 - 09/25/20	21 ± 4	21 ± 4	21 ± 4	25 ± 4	24 ± 4
09/25/20 - 10/02/20	12 ± 4	8 ± 4	13 ± 4	9 ± 4	11 ± 4
10/02/20 - 10/09/20	14 ± 4	14 ± 4	17 ± 4	12 ± 4	15 ± 4
10/09/20 - 10/16/20	24 ± 5	19 ± 4	25 ± 5	22 ± 5	25 ± 5
10/16/20 - 10/23/20	21 ± 5	21 ± 5	18 ± 4	19 ± 4	18 ± 4
10/23/20 - 10/30/20	14 ± 4	13 ± 4	16 ± 4	17 ± 5	13 ± 4
10/30/20 - 11/06/20	26 ± 5	29 ± 5	29 ± 5	31 ± 5	27 ± 5
11/06/20 - 11/13/20	17 ± 4	18 ± 4	20 ± 4	19 ± 4	25 ± 5
11/13/20 - 11/20/20	21 ± 4	20 ± 4	23 ± 5	22 ± 5	21 ± 4
11/20/20 - 11/27/20	24 ± 5	23 ± 5	19 ± 5	23 ± 5	22 ± 5
11/27/20 - 12/04/20	26 ± 5	17 ± 4	18 ± 4	22 ± 5	22 ± 5
12/04/20 - 12/11/20	42 ± 6	39 ± 6	32 ± 6	30 ± 5	39 ± 6
12/11/20 - 12/18/20	19 ± 4	15 ± 4	13 ± 4	15 ± 4	17 ± 4
12/18/20 - 12/24/20	32 ± 6	32 ± 6	28 ± 6	30 ± 5	31 ± 6
12/24/20 - 01/02/21	22 ± 4	15 ± 3	18 ± 4	38 ± 9	21 ± 4
MEAN ± 2 STD DEV	16 ± 13	16 ± 13	17 ± 11	18 ± 12	18 ± 13

THE MEAN AND 2 STANDARD DEVIATION ARE CALCULATED USING THE POSITIVE VALUES

Table C-V.2

MONTHLY AND YEARLY MEAN VALUES OF GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

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

GROUP I - ON-SITE LOCATIONS				GROUP II - NEAR-FIELD 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
01/04/20 - 01/31/20	8	24	16 ± 11	01/04/20 - 01/31/20	7	27	16 ± 11	01/04/20 - 01/31/20	8	24	16 ± 10	01/04/20 - 01/31/20	11	22	19 ± 10
01/31/20 - 02/28/20	9	25	17 ± 9	01/31/20 - 02/28/20	6	24	16 ± 9	01/31/20 - 02/28/20	11	23	16 ± 8	01/31/20 - 02/28/20	10	23	18 ± 12
02/28/20 - 04/03/20	7	19	12 ± 7	02/28/20 - 04/03/20	6	22	12 ± 8	02/28/20 - 04/03/20	5	20	11 ± 7	02/28/20 - 04/03/20	9	20	12 ± 9
04/03/20 - 05/01/20	11	19	15 ± 4	04/03/20 - 05/01/20	11	23	15 ± 6	04/03/20 - 05/01/20	10	19	15 ± 5	04/03/20 - 05/01/20	11	18	15 ± 6
05/01/20 - 05/29/20	7	17	11 ± 6	05/01/20 - 05/29/20	7	16	11 ± 5	05/01/20 - 05/29/20	6	16	10 ± 5	05/01/20 - 05/29/20	7	15	11 ± 7
05/29/20 - 07/03/20	10	24	17 ± 8	05/29/20 - 07/03/20	10	25	14 ± 7	05/29/20 - 07/03/20	10	19	14 ± 5	05/29/20 - 07/03/20	13	23	17 ± 8
07/03/20 - 07/31/20	9	30	19 ± 11	07/03/20 - 07/31/20	13	27	18 ± 7	07/03/20 - 07/31/20	13	23	18 ± 5	07/03/20 - 07/31/20	17	26	22 ± 8
07/31/20 - 09/04/20	10	30	20 ± 12	07/31/20 - 09/04/20	9	33	18 ± 12	07/31/20 - 09/04/20	9	28	19 ± 10	07/31/20 - 09/04/20	13	30	22 ± 14
09/04/20 - 10/02/20	8	27	16 ± 11	09/04/20 - 10/02/20	8	26	15 ± 11	09/04/20 - 10/02/20	8	25	14 ± 10	09/04/20 - 10/02/20	11	24	16 ± 12
10/02/20 - 10/30/20	15	25	19 ± 8	10/02/20 - 10/30/20	11	28	18 ± 8	10/02/20 - 10/30/20	12	25	18 ± 8	10/02/20 - 10/30/20	13	25	18 ± 10
10/30/20 - 12/04/20	18	35	24 ± 12	10/30/20 - 12/04/20	15	37	23 ± 10	10/30/20 - 12/04/20	17	31	22 ± 8	10/30/20 - 12/04/20	21	27	23 ± 5
12/04/20 - 01/02/21	14	43	27 ± 21	12/04/20 - 01/02/21	12	39	24 ± 18	12/04/20 - 01/02/21	13	42	26 ± 19	12/04/20 - 01/02/21	17	39	27 ± 19
01/04/20 - 01/02/21	7	43	18 ± 14	01/04/20 - 01/02/21	6	39	17 ± 12	01/04/20 - 01/02/21	5	42	17 ± 12	01/04/20 - 01/02/21	7	39	18 ± 13

Table C-V.3

CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

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

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
D-01	01/04/20 - 04/03/20	< 2	< 2	< 3	< 3	< 5	< 2	< 3	< 2	< 2	< 9	< 5
	04/03/20 - 07/03/20	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 2	< 2	< 17	< 8
	07/03/20 - 10/02/20	< 3	< 4	< 10	< 4	< 11	< 5	< 7	< 4	< 3	< 33	< 12
	10/02/20 - 01/02/21	< 3	< 4	< 9	< 3	< 9	< 4	< 6	< 4	< 4	< 18	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-02	01/04/20 - 04/03/20	< 2	< 1	< 4	< 2	< 6	< 2	< 4	< 2	< 2	< 8	< 6
	04/03/20 - 07/03/20	< 2	< 2	< 6	< 3	< 3	< 1	< 2	< 2	< 2	< 14	< 7
	07/03/20 - 10/02/20	< 2	< 2	< 5	< 2	< 6	< 2	< 4	< 2	< 2	< 15	< 9
	10/02/20 - 01/02/21	< 2	< 2	< 4	< 3	< 4	< 2	< 4	< 2	< 2	< 8	< 3
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-03	01/04/20 - 04/03/20	< 2	< 3	< 5	< 2	< 6	< 2	< 4	< 3	< 2	< 13	< 3
	04/03/20 - 07/03/20	< 4	< 3	< 10	< 4	< 7	< 4	< 5	< 4	< 3	< 28	< 11
	07/03/20 - 10/02/20	< 2	< 2	< 6	< 2	< 8	< 3	< 4	< 2	< 2	< 16	< 3
	10/02/20 - 01/02/21	< 3	< 3	< 6	< 3	< 8	< 2	< 4	< 3	< 3	< 14	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-04	01/04/20 - 04/03/20	< 3	< 3	< 6	< 3	< 6	< 2	< 5	< 3	< 2	< 13	< 4
	04/03/20 - 07/03/20	< 2	< 3	< 5	< 2	< 5	< 3	< 5	< 2	< 2	< 19	< 7
	07/03/20 - 10/02/20	< 2	< 2	< 6	< 2	< 7	< 2	< 4	< 2	< 2	< 18	< 8
	10/02/20 - 01/02/21	< 3	< 2	< 5	< 2	< 5	< 3	< 4	< 2	< 2	< 12	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-07	01/04/20 - 04/03/20	< 2	< 2	< 5	< 2	< 5	< 3	< 5	< 3	< 3	< 12	< 1
	04/03/20 - 07/03/20	< 2	< 2	< 6	< 3	< 4	< 2	< 3	< 2	< 2	< 13	< 9
	07/03/20 - 10/02/20	< 3	< 3	< 6	< 3	< 7	< 3	< 5	< 3	< 2	< 21	< 8
	10/02/20 - 01/02/21	< 2	< 1	< 4	< 2	< 5	< 2	< 3	< 2	< 2	< 8	< 3
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-08	01/04/20 - 04/03/20	< 1	< 2	< 4	< 2	< 4	< 1	< 3	< 2	< 2	< 10	< 4
	04/03/20 - 07/03/20	< 4	< 4	< 8	< 4	< 9	< 3	< 6	< 3	< 3	< 20	< 9
	07/03/20 - 10/02/20	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 3	< 2	< 23	< 10
	10/02/20 - 01/02/21	< 1	< 1	< 4	< 2	< 3	< 2	< 3	< 2	< 1	< 8	< 4
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-10	01/04/20 - 04/03/20	< 3	< 2	< 4	< 3	< 6	< 2	< 4	< 2	< 3	< 14	< 4
	04/03/20 - 07/03/20	< 3	< 2	< 4	< 4	< 6	< 3	< 4	< 3	< 2	< 20	< 3
	07/03/20 - 10/02/20	< 4	< 4	< 11	< 4	< 11	< 5	< 7	< 4	< 4	< 30	< 14
	10/02/20 - 01/02/21	< 3	< 2	< 5	< 3	< 7	< 2	< 4	< 3	< 3	< 15	< 6
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-V.3

CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

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

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
D-12	01/04/20 - 04/03/20	< 4	< 4	< 9	< 3	< 7	< 3	< 5	< 4	< 4	< 17	< 8
	04/03/20 - 07/03/20	< 2	< 2	< 5	< 2	< 4	< 2	< 3	< 1	< 2	< 12	< 5
	07/03/20 - 10/02/20	< 1	< 2	< 6	< 2	< 5	< 3	< 3	< 2	< 1	< 18	< 7
	10/02/20 - 01/02/21	< 2	< 3	< 7	< 4	< 9	< 3	< 6	< 4	< 3	< 17	< 6
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-14	01/04/20 - 04/03/20	< 3	< 3	< 7	< 5	< 8	< 3	< 6	< 3	< 3	< 17	< 6
	04/03/20 - 07/03/20	< 4	< 4	< 10	< 5	< 8	< 4	< 6	< 3	< 3	< 24	< 10
	07/03/20 - 10/02/20	< 2	< 2	< 4	< 2	< 8	< 2	< 4	< 3	< 2	< 21	< 11
	10/02/20 - 01/02/21	< 2	< 2	< 4	< 2	< 7	< 3	< 3	< 2	< 2	< 13	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-45	01/04/20 - 04/03/20	< 1	< 2	< 3	< 3	< 4	< 2	< 3	< 2	< 2	< 11	< 6
	04/03/20 - 07/03/20	< 2	< 2	< 5	< 3	< 5	< 2	< 4	< 2	< 1	< 14	< 6
	07/03/20 - 10/02/20	< 2	< 2	< 7	< 3	< 5	< 2	< 4	< 2	< 2	< 18	< 8
	10/02/20 - 01/02/21	< 2	< 2	< 2	< 3	< 4	< 2	< 3	< 2	< 2	< 9	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-53	01/04/20 - 04/03/20	< 3	< 2	< 6	< 2	< 6	< 2	< 4	< 3	< 3	< 11	< 7
	04/03/20 - 07/03/20	< 3	< 2	< 7	< 3	< 4	< 3	< 5	< 3	< 2	< 20	< 7
	07/03/20 - 10/02/20	< 2	< 3	< 6	< 3	< 7	< 3	< 5	< 2	< 3	< 25	< 8
	10/02/20 - 01/02/21	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 3	< 2	< 12	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-55	01/04/20 - 04/03/20	< 2	< 2	< 5	< 1	< 5	< 2	< 3	< 2	< 2	< 10	< 2
	04/03/20 - 07/03/20	< 2	< 2	< 5	< 3	< 4	< 2	< 3	< 2	< 2	< 13	< 5
	07/03/20 - 10/02/20	< 2	< 2	< 5	< 3	< 6	< 3	< 5	< 3	< 2	< 21	< 9
	10/02/20 - 01/02/21	< 1	< 2	< 5	< 3	< 5	< 2	< 3	< 2	< 2	< 9	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-56	01/04/20 - 04/03/20	< 2	< 1	< 4	< 3	< 5	< 1	< 4	< 2	< 2	< 12	< 5
	04/03/20 - 07/03/20	< 3	< 3	< 6	< 3	< 7	< 4	< 7	< 4	< 4	< 24	< 13
	07/03/20 - 10/02/20	< 2	< 3	< 6	< 2	< 6	< 3	< 4	< 2	< 3	< 21	< 7
	10/02/20 - 01/02/21	< 2	< 2	< 5	< 3	< 6	< 2	< 4	< 2	< 3	< 12	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-
D-58	01/04/20 - 04/03/20	< 2	< 1	< 4	< 2	< 4	< 1	< 3	< 2	< 1	< 8	< 5
	04/03/20 - 07/03/20	< 2	< 2	< 3	< 2	< 4	< 2	< 4	< 2	< 2	< 14	< 8
	07/03/20 - 10/02/20	< 2	< 2	< 4	< 3	< 4	< 2	< 3	< 2	< 2	< 16	< 5
	10/02/20 - 01/02/21	< 4	< 4	< 7	< 3	< 8	< 3	< 5	< 3	< 3	< 18	< 6
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-VI.1 **CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES**
COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020
RESULTS IN UNITS OF E-3 PCI/CU METER + 2 SIGMA

COLLECTION	GROUP I			GROUP II					
PERIOD	D-01	D-02	D-03	D-04	D-07	D-45	D-53	D-56	D-58
01/04/20 - 01/11/20	< 25	< 24	< 24	< 24	< 37	< 39	< 16	< 39	< 38
01/11/20 - 01/17/20	< 12	< 24	< 23	< 23	< 23	< 28	< 24	< 25	< 24
01/17/20 - 01/24/20	< 29	< 27	< 27	< 27	< 48	< 27	< 22	< 27	< 26
01/24/20 - 01/31/20	< 24	< 24	< 24	< 24	< 28	< 42	< 41	< 42	< 17
01/31/20 - 02/07/20	< 14	< 33	< 33	< 33	< 33	< 23	< 13	< 14	< 13
02/07/20 - 02/14/20	< 14	< 32	< 32	< 32	< 32	< 20	< 49	< 49	< 49
02/14/20 - 02/21/20	< 23	< 23	< 23	< 23	< 12	< 36	< 23	< 24	< 23
02/21/20 - 02/28/20	< 37	< 37	< 37	< 37	< 46	< 31	< 30	< 32	< 24
02/28/20 - 03/06/20	< 30	< 30	< 30	< 30	< 28	< 32	< 15	< 32	< 31
03/06/20 - 03/13/20	< 16	< 31	< 31	< 31	< 31	< 28	< 30	< 31	< 30
03/13/20 - 03/20/20	< 33	< 32	< 32	< 32	< 13	< 17	< 14	< 17	< 16
03/20/20 - 03/27/20	< 28	< 33	< 33	< 33	< 33	< 19	< 26	< 27	< 25
03/27/20 - 04/03/20	< 23	< 22	< 22	< 23	< 12	< 19	< 28	< 28	< 28
04/03/20 - 04/10/20	< 31	< 21	< 32	< 31	< 32	< 36	< 31	< 31	< 31
04/10/20 - 04/17/20	< 18	< 43	< 43	< 43	< 43	< 30	< 28	< 29	< 28
04/17/20 - 04/24/20	< 32	< 31	< 31	< 31	< 37	< 31	< 31	< 32	< 16
04/24/20 - 05/01/20	< 52	< 53	< 53	< 52	< 31	< 28	< 27	< 21	< 27
05/01/20 - 05/08/20	< 31	< 30	< 30	< 30	< 19	< 28	< 28	< 29	< 16
05/08/20 - 05/15/20	< 21	< 21	< 21	< 21	< 10	< 13	< 24	< 24	< 24
05/15/20 - 05/22/20	< 31	< 31	< 31	< 31	< 17	< 31	< 31	< 31	< 31
05/22/20 - 05/29/20	< 38	< 39	< 39	< 16	< 39	< 30	< 50	< 52	< 50
05/29/20 - 06/05/20	< 42	< 41	< 41	< 41	< 35	< 25	< 13	< 25	< 24
06/05/20 - 06/12/20	< 44	< 45	< 44	< 19	< 45	< 41	< 24	< 24	< 24
06/12/20 - 06/19/20	< 18	< 32	< 32	< 32	< 32	< 57	< 31	< 32	< 31
06/19/20 - 06/26/20	< 28	< 28	< 28	< 16	< 29	< 30	< 22	< 10	< 22
06/26/20 - 07/03/20	< 20	< 46	< 46	< 47	< 47	< 49	< 30	< 31	< 30
07/03/20 - 07/10/20	< 44	< 19	< 45	< 44	< 45	< 28	< 18	< 19	< 18
07/10/20 - 07/17/20	< 14	< 25	< 25	< 25	< 25	< 38	< 54	< 53	< 53
07/17/20 - 07/24/20	< 41	< 41	< 41	< 17	< 41	< 54	< 34	< 34	< 34
07/24/20 - 07/31/20	< 34	< 34	< 34	< 17	< 34	< 38	< 33	< 33	< 33
07/31/20 - 08/07/20	< 34	< 35	< 16	< 34	< 35	< 23	< 30	< 30	< 30
08/07/20 - 08/14/20	< 32	< 33	< 27	< 33	< 33	< 50	< 32	< 32	< 32
08/14/20 - 08/21/20	< 21	< 21	< 21	< 21	< 16	< 14	< 33	< 33	< 33
08/21/20 - 08/28/20	< 51	< 51	< 51	< 51	< 49	< 51	< 48	< 20	< 48
08/28/20 - 09/04/20	< 63	< 63	< 63	< 63	< 27	< 57	< 68	< 68	< 68
09/04/20 - 09/11/20	< 39	< 39	< 39	< 39	< 33	< 15	< 33	< 33	< 33
09/11/20 - 09/18/20	< 20	< 48	< 48	< 48	< 48	< 53	< 50	< 50	< 50
09/18/20 - 09/25/20	< 61	< 61	< 61	< 61	< 18	< 22	< 22	< 22	< 22
09/25/20 - 10/02/20	< 29	< 29	< 29	< 29	< 25	< 24	< 23	< 23	< 10
10/02/20 - 10/09/20	< 37	< 38	< 39	< 37	< 43	< 40	< 16	< 39	< 39
10/09/20 - 10/16/20	< 23	< 53	*(1)*	< 54	< 53	< 24	< 24	< 30	< 30
10/16/20 - 10/23/20	< 47	< 20	*(1)*	< 47	< 47	< 34	< 21	< 15	< 35
10/23/20 - 10/30/20	< 33	(1)	*(1)*	< 22	< 33	< 42	*(1)*	< 20	< 39
10/30/20 - 11/06/20	< 40	< 40	< 21	< 40	< 40	< 19	< 32	< 31	< 31
11/06/20 - 11/13/20	< 49	< 50	< 49	< 49	< 31	< 30	< 29	< 29	< 29
11/13/20 - 11/20/20	< 30	< 30	< 30	< 30	< 50	< 33	< 31	< 25	< 30
11/20/20 - 11/27/20	< 49	< 49	< 49	< 49	< 44	< 14	< 31	< 31	< 31
11/27/20 - 12/04/20	< 46	< 46	< 46	< 46	< 21	< 30	< 33	< 32	< 32
12/04/20 - 12/11/20	< 33	< 33	< 33	< 33	< 52	< 38	< 36	< 35	< 35
12/11/20 - 12/18/20	< 29	< 29	< 29	< 29	< 44	< 37	< 34	< 28	< 34
12/18/20 - 12/24/20	< 18	< 18	< 18	< 18	< 39	< 18	< 37	< 37	< 37
12/24/20 - 01/02/21	< 14	< 14	< 14	< 14	< 14	< 15	< 15	< 15	< 15
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 DRESDEN NUCLEAR POWER STATION, 2020
RESULTS IN UNITS OF E-3 PCI/CU METER + 2 SIGMA

COLLECTION	GROUP III				GROUP IV
PERIOD	D-08	D-10	D-14	D-55	D-12
01/04/20 - 01/11/20	< 37	< 16	< 37	< 39	< 38
01/11/20 - 01/17/20	< 27	< 14	< 28	< 25	< 28
01/17/20 - 01/24/20	< 48	< 48	< 20	< 27	< 48
01/24/20 - 01/31/20	< 28	< 28	< 29	< 42	< 33
01/31/20 - 02/07/20	< 22	< 22	< 23	< 14	< 14
02/07/20 - 02/14/20	< 47	< 47	< 47	< 50	< 47
02/14/20 - 02/21/20	< 15	< 35	< 36	< 23	< 35
02/21/20 - 02/28/20	< 46	< 46	< 20	< 31	< 47
02/28/20 - 03/06/20	< 29	< 28	< 20	< 32	< 29
03/06/20 - 03/13/20	< 28	< 28	< 19	< 31	< 28
03/13/20 - 03/20/20	< 28	< 28	< 29	< 17	< 29
03/20/20 - 03/27/20	< 19	< 19	< 19	< 26	< 19
03/27/20 - 04/03/20	< 18	< 18	< 16	< 28	< 18
04/03/20 - 04/10/20	< 36	< 17	< 36	< 32	< 36
04/10/20 - 04/17/20	< 30	< 30	< 31	< 28	< 45
04/17/20 - 04/24/20	< 37	< 37	< 16	< 31	< 38
04/24/20 - 05/01/20	< 31	< 31	< 27	< 27	< 31
05/01/20 - 05/08/20	< 25	< 25	< 25	< 28	< 25
05/08/20 - 05/15/20	< 17	< 17	< 17	< 24	< 17
05/15/20 - 05/22/20	< 31	< 31	< 31	< 21	< 31
05/22/20 - 05/29/20	< 30	< 30	< 30	< 51	< 17
05/29/20 - 06/05/20	< 35	< 35	< 15	< 24	< 35
06/05/20 - 06/12/20	< 41	< 17	< 41	< 25	< 41
06/12/20 - 06/19/20	< 57	< 57	< 57	< 32	< 24
06/19/20 - 06/26/20	< 17	< 30	< 30	< 23	< 30
06/26/20 - 07/03/20	< 48	< 48	< 50	< 31	< 22
07/03/20 - 07/10/20	< 28	< 28	< 28	< 19	< 16
07/10/20 - 07/17/20	< 38	< 38	< 16	< 54	< 38
07/17/20 - 07/24/20	< 53	< 53	< 54	< 35	< 22
07/24/20 - 07/31/20	< 38	< 38	< 18	< 34	< 38
07/31/20 - 08/07/20	< 23	< 23	< 18	< 31	< 23
08/07/20 - 08/14/20	< 50	< 50	< 51	< 32	< 21
08/14/20 - 08/21/20	< 30	< 30	< 30	< 33	< 30
08/21/20 - 08/28/20	< 49	< 21	< 50	< 49	< 49
08/28/20 - 09/04/20	< 58	< 57	< 25	< 70	< 58
09/04/20 - 09/11/20	< 28	< 28	< 29	< 34	< 29
09/11/20 - 09/18/20	< 53	< 52	< 22	< 50	< 53
09/18/20 - 09/25/20	< 42	< 42	< 43	< 22	< 43
09/25/20 - 10/02/20	< 25	< 24	< 12	< 24	< 25
10/02/20 - 10/09/20	< 43	< 43	< 44	< 40	< 18
10/09/20 - 10/16/20	< 55	< 24	< 24	< 29	< 24
10/16/20 - 10/23/20	< 47	< 32	< 33	< 36	< 32
10/23/20 - 10/30/20	< 33	< 33	< 40	< 40	< 33
10/30/20 - 11/06/20	< 36	< 36	< 38	< 32	< 36
11/06/20 - 11/13/20	< 31	< 31	< 16	< 24	< 31
11/13/20 - 11/20/20	< 50	< 50	< 23	< 31	< 50
11/20/20 - 11/27/20	< 44	< 44	< 20	< 32	< 44
11/27/20 - 12/04/20	< 21	< 21	< 23	< 33	< 21
12/04/20 - 12/11/20	< 52	< 52	< 22	< 18	< 52
12/11/20 - 12/18/20	< 44	< 44	< 19	< 34	< 44
12/18/20 - 12/24/20	< 39	< 39	< 21	< 38	< 39
12/24/20 - 01/02/21	< 33	< 33	< 35	< 40	< 33
MEAN	-	-	-	-	-

Table C-VII.1 CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER + 2 SIGMA

COLLECTION PERIOD	CONTROL FARM D-25
01/02/20	< 0.6
02/06/20	< 0.7
03/04/20	< 0.9
04/01/20	< 0.5
05/01/20	< 0.7
05/06/20	< 0.9
05/21/20	< 0.9
06/03/20	< 0.9
06/18/20	< 0.9
07/01/20	< 0.7
07/16/20	< 0.9
07/29/20	< 0.7
08/13/20	< 0.9
08/27/20	< 0.9
09/10/20	< 0.9
09/24/20	< 0.9
10/07/20	< 0.8
10/22/20	< 0.8
11/04/20	< 0.9
MEAN	-

Table C-VII.2

CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
D-25	01/02/20	< 8	< 8	< 18	< 8	< 17	< 8	< 14	< 9	< 8	< 30	< 7
	02/06/20	< 7	< 7	< 11	< 7	< 15	< 6	< 10	< 7	< 6	< 22	< 10
	03/04/20	< 8	< 7	< 19	< 8	< 17	< 8	< 13	< 10	< 9	< 38	< 11
	04/01/20	< 4	< 4	< 9	< 5	< 10	< 5	< 8	< 5	< 5	< 18	< 6
	05/01/20	< 5	< 7	< 17	< 8	< 13	< 6	< 13	< 8	< 8	< 30	< 10
	05/06/20	< 8	< 8	< 17	< 11	< 17	< 9	< 16	< 8	< 9	< 33	< 12
	05/21/20	< 7	< 8	< 22	< 6	< 18	< 8	< 14	< 7	< 8	< 36	< 12
	06/03/20	< 8	< 7	< 18	< 9	< 20	< 9	< 11	< 9	< 8	< 33	< 13
	06/18/20	< 8	< 8	< 20	< 8	< 20	< 8	< 12	< 9	< 8	< 33	< 9
	07/01/20	< 6	< 6	< 14	< 11	< 13	< 7	< 12	< 7	< 6	< 25	< 7
	07/16/20	< 7	< 10	< 15	< 8	< 20	< 9	< 13	< 10	< 8	< 35	< 8
	07/29/20	< 7	< 9	< 13	< 10	< 17	< 8	< 16	< 10	< 8	< 39	< 10
	08/13/20	< 8	< 7	< 16	< 10	< 19	< 9	< 15	< 8	< 7	< 43	< 10
	08/27/20	< 6	< 9	< 21	< 6	< 19	< 7	< 15	< 8	< 7	< 35	< 9
	09/10/20	< 8	< 8	< 12	< 7	< 15	< 8	< 12	< 8	< 7	< 25	< 11
	09/24/20	< 9	< 8	< 21	< 7	< 22	< 8	< 14	< 10	< 8	< 38	< 12
	10/07/20	< 9	< 9	< 16	< 10	< 17	< 9	< 15	< 9	< 10	< 34	< 11
	10/22/20	< 8	< 8	< 19	< 8	< 21	< 8	< 13	< 10	< 9	< 30	< 11
	11/04/20	< 5	< 6	< 11	< 6	< 13	< 6	< 10	< 7	< 6	< 26	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-VIII.1

CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
D-25													
Swiss Chard	07/10/20	< 37	< 37	< 72	< 34	< 84	< 40	< 56	< 54	< 45	< 42	< 151	< 49
Turnip	07/10/20	< 30	< 24	< 63	< 30	< 68	< 30	< 52	< 37	< 31	< 28	< 96	< 40
Collards	07/10/20	< 29	< 23	< 48	< 28	< 63	< 29	< 46	< 34	< 34	< 32	< 108	< 25
Turnip	08/14/20	< 25	< 32	< 66	< 30	< 63	< 32	< 53	< 44	< 38	< 31	< 145	< 36
Swiss Chard	08/14/20	< 45	< 41	< 74	< 39	< 92	< 45	< 74	< 56	< 39	< 36	< 204	< 47
Collard Greens	08/14/20	< 38	< 39	< 74	< 35	< 92	< 43	< 69	< 56	< 41	< 42	< 147	< 45
Swiss Chard	09/11/20	< 33	< 31	< 57	< 39	< 83	< 40	< 56	< 37	< 40	< 33	< 146	< 39
Collards	09/11/20	< 30	< 31	< 64	< 40	< 65	< 29	< 57	< 38	< 34	< 31	< 119	< 32
Turnips	09/11/20	< 27	< 24	< 70	< 31	< 64	< 29	< 48	< 37	< 33	< 31	< 108	< 32
Swiss Chard	10/09/20	< 16	< 16	< 36	< 18	< 39	< 16	< 27	< 21	< 17	< 18	< 66	< 16
Collards	10/09/20	< 31	< 36	< 60	< 34	< 78	< 30	< 49	< 41	< 32	< 38	< 128	< 24
Turnip	10/09/20	< 18	< 18	< 37	< 19	< 42	< 17	< 32	< 22	< 18	< 20	< 69	< 22
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
D-40													
Swiss Chard	08/14/20	< 13	< 13	< 29	< 14	< 28	< 13	< 22	< 18	< 13	< 15	< 57	< 14
Turnip	08/14/20	< 28	< 28	< 57	< 35	< 52	< 28	< 40	< 38	< 30	< 26	< 113	< 28
Collard Greens	08/14/20	< 23	< 18	< 52	< 32	< 53	< 28	< 30	< 41	< 25	< 26	< 94	< 24
Turnips	09/11/20	< 26	< 24	< 55	< 31	< 52	< 29	< 40	< 31	< 31	< 33	< 103	< 34
Kale	09/11/20	< 21	< 34	< 47	< 45	< 81	< 35	< 54	< 36	< 42	< 37	< 136	< 34
Collards	09/11/20	< 30	< 29	< 60	< 28	< 60	< 30	< 52	< 38	< 29	< 28	< 117	< 34
Turnip	10/09/20	< 36	< 37	< 76	< 30	< 76	< 37	< 69	< 55	< 46	< 38	< 131	< 22
Kale	10/09/20	< 27	< 27	< 51	< 26	< 61	< 26	< 47	< 34	< 26	< 24	< 123	< 22
Collards	10/09/20	< 32	< 25	< 59	< 30	< 60	< 24	< 48	< 37	< 35	< 22	< 88	< 38
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
D-41													
Collard Greens	08/14/20	< 19	< 20	< 38	< 22	< 42	< 20	< 33	< 27	< 22	< 21	< 78	< 26
Collards	09/11/20	< 30	< 36	< 44	< 36	< 81	< 33	< 58	< 42	< 35	< 32	< 137	< 35
Swiss Chard	09/11/20	< 37	< 37	< 86	< 44	< 93	< 38	< 78	< 49	< 52	< 33	< 157	< 48
Kale	09/11/20	< 40	< 37	< 85	< 42	< 90	< 43	< 70	< 58	< 41	< 50	< 181	< 63
Collards	10/09/20	< 20	< 17	< 38	< 24	< 36	< 18	< 28	< 19	< 18	< 19	< 71	< 18
Swiss Chard	10/09/20	< 19	< 19	< 38	< 23	< 42	< 19	< 31	< 23	< 23	< 19	< 74	< 21
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

Table C-VIII.1

CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
D-42													
Kale	07/10/20	< 35	< 39	< 82	< 42	< 74	< 38	< 61	< 55	< 36	< 37	< 143	< 54
Cabbage	07/10/20	< 21	< 29	< 47	< 28	< 49	< 31	< 41	< 39	< 26	< 28	< 126	< 46
Swiss Chard	07/10/20	< 39	< 34	< 66	< 45	< 84	< 35	< 62	< 51	< 37	< 43	< 137	< 60
Kohlrabi	07/10/20	< 39	< 41	< 82	< 34	< 56	< 37	< 62	< 54	< 35	< 41	< 178	< 36
Turnip	08/14/20	< 32	< 29	< 67	< 37	< 70	< 28	< 60	< 36	< 27	< 34	< 122	< 43
Kale	08/14/20	< 38	< 36	< 76	< 39	< 87	< 41	< 72	< 56	< 39	< 45	< 161	< 44
Cabbage	08/14/20	< 37	< 36	< 54	< 32	< 62	< 37	< 70	< 44	< 34	< 36	< 138	< 39
Turnip	09/11/20	< 27	< 28	< 48	< 31	< 59	< 30	< 37	< 30	< 30	< 26	< 134	< 18
Kale	09/11/20	< 32	< 23	< 62	< 20	< 58	< 25	< 42	< 42	< 29	< 32	< 131	< 36
Swiss Chard	09/11/20	< 36	< 34	< 67	< 33	< 68	< 31	< 61	< 53	< 36	< 42	< 141	< 44
Cabbage	09/11/20	< 15	< 17	< 29	< 16	< 29	< 19	< 30	< 23	< 15	< 19	< 71	< 17
Kohlrabi	09/11/20	< 15	< 14	< 35	< 13	< 22	< 14	< 23	< 21	< 13	< 15	< 60	< 16
Turnip	10/09/20	< 19	< 22	< 52	< 24	< 55	< 20	< 34	< 26	< 25	< 22	< 69	< 23
Kale	10/09/20	< 14	< 17	< 31	< 18	< 33	< 16	< 27	< 19	< 17	< 16	< 62	< 17
Cabbage	10/09/20	< 24	< 30	< 59	< 29	< 62	< 30	< 53	< 34	< 28	< 34	< 93	< 43
Kohlrabi	10/09/20	< 16	< 17	< 37	< 19	< 39	< 17	< 28	< 26	< 19	< 19	< 82	< 11
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
D-43													
Turnip	08/14/20	< 30	< 31	< 49	< 38	< 71	< 33	< 55	< 45	< 35	< 31	< 142	< 45
Collard green	08/14/20	< 35	< 33	< 74	< 39	< 73	< 30	< 55	< 41	< 37	< 30	< 149	< 38
Swiss Chard	08/14/20	< 36	< 35	< 78	< 48	< 80	< 35	< 64	< 48	< 36	< 40	< 132	< 61
Swiss Chard	09/11/20	< 34	< 30	< 67	< 33	< 58	< 34	< 66	< 44	< 36	< 34	< 138	< 41
Turnip	09/11/20	< 21	< 21	< 46	< 26	< 54	< 25	< 47	< 27	< 27	< 19	< 86	< 19
Collards	09/11/20	< 26	< 23	< 55	< 27	< 50	< 25	< 38	< 29	< 24	< 23	< 107	< 27
Turnip	10/09/20	< 34	< 34	< 68	< 39	< 74	< 32	< 57	< 37	< 36	< 32	< 111	< 25
Collards	10/09/20	< 24	< 21	< 51	< 29	< 60	< 25	< 45	< 31	< 25	< 23	< 106	< 29
Swiss Chard	10/09/20	< 28	< 40	< 74	< 44	< 98	< 34	< 60	< 36	< 40	< 37	< 154	< 42
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
D-44													
Swiss Chard	07/10/20	< 37	< 36	< 69	< 41	< 67	< 33	< 48	< 40	< 34	< 36	< 133	< 34
Collards	07/10/20	< 26	< 27	< 56	< 31	< 62	< 27	< 41	< 35	< 27	< 28	< 104	< 35
Turnips	07/10/20	< 24	< 21	< 42	< 26	< 60	< 24	< 22	< 28	< 25	< 25	< 94	< 25
Swiss Chard	08/14/20	< 35	< 36	< 100	< 39	< 73	< 28	< 55	< 47	< 42	< 38	< 139	< 46
Turnip	08/14/20	< 16	< 15	< 30	< 16	< 37	< 16	< 30	< 22	< 18	< 16	< 62	< 18
Collard Greens	08/14/20	< 25	< 26	< 81	< 38	< 69	< 36	< 57	< 41	< 34	< 30	< 137	< 56
Kale	08/14/20	< 26	< 31	< 53	< 25	< 63	< 30	< 55	< 41	< 23	< 31	< 124	< 39
Turnip	09/11/20	< 28	< 23	< 49	< 30	< 49	< 27	< 45	< 29	< 25	< 28	< 90	< 36
Collards	09/11/20	< 26	< 30	< 77	< 35	< 81	< 28	< 44	< 28	< 31	< 27	< 125	< 25
Kale	09/11/20	< 25	< 26	< 45	< 26	< 61	< 27	< 48	< 37	< 33	< 28	< 130	< 24
Swiss Chard	09/11/20	< 38	< 26	< 62	< 29	< 76	< 29	< 41	< 42	< 37	< 31	< 115	< 38
Turnip	10/09/20	< 19	< 16	< 37	< 21	< 41	< 18	< 31	< 22	< 21	< 17	< 75	< 20
Collards	10/09/20	< 27	< 25	< 60	< 30	< 64	< 30	< 49	< 40	< 28	< 35	< 116	< 29
Kale	10/09/20	< 16	< 15	< 33	< 17	< 36	< 16	< 28	< 21	< 17	< 16	< 65	< 18
Swiss Chard	10/09/20	< 18	< 17	< 37	< 20	< 43	< 17	< 31	< 23	< 20	< 17	< 74	< 19
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

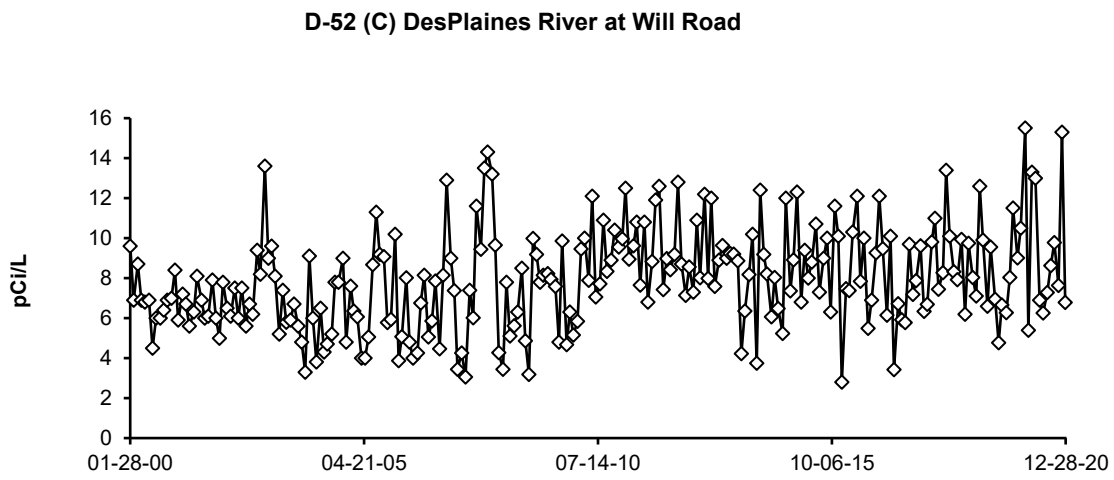
Table C-IX.1 QUARTERLY DLR RESULTS FOR DRESDEN NUCLEAR POWER STATION, 2020

Location	Location Qtrly Baseline, B_Q (mrem)	B_Q + MDD_Q (mrem)	Normalized Net Dose, M_{QX} (mrem/std. Qtr.)				Annual Baseline, B_A[1] (mrem)	B_A + MDD_A[2] (mrem)	Normalized Dose, M_A (mrem/yr)	Annual Facility Dose, F_A (mrem)
			1	2	3	4				
D-01	27.7	40.5	15	22	24	20	111	155	81	ND
D-02	28.8	41.6	15	21	21	17	115	160	75	ND
D-03	23.9	36.7	14	21	21	19	96	140	75	ND
D-04	27.4	40.2	16	21	24	19	110	154	79	ND
D-07	26.7	39.5	16	23	25	21	107	151	85	ND
D-08	24.4	37.2	15	21	23	20	98	142	79	ND
D-10	28.6	41.4	16	22	24	19	115	159	80	ND
D-12	23.7	36.5	14	21	23	18	90	135	75	ND
D-14	23.5	36.3	14	21	19	18	94	138	72	ND
D-45	23.2	36.0	17	24	25	22	93	137	87	ND
D-53	27.5	40.3	15	20	21	17	110	154	73	ND
D-55	27.2	40.0	15	22	23	19	109	153	80	ND
D-56	25.3	38.1	12	18	19	16	101	146	64	ND
D-58	26.5	39.3	10	17	18	17	106	150	63	ND
D-101	26.6	39.4	16	23	24	21	107	151	84	ND
D-102	28.6	41.4	19	24	25	21	114	159	90	ND
D-103	26.4	39.2	15	23	23	19	106	150	79	ND
D-104	28.3	41.1	17	22	25	21	107	152	86	ND
D-105	27.1	39.9	18	22	24	20	109	153	84	ND
D-106	24.1	36.9	11	16	19	15	92	136	61	ND
D-107	23.8	36.6	11	17	18	16	95	140	62	ND
D-108	26.8	39.6	14	20	24	19	107	152	77	ND
D-109	27.0	39.8	15	22	24	19	108	153	79	ND
D-110	31.1	43.9	19	25	27	22	125	169	93	ND
D-111	28.6	41.4	17	23	25	20	103	148	85	ND
D-112A	25.3	38.1	14	19	22	17	101	146	72	ND
D-113	25.1	37.9	15	20	23	19	96	140	77	ND
D-114	24.6	37.4	14	19	21	17	98	143	70	ND
D-115	27.5	40.3	16	21	23	20	110	155	80	ND
D-116	29.4	42.2	18	22	27	22	118	162	88	ND
D-201	30.8	43.6	17	24	26	21	111	155	88	ND
D-202	27.6	40.4	17	21	25	21	105	149	84	ND
D-203	26.2	39.0	14	18	22	17	94	139	71	ND
D-204	24.4	37.2	13	18	20	16	98	142	67	ND
D-205	23.3	36.1	18	21	23	20	93	138	82	ND
D-206	26.6	39.4	14	22	22	19	101	146	77	ND
D-207	24.8	37.6	13	19	19	16	99	144	67	ND
D-208	23.0	35.8	12	17	18	16	92	136	63	ND
D-209	23.1	35.9	12	17	17	15	92	137	61	ND
D-210	26.1	38.9	15	21	21	19	105	149	76	ND
D-211	27.7	40.5	17	23	25	19	111	155	84	ND
D-212	24.5	37.3	13	18	19	16	98	142	66	ND
D-213	23.1	35.9	12	18	19	16	93	137	65	ND
D-214	31.0	43.8	16	22	25	19	124	168	83	ND
D-215	29.9	42.7	18	23	28	21	120	164	91	ND
D-216	28.0	40.8	16	22	22	19	106	151	80	ND

[1] **Baseline background dose (BB_A):** The estimated mean background radiation dose at each field monitoring location annually based on historical measurements, excluding any dose contribution from the monitored facility

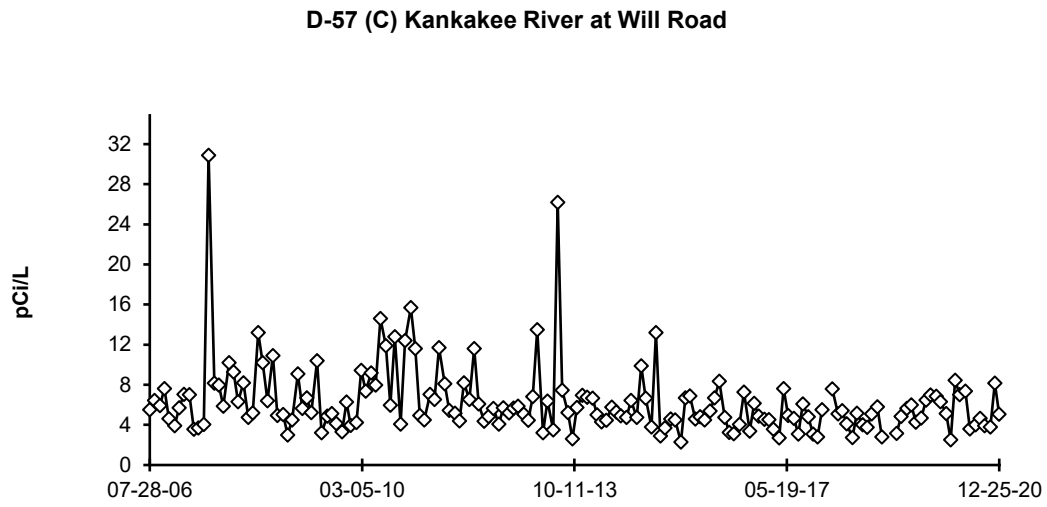
[2] **Minimum differential dose (MDD_A)**: The smallest amount of facility related dose at each monitored location annually above the baseline background dose that can be reliably detected by an environmental dosimetry system

FIGURE C-1
SURFACE WATER - GROSS BETA - STATION D-52 (C)
COLLECTED IN THE VICINITY OF DNPS, 2000 - 2020



DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY 2005

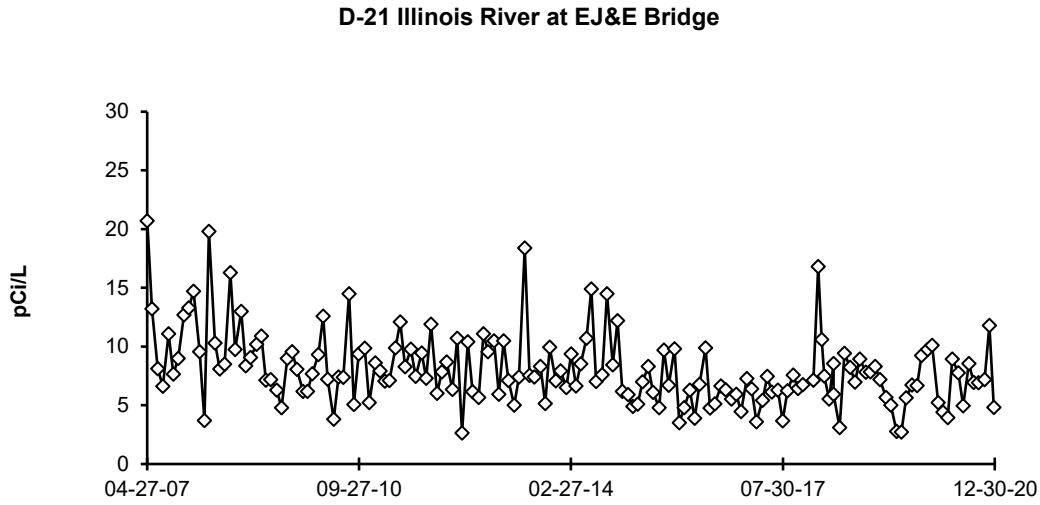
FIGURE C-2
SURFACE WATER - GROSS BETA - STATION D-57 (C)
COLLECTED IN THE VICINITY OF DNPS, 2006 - 2020



DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY 2005

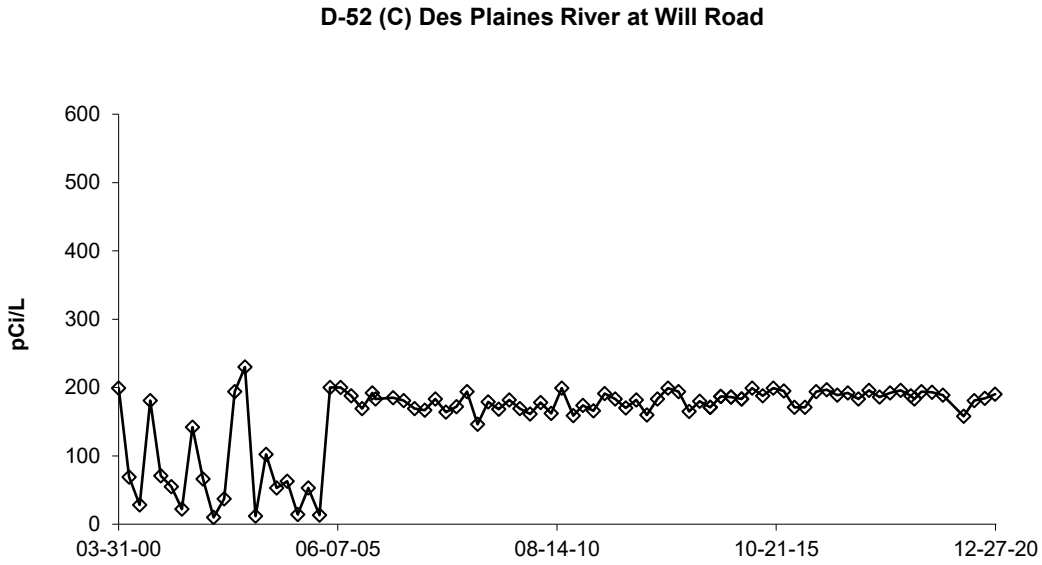
D-54 LOCATION REMOVED FROM PROGRAM JUNE 28, 2007 AND REPLACED WITH D-57

FIGURE C-3
SURFACE WATER - GROSS BETA - STATION D-21
COLLECTED IN THE VICINITY OF DNPS, 2000 - 2020



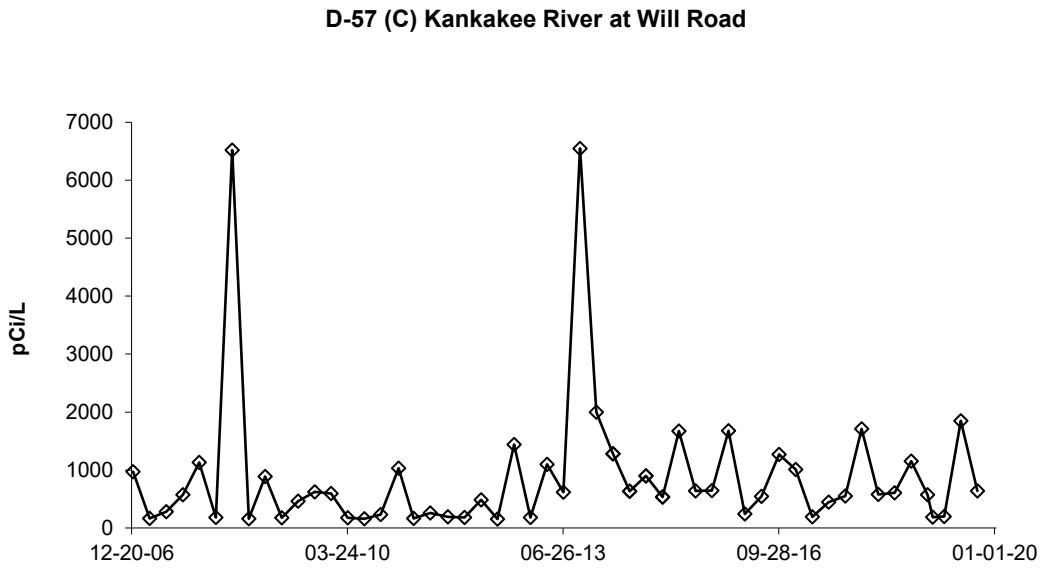
D-21 PLACED INTO SERVICE ON MARCH 30, 2007, REPLACED D-51

FIGURE C-4
SURFACE WATER - TRITIUM - STATION D-52 (C)
COLLECTED IN THE VICINITY OF DNPS, 2000 - 2020



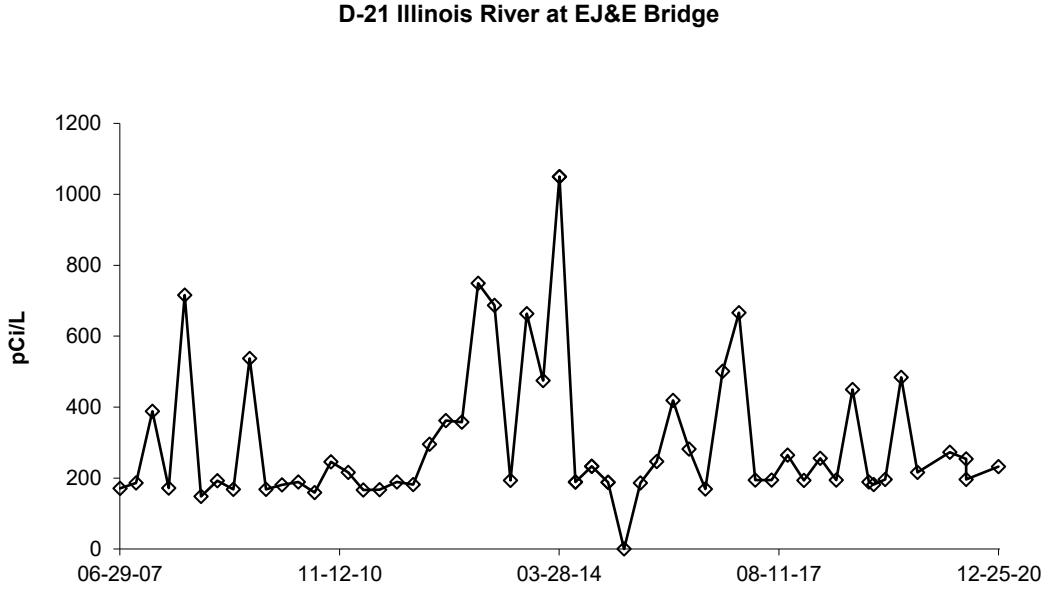
DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY 2005

FIGURE C-5
SURFACE WATER - TRITIUM - STATION D-57 (C)
COLLECTED IN THE VICINITY OF DNPS, 2006 - 2020



DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY 2005

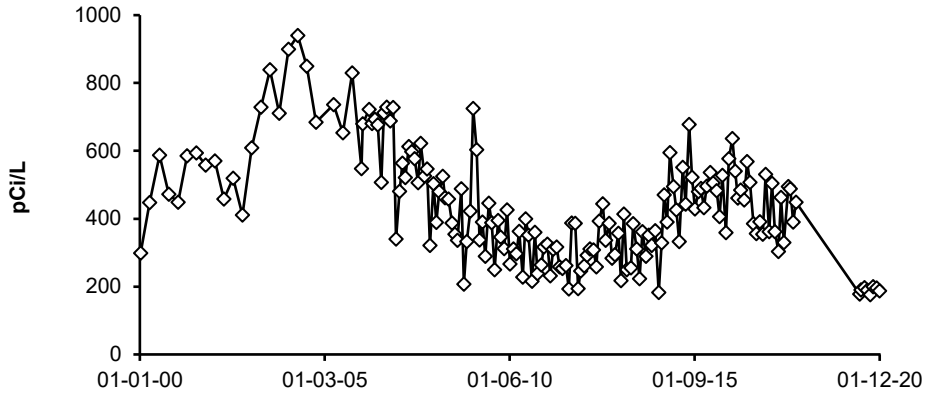
FIGURE C-6
SURFACE WATER - TRITIUM - STATION D-21
COLLECTED IN THE VICINITY OF DNPS, 2007 - 2020



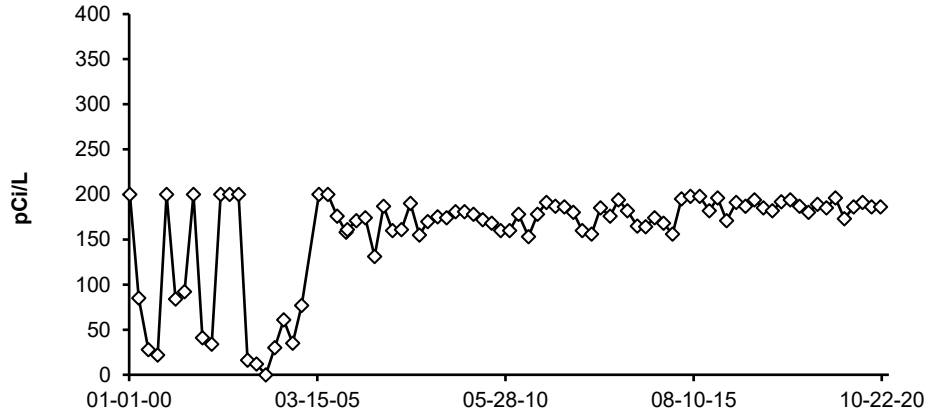
D-21 REPLACED D-51 JUNE 29, 2007

FIGURE C-7
GROUND WATER - TRITIUM - STATIONS D-23 and D-35 COLLECTED IN THE VICINITY OF DNPS, 2000 - 2020

D-23 Thorsen Well

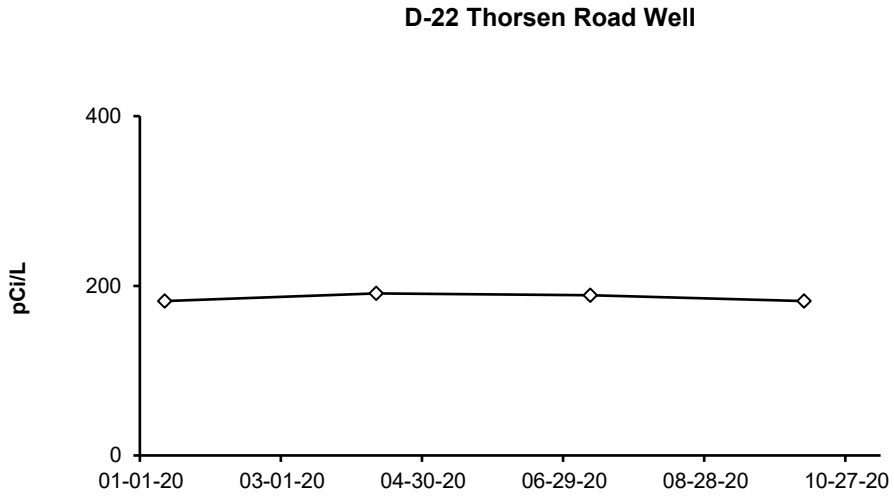


D-35 Dresden Lock and Dam



DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MCD VALUES AFTER JULY 2005

FIGURE C-8
GROUND WATER - TRITIUM - STATIONS D-22 and D-24 COLLECTED IN THE VICINITY OF DNPS, 2020



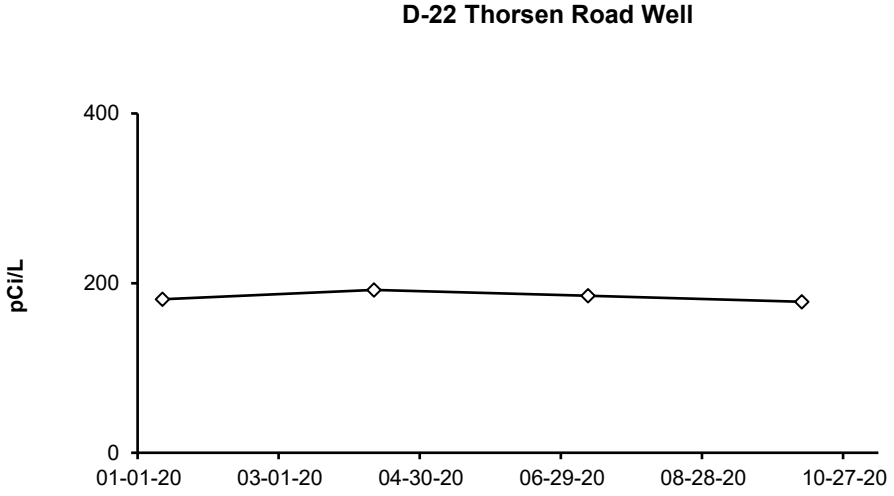
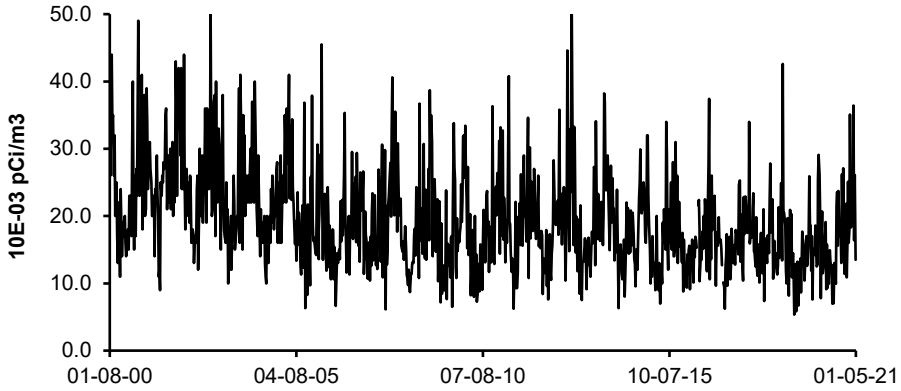
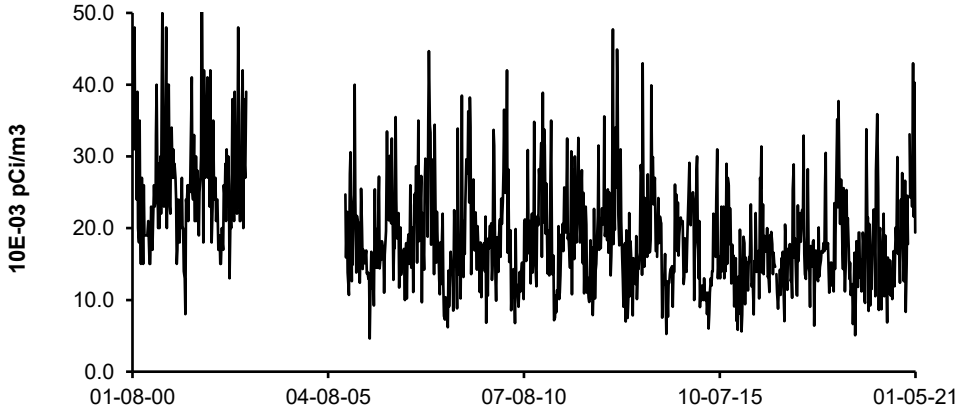


FIGURE C-9
AIR PARTICULATES - GROSS BETA - STATIONS D-01 and D-02 COLLECTED IN THE VICINITY OF DNPS, 2000 - 2020

D-01 Onsite Station 1



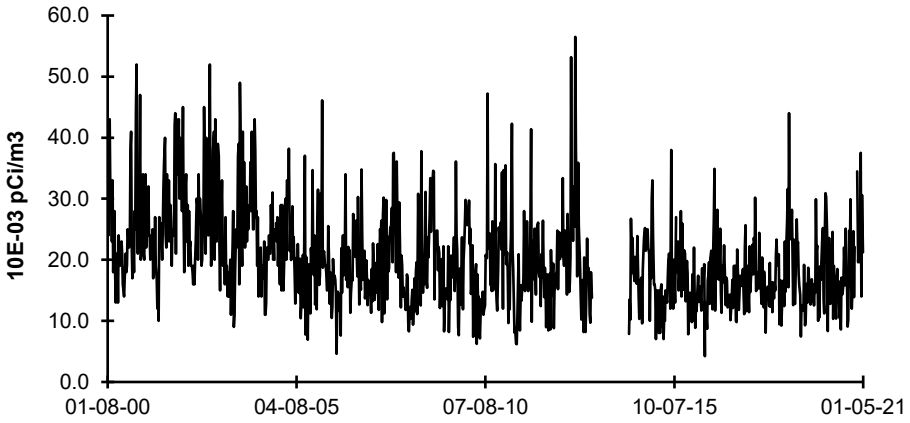
D-02 Onsite Station 2



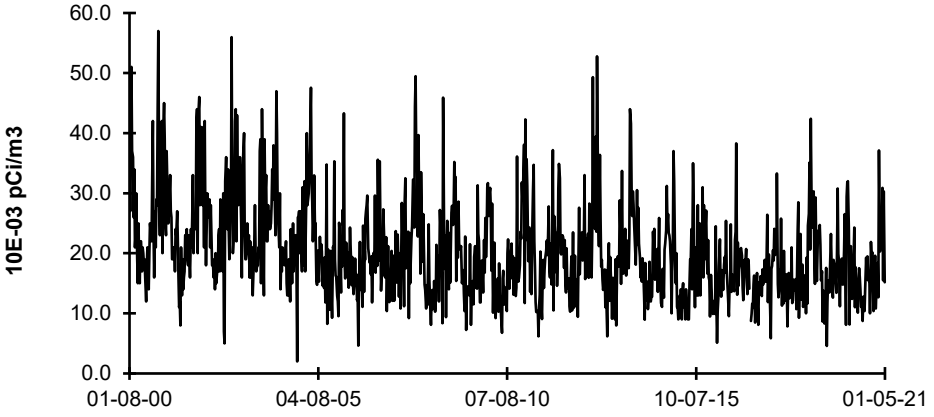
D-02 No samples; power was restored on 09-16-05.

FIGURE C-10
AIR PARTICULATES - GROSS BETA - STATIONS D-03 and D-04 COLLECTED IN THE VICINITY OF DNPS, 2000 - 2020

D-03 Onsite Station 3



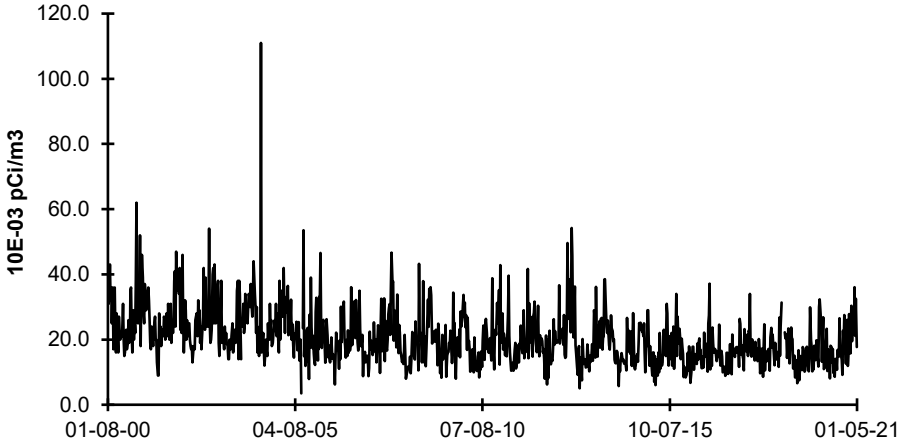
D-04 Collins Road on Station Property



D-03 No samples; power was restored on 07-04-14.

FIGURE C-11
AIR PARTICULATES - GROSS BETA - STATIONS D-07 and D-12 (C) COLLECTED IN THE VICINITY OF DNPS, 2000 - 2020

D-07 Clay Products, Dresden Road



D-12 (C), Quarry Road, Lisbon

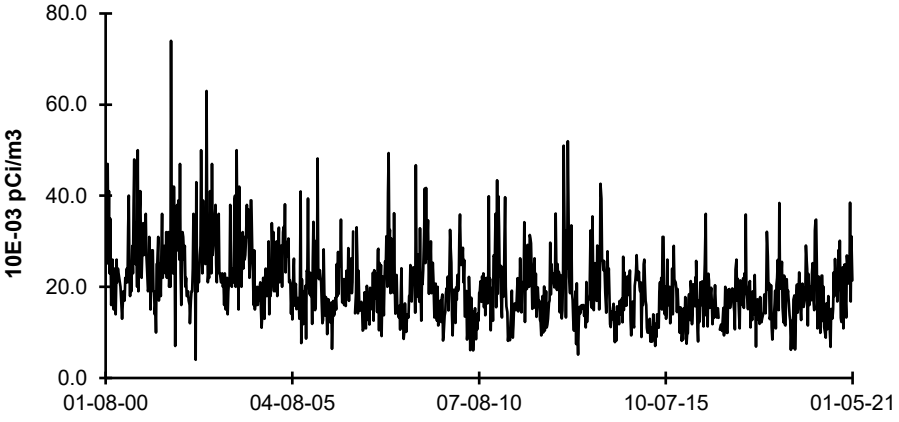
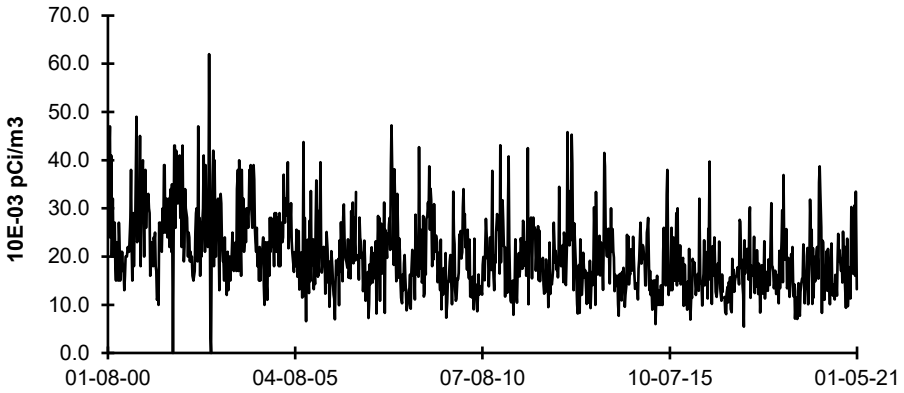


FIGURE C-12
AIR PARTICULATES - GROSS BETA - STATIONS D-45 and D-53 COLLECTED IN THE VICINITY OF DNPS, 2000 - 2020

D-45 McKinley Woods Road, Channahon



D-53 Will Road, Hollyhock

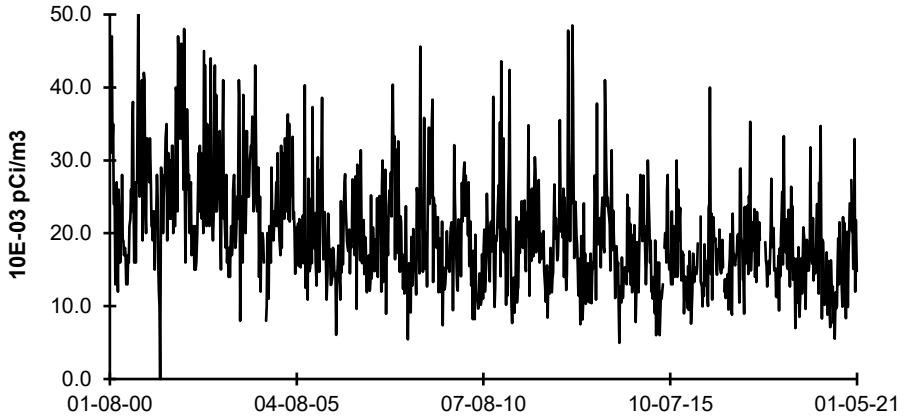
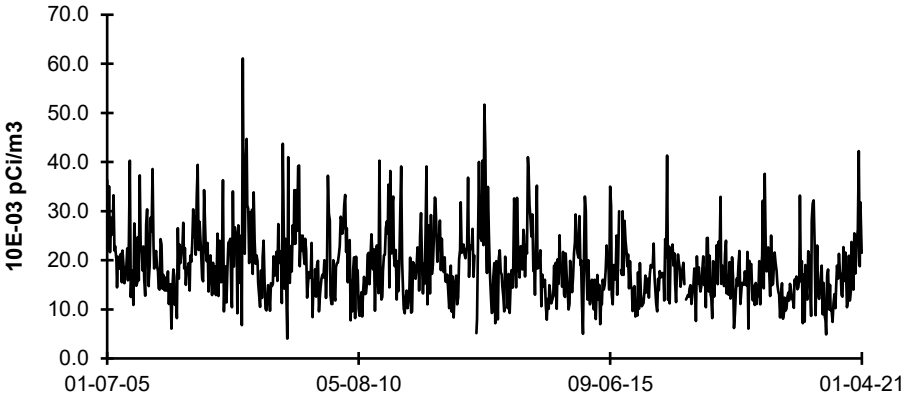


FIGURE C-13
AIR PARTICULATES - GROSS BETA - STATIONS D-08 and D-10 COLLECTED IN THE VICINITY OF DNPS, 2005 - 2020

D-08 Jugtown Road, Prairie Parks



D-10 Goose Lake Road, Goose Lake Village

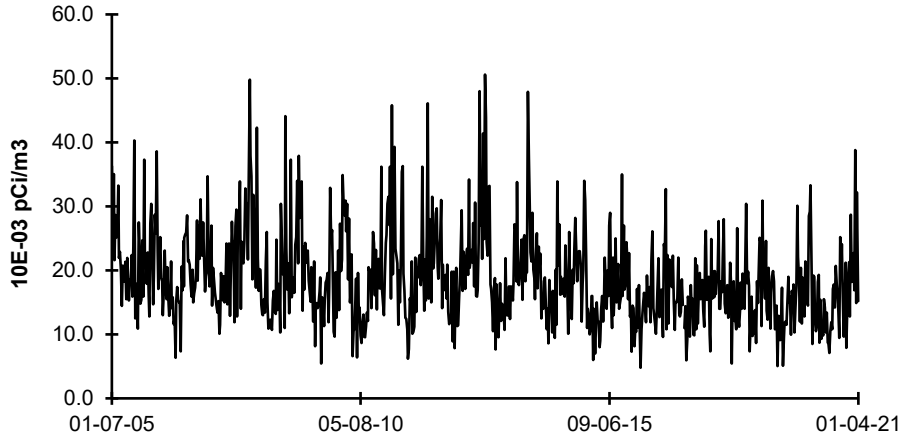


FIGURE C-14
AIR PARTICULATES - GROSS BETA - STATION D-14
COLLECTED IN THE VICINITY OF DNPS, 2005 - 2020

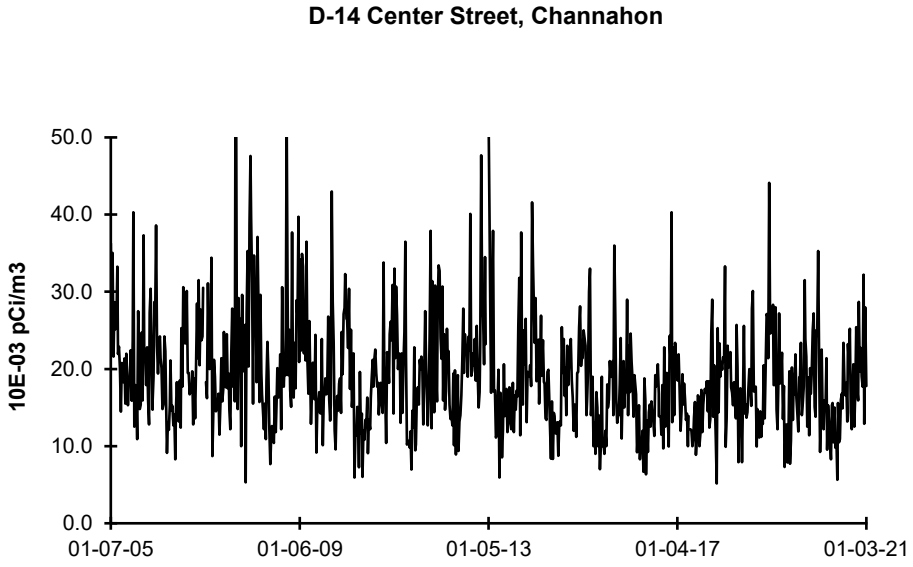
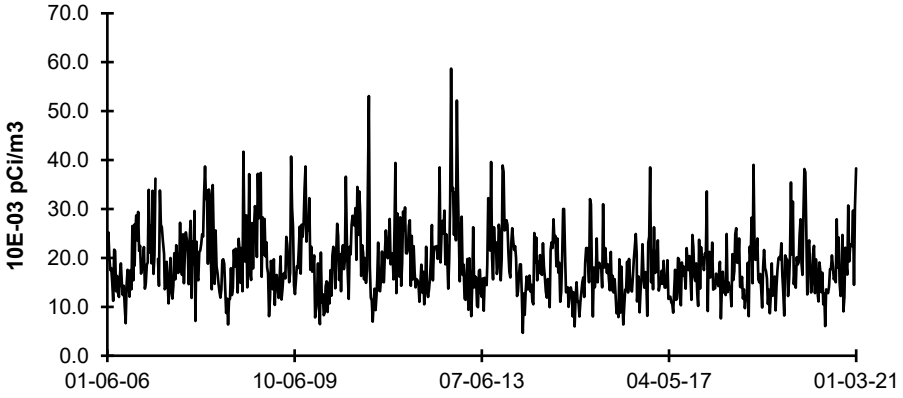
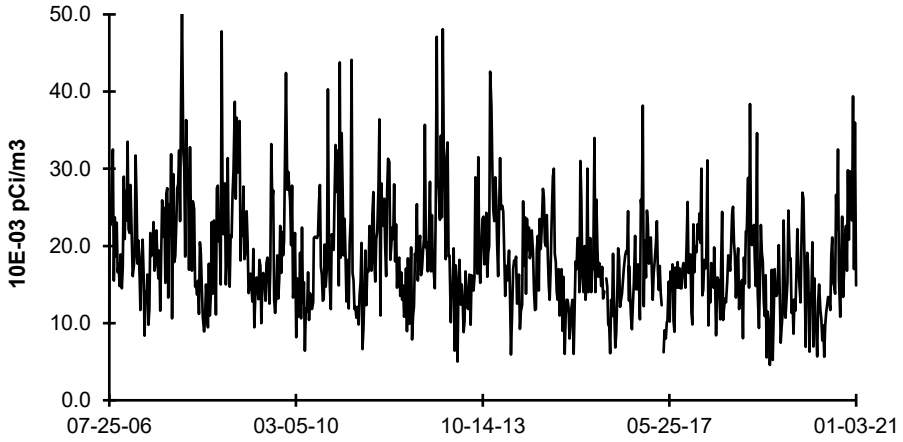


FIGURE C-15
AIR PARTICULATES - GROSS BETA - STATIONS D-55 and D-56 COLLECTED IN THE VICINITY OF DNPS, 2006 - 2020

D-55 Ridge Road, Minooka

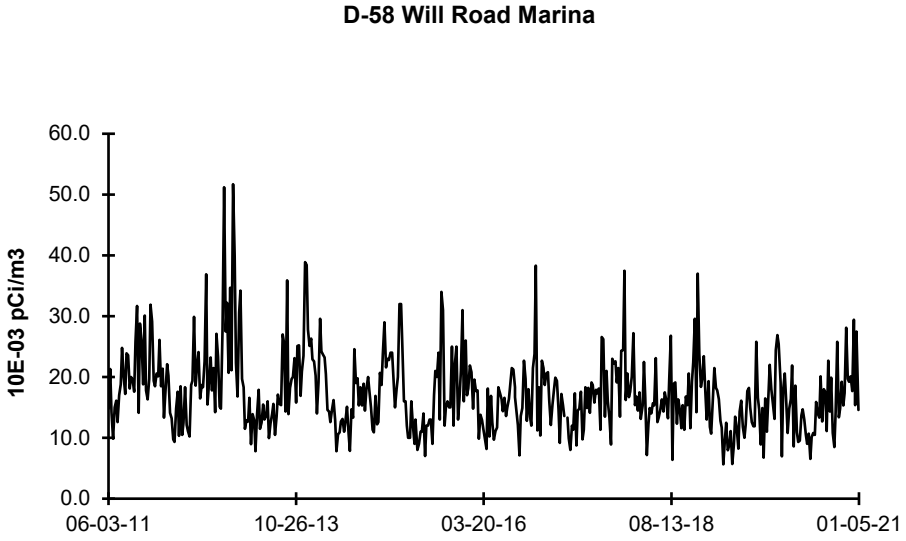


D-56 Will Road, Wildfeather



D-55 NEW STATION DECEMBER 30, 2005 REPLACED D-13 JUNE 29, 2007
D-56 NEW STATION JULY 25, 2006

FIGURE C-16
AIR PARTICULATES - GROSS BETA - STATION D-58
COLLECTED IN THE VICINITY OF DNPS, 2011 - 2020



D-58 NEW STATION IN MAY OF 2011

APPENDIX D

INTER-LABORATORY COMPARISON PROGRAM

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Table D-1 **Analytics Environmental Radioactivity Cross Check Program**
Teledyne Brown Engineering Environmental Services

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Value	Known Value [a]	Ratio of TBE to Known Result	Evaluation [b]
September 2020	E13247	Milk	Sr-89	pCi/L	62.8	95.4	0.66	N[1]
			Sr-90	pCi/L	12.0	12.8	0.94	A
	E13248	Milk	Ce-141	pCi/L	156	150	1.04	A
			Co-58	pCi/L	172	180	0.96	A
			Co-60	pCi/L	369	379	0.97	A
			Cr-51	pCi/L	372	372	1.00	A
			Cs-134	pCi/L	171	200	0.85	A
			Cs-137	pCi/L	241	250	0.96	A
			Fe-59	pCi/L	217	200	1.08	A
			I-131	pCi/L	84.6	95.0	0.89	A
			Mn-54	pCi/L	175	180	0.97	A
			Zn-65	pCi/L	252	270	0.93	A
	E13249	Charcoal	I-131	pCi	70.2	75.8	0.93	A
	E13250	AP	Ce-141	pCi	101	101	1.00	A
			Co-58	pCi	111	120	0.92	A
			Co-60	pCi	249	254	0.98	A
			Cr-51	pCi	287	249	1.15	A
			Cs-134	pCi	114	134	0.85	A
			Cs-137	pCi	159	168	0.95	A
			Fe-59	pCi	127	134	0.95	A
			Mn-54	pCi	114	121	0.94	A
			Zn-65	pCi	168	181	0.93	A
	E13251	Soil	Ce-141	pCi/g	0.241	0.191	1.26	W
			Co-58	pCi/g	0.211	0.228	0.93	A
			Co-60	pCi/g	0.466	0.481	0.97	A
			Cr-51	pCi/g	0.450	0.472	0.95	A
			Cs-134	pCi/g	0.273	0.254	1.07	A
			Cs-137	pCi/g	0.370	0.390	0.95	A
			Fe-59	pCi/g	0.233	0.254	0.92	A
			Mn-54	pCi/g	0.217	0.229	0.95	A
			Zn-65	pCi/g	0.368	0.343	1.07	A
	E13252	AP	Sr-89	pCi	79.9	100.0	0.80	A
			Sr-90	pCi	12.1	13.4	0.90	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 20-19***

Table D-1 **Analytics Environmental Radioactivity Cross Check Program**
Teledyne Brown Engineering Environmental Services

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Value	Known Value [(a)]	Ratio of TBE to Known Result	Evaluation [(b)]
December 2020	E13254	Milk	Sr-89	pCi/L	82.2	89.7	0.92	A
			Sr-90	pCi/L	12.4	13.0	0.96	A
	E13255	Milk	Ce-141	pCi/L	91.1	100	0.91	A
			Co-58	pCi/L	77.5	84.3	0.92	A
			Co-60	pCi/L	147	152	0.97	A
			Cr-51	pCi/L	259	253	1.02	A
			Cs-134	pCi/L	97.1	108	0.90	A
			Cs-137	pCi/L	117	127	0.92	A
			Fe-59	pCi/L	114	112	1.02	A
			I-131	pCi/L	84.3	91.9	0.92	A
			Mn-54	pCi/L	137	143	0.96	A
			Zn-65	pCi/L	175	190	0.92	A
	E13256	Charcoal	I-131	pCi	70.2	78.2	0.90	A
	E13257A	AP	Ce-141	pCi	67.4	74.6	0.90	A
			Co-58	pCi	57.9	62.9	0.92	A
			Co-60	pCi	108	113	0.95	A
			Cr-51	pCi	162	189	0.86	A
			Cs-134	pCi	68.1	80.4	0.85	A
			Cs-137	pCi	82.4	95.0	0.87	A
			Fe-59	pCi	80.5	83.7	0.96	A
			Mn-54	pCi	102	107	0.95	A
			Zn-65	pCi	115	142	0.81	A
	E13258	Soil	Ce-141	pCi/g	0.167	0.170	0.98	A
			Co-58	pCi/g	0.125	0.143	0.87	A
			Co-60	pCi/g	0.245	0.257	0.95	A
			Cr-51	pCi/g	0.393	0.429	0.92	A
			Cs-134	pCi/g	0.147	0.183	0.80	A
			Cs-137	pCi/g	0.260	0.288	0.90	A
			Fe-59	pCi/g	0.199	0.190	1.05	A
			Mn-54	pCi/g	0.229	0.243	0.94	A
			Zn-65	pCi/g	0.320	0.322	0.99	A
	E13259	AP	Sr-89	pCi	85.0	78.6	1.08	A
			Sr-90	pCi	13.1	11.4	1.15	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

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

Table D-2

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Value	Known Value [a]	Acceptance Range	Evaluation [b]
February 2020	20-GrF42	AP	Gross Alpha	Bq/sample	0.676	1.24	0.37 - 2.11	A
			Gross Beta	Bq/sample	2.03	2.00	1.00 - 3.00	A
	20-MaS42	Soil	Ni-63	Bq/kg	0.01		*(1)*	A
			Sr-90	Bq/kg	348	340	238 - 442	A
	20-MaW42	Water	Ni-63	Bq/L	11.6	11.1	7.8 - 14.4	A
			Pu-238	Bq/L	0.926	0.94	0.66 - 1.22	A
			Pu-239/240	Bq/L	0.712	0.737	0.516 - 0.958	A
	20-RdF42	AP	U-234/233	Bq/sample	0.0416	0.075	0.053 - 0.098	N[3]
			U-238	Bq/sample	0.0388	0.078	0.055 - 0.101	N[3]
	20-RdV42	Vegetation	Cs-134	Bq/sample	3.23	3.82	2.67 - 4.97	A
			Cs-137	Bq/sample	2.64	2.77	1.94 - 3.60	A
			Co-57	Bq/sample	0.0281		*(1)*	A
			Co-60	Bq/sample	2.62	2.79	1.95 - 3.63	A
			Mn-54	Bq/sample	4.3	4.58	3.21 - 5.95	A
			Sr-90	Bq/sample	0.396	0.492	0.344 - 0.640	A
			Zn-65	Bq/sample	3.93	3.79	2.65 - 4.93	A
August 2020	20-GrF43	AP	Gross Alpha	Bq/sample	0.267	0.528	0.158 - 0.898	A
			Gross Beta	Bq/sample	0.939	0.915	0.458 - 1.373	A
	20-MaS43	Soil	Ni-63	Bq/kg	438	980	686 - 1274	N[4]
			Tc-99	Bq/kg	1.11		*(1)*	A
	20-MaW43	Water	Ni-63	Bq/L	0.175		*(1)*	A
			Tc-99	Bq/L	8.8	9.4	6.6 - 12.2	A
	20-RdV43	Vegetation	Cs-134	Bq/sample	3.635	4.94	3.46 - 6.42	W
			Cs-137	Bq/sample	0.0341		*(1)*	A
			Co-57	Bq/sample	5.855	6.67	4.67 - 8.67	W
			Co-60	Bq/sample	3.122	4.13	2.89 - 5.37	W
			Mn-54	Bq/sample	4.524	5.84	4.09 - 7.59	A
			Sr-90	Bq/sample	1.01	1.39	0.97 - 1.81	W
			Zn-65	Bq/sample	4.706	6.38	4.47 - 8.29	W

(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) Sensitivity evaluation

*(3) See **NCR 20-13***

*(4) See **NCR 20-20***

Table D-3 **ERA Environmental Radioactivity Cross Check Program**
Teledyne Brown Engineering Environmental Services

Month/Year	Identification Number	Matrix	Nuclide	Units	TBE Value	Known Value [(a)]	Acceptance Limits	Evaluation [(b)]
March 2020	MRAD-32	Water	Am-241	pCi/L	52.5	45.3	31.1 - 57.9	A
			Fe-55	pCi/L	155	152	89.3 - 221	A
			Pu-238	pCi/L	34.0	36.4	21.9 - 47.2	A
			Pu-239	pCi/L	30.9	33.6	20.8 - 41.4	A
April 2020	RAD-121	Water	Ba-133	pCi/L	41.8	41.8	34.0- 46.7	A
			Cs-134	pCi/L	42.9	46.3	37.1 - 50.9	A
			Cs-137	pCi/L	226	234	211 - 259	A
			Co-60	pCi/L	52.4	50.3	45.3 - 57.9	A
			Zn-65	pCi/L	83.3	86.8	78.1 - 104	A
			GR-A	pCi/L	20.1	23.6	11.9 - 31.6	A
			GR-B	pCi/L	45.6	60.5	41.7 - 67.2	A
			U-Nat	pCi/L	18.45	18.6	14.9 - 20.9	A
			H-3	pCi/L	14200	14100	12300 - 15500	A
			Sr-89	pCi/L	58.0	60.1	48.3 - 67.9	A
			Sr-90	pCi/L	34.1	44.7	33.0 - 51.2	A
			I-131	pCi/L	27.4	28.9	24.1 - 33.8	A
September 2020	MRAD-33	Soil	Sr-90	pCi/Kg	4360	4980	1550 - 7760	A
		AP	Fe-55	pCi/Filter	189	407	149 - 649	A
			U-234	pCi/Filter	17.9	18.3	13.6 - 21.4	A
			U-238	pCi/Filter	19.1	18.1	13.7 - 21.6	A
		Water	Am-241	pCi/L	160	176	121 - 225	A
			Fe-55	pCi/L	299	298	175 - 433	A
			Pu-238	pCi/L	200	191	115 - 247	A
			Pu-239	pCi/L	105	100	61.9 - 123	A
October 2020	RAD-123	Water	Ba-133	pCi/L	37.1	37.0	29.8 - 41.6	A
			Cs-134	pCi/L	50.6	52.7	42.5 - 58.0	A
			Cs-137	pCi/L	131	131	118 - 146	A
			Co-60	pCi/L	62.9	60.5	54.4 - 69.1	A
			Zn-65	pCi/L	167	162	146 - 191	A
			GR-A	pCi/L	40.0	26.2	13.3 - 34.7	N[(1)]
			GR-B	pCi/L	47.5	69.1	48.0 - 76.0	N[(1)]
			U-Nat	pCi/L	17.2	20.3	16.3 - 22.7	A
			H-3	pCi/L	23800	23200	20,300 - 25,500	A
			Sr-89	pCi/L	41.1	43.3	33.4 - 50.5	A
			Sr-90	pCi/L	28.5	30.2	22.0 - 35.0	A
			I-131	pCi/L	22.9	28.2	23.5 - 33.1	N[(2)]
November 2020	QR111920K	Water	GR-A	pCi/L	50.7	52.4	27.3 - 65.6	A
			GR-B	pCi/L	24.9	24.3	15.0 - 32.3	A

(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 20-18***

*(2) See **NCR 20-17***

APPENDIX E

ERRATA DATA

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There was no errata data for 2020.

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APPENDIX F

ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

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Docket No: 50-010
50-237
50-249

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 and 3

Annual Radiological
Groundwater Protection Program Report

1 January through 31 December 2020

Prepared By
Teledyne Brown Engineering
Environmental Services

Dresden Nuclear Power Station
Morris, IL 60450

May 2020

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Table of Contents

Appendices

I. Summary and Conclusions

Dresden Station is situated on approximately 600 acres of land that borders the Illinois River to the north and the Kankakee River to the east. This land is referred to as the owner-controlled area. The Dresden power plant itself takes up a small parcel of the owner-controlled area and is surrounded by a security fence. The security fence defines what is known as the Protected Area (PA).

The Dresden power plant has experienced leaks from underground lines and spills from systems containing radioactive water over its 50-year history. These incidents have created a number of areas of localized contamination within the PA. The liquid scintillation analyses of groundwater in many of these areas show measurable concentrations of tritium (H-3).

Dresden participated in a fleetwide hydrogeologic investigation in during the summer of 2006 in an effort to characterize groundwater movement at each site. This investigation also compiled a list of the historic spills and leaks as well as a detailed analysis on groundwater hydrology for Dresden Nuclear Generation Station. Combining the tritium concentration in a locally contaminated area with the speed and direction of groundwater in the vicinity can produce a contaminated groundwater plume projection. If the plume of contaminated groundwater passes through the path of a groundwater monitoring well, it can be anticipated that the tritium concentration in this well will increase to some maximum concentration, then decrease over time.

The fleetwide 5-Year Hydrogeologic Investigation Report (HIR) was generated in 2020 by AECOM. It shows that groundwater movement on the Dresden site is very slow. In addition, there is a confining rock layer, the Maquoketa Shale layer, about 55 feet below the surface that impedes groundwater movement below this depth.

Dresden has a domestic water system that is supplied by two deep wells (1500 feet deep) that were installed about 50 years ago south of the PA. Samples taken from domestic water supply have never shown any detectable tritium concentration.

Tritium has a half-life of 12.3 years. This means that 40 years from now 90% of the tritium on site today will have decayed away to more stable elements. Given the limited volume of contaminated groundwater on site, radioactive decay, slow groundwater movement, and dilution effects, the conclusion of the HIR is that the operation of Dresden Nuclear Power Station has no adverse radiological impact on the environment. As a result there is little potential for contaminated groundwater on site to affect off-site drinking water.

II. Introduction

Radiological Groundwater Monitoring Program (RGPP):

Dresden has a Radiological Groundwater Monitoring Program (RGPP) that provides long-term monitoring intended to verify the fleet-wide hydrogeologic study conclusions. Dresden uses developed groundwater wells and surface water sample points in the RGPP.

The Dresden RGPP was established in 2006 and there have been no significant changes to this program. This program does not impact the operation of the plant and is independent of the REMP.

Developed groundwater wells are wells that were installed specifically for monitoring groundwater. These wells are equipped with screens and are properly sealed near the surface to avoid surface water intrusion. The wells were designed in accordance with appropriate codes and developed in accordance with appropriate standards and procedures. Dresden has groundwater monitoring wells identified as “shallow” (depths from 15 to 35 feet), “Intermediate” (depths from 35 to 55 feet) and “deep” (depths beyond 100 feet). All wells installed to a depth greater than 100 feet (“deep” wells) were found to be dry and removed from the RGPP. Surface water sample points are identified sample locations in the station’s canals and cooling pond.

There are 96 sampling points in the RGPP:

Dresden has 47 developed groundwater monitoring wells within the Protected Area (PA). Some of these wells form a ring just inside the security fence and the remaining wells were installed near underground plant system piping that contains radioactive water.

Dresden has 30 developed groundwater monitoring wells outside the PA the majority of which form a ring just within the perimeter of the property.

Dresden has 12 surface water monitoring locations on the owner-controlled area sampled as part of the Dresden RGPP. Three of these locations are monitored for level only and have no analyses in the accompanying tables.

Dresden has 4 precipitation water monitoring locations sampled as part of the Dresden RGPP. An additional 8 locations were studied in 2011 through 2012, but only 4 locations are currently permanently a part of the RGPP program.

Dresden has 1 sentinel well and 2 CST leak detection valves. These 3 sampling points are not constructed to code or developed to a standard. These sampling points are idle and only used for qualitative troubleshooting.

The Dresden site-specific RGPP procedure identifies the historic ‘events’ that would affect the individual RGPP sample results. This procedure identifies threshold values for each sample point, which if exceeded, could be an indication of a new spill from an above ground system or a new leak in an underground pipe containing tritiated water.

The RGPP sample points are currently sampled on a frequency determined by the well detection category in accordance with site document EN-DR-408-4160, Dresden RGPP Reference Material. During 2020, there were 212 analyses that were performed on 118 samples from 58 sampling points.

Sentinel Wells, sometimes referred to as “baby wells” are wells that were installed to monitor local shallow groundwater; typically in associated with a historic underground pipe leak. These wells are not constructed to code or developed to a standard. Most sentinel wells are from 6 to 12 feet deep and consist of 2” PVC pipe without screens. These wells are categorized as idle wells and are used only for troubleshooting purposes.

Dresden has two basic storm water runoff sewer systems within the P.A: one storm-system routes to the east, then north and discharges into the Unit 1 intake canal, the second storm-system routes to the west, then north, through a large Oil/Water Separator and discharges to the hot canal. Both the Unit 1 intake canal and the hot canal eventually route to the cooling pond. The Dresden Station RGPP has twelve RGPP surface water sampling points to monitor these systems.

A. Objectives of the RGPP

The Objective of the RGPP is to provide long-term monitoring intended to verify the fleet-wide hydrogeologic study conclusions. The objective of the site-specific RGPP is to provide indication of short-term changes to groundwater tritium concentrations within the PA.

If isotopic results of groundwater samples exceed the thresholds specified in this procedure it could be an indication of a new spill from an above ground system or a new leak in an underground pipe containing tritiated water.

Specific Objectives include:

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

B. Implementation of the Objectives

1. Dresden Nuclear Power Station will continue to perform routine sampling and radiological analysis of water from selected locations.

2. Dresden Nuclear Power Station has implemented procedures to identify and report new leaks, spills, or other detections with potential radiological significance in a timely manner.
3. Dresden Nuclear Power Station staff and consulting hydrogeologist assess analytical results on an ongoing basis to identify adverse trends.
4. If an adverse trend in groundwater monitoring analytical results is identified, further investigation will be undertaken. If the investigation identifies a leak or unidentified spill, corrective actions will be implemented.

C. Program Description

Dresden has a Radiological Groundwater Monitoring Program (RGPP) that provides long-term monitoring intended to verify the fleet-wide hydrogeologic study conclusions. Dresden uses 89 developed groundwater wells and surface water sample points in the RGPP.

Sample locations can be found in Table A–1, Appendix A. Water samples are collected in accordance with the schedule delineated in the Dresden site-specific RGPP procedures. Analytical laboratories are subject to internal quality assurance programs, industry crosscheck programs, as well as nuclear industry audits. Station personnel review and evaluate the analytical results.

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 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 Teledyne Brown Engineering (TBE) to analyze the environmental samples for radioactivity for the Dresden Nuclear Power Station RGPP in 2020.

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

1. Concentrations of gamma emitters in groundwater.
2. Concentrations of strontium in groundwater.
3. Concentrations of tritium in groundwater and precipitation water.
4. Concentrations of gross alpha 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-233/234, 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 Dresden Nuclear Power Station becoming operational were used as a baseline with which these operational data were compared. For the purpose of this report, Dresden Nuclear Power 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 the 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 Generation, LLC

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 Generation, LLC reports the TPU by following the result with plus or minus ± 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.

When required, gamma spectroscopy includes the following 14 nuclides: 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 and La-140.

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, marine life, and food stuffs. The results of the monitoring were detailed in the report entitled, Environmental Radiological Monitoring for Dresden Nuclear Power Nuclear Power Station, Commonwealth Edison Company, Annual Report 1986, May 1987.

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 worldwide 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.

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.

The radio-analytical laboratory counts tritium results to an Exelon Generation, LLC 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. These sample results cannot be distinguished as different from background at this concentration.

IV. Results and Discussion

Dresden Station initiated a Radiological Groundwater Protection Program (RGPP) in 2006.

A. Groundwater Results

Samples were collected from on-site wells throughout the year in accordance with Dresden's RGPP. Analytical results and anomalies are discussed below:

Tritium

Following historic ground tritium-contamination events at Dresden Station routine sampling and analyses continue, both inside and outside the protected area, in accordance with site procedure EN-DR-408-4160, Dresden Station RGPP Reference Material.

Low level tritium was detected from January through December 2020 in several sampling and testing locations (Table B-I.1, Appendix B); however, overall tritium concentrations have been trending down.

The vast majority of these locations showed a range of tritium contamination from LLD to values less than 20,000 pCi/L.

It is important to note that in prior years, wells that exceeded the United States Environmental Agency (USEPA) drinking water standard (and the Nuclear Regulatory Commission Reporting Limit) of 20,000 pCi/L were due to the 2014 2/3B CST Leak. The exceedances are located within Station property, and do not serve as a drinking water source.

Strontium

Samples were collected and analyzed for Sr-89 and Sr-90 activity (Table B-I.1, Appendix B). Sr-89 was not detected in any of the samples. Sr-90 was detected in 2 samples at locations MW-DN-105S and DSP-108. The concentrations ranged from 1.6 to 2.4 pCi/L.

Gross Alpha (dissolved and suspended)

Gross Alpha monitoring was not required in 2020.

Gamma Emitters

Gamma nuclide monitoring was not required in 2020

Hard-To-Detects

Hard-To-Detect analyses were performed on 12 groundwater locations. The analyses included Fe-55, Ni-63, Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-233/234, U-235 and U-238. U-233/234 and U-238

were detected in one sample at MW-DN-101-I at a concentration of 0.30 pCi/L and 0.18 pCi/L respectively. Ni-63 was detected in samples taken at MW-DN-101-I and MW-DN-119I. The concentrations ranged from 9.6 to 26.6 pCi/L. All other hard-to-detect nuclides were not detected at concentrations greater than their respective MDCs.
(Table B-I.3, Appendix B).

B. Surface Water Results

No surface water samples were collected in 2020.

C. Precipitation Water Results

Precipitation Water

Samples were collected from 4 precipitation 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. Tritium was detected in one sample at a concentration of 207 pCi/L.
(Table B-II.1, Appendix B)

D. Drinking Water Well Survey

No drinking water well surveys were conducted in 2020.

E. Summary of Results – Inter-Laboratory Comparison Program

Inter-Laboratory Comparison Program results for TBE are presented in the AREOR.

F. Leaks, Spills, and Releases

No leaks, spills, and releases occurred in 2020.

G. Trends

Overall, tritium concentrations are decreasing across the Station. The Station continued to implement the tritium monitoring plan with monthly/quarterly sampling of a subset of shallow and intermediate aquifer wells, sewage treatment plant water, and storm sewer water.

An elevated concentration persists in the area of the Condensate Storage Tanks (Event 20 in EN-DR-408-4160, Revision 6, Attachment 3). As of December 2015, active remediation was implemented. Two remediation wells were installed in August 2015; however, the West remediation well is capable of enough recharge for active remediation.

H. Investigations

No investigations performed in 2020.

I. Actions Taken

1. Compensatory Actions

None.

2. Actions to Recover/Reverse Plumes

In August 2015, two remediation wells were installed by the CSTs. The intent is to pump tritiated water out of the ground. The water is processed through the liquid radwaste system. Active remediation was initiated in December 2015. Remediation continued through 2017.

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APPENDIX A

LOCATION DESIGNATION

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TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Dresden Nuclear Power Station, 2020

Site	Site Type	Location
CBG		
DSP-106	Monitoring Well	65 feet east of east wall of EM Shop
DSP-107	Monitoring Well	9 feet east of the east Unit 1 Fuel Pool wall
DSP-108	Monitoring Well	40 ft east of the Unit 1 Sphere
DSP-122	Monitoring Well	50 feet north of the Radwaste Tank Farm
DSP-123	Monitoring Well	Northeast corner of the Unit 1 Off-gas Building
DSP-124	Monitoring Well	9 feet south of Floor Drain Collector Tank
DSP-125	Monitoring Well	Northeast corner of the Unit 2/3A CST
DSP-126	Monitoring Well	21 feet northwest of the northwest bend in road behind Training Building
DSP-147	Monitoring Well	325 feet west of Telemetry Bridge
DSP-148	Monitoring Well	130 feet southeast of the Flow Regulating Station building
DSP-149	Monitoring Well	35 feet south by southwest of the 138 KV yard fence
DSP-150	Monitoring Well	85 feet east of the northeast corner of the Unit 1 Spent Fuel Pool pad
DSP-154	Monitoring Well	33 feet west of the track; 165 feet east of the Security Checkpoint
DSP-159-M	Monitoring Well	250 feet west of the Thorsen house; 450 ft south of the plant access gate
FW-1	Precipitation	40 feet southwest of Unit 2/3 Off-gas Filter Building access door; north end of guardrail
FW-10	Precipitation	At the fence at the northwest corner of the SBO Building
FW-11	Precipitation	30 feet east of the east wall of the EM shop; at the stanchion for RGPP well DSP-105
FW-12	Precipitation	60 feet southeast of the southwest corner of the Admin Building; on the security fence
DSP-159-S	Monitoring Well	251 feet west of the Thorsen house; 450 ft south of the plant access gate
MD-11	Sample Location	Piping located between Condensate Storage Tanks.
MW-DN-101-I	Monitoring Well	60 feet north of the Unit 1 Diesel Fuel Storage
MW-DN-101-S	Monitoring Well	60 feet north of the Unit 1 Diesel Fuel Storage
MW-DN-102-S	Monitoring Well	13 feet south of the southeast corner of the MUDS Building
MW-DN-103-I	Monitoring Well	280 feet west of the northwest corner of N-GET Building
MW-DN-103-S	Monitoring Well	281 feet west of the northwest corner of N-GET Building
MW-DN-104-S	Monitoring Well	50 feet north of Radwaste Tank Farm
MW-DN-105-S	Monitoring Well	65 feet north of the northeast corner of the Storeroom
MW-DN-107-S	Monitoring Well	15 feet west by southwest of the Unit 1 CST
MW-DN-109-I	Monitoring Well	8 feet north of Chemistry Building
MW-DN-109-S	Monitoring Well	8 feet north of Chemistry Building
MW-DN-110-S	Monitoring Well	25 feet west of the Waste Water Treatment (WWT) Building
MW-DN-111-S	Monitoring Well	9 feet east of the Floor Drain Collector Tank
MW-DN-112-I	Monitoring Well	100 feet south of the Chemistry Building
MW-DN-112-S	Monitoring Well	100 feet south of the Chemistry Building
MW-DN-113-S	Monitoring Well	91 feet west of the southwest corner of the Administration Building
MW-DN-114-I	Monitoring Well	50 feet east of the Unit 1 Clean Demineralized Water Tank
MW-DN-114-S	Monitoring Well	8 feet southwest of the Radiation protection Dept west access doors
MW-DN-115-I	Monitoring Well	11 feet south of Instrument Maintenance Shop
MW-DN-115-S	Monitoring Well	12 feet south of Instrument Maintenance Shop
MW-DN-116-I	Monitoring Well	75 feet south of the Calgon Building roll-up door
MW-DN-116-S	Monitoring Well	75 feet south of the Calgon Building roll-up door
MW-DN-117-I	Monitoring Well	35 feet east by northeast of the Unit 1 Stack
MW-DN-118-S	Monitoring Well	Southeast corner of the Unit 1 Fuel Pool
MW-DN-119-I	Monitoring Well	20 feet east by northeast of the Unit 1 Sewage Ejector Building
MW-DN-119-S	Monitoring Well	21 feet east by northeast of the Unit 1 Sewage Ejector Building
MW-DN-122-I	Monitoring Well	150 feet north of Collins Road; northeast of the G.E. Fuel Storage Facility
MW-DN-122-S	Monitoring Well	150 feet north of Collins Road; northeast of the G.E. Fuel Storage Facility
MW-DN-124-I	Monitoring Well	10 feet south of the liquid nitrogen inerting tanks
MW-DN-124-S	Monitoring Well	10 feet south of the liquid nitrogen inerting tanks
MW-DN-125-S	Monitoring Well	40 feet east of 2/3 B CST
MW-DN-126-S	Monitoring Well	15 feet south of fence around Unit 2/3 A CST and B CST (outside of fence)
MW-DN-127-S	Monitoring Well	20 feet south of Unit 3 HRSS
MW-DN-134-S	Monitoring Well	20-ft North of Mausoleum Building
MW-DN-135-S	Monitoring Well	20-ft East of Mausoleum Building
MW-DN-136-S	Monitoring Well	14.5-ft South of Mausoleum Building
MW-DN-137-S	Monitoring Well	20-ft West of Mausoleum Building
MW-DN-140-S	Monitoring Well	East of MW-DN-104S at SW corner outside of 2/3 crib house
MW-DN-141-S	Monitoring Well	North of 'A' Waste Tank next to 2/3 main chimney
MW-DN-142-S	Monitoring Well	
MW-DN-143-S	Monitoring Well	
MW-DN-144-S	Monitoring Well	

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APPENDIX B

DATA TABLES

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TABLE B-I.1 CONCENTRATIONS OF TRITIUM AND STRONTIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-89	Sr-90
CBG	11/11/20	243 ± 114		
DSP-106	03/19/20	1220 ± 199		
DSP-106	07/20/20	1000 ± 161		
DSP-106	11/10/20	1300 ± 214	< 6.4	< 0.9
DSP-107	03/19/20	1500 ± 222		
DSP-107	07/21/20	1550 ± 223	< 6.2	< 0.8
DSP-107	11/10/20	1550 ± 250		
DSP-108	03/19/20	< 179		
DSP-108	07/21/20	320 ± 139	< 7.2	2.4 ± 0.6
DSP-108	11/10/20	413 ± 137		
DSP-122	03/24/20	373 ± 126		
DSP-122	07/22/20	559 ± 148		
DSP-122	11/10/20	657 ± 142	< 7.9	< 0.9
DSP-123	03/20/20	< 178		
DSP-123	07/21/20	378 ± 138	< 6.6	< 0.7
DSP-123	11/10/20	251 ± 114		
DSP-124	03/24/20	182 ± 118		
DSP-124	07/20/20	518 ± 148		
DSP-124	11/11/20	388 ± 123	< 4.8	< 0.9
DSP-125	03/25/20	< 181		
DSP-125	07/23/20	212 ± 133		
DSP-125	11/11/20	< 180	< 7.3	< 0.9
DSP-126	11/09/20	< 167		
DSP-147	11/09/20	< 169		
DSP-148	11/09/20	261 ± 119		
DSP-149	11/09/20	615 ± 137		
DSP-150	11/10/20	< 189		
DSP-154	11/09/20	< 184		
DSP-159-M	11/09/20	274 ± 119		
DSP-159-S	11/09/20	< 174		
MD-11	03/25/20	17800 ± 1840		
MD-11	07/23/20	13600 ± 1410		
MD-11	11/11/20	12600 ± 1320	< 8.3	< 1.0
MW-DN-101-I	03/20/20	< 180	< 5.1	< 0.6
MW-DN-101-I	07/21/20	559 ± 149	< 6.8	< 1.0
MW-DN-101-I	11/10/20	342 ± 121		
MW-DN-101-S	03/26/20	< 178		
MW-DN-101-S	07/21/20	< 192	< 5.8	< 0.8
MW-DN-101-S	11/10/20	< 168		
MW-DN-102-S	11/11/20	< 168		
MW-DN-103-I	11/09/20	273 ± 126		
MW-DN-103-S	11/09/20	< 186		
MW-DN-104-S	03/24/20	< 187		
MW-DN-104-S	07/22/20	< 196		
MW-DN-104-S	11/10/20	302 ± 128	< 7.3	< 0.9
MW-DN-105-S	03/19/20	< 185		

TABLE B-I.1 CONCENTRATIONS OF TRITIUM AND STRONTIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-89	Sr-90
MW-DN-105-S	07/20/20	368 ± 140	< 5.5	1.6 ± 0.6
MW-DN-105-S	11/10/20	242 ± 119		
MW-DN-107-S	03/25/20	1810 ± 254		
MW-DN-107-S	07/20/20	280 ± 131		
MW-DN-107-S	11/11/20	336 ± 126	< 7.7	< 0.9
MW-DN-109-I	03/24/20	208 ± 120		
MW-DN-109-I	07/22/20	481 ± 143		
MW-DN-109-I	11/10/20	377 ± 129	< 8.1	< 0.9
MW-DN-109-S	03/24/20	< 184		
MW-DN-109-S	07/22/20	< 194		
MW-DN-109-S	11/10/20	< 196	< 8.3	< 0.9
MW-DN-110-S	11/10/20	< 192		
MW-DN-111-S	03/24/20	3470 ± 410		
MW-DN-111-S	07/20/20	2250 ± 287		
MW-DN-111-S	11/11/20	1470 ± 224	< 9.1	< 0.9
MW-DN-112-I	11/11/20	< 193		
MW-DN-112-S	11/11/20	< 192		
MW-DN-113-S	11/11/20	< 198		
MW-DN-114-I	11/11/20	2330 ± 304		
MW-DN-114-S	03/25/20	< 177		
MW-DN-114-S	07/22/20	< 195		
MW-DN-114-S	11/11/20	< 197		
MW-DN-114-S	12/08/20	< 169	< 9.2	< 0.9
MW-DN-115-I	11/11/20	259 ± 128		
MW-DN-115-S	03/19/20	< 184		
MW-DN-115-S	07/20/20	< 193		
MW-DN-115-S	11/11/20	< 192	< 8.9	< 0.9
MW-DN-116-I	11/10/20	< 194		
MW-DN-116-S	03/20/20	< 183		
MW-DN-116-S	07/22/20	< 193	< 4.2	< 0.7
MW-DN-116-S	11/10/20	< 191		
MW-DN-117-I	03/20/20	< 188		
MW-DN-118-S	03/19/20	< 184		
MW-DN-118-S	07/21/20	218 ± 128		
MW-DN-118-S	11/10/20	< 185	< 6.0	< 0.9
MW-DN-119-I	03/20/20	< 184	< 5.6	< 0.8
MW-DN-119-I	07/21/20	314 ± 134	< 6.8	< 0.8
MW-DN-119-I	11/10/20	< 195		
MW-DN-119-S	03/20/20	< 185		
MW-DN-119-S	07/21/20	< 192		
MW-DN-119-S	11/10/20	< 195	< 9.3	< 0.9
MW-DN-122-I	11/09/20	< 191		
MW-DN-122-S	11/09/20	< 191		
MW-DN-124-I	03/24/20	16700 ± 1720		
MW-DN-124-I	07/20/20	16100 ± 1660		
MW-DN-124-I	11/11/20	15000 ± 1560	< 8.2	< 0.8

TABLE B-I.1 CONCENTRATIONS OF TRITIUM AND STRONTIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-89	Sr-90
MW-DN-124-S	03/24/20	< 182		
MW-DN-124-S	07/20/20	366 ± 131		
MW-DN-124-S	11/11/20	1120 ± 190	< 6.1	< 1.0
MW-DN-125-S	11/11/20	< 179		
MW-DN-126-S	03/25/20	< 185		
MW-DN-126-S	07/20/20	< 184		
MW-DN-126-S	11/11/20	< 180	< 7.9	< 0.9
MW-DN-127-S	11/11/20	< 179		
MW-DN-134-S	11/12/20	< 175		
MW-DN-135-S	11/09/20	< 173		
MW-DN-136-S	03/20/20	< 181		
MW-DN-136-S	07/21/20	< 183		
MW-DN-136-S	11/09/20	< 177	< 5.6	< 0.9
MW-DN-137-S	11/09/20	< 178		
MW-DN-140-S	03/24/20	< 182		
MW-DN-140-S	11/10/20	< 174	< 8.9	< 0.9
MW-DN-141-S	03/24/20	1300 ± 200		
MW-DN-141-S	07/22/20	1460 ± 208		
MW-DN-141-S	11/11/20	335 ± 121	< 6.6	< 0.9
MW-DN-142-S	11/09/20	< 177		
MW-DN-143-S	11/09/20	< 173		
MW-DN-144-S	11/12/20	< 174		

TABLE B-I.2

CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	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

None Analyzed in 2020

TABLE B-I.3

CONCENTRATIONS OF HARD TO DETECTS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Am-241	Cm-242	Cm-243/244	Pu-238	Pu-239/240	U-233/234	U-235	U-238	Fe-55	Ni-63
DSP-107	07/21/20									< 82	< 5.0
DSP-108	07/21/20									< 104	< 5.0
DSP-123	07/21/20									< 164	< 4.1
MD-11	11/11/20	< 0.05	< 0.02	< 0.02	< 0.10	< 0.07	< 0.15	< 0.04	< 0.16	< 76	< 4.8
MW-DN-101-I	03/20/20	< 0.11	< 0.02	< 0.14	< 0.07	< 0.04	0.30 ± 0.14	< 0.05	0.18 ± 0.10	< 110	9.6 ± 3.0
MW-DN-101-I	07/21/20									< 90	< 4.7
MW-DN-101-I	11/10/20										< 4.8
MW-DN-101-S	07/21/20									< 58	< 4.3
MW-DN-105-S	07/20/20									< 60	< 4.6
MW-DN-116-S	07/22/20									< 65	< 4.4
MW-DN-119-I	03/20/20	< 0.12	< 0.02	< 0.15	< 0.05	< 0.18	< 0.12	< 0.14	< 0.13	< 96	12.4 ± 3.3
MW-DN-119-I	07/21/20	< 0.06	< 0.03	< 0.06	< 0.16	< 0.19	< 0.09	< 0.09	< 0.11	< 127	17.8 ± 2.9
MW-DN-119-I	11/10/20										26.6 ± 3.1
MW-DN-119-S	11/10/20									< 66	< 4.2
MW-DN-124-I	11/11/20	< 0.08	< 0.04	< 0.14	< 0.10	< 0.10	< 0.12	< 0.15	< 0.08	< 52	< 4.5
MW-DN-124-S	11/11/20	< 0.05	< 0.02	< 0.08	< 0.08	< 0.11	< 0.12	< 0.12	< 0.12	< 110	< 3.2

TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN PRECIPITATION WATER SAMPLES COLLECTED IN THE VICINITY OF DRESDEN NUCLEAR POWER STATION, 2020

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
FW-1	11/12/20	207 ± 116
FW-10	11/12/20	< 170
FW-11	11/12/20	< 175
FW-12	11/12/20	< 276