Errata Data

The 2018 AREOR Table D-2 Listing of Missed Samples contained the following typographical error for the surface water sample taken on 01/16/18:

TABLE D-2 LISTING OF MISSED SAMPLES

Sample Type	Location Code	Collection Date	Reason
SW	BY-12 BY-29	01/02/18	Sample unobtainable due to ice on river
SW	BY-12 BY-29	01/09/18	Sample unobtainable due to ice on river
SW	BY-12 BY-12	01/16/18	Sample unobtainable due to ice on river
SW	BY-12 BY-29	02/06/18	Sample unobtainable due to ice on river
SW	BY-12 BY-29	02/13/18	Sample unobtainable due to ice on river
SW	BY-12 BY-29	02/20/18	Sample unobtainable due to ice on river
OSLD	BY-109-2	03/28/18	Dosimeter received damaged – readings not obtained
OSLD	BY-04	07/02/18	Dosimeter missing during quarterly exchange
SW	BY-29	11/27/18	Sample unobtainable due to icy conditions

The correct location should have been BY-29.

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APPENDIX H

ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

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NRC.Docket No: 50-454
50-455

BYRON NUCLEAR GENERATING STATION
UNITS 1 and 2

Annual Radiological
Groundwater Protection Program Report

1 January Through 31 December 2019

Prepared By

Teledyne Brown Engineering
Environmental Services

Byron Nuclear Generating Station
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April 2020

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Table B-I.2 Concentrations of Gamma Emitters in Groundwater Samples Collected in the Vicinity of Byron Nuclear Generating Station, 2019

I. Summary and Conclusions

In 2006, Exelon instituted a comprehensive monitoring program to evaluate the impact of station operations on groundwater in the vicinity of Byron Nuclear Generating Station. The monitoring was conducted in two phases. Phase 1 of the monitoring was part of a comprehensive study initiated by Exelon to determine whether groundwater or surface water at and in the vicinity of Byron Nuclear Generating Station had been adversely impacted by any releases of radionuclides. Phase 1 was conducted by Conestoga Rovers and Associates (CRA) and the conclusions were made available to state and federal regulators as well as the public.

Phase 2 of the RGPP was conducted by Exelon corporate and station personnel to initiate follow up of Phase 1 and begin long-term monitoring at groundwater locations selected during Phase 1. This is the fifteenth in a series of annual reports on the status of the Radiological Groundwater Protection Program (RGPP) conducted at Byron Nuclear Generating Station. This report covers groundwater and surface water samples collected from the environment both on and off station property in 2019. During that time period, 129 analyses were performed on 62 samples from 18 locations.

Gamma-emitting radionuclides associated with licensed plant operations were not detected at concentrations greater than their respective Lower Limits of Detection (LLDs) as specified in the Offsite Dose Calculation Manual (ODCM) in any of the groundwater samples tested. In the case of tritium, Exelon specified that its laboratories achieve a lower limit of detection 10 times lower than that required by federal regulation.

In 2019, seventeen (17) Radiological Groundwater Protection Program (RGPP) monitoring wells were sampled in total. Groundwater samples were obtained in March, May, August, and November and analyzed for tritium. In addition, a study of gamma, beta, and alpha radioisotopes was performed in accordance with Nuclear Energy Institute (NEI) 07-07, Groundwater Protection Initiative, for the samples obtained in May. None of these May samples showed concentrations of radionuclides above what is considered background levels. Three wells contained levels of tritium above the lower limit of detection (LLD) of 200 pCi/L. They were: AR-4 (201 pCi/L in March, 298 pCi/L in May, 272 pCi/L in August, <200 pCi/L in November) and AR-11 (520 pCi/L in March, 611 pCi/L in May, 549 pCi/L in August, 566 pCi/L in November) and AR-7 (246 pCi/L in March, 231 pCi/L in May, 280 pCi/L in August, <200 pCi/L in October). Wells AR-4 and AR-11 are near the Circulating Water Blowdown piping, where historical leakage through vacuum breakers was known to have occurred. Tritium in Well AR-7, located on-site just west of plant structures, has been measured in this well slightly above detection limits on an intermittent basis since the well was first drilled in 2006. The tritium present in this well is likely due to legacy tritium prior to 2006 or precipitation recapture and is not believed to be the result of new leaks. The tritium measured in this well has been at or below

tritium levels that have been historically measured in rainwater as a result of precipitation recapture from permitted gaseous releases. In August 2014, a break in the well piping was discovered about six feet below the surface that could have served as the entry point for tritium in the recapture water. Tritium present in well AR-7 has shown a gradual decrease since 2014 and was less than detectable in the most recent November 2019 sample. Should the water in these aquifers migrate to off-site wells used for drinking, the off-site dose consequence from tritium present in any of these three wells would be negligible. There are no existing or new leaks evident at the site and all groundwater well sample results are well below the drinking water tritium standard of 20,000 pCi/L.

In December 2018, two new wells, AR-12 and AR-13, were installed near well AR-7. These wells were added to provide additional monitoring capabilities in the area directly west of plant structures. No tritium was detected in these wells during 2019.

Strontium-89 (Sr-89) and Strontium-90 (Sr-90) were not detected in any samples above their respective LLDs of 10 and 1 pCi/L.

Gross Alpha analyses in the dissolved and suspended fractions were performed on groundwater samples during the second quarter sampling in 2019.

Gross Alpha (dissolved) was not detected in any groundwater locations. Gross Alpha (suspended) was not detected in any groundwater locations.

Concentrations of Gross Alpha which are slightly above detectable levels are considered to be background and are not the result of plant effluents.

In 2019, a 5-year hydrogeologic investigation for the Byron Nuclear Generating Station was performed in accordance with NEI 07-07 guidance. There were no Areas for Evaluation (AFE) as a result of the investigation and the investigation concluded there is no current risk from exposure to radionuclides associated with licensed plant operations through any of the identified potential exposure pathways.

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

II. Introduction

The Byron Station, a two-unit PWR station, is located about two miles east of the Rock River and approximately three miles southwest of Byron in Ogle County, Illinois. The reactors are designed to have capacities of 1,268 and 1,241 MW gross, respectively. Unit One loaded fuel in November 1984 and went on line February 2, 1985. Unit Two went on line January 9, 1987.

This report covers those analyses performed by Teledyne Brown Engineering (TBE) on samples collected in 2019.

A. Objectives of the RGPP

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

1. Identify suitable locations to monitor and evaluate potential impacts from station operations before significant radiological impact to the environment and potential drinking water sources

2. Understand the local hydrogeologic regime in the vicinity of the station and maintain up-to-date knowledge of flow patterns on the surface and shallow subsurface

3. Perform routine water sampling and radiological analysis of water from selected locations

4. Report new leaks, spills, or other detections with potential radiological significance to stakeholders in a timely manner

5. Regularly assess analytical results to identify adverse trends

6. Take necessary corrective actions to protect groundwater resources

B. Implementation of the Objectives

The objectives identified have been implemented at Byron Nuclear Generating Station as discussed below:

1. Exelon and its consultant identified locations as described in the Phase 1 study. Phase 1 studies were conducted by Conestoga Rovers and Associates (CRA) and the results and conclusions were made available to state and federal regulators as well as the public.

2. The Byron Nuclear Generating Station reports describe the local hydrogeologic regime. Periodically, the flow patterns on the surface and shallow subsurface are updated based on ongoing measurements.

3. Byron Nuclear Generating Station will continue to perform routine sampling and radiological analysis of water from selected locations.

4. Byron Nuclear Generating Station has implemented new procedures to identify and report new leaks, spills, or other detections with potential radiological significance in a timely manner.

5. Byron Nuclear Generating Station staff and consulting hydrogeologist assess analytical results on an ongoing basis to identify adverse trends.

C. Program Description

Sample Collection

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

Groundwater/Surface Water

Samples of water are collected, managed, transported and analyzed in accordance with approved procedures following EPA methods. Groundwater is collected from drilled wells. Surface water is collected from the Construction Runoff Pond (CROP), which collects stormwater runoff from the site protected area prior to discharge offsite. Sample locations, sample collection frequencies and analytical frequencies are controlled in accordance with approved station procedures. Contractor and/or station personnel are trained in the collection, preservation management, and shipment of samples, as well as in documentation of sampling events. Analytical laboratories are subject to internal quality assurance programs, industry cross-check programs, as well as nuclear industry audits. Station personnel review and evaluate all analytical data deliverables as data are received.

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

D. Characteristics of Tritium (H-3)

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

Tritiated water behaves the same as ordinary water in both the environment and the body. Tritium can be taken into the body by drinking water, breathing air, eating food, or absorption through skin. Once tritium enters the body, it disperses quickly and is uniformly distributed

throughout the body. Tritium is excreted primarily through urine with a clearance rate characterized by an effective biological half-life of about 14 days. Within one month or so after ingestion, essentially all tritium is cleared. Organically bound tritium (tritium that is incorporated in organic compounds) can remain in the body for a longer period.

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

Tritium has a half-life of approximately 12.3 years. It decays spontaneously to Helium-3 (^{3}He). This radioactive decay releases a beta particle (low-energy electron). The radioactive decay of tritium is the source of the health risk from exposure to tritium. Tritium is one of the least dangerous radionuclides because it emits very weak radiation and leaves the body relatively quickly. Since tritium is almost always found as water, it goes directly into soft tissues and organs. The associated dose to these tissues is generally uniform and is dependent on the water content of the specific tissue.

III. Program Description

A. Sample Analysis

This section describes the general analytical methodologies used by TBE to analyze the environmental samples for radioactivity for the Byron Nuclear Generating Station RGPP in 2019.

In order to achieve the stated objectives, the current program includes the following analyses (as required by procedure):

1. Concentrations of gamma emitters in groundwater/surface water

2. Concentrations of strontium in groundwater

3. Concentrations of tritium in groundwater/surface water

4. Concentrations of gross alpha in groundwater/surface water

B. Data Interpretation

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

1. Lower Limit of Detection and Minimum Detectable Concentration

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

2. Laboratory Measurements Uncertainty

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

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

sources of analytical uncertainty in measurements.

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

C. Background Analysis

A pre-operational radiological environmental monitoring program (pre-operational REMP) was conducted to establish background radioactivity levels prior to operation of the Station. The environmental media sampled and analyzed during the pre-operational REMP were atmospheric radiation, fall-out, domestic water, surface water, marine life, and foodstuffs. The results of the monitoring were detailed in the report entitled, *Environmental Radiological Monitoring for Byron Nuclear Generating Nuclear Power Station, Commonwealth Edison Company, Annual Report 1984, April, 1985.*

The pre-operational REMP contained analytical results from samples collected from the surface water and groundwater. All groundwater samples listed in the pre-Operational REMP report were <200 pCi/L.

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

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

IV. Results and Discussion

A. Groundwater Results

Groundwater

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

Tritium

Samples from all locations were analyzed for tritium activity (Table B-I.1, Appendix B). Tritium values ranged from less than the detection limit to 611 pCi/L. Outside of the station boundary, tritium concentrations were all less than detection limit (<200 pCi/L). The tritium detected in groundwater samples has been isolated to the Galena- Platteville aquifer, which is isolated from the deeper regional groundwater aquifer by the semi-confining Glenwood Formation. Groundwater quality data from production wells and monitoring wells at the station located below this aquifer do not indicate concentrations of tritium greater than the LLD of 200 pCi/L. As such, the tritium impact is limited to the Galena- Platteville aquifer.

Strontium

Strontium-89 (Sr-89) and Strontium-90 (Sr-90) were not detected in any samples above their respective LLDs of 10 and 1 pCi/L.

Gross Alpha (dissolved and suspended)

Gross Alpha analyses in the dissolved and suspended fractions were performed on groundwater samples during the second quarter sampling in 2019.

Gross Alpha (dissolved) was not detected in any groundwater locations. Gross Alpha (suspended) was not detected in any groundwater locations.

Concentrations of Gross Alpha which are slightly above detectable levels are considered to be background and are not the result of plant effluents.

Gamma Emitters

Gamma-emitting radionuclides associated with licensed plant operations were not detected at concentrations greater than their respective LLDs in any of the samples during 2019.

B. Drinking Water Well Survey

No drinking water well surveys were conducted in 2019.

C. Summary of Results – Inter-Laboratory Comparison Program

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

D. Leaks, Spills, and Releases

There are no new previously unidentified leaks or plumes at Byron Station. There were no new leaks, spills or releases at Byron Station in 2019.

E. Trends

Wells AR-4 and AR-11 have shown an overall decrease in tritium concentration since first sampled in 2006. Tritium has been measured in Well AR-7 since 2012, however, tritium has been previously measured in this well and it is believed to be the result of legacy tritium prior to 2006 or precipitation recapture, not the result of a new spill or leak.

F. Investigations

There were no investigations that took place in 2019 as a result of groundwater sample results.

G. Actions Taken

1. Compensatory Actions

   No compensatory actions were initiated in 2019.

2. Installation of Monitoring Wells

   No new monitoring wells were installed in 2019.

3. Actions to Recover/Reverse Plumes

   No actions were undertaken to recover/reverse plumes in 2019.

APPENDIX A

LOCATION DESIGNATION

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TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Distance and Direction, Byron Nuclear Generating Station, 2019

Site	Site Type	Temporary/Permanent	Distance and Direction
AR-1	Monitoring Well	Permanent	0.36 miles/NNW
AR-2	Monitoring Well	Permanent	0.6 miles/NW
AR-3	Monitoring Well	Permanent	0.8 miles/NW
AR-4	Monitoring Well	Permanent	1.36 miles/WNW
AR-5	Monitoring Well	Permanent	1.92 miles/WNW
AR-6	Monitoring Well	Permanent	2.04 miles/WNW
AR-7	Monitoring Well	Permanent	0.04 miles/W
AR-8	Monitoring Well	Permanent	0.12 miles/S
AR-9	Monitoring Well	Permanent	0.24 miles/E
AR-10	Monitoring Well	Permanent	0.28 miles/NE
AR-11	Monitoring Well	Permanent	1.36 miles/WNW
AR-12	Monitoring Well	Permanent	366 feet/W
AR-13	Monitoring Well	Permanent	461 feet/WSW
CAR-1	Monitoring Well	Permanent	2.25 miles/WNW
CAR-3	Monitoring Well	Permanent	0.16 miles/SE
DF-24 (EPA well)	Monitoring Well	Permanent	1.36 miles/WNW
GW-9	Monitoring Well	Permanent	0.9 miles/WNW
MW-1 (EPA well)	Monitoring Well	Permanent	0.6 miles/NW
MW-3 (EPA well)	Monitoring Well	Permanent	0.8 miles/NW
TW-13	Monitoring Well	Permanent	2.3 miles/WNW
TW-14	Monitoring Well	Permanent	2.25 miles/WNW
TW-15	Monitoring Well	Permanent	2.2 miles/WNW
Well 7	Monitoring Well	Permanent	0.4 miles/SE
CROP	Surface Water	Permanent	0.2 miles NE

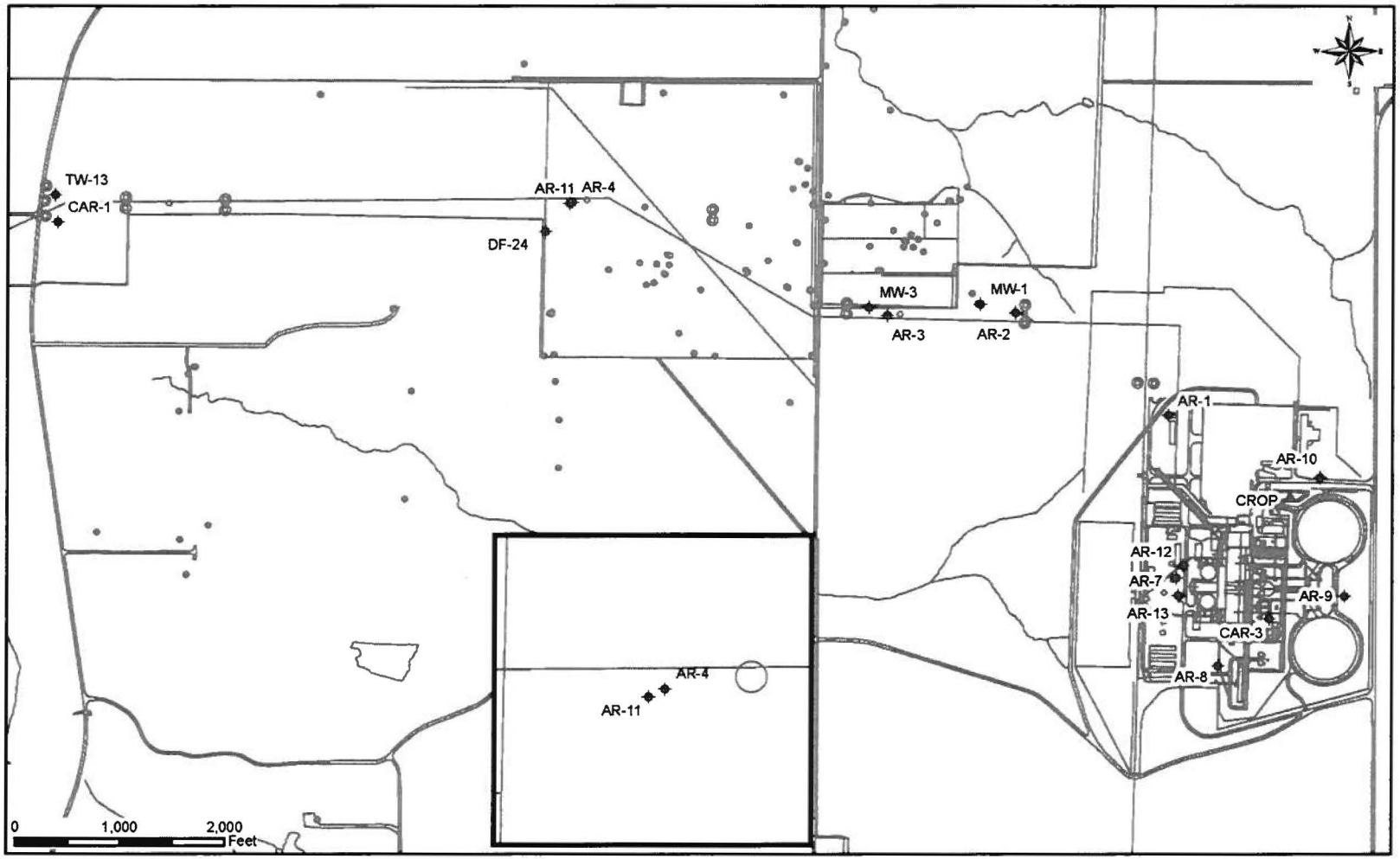

Figure A-1
Monitoring Well Locations, Byron Nuclear Generating Station, 2019

APPENDIX B

DATA TABLES

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TABLE B-I.1 CONCENTRATIONS OF TRITIUM, STRONTIUM AND GROSS ALPHA IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2019

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)
AR-1	03/14/19	< 194				
AR-1	05/29/19	< 187	< 9.4	< 0.7	< 0.9	< 1.1
AR-1	08/20/19	< 185				
AR-1	11/06/19	< 189				
AR-2	05/29/19	< 186			< 0.6	< 0.7
AR-2	11/04/19	< 185				
AR-3	03/14/19	< 190				
AR-3	05/29/19	< 185	< 6.7	< 0.9	< 0.6	< 0.7
AR-3	08/21/19	< 187				
AR-3	11/04/19	< 187				
AR-4	03/14/19	201 ± 127				
AR-4	05/30/19	298 ± 127	< 6.3	< 0.9	< 0.7	< 2.8
AR-4	08/21/19	272 ± 129				
AR-4	11/04/19	< 188				
AR-7	03/13/19	246 ± 132				
AR-7	05/28/19	231 ± 131	< 5.1	< 1.0	**< 3.1**	< 2.1
AR-7	08/19/19	280 ± 127				
AR-7	11/05/19	< 191				
AR-8	03/13/19	< 194				
AR-8	05/28/19	< 194	< 8.1	< 0.9	< 0.8	< 1.1
AR-8	08/19/19	< 184				
AR-8	11/05/19	< 189				
AR-9	03/14/19	< 193				
AR-9	05/29/19	< 195	< 9.8	< 1.0	< 1.0	< 1.1
AR-9	08/20/19	< 182				
AR-9	11/06/19	< 195				
AR-10	03/14/19	< 192				
AR-10	05/29/19	< 194	< 4.6	< 0.9	< 1.7	< 1.1
AR-10	08/20/19	< 184				
AR-10	11/06/19	< 189				
AR-11	03/14/19	520 ± 144				
AR-11	05/30/19	611 ± 141	< 6.9	< 0.9	< 1.1	< 1.2
AR-11	08/21/19	549 ± 140				
AR-11	11/04/19	566 ± 139				
AR-12	03/13/19	< 191				
AR-12	05/28/19	< 196	< 3.9	< 0.8	**< 4.5**	< 1.7
AR-12	08/19/19	< 181				
AR-12	11/05/19	< 192				
AR-13	03/13/19	< 194				
AR-13	05/28/19	< 193	< 8.8	< 1.0	< 2.7	< 0.6
AR-13	08/19/19	< 183				
AR-13	11/05/19	< 188				
CAR-1	05/29/19	< 185			< 0.9	< 1.1
CAR-1	11/04/19	< 186				
CAR-3	03/13/19	< 195				
CAR-3	05/28/19	< 193	< 7.7	< 0.9	< 1.0	< 0.5
CAR-3	08/19/19	< 180				
CAR-3	11/05/19	< 196				
DF-24	03/14/19	< 192				
DF-24	05/29/19	< 185				
DF-24	08/21/19	< 191				
DF-24	11/04/19	< 188				
MW-1	05/29/19	< 186				
MW-1	11/04/19	< 188				
MW-3	05/29/19	< 188				
MW-3	11/04/19	< 183				
TW-13	05/29/19	< 183			< 0.6	< 1.2
TW-13	11/04/19	< 186				
*CROP	03/14/19	< 194				
*CROP	05/29/19	< 193			< 0.5	< 0.5
*CROP	08/20/19	< 181				
*CROP	11/06/19	< 194				

*Surface Water Sample

Bold values indicate LLD was not met due to high solids content

TABLE B-I.2

CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATION STATION, 2019

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
AR-1	05/29/19	< 45	< 72	< 4	< 4	< 9	< 5	< 8	< 5	< 8	< 14	< 5	< 4	< 30	< 9
AR-2	05/29/19	< 41	< 92	< 4	< 5	< 9	< 4	< 10	< 5	< 8	< 15	< 5	< 5	< 30	< 8
AR-3	05/29/19	< 48	< 38	< 5	< 6	< 11	< 6	< 9	< 5	< 9	< 14	< 6	< 5	< 35	< 6
AR-4	05/30/19	< 52	< 80	< 6	< 6	< 14	< 6	< 12	< 7	< 11	< 14	< 6	< 6	< 37	< 11
AR-7	05/28/19	< 27	< 29	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 9	< 3	< 3	< 19	< 7
AR-8	05/28/19	< 40	< 45	< 5	< 4	< 11	< 5	< 8	< 6	< 8	< 13	< 5	< 4	< 28	< 9
AR-9	05/29/19	< 43	< 48	< 4	< 4	< 9	< 5	< 9	< 6	< 9	< 14	< 5	< 5	< 31	< 8
AR-10	05/29/19	< 55	< 49	< 6	< 6	< 13	< 5	< 12	< 6	< 11	< 14	< 6	< 7	< 36	< 12
AR-11	05/30/19	< 57	< 57	< 7	< 6	< 13	< 6	< 9	< 7	< 10	< 15	< 7	< 6	< 39	< 14
AR-12	05/28/19	< 49	< 74	< 5	< 4	< 12	< 6	< 9	< 6	< 10	< 15	< 5	< 5	< 32	< 12
AR-13	05/28/19	< 40	< 87	< 4	< 4	< 10	< 4	< 8	< 4	< 8	< 14	< 5	< 5	< 30	< 10
CAR-1	05/29/19	< 51	< 109	< 6	< 6	< 12	< 5	< 13	< 6	< 10	< 15	< 5	< 6	< 35	< 8
CAR-3	05/28/19	< 50	< 77	< 5	< 5	< 12	< 5	< 12	< 5	< 9	< 15	< 5	< 5	< 34	< 11
TW-13	05/29/19	< 53	< 99	< 7	< 5	< 12	< 5	< 10	< 6	< 10	< 13	< 6	< 4	< 33	< 12
*CROP	05/29/19	< 43	< 34	< 5	< 5	< 12	< 6	< 10	< 4	< 10	< 13	< 5	< 4	< 32	< 9

*Surface Water Sample