Docket No: 50-454
50-455

BYRON NUCLEAR GENERATING STATION
UNITS 1 and 2

Annual Radiological
Environmental Operating Report

1 January Through 31 December 2009

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I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program conducted for the Byron Nuclear Generating Station (BNGS) by Exelon covers the period 1 January 2009 through 31 December 2009. During that time period, 1,465 analyses were performed on 1,321 samples. In assessing all the data gathered for this report and comparing these results with preoperational data, it was concluded that the operation of BNGS had no adverse radiological impact on the environment.

Surface water samples were analyzed for concentrations of gross beta, tritium and gamma emitting nuclides. Ground water samples were analyzed for concentrations of tritium and gamma emitting nuclides. Gross beta activities detected were consistent with those detected in previous years.

Fish (commercially and/or recreationally important species) and sediment samples were analyzed for concentrations of gamma emitting nuclides. Non-plant produced Cesium-137 activity was found at both sediment locations and was consistent with data from previous years. No plant produced fission or activation products were found in fish or sediment.

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

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

Cow milk samples were analyzed for concentrations of I-131 and gamma emitting nuclides. All I-131 results were below the minimum detectable activity. No fission or activation products were found.

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

Environmental gamma radiation measurements were performed quarterly using thermoluminescent dosimeters. Levels detected were consistent with those observed in previous years.

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II. Introduction

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 1280 and 1254 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. The station has been designed to keep releases to the environment at levels below those specified in the codes of federal regulations.

This report covers those analyses performed by Teledyne Brown Engineering (TBE) and Global Dosimetry on samples collected during the period 1 January 2009 through 31 December 2009.

A. Objective of the REMP

The objectives of the REMP are to:

1. Provide data on measurable levels of radiation and radioactive materials in the site environs.

2. Evaluate the relationship between quantities of radioactive material released from the plant and resultant radiation doses to individuals from principal pathways of exposure.

B. Implementation of the Objectives

The implementation of the objectives is accomplished by:

1. Identifying significant exposure pathways.

2. Establishing baseline radiological data of media within those pathways.

3. Continuously monitoring those media before and during Station operation to assess Station radiological effects (if any) on man and the environment.

III. Program Description

A. Sample Collection

Samples for the BNGS REMP were collected for Exelon Nuclear by Environmental Inc. (Midwest Labs). This section describes the general

collection methods used by Environmental Inc. to obtain environmental samples for the BNGS REMP in 2009. Sample locations and descriptions can be found in Table B–1 and Figures B–1 through B–4, Appendix B.

Aquatic Environment

The aquatic environment was evaluated by performing radiological analyses on samples of surface water, well water, fish, and sediment. Two gallon water samples were collected weekly from two surface water locations (BY-12 and BY-29 [Control location]) and quarterly from six well water locations (BY-14-1, BY-18, BY-32, BY-35, BY-36 and BY-37). All samples were collected in new unused plastic bottles, which were rinsed with source water prior to collection. Fish samples comprising the flesh of freshwater drum, river carpsucker, shorthead redhorse and common carp were collected semiannually at two locations, BY-29 (control) and BY-31. Sediment samples composed of recently deposited substrate were collected at two locations semiannually, BY-12 and BY-34.

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on samples of air particulate, airborne iodine, and milk. Airborne iodine and particulate samples were collected and analyzed weekly at eight locations (BY-01, BY-04, BY-06, BY-08, BY-21, BY-22, BY-23, and BY-24). The control location was BY-08. 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.

Milk samples were collected biweekly at three locations (BY-20-1, BY-26-1 and BY-30-1) from May through October, and monthly from November through April. The control location was BY-26-1. All samples were collected in new unused two gallon plastic bottles from the bulk tank at each location, preserved with sodium bisulfite, and shipped promptly to the laboratory.

Food products were collected annually in September at five locations (BY-Control, BY-Quad 1, BY-Quad 2, BY-Quad 3, and BY-Quad 4). Various types of samples were collected and placed in new unused plastic bags, and sent to the laboratory for analysis.

Ambient Gamma Radiation

Direct radiation measurements were made using CaF_2 thermoluminescent dosimeters (TLD). The TLD locations were placed on and around the BNGS site as follows:

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

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

A special interest set consisting of seven locations (BY-301-1, BY-302-1, BY-309-1, BY-309-2, BY309-3, BY-309-4 and BY-314-1) to measure possible exposures from on-site storage facilities.

An other set consisting of seven locations (BY-01, BY-04, BY-06, BY-21, BY-22, BY-23 and BY-24) at locations where air samplers are present.

The balance of one location (BY-08) representing the control area.

The specific TLD locations were determined by the following criteria:

1. The presence of relatively dense population;

2. Site meteorological data taking into account distance and elevation for each of the sixteen–22 1/2 degree sectors around the site, where estimated annual dose from BNGS, if any, would be most significant;

3. On hills free from local obstructions and within sight of the vents (where practical);

4. And near the closest dwelling to the vents in the prevailing downwind direction.

Two TLDs – each comprised of two CaF_2 thermoluminescent phosphors enclosed in plastic – were placed at each location located at a minimum of

five feet above ground level. The TLDs were exchanged quarterly and sent to Global Dosimetry for analysis.

B. Sample Analysis

This section describes the general analytical methodologies used by TBE and Environmental Inc. (Midwest Labs) to analyze the environmental samples for radioactivity for the BNGS REMP in 2009. The analytical procedures used by the laboratories are listed in Table B-2.

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

1. Concentrations of beta emitters in surface water and air particulates.

2. Concentrations of gamma emitters in ground 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

The radiological and direct radiation 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. 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. <u>Lower Limit of Detection and Minimum Detectable Concentration</u>

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 BNGS

detection capabilities for environmental sample analysis. The minimum detectable concentration (MDC) is defined above with the exception that the measurement is an after-the-fact estimate of the presence of activity.

2. Net Activity Calculation and Reporting of Results

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

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

For surface water, ground water, milk 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 2009 the BNGS REMP had a sample recovery rate in excess of 99%. Sample anomalies and missed samples are listed in the tables below:

Table D-1 LISTING OF SAMPLE ANOMALIES

Sample Type	Location Code	Collection Date	Reason
TLD	BY-205-1	03/31/09	The first quarter of 2009 TLD result was greater
	BY-212-4		than 3 sigma
A/I	BY-22	05/05/09	No power to air sampler due to raccoon/transformer damage; power restored on 05/06/09

Table D-1 LISTING OF SAMPLE ANOMALIES (cont'd)

Sample Type	Location Code	Collection Date	Reason
A/I	BY-22	05/12/09	Low timer reading due to power outage in previous week
A/I	BY-06	06/16/09	Timer not running; estimated time and replaced
TLD	BY-215-4	06/29/09	TLD found on the ground near pole; remounted
A/I	BY-21	07/14/09	Low timer reading due to power outage for line repair
SW	BY-12	09/29/09	The 3rd quarter surface water composite greater than the LLD likely due to B1R16 outage liquid releases.
M	BY-26-1	11/03/09	False positive I-131 result due to interfering nuclide; recount showed increased I-131 instead of expected decrease due to decay
A/I	BY-06	12/08/09	Timer would not reset; replaced
A/I	BY-04 BY-22 BY-23 BY-24	12/29/09	Low timer reading likely due to power outage from snowstorm

Table D-2 LISTING OF MISSED SAMPLES

Sample Type	Location Code	Collection Date	Reason
SW	BY-29	01/06/09	No sample; ice on river
SW	BY-12 BY-29	01/12/09	No sample; ice on river
SW	BY-12 BY-29	01/20/09	No sample; ice on river
SW	BY-12 BY-29	01/27/09	No sample; ice on river
SW	BY-12 BY-29	02/03/09	No sample; ice on river
TLD	BY-202-1	06/29/09	Pole was moved due to construction in area; new location for TLD replacement

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

Sample Type	Location Code	Collection Date	Reason
SS	BY-12 BY-34	10/27/09	Unable to obtain sediment sample due to high river level; sample obtained on 11/10/09
SW	BY-12 BY-29	12/15/09	No sample; ice on river
SW	BY-12 BY-29	12/22/09	No sample; ice on river
SW	BY-12 BY-29	12/29/09	No sample; ice on river

Each program exception was reviewed to understand the causes of the program exception. Sampling and maintenance errors were reviewed with the personnel involved to prevent recurrence. 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

TLD station BY-309-1 was added to the sampling program on December 30, 2009.

TLD station BY-309-2 was added to the sampling program on December 30, 2009.

TLD station BY-309-3 was added to the sampling program on December 30, 2009.

TLD station BY-309-4 was added to the sampling program on December 30, 2009.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were taken weekly and composited monthly at two

locations (BY-12 and BY-29). Of these locations only BY-12 located downstream, could be affected by Byron Nuclear Generating Station's effluent releases. The following analyses were performed.

Gross Beta

Samples from both locations were analyzed for concentrations of gross beta (Table C–I.1, Appendix C). The values ranged from 3.4 to 8.8 pCi/l. Concentrations detected were consistent with those detected in previous years (Figure C–1, Appendix C).

Tritium

Quarterly composites of weekly collections were analyzed for tritium activity (Table C–I.2, Appendix C). Tritium was detected in one sample at a concentration of 792 pCi/L. (Figure C–2, Appendix C).

Gamma Spectrometry

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

2. Ground Water

Quarterly grab samples were collected at six locations (BY-14-1, BY-18, BY-32, BY-35, BY-36 and BY-37). These locations could be affected by Byron Nuclear Generating Station's effluent releases. The following analyses were performed:

Tritium

Quarterly grab samples from the locations were analyzed for tritium activity (Table C–II.1, Appendix C). No tritium was detected, and the required LLD was met (Figures C–3 through C–6, Appendix C).

Gamma Spectrometry

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

3. Fish

Fish samples comprised of common carp, freshwater drum, river carpsucker, shorthead redhorse were collected at two locations (BY-29 and BY-31) semiannually. Location BY-31 could be affected by Byron Nuclear Generating Station'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). No nuclides were detected, and all required LLDs were met.

4. Sediment

Aquatic sediment samples were collected at two locations (BY-12 and BY-34) semiannually. BY-12, located downstream, could be affected by Byron Nuclear Generating Station's effluent releases. The following analysis was performed:

Gamma Spectrometry

Sediment samples from both locations were analyzed for gamma emitting nuclides (Table C–IV.1, Appendix C). Cesium-137 was detected in both locations. The values ranged from 113 to 306 pCi/kg dry. Concentrations detected were consistent with those detected in previous years and are not a result of plant effluents. No other nuclides were detected, and all required LLDs were met.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from eight locations on a weekly basis. The eight locations were separated into three groups: Nearsite samplers (BY-21, BY-22, BY-23 and BY-24), Far Field samplers within 4 km of the site (BY-01, BY-04, and BY-06) and the Control sampler between 10 and 30 km from the site (BY-08). 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 three groups aid in determining the effects, if any, resulting from the operation of BNGS. The results from the Nearsite locations (Group I) ranged from 7 to 41 E–3 pCi/m^3 with a mean of 20 E–3 pCi/m^3. The results from the Far Field locations (Group II) ranged from 6 to 42 E–3 pCi/m^3 with a mean of 20 E–3 pCi/m^3. The results from the Control location (Group III) ranged from 8 to 46 E–3 pCi/m^3 with a mean of 21 E–3 pCi/m^3. Comparison of the 2009 air particulate data with previous years data indicate no effects from the operation of BNGS. In addition a comparison of the weekly mean values for 2009 indicate no notable differences among the three groups (Figures C–7 through C-11, Appendix C).

Gamma Spectrometry

Weekly samples were composited quarterly and analyzed for gamma emitting nuclides (Table C–V.3, Appendix C). No nuclides were detected, and all required LLDs were met.

b. Airborne Iodine

Continuous air samples were collected from eight locations (BY-01, BY-04, BY-06, BY-08, BY-21, BY-22, BY-23, and BY-24) and analyzed weekly for I-131 (Table C–VI.1, Appendix C). No I-131 was detected and the required LLD was met.

2. Terrestrial

a. Milk

Samples were collected from three locations (BY-20-1, BY-26-1, and BY-30-1) biweekly May through October and monthly November through April. The following analyses were performed:

Iodine-131

Milk samples from all locations were analyzed for

concentrations of I-131 (Table C–VII.1, Appendix C). No nuclides were detected, and all required LLDs were met.

Gamma Spectrometry

Each milk sample was analyzed for concentrations of gamma emitting nuclides (Table C–VII.2, Appendix C). No nuclides were detected, and all required LLDs were met.

b. Vegetation

Vegetation samples were collected at five locations (BY-Control, BY-Quad 1, BY-Quad 2, BY-Quad 3 and BY-Quad 4) when available. Four locations (BY-Quad 1, BY-Quad 2, BY-Quad 3 and BY-Quad 4) could be affected by Byron Nuclear Generating Station's effluent releases. The following analysis was performed:

Gamma Spectrometry

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

C. Ambient Gamma Radiation

Ambient gamma radiation levels were measured utilizing Panasonic 814 (CaF_2) thermoluminescent dosimeters. Ninety-one TLD locations were established around the site. Results of TLD measurements are listed in Tables C–IX.1 to C–IX.3, Appendix C.

Most TLD measurements were below 30 mR/standard quarter, with a range of 17 to 34 mR/standard quarter. A comparison of the Inner Ring, Outer Ring, Special Interest, Other and Control Location data indicate that the ambient gamma radiation levels were comparable among the groups.

D. Land Use Survey

A Land Use Survey conducted during August 2009 around the Byron Nuclear Generating Station (BNGS) was performed by Environmental Inc. (Midwest Labs) for Exelon Nuclear to comply with the Byron Nuclear Generating Station's Offsite Dose Calculation Manual. The purpose of the survey was to document the nearest resident, livestock, and milk producing animals in each of the sixteen 22 ½ degree sectors and garden

of greater than 500 square feet in each of the four 90 degree quadrants around the site. The results of this survey are summarized below.

Distance in Miles from the BNGS Vent Stacks				
Sector		Residence Miles	Livestock Miles	Milk Farm Miles
A	N	1.2	5.2	12.0
B	NNE	1.6	1.5	-
C	NE	1.1	3.0	-
D	ENE	1.4	4.2	-
E	E	1.2	3.8	-
F	ESE	1.5	1.3	-
G	SE	1.7	4.3	-
H	SSE	0.7	3.2	-
J	S	0.6	3.6	-
K	SSW	0.7	2.3	-
L	SW	0.8	1.6	-
M	WSW	1.6	1.6	4.5
N	W	1.8	3.2	-
P	WNW	1.6	5.8	-
Q	NW	0.8	3.7	-
R	NNW	0.9	1.4	5.0

E. Errata Data

1. The 2008 vegetation control sample location distance (BY-Control) in Table B-1 is incorrectly listed as 6.8 miles. The correct distance for the sample location is 12.0 miles.

2. In 2009, an effort was undertaken to verify the accuracy of REMP sample locations. All REMP sample and census locations were measured via GPS as opposed to historical methods such as printed maps. As a result of using this updated technology, the coordinates for the vent stack release point as listed in the ODCM were found to be inaccurate by approximately 440 feet. The inaccuracy of this measurement affected the sector locations of one air sampler, one sediment sample, two environmental TLDs, and several land use census locations. Based on the different vent stack coordinates, some distances to the vent stack release point for REMP sample points, including nearest residents, are different in 2009 than they were in 2008. In addition, the sector designations for the following nearest residents also changed:

   - Sector A: 2008 resident is no longer nearest resident in Sector A. New resident identified.

- Sector D: 2008 resident is no longer in Sector D. New resident identified.
- Sector E: Industrial facility identified in 2009 that was not previously identified in 2008.
- Sector G: 2008 resident is no longer in Sector G. New resident identified.
- Sector L: 2008 resident is no longer in Sector L. New resident identified.
- Sector P: 2008 resident is no longer in Sector P. New resident identified.
- Sector Q: 2008 resident in Sector P is now the nearest resident in Sector Q.

All REMP sample point distances, census location distances, and directions listed in the 2009 AREOR reflect the newly acquired GPS data.

F. Summary of Results – Inter-Laboratory Comparison Program

The primary laboratories analyzed Performance Evaluation (PE) samples of air particulate, air iodine, milk, soil, vegetation and water matrices (Appendix D). The PE samples, supplied by Analytics Inc., Environmental Resource Associates (ERA) and DOE's Mixed Analyte Performance Evaluation Program (MAPEP), were evaluated against the following pre-set acceptance criteria:

1. Analytics Evaluation Criteria

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

2. ERA Evaluation Criteria

   ERA's evaluation report provides an acceptance range for control and warning limits with associated flag values. ERA's acceptance limits are established per the USEPA, NELAC, state specific PT program requirements or ERA's SOP for the Generation of Performance Acceptance Limits, as applicable. The acceptance limits are either determined by a regression equation specific to each analyte or a fixed percentage limit promulgated under the appropriate regulatory document.

3. DOE Evaluation Criteria

MAPEP's evaluation report provides an acceptance range with associated flag values.

The MAPEP defines three levels of performance: Acceptable (flag = "A"), Acceptable with Warning (flag = "W"), and Not Acceptable (flag = "N"). Performance is considered acceptable when a mean result for the specified analyte is ± 20% of the reference value. Performance is acceptable with warning when a mean result falls in the range from ±20% to ±30% of the reference value (i.e., 20% < bias < 30%). If the bias is greater than 30%, the results are deemed not acceptable.

For the primary laboratory, 17 out of 18 analytes met the specified acceptance criteria. One sample did not meet the specified acceptance criteria for the following reason:

1. Teledyne Brown Engineering's Analytics June 2009 Zn-65 in AP result of 137 pCi/L was higher than the known value of 101 pCi/L, resulting in a found to known ratio of 1.36. NCR 09-23 was initiated to investigate this failure. The failure appears to be a result of a slightly high bias on Detector 7. A recount on Detector 17 resulted in a Zn-65 result of 101 pCi/L. The detector has been tagged out-of-service until a recalibration can be performed. Detector 7 is not used for client samples.

For the secondary laboratory, Environmental, Inc., eleven out of 14 analytes met the specified acceptance criteria.

1. Environmental Inc.'s ERA April 2009 Cs-137 in water result of 147.7 pCi/L exceeded the lower control limit of 151.0 pCi/L. All gamma emitters showed a low bias. A large plastic burr found on the base of the Marinelli kept the beaker from sitting directly on the detector. Recounting in a different beaker gave an acceptable result of 155.33 ± 14.55 pCi/L.
2. Environmental Inc.'s ERA April 2009 H-3 in water result of 22819 pCi/L exceeded the upper control limit of 22300 pCi/L. A recount of the original vials averaged 23,009 pCi/L. Reanalysis results were acceptable at 19,170 pCi/L. No cause could be found for the failure.
3. Environmental Inc.'s MAPEP January 2009 Sr-90 in AP result of 0.93 exceeded the upper control limit of 0.83. Reanalysis results

were acceptable at 0.54 ± 0.12 Bq/filter. No cause could be found for the failure.

4. Environmental Inc.'s MAPEP July 2009 Sr-90 in soil result of 310.5 Bq/kg exceeded the lower control limit of 319 Bq/kg. Reanalysis results were acceptable at 363.3 Bq/kg. Incomplete separation of strontium from calcium could result in a higher recovery percentage and consequently lower reported activity.

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

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT SUMMARY

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TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR BYRON NUCLEAR GENERATION STATION, 2009

Name of Facility: BYRON **DOCKET NUMBER: 50-454 & 50-455**

Location of Facility: BYRON, IL **REPORTING PERIOD: 2009**

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	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	GR-B	23	4	4.8 (10/12) (3.4/8.8)	5.1 (7/11) (3.5/7.9)	5.1 (7/11) (3.5/7.9)	BY-29 CONTROL BYRON - UPSTREAM 3.0 MILES N OF SITE	0
	H-3	8	200	725 (1/4)	<LLD	725 (1/4)	BY-12 INDICATOR OREGON POOL OF ROCK RIVER - DOWNSTREAM 4.5 MILES SSW OF SITE	1
	GAMMA	23						
	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

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR BYRON NUCLEAR GENERATION STATION, 2009

Name of Facility: BYRON **DOCKET NUMBER: 50-454 & 50-455**
Location of Facility: BYRON, IL **REPORTING PERIOD: 2009**

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 (PCI/LITER)	NB-95		15	<LLD	<LLD	-		0
	ZR-95		30	<LLD	<LLD	-		0
	I-131		NA	<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

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FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR BYRON NUCLEAR GENERATION STATION, 2009

Name of Facility: BYRON **DOCKET NUMBER: 50-454 & 50-455**
Location of Facility: BYRON, IL **REPORTING PERIOD: 2009**

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	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUND WATER (PCI/LITER)	H-3	24	200	<LLD	NA	-		0
	GAMMA	24						
	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

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR BYRON NUCLEAR GENERATION STATION, 2009

Name of Facility: BYRON **DOCKET NUMBER: 50-454 & 50-455**
Location of Facility: BYRON, IL **REPORTING PERIOD: 2009**

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	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUND WATER (PCI/LITER)	ZR-95		30	<LLD	NA	-		0
	I-131		NA	<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
FISH (PCI/KG WET)	GAMMA	8						
	MN-54		130	<LLD	<LLD	-		0

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FISH (PCI/KG WET)	CO-58		130	<LLD	<LLD	-		0
	FE-59		260	<LLD	<LLD	-		0
	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	CS-134		130	<LLD	<LLD	-		0

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FISH (PCI/KG WET)	CS-137		150	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
SEDIMENT (PCI/KG DRY)	GAMMA	4						
	MN-54		NA	<LLD	NA	-		0
	CO-58		NA	<LLD	NA	-		0
	FE-59		NA	<LLD	NA	-		0
	CO-60		NA	<LLD	NA	-		0

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SEDIMENT (PCI/KG DRY)	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	186 (4/4) (113/306)	NA	236 (2/2) (166/306)	BY-12 INDICATOR OREGON POOL OF ROCK RIVER - DOWNSTREAM 4.5 MILES SSW OF SITE	0
	BA-140		NA	<LLD	NA	-		0
	LA-140		NA	<LLD	NA	-		0

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AIR PARTICULATE (E-3 PCI/CU.METER)	GR-B	416	10	20 (363/364) (6/42)	21 (52/52) (8/46)	21 (52/52) (9/41)	BY-21 INDICATOR BYRON NEARSITE NORTH 0.3 MILES N OF SITE	1
	GAMMA	32						
	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

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AIR PARTICULATE (E-3 PCI/CU.METER)	ZR-95		NA	<LLD	<LLD	-		0
	CS-134		150	<LLD	<LLD	-		0
	CS-137		180	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
AIR IODINE (E-3 PCI/CU.METER)	GAMMA I-131	416	70	<LLD	<LLD	-		0
MILK (PCI/LITER)	I-131	57	1	<LLD	<LLD	-		0

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TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR BYRON NUCLEAR GENERATION STATION, 2009

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Location of Facility: BYRON, IL **REPORTING PERIOD: 2009**

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MILK (PCI/LITER)	GAMMA MN-54	57	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

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MILK (PCI/LITER)	CS-134		15	<LLD	<LLD	-		0
	CS-137		18	<LLD	<LLD	-		0
	BA-140		60	<LLD	<LLD	-		0
	LA-140		15	<LLD	<LLD	-		0
VEGETATION (PCI/KG WET)	GAMMA MN-54	10	NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	FE-59		NA	<LLD	<LLD	-		0

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FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

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VEGETATION (PCI/KG WET)	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

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VEGETATION (PCI/KG WET)	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
DIRECT RADIATION (MILLI-ROENTGEN/QTR.)	TLD-QUARTERLY	363	NA	24.9 (355/355) (17/34)	21.6 (8/8) (18/25)	29.0 (4/4) (23/34)	BY-212-4 INDICATOR 4.7 MILES WSW	0

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FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

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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, Byron Nuclear Generating Station, 2009

Location	Location Description	Distance & Direction From Site
A. Surface Water		
BY-12	Oregon Pool of Rock River, Downstream	4.5 miles SSW
BY-29	Byron, Upstream (control)	3.0 miles N
B. Ground/Well Water		
BY-14-1	3200 North German Church Road	1.0 miles SSE
BY-18	McCoy Farmstead	0.7 miles SW
BY-32	Ron Wolford Well	1.8 miles W
BY-35	Vancko Well	2.0 miles WNW
BY-36	Blanchard Well	1.0 miles NW
BY-37	Alexander Well	1.8 miles WNW
C. Milk		
BY-20-1	Ron Snodgrass Farm	4.7 miles WSW
BY-26-1	Dennis Herbert (control)	12.8 miles N
BY-30-1	Ebert Farm	5.0 miles NNW
D. Air Particulates / Air Iodine		
BY-01	Byron	3.0 miles N
BY-04	Paynes Point	5.0 miles SE
BY-06	Oregon	4.7 miles SSW
BY-08	Leaf River (control)	6.8 miles WNW
BY-21	Byron Nearsite North	0.3 miles N
BY-22	Byron Nearsite East-Southeast	0.4 miles SE
BY-23	Byron Nearsite South	0.6 miles S
BY-24	Byron Nearsite Southwest	0.6 miles SW
E. Fish		
BY-29	Byron, Upstream (control)	3.0 miles N
BY-31	Byron, Discharge	2.2 miles WNW
F. Sediment		
BY-12	Oregon Pool of Rock River, Downstream	4.5 miles SSW
BY-34	Rock River, Downstream	2.6 miles WNW
G. Vegetation		
Quadrant 1	5186 N. Cox Road, Stillman Valley	4.9 miles ENE
Quadrant 2	6274 Brick Road	4.7 miles SE
Quadrant 3	2002 Deer Path Rd., Byron	0.9 miles SW
Quadrant 4	722 Town Line Rd., Leaf River	4.5 miles NW
Control	5631 Fair Oak Rd., Davis Junction	12.6 miles E
H. Environmental Dosimetry - TLD		
Inner Ring		
BY-101-1 and -2		0.3 miles N
BY-102-1		0.9 miles NNE
BY-102-2		1.0 miles NNE

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Byron Nuclear Generating Station, 2009

Location	Location Description	Distance & Direction From Site
BY-103-1 and -2		1.7 miles NE
BY-103-3		0.43 miles NE
BY-104-1 and -2		1.5 miles ENE
BY-104-3		0.36 miles ENE
BY-105-1 and -2		1.3 miles E
BY-106-1 and -2		1.4 miles ESE
BY-107-1 and -2		1.4 miles SE
BY-107-3		0.47 miles SE
BY-108-1		0.7 miles SSE
BY-108-2		0.6 miles SSE
BY-109-1 and -2		0.6 miles S
BY-110-1 and -2		0.6 miles SSW
BY-111-3		0.7 miles SW
BY-111-4		0.8 miles SW
BY-112-3 and -4		0.8 miles WSW
BY-113-1 and -2		0.7 miles W
BY-114-1 and -2		0.8 miles WNW
BY-115-1 and -2		1.0 miles NW
BY-116-1 and -2		1.4 miles NNW
BY-116-3		0.85 miles NNW
Outer Ring		
BY-201-3		4.5 miles N
BY-201-4		4.4 miles N
BY-202-1		5.0 miles NNE
BY-202-2		4.8 miles NNE
BY-203-1		4.8 miles NE
BY-203-2		4.7 miles NE
BY-204-1		4.2 miles ENE
BY-204-2		4.1 miles ENE
BY-205-1 and -2		3.8 miles E
BY-206-1		4.1 miles ESE
BY-206-2		4.4 miles ESE
BY-207-1		4.2 miles SE
BY-207-2		3.6 miles SE
BY-208-1		4.0 miles SSE
BY-208-2		3.7 miles SSE
BY-209-1 and -4		3.7 miles S
BY-210-3 and -4		3.9 miles SSW
BY-211-1 and -4		4.9 miles SW
BY-212-1 and -4		4.7 miles WSW
BY-213-1		4.7 miles W
BY-213-4		4.6 miles W
BY-214-1		4.6 miles WNW
BY-214-4		4.9 miles WNW
BY-215-1		5.3 miles NW
BY-215-4		5.2 miles NW
BY-216-1		4.6 miles NNW
BY-216-2		4.8 miles NNW

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Byron Nuclear Generating Station, 2009

Location	Location Description	Distance & Direction From Site
Special Interest		
BY-301-1		0.2 miles N
BY-302-1		0.1 miles NNE
BY-309-1		0.3 miles S
BY-309-2		0.4 miles S
BY-309-3		0.4 miles S
BY-309-4		0.4 miles S
BY-314-1		0.2 miles WNW
Other		
BY-01-1 and -2		3.0 miles N
BY-04-1 and -2		5.0 miles SE
BY-06-1 and -2		4.7 miles SSW
BY-21-1 and -2		0.3 miles N
BY-22-1 and -2		0.4 miles SE
BY-23-1 and -2		0.6 miles S
BY-24-1 and -2		0.6 miles SW
Control		
BY-08-1 and -2		6.8 miles WNW

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Byron Nuclear Generating Station, 2009

Sample Medium	Analysis	Sampling Method	Analytical Procedure Number
Surface Water	Gamma Spectroscopy	Monthly composite from weekly grab samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Surface Water	Gross Beta	Monthly composite from weekly grab samples.	TBE, TBE-2008 Gross Alpha and/or gross beta activity in various matrices Env. Inc., W(DS)-01 Determination of gross alpha and/or gross beta in water (dissolved solids or total residue)
Surface Water	Tritium	Quarterly composite from weekly grab samples.	TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Ground Water	Gamma Spectroscopy	Quarterly grab samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Ground Water	Tritium	Quarterly grab samples.	TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Fish	Gamma Spectroscopy	Semi-annual samples collected via electroshocking or other techniques	TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Sediment	Gamma Spectroscopy	Semi-annual grab samples	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Air Particulates	Gross Beta	One-week composite of continuous air sampling through glass fiber filter paper	TBE, TBE-2008 Gross Alpha and/or gross beta activity in various matrices Env. Inc., AP-02 Determination of gross alpha and/or gross beta in air particulate filters
Air Particulates	Gamma Spectroscopy	Quarterly composite of each station	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Air Iodine	Gamma Spectroscopy	One-week composite of continuous air sampling through charcoal filter	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., I-131-02 Determination of I-131 in charcoal canisters by gamma spectroscopy (batch method)
Milk	I-131	Bi-weekly grab sample when cows are on pasture. Monthly all other times	TBE, TBE-2012 Radioiodine in various matrices Env. Inc., I-131-01 Determination of I-131 in milk by anion exchange
Milk	Gamma Spectroscopy	Bi-weekly grab sample when cows are on pasture. Monthly all other times	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Vegetation	Gamma Spectroscopy	Annual grab samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
TLD	Thermoluminescence Dosimetry	Quarterly TLDs comprised of two Global Dosimetry CaF_2 elements.	Global Dosimetry

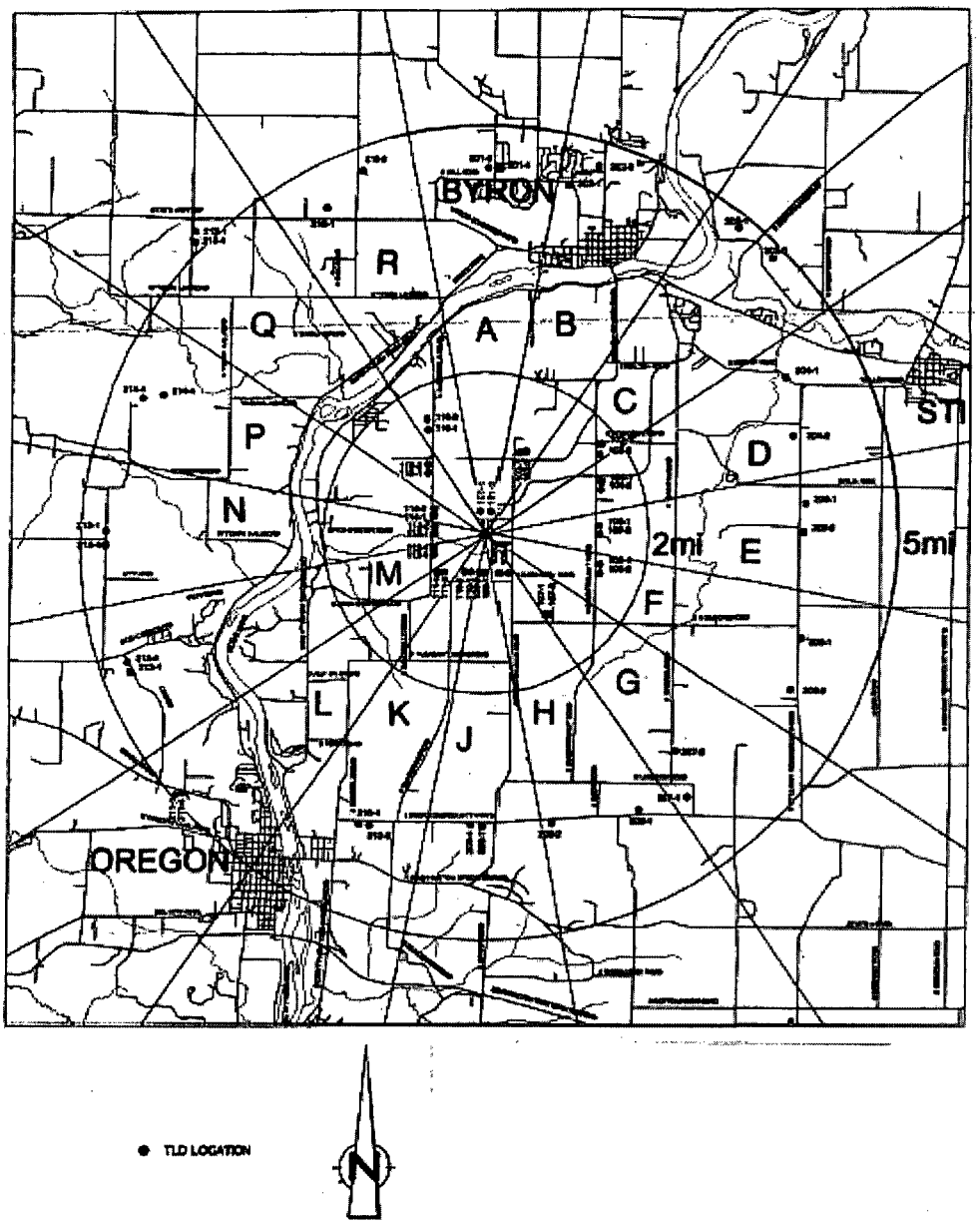

Figure B-1
Inner and Outer Ring TLD Locations of the
Byron Nuclear Generating Station, 2009

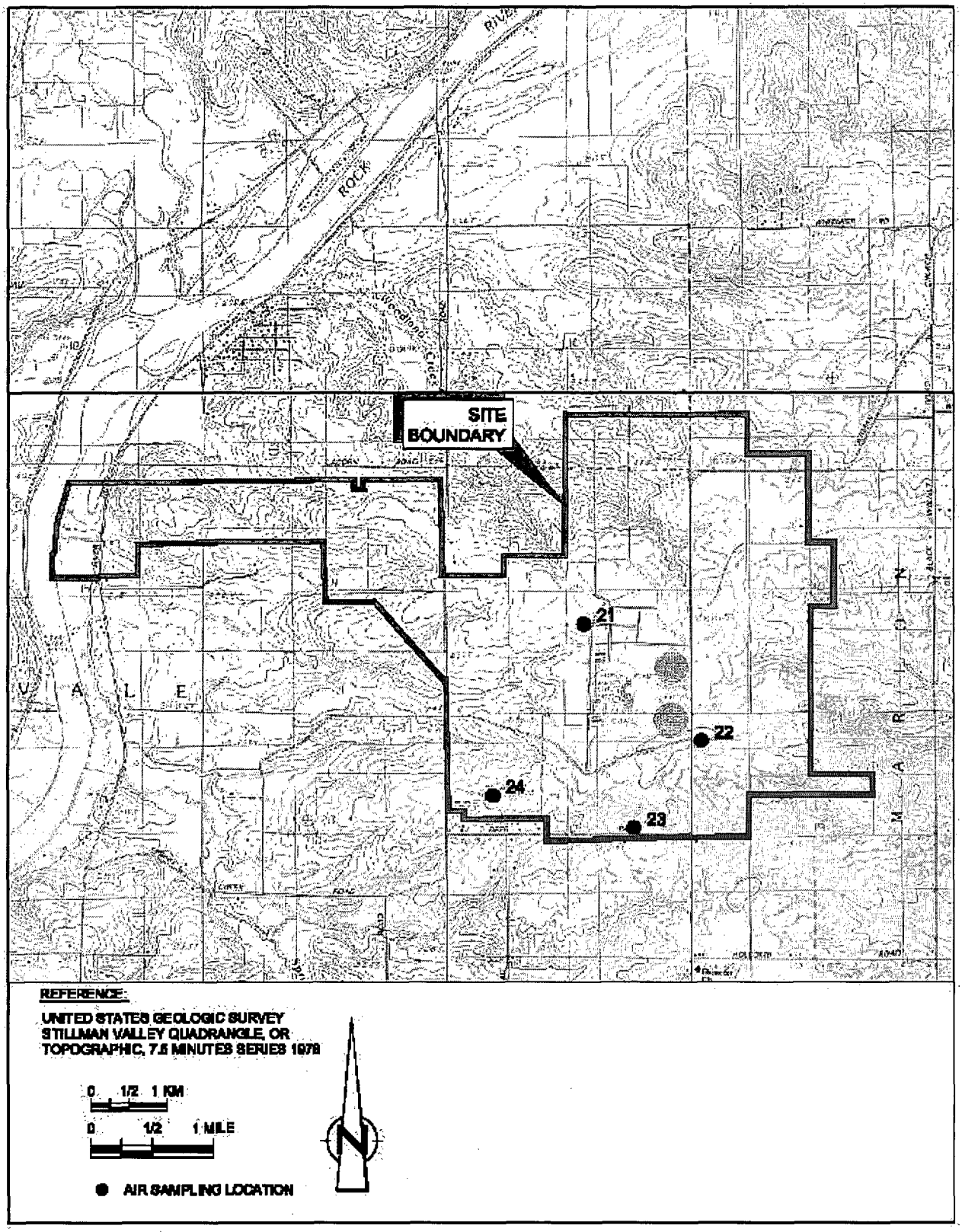

Figure B-2
Onsite Air Sampling Locations of the
Byron Nuclear Generating Station, 2009

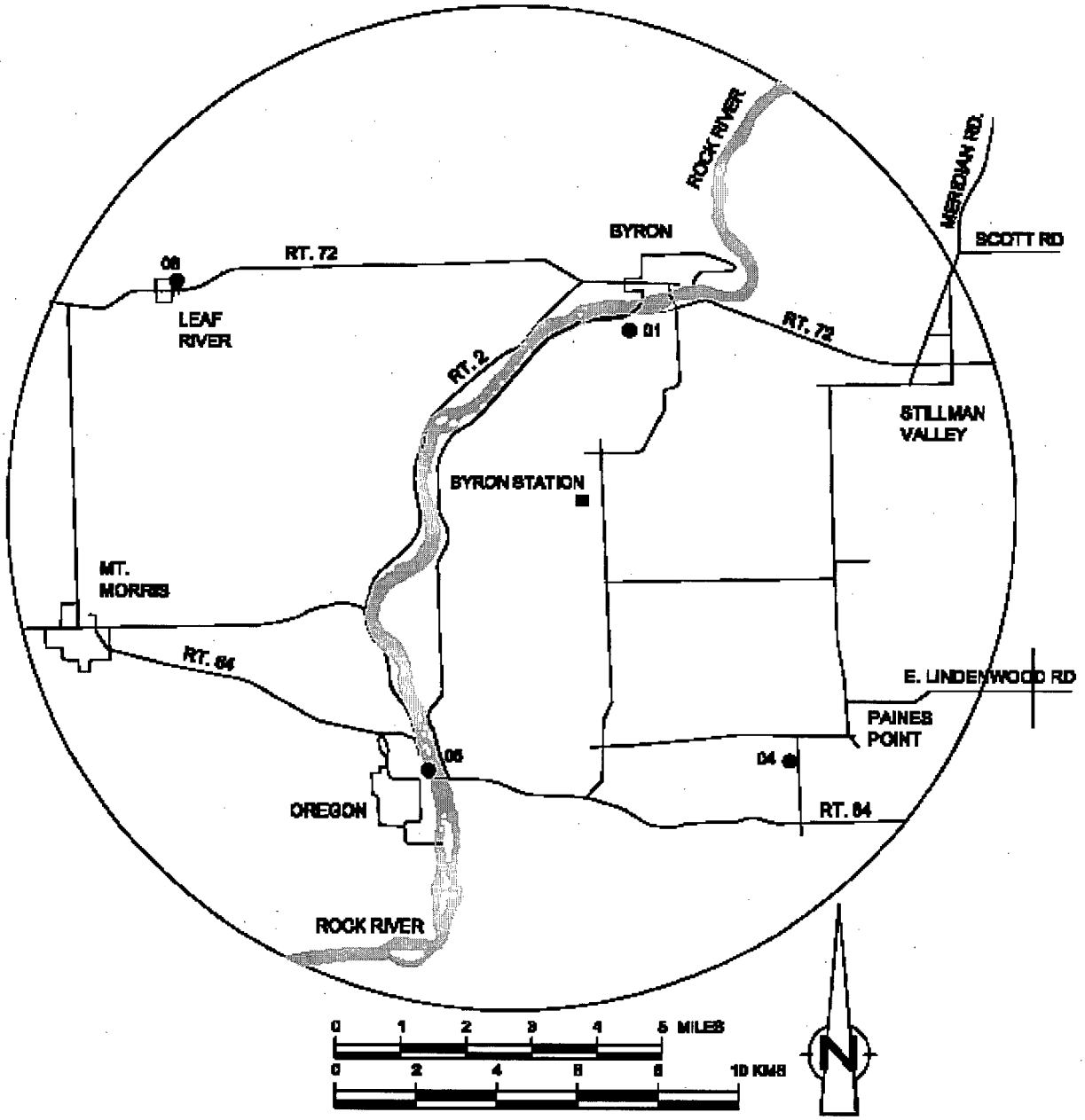

Figure B-3
Offsite Air Sampling Locations of the
Byron Nuclear Generating Station, 2009

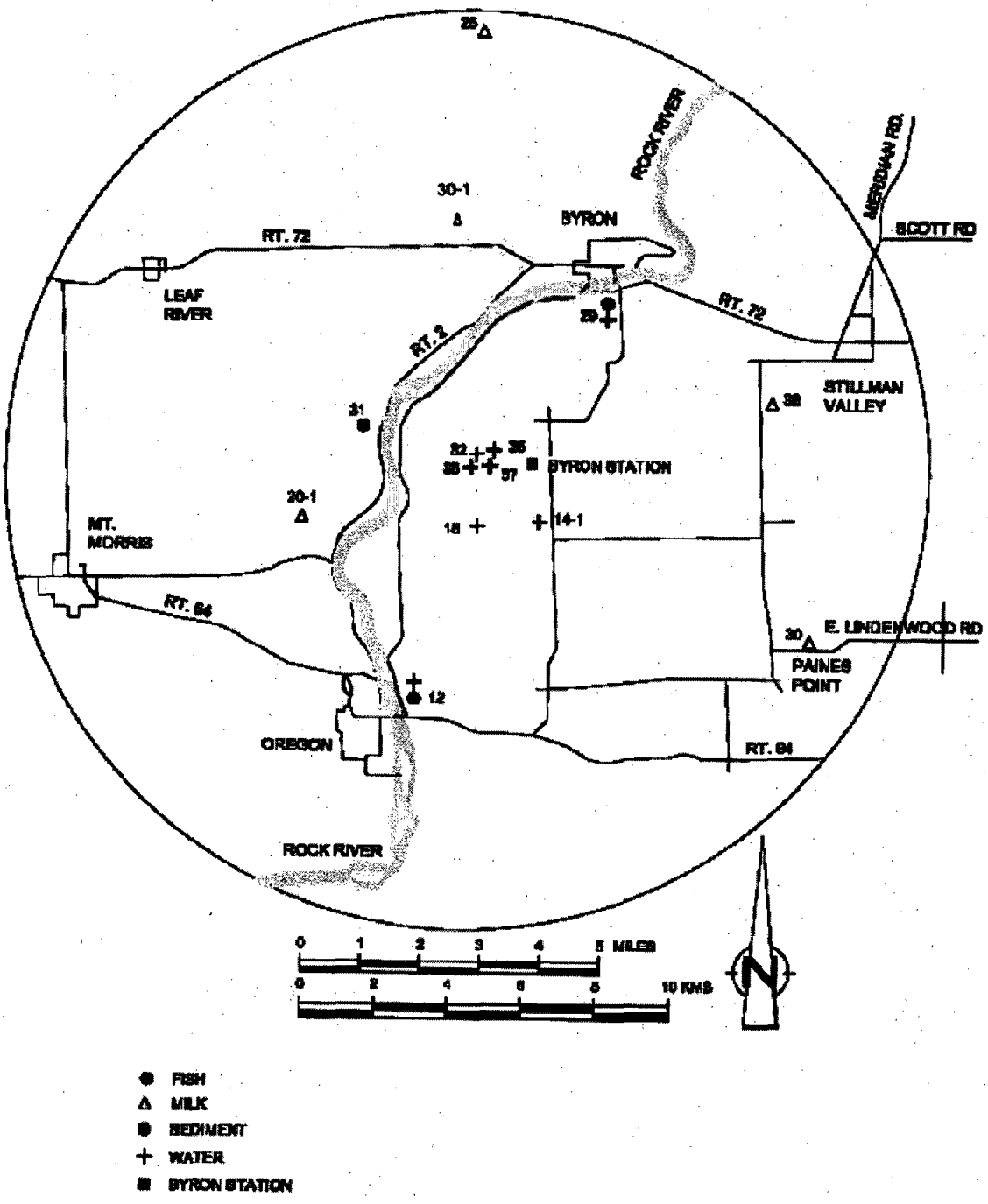

Figure B-4
Ingestion and Waterborne Exposure Pathway Sampling Locations
of the Byron Nuclear Generating Station, 2009

APPENDIX C

DATA TABLES AND FIGURES
PRIMARY LABORATORY

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TABLE C-I.1 **CONCENTRATIONS OF GROSS BETA IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BY-12		BY-29	
01/06/09 - 01/06/09	3.7 ± 2.3	(1)		(1)
02/10/09 - 02/24/09	6.1 ± 1.9	(1)	5.6 ± 1.8	(1)
03/03/09 - 03/30/09	8.8 ± 2.2		7.9 ± 2.1	
04/07/09 - 04/28/09	4.5 ± 2.1		5.2 ± 2.2	
05/05/09 - 05/25/09	3.9 ± 2.1		< 3.0	
06/02/09 - 06/30/09	5.0 ± 2.9		4.2 ± 2.7	
07/07/09 - 07/28/09	< 3.8		< 3.7	
08/04/09 - 08/25/09	3.4 ± 2.1		3.5 ± 2.1	
09/01/09 - 09/29/09	5.2 ± 2.1		5.5 ± 2.1	
10/05/09 - 10/27/09	< 3.4		< 3.4	
11/03/09 - 11/24/09	4.1 ± 2.0		< 2.9	
12/01/09 - 12/08/09	3.8 ± 2.2	(1)	3.7 ± 2.2	(1)
MEAN	4.8 ± 3.3		5.1 ± 3.0	

TABLE C-I.2 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BY-12		BY-29
01/06/09 - 03/30/09	< 164		< 163
04/07/09 - 06/30/09	< 188		< 110
07/07/09 - 09/29/09	725 ± 149	(1)	< 185
10/02/09 - 12/08/09	< 173		< 173
MEAN	725		-

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES
(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-I.3 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	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
BY-12	01/06/09 - 01/06/09	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 13	< 1	< 1	< 16	< 4
	02/10/09 - 02/24/09	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 8	< 2	< 2	< 16	< 5
	03/03/09 - 03/30/09	< 1	< 1	< 3	< 1	< 2	< 2	< 2	< 14	< 1	< 1	< 18	< 6
	04/07/09 - 04/28/09	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 12	< 1	< 1	< 16	< 5
	05/05/09 - 05/25/09	< 1	< 1	< 2	< 1	< 1	< 1	< 2	< 14	< 1	< 1	< 15	< 5
	06/02/09 - 06/30/09	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 14	< 1	< 1	< 21	< 6
	07/07/09 - 07/28/09	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 13	< 1	< 1	< 14	< 5
	08/04/09 - 08/25/09	< 2	< 2	< 5	< 2	< 3	< 2	< 4	< 15	< 2	< 2	< 23	< 6
	09/01/09 - 09/29/09	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 9	< 1	< 1	< 14	< 4
	10/05/09 - 10/27/09	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 13	< 1	< 1	< 18	< 5
	11/03/09 - 11/24/09	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 14	< 1	< 1	< 17	< 5
	12/01/09 - 12/08/09	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 14	< 1	< 1	< 17	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BY-29	01/06/09 - 01/06/09	(1)											
	02/10/09 - 02/24/09	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 8	< 2	< 2	< 15	< 5
	03/03/09 - 03/30/09	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 12	< 1	< 1	< 16	< 4
	04/07/09 - 04/28/09	< 1	< 1	< 2	< 1	< 1	< 1	< 2	< 12	< 1	< 1	< 15	< 4
	05/05/09 - 05/25/09	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 15	< 1	< 1	< 17	< 5
	06/02/09 - 06/30/09	< 1	< 1	< 3	< 1	< 3	< 2	< 3	< 13	< 1	< 1	< 19	< 6
	07/07/09 - 07/28/09	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 13	< 1	< 1	< 15	< 4
	08/04/09 - 08/25/09	< 2	< 2	< 4	< 2	< 3	< 2	< 4	< 14	< 1	< 2	< 21	< 7
	09/01/09 - 09/29/09	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 9	< 1	< 1	< 13	< 4
	10/05/09 - 10/27/09	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 15	< 1	< 1	< 18	< 5
	11/03/09 - 11/24/09	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 13	< 1	< 1	< 17	< 5
	12/01/09 - 12/08/09	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 15	< 1	< 1	< 19	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-II.1 **CONCENTRATIONS OF TRITIUM IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BY-14-1	BY-18	BY-32	BY-35	BY-36	BY-37
01/12/09 - 01/12/09	< 175	< 177	< 176	< 177	< 179	< 177
04/14/09 - 04/14/09	< 139	< 135	< 139	< 132	< 178	< 134
07/13/09 - 07/13/09	< 128	< 136	< 133	< 195	< 197	< 193
10/13/09 - 10/13/09	< 173	< 167	< 171	< 162	< 171	< 173
MEAN	-	-	-	-	-	-

TABLE C-II.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	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
BY-14-1	01/12/09 - 01/12/09	< 1	< 1	< 3	< 1	< 3	< 2	< 2	< 10	< 1	< 1	< 16	< 5
	04/14/09 - 04/14/09	< 1	< 1	< 2	< 1	< 1	< 1	< 2	< 9	< 1	< 1	< 12	< 4
	07/13/09 - 07/13/09	< 3	< 4	< 8	< 3	< 6	< 4	< 8	< 14	< 4	< 4	< 23	< 9
	10/13/09 - 10/13/09	< 3	< 4	< 9	< 4	< 7	< 5	< 6	< 8	< 4	< 4	< 20	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BY-18	01/12/09 - 01/12/09	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 12	< 1	< 1	< 19	< 5
	04/14/09 - 04/14/09	< 1	< 1	< 3	< 1	< 2	< 2	< 2	< 12	< 1	< 1	< 17	< 5
	07/13/09 - 07/13/09	< 5	< 4	< 9	< 6	< 8	< 6	< 7	< 14	< 3	< 3	< 35	< 11
	10/13/09 - 10/13/09	< 5	< 4	< 9	< 5	< 9	< 4	< 7	< 8	< 4	< 5	< 23	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BY-32	01/12/09 - 01/12/09	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 12	< 1	< 2	< 19	< 5
	04/14/09 - 04/14/09	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 11	< 1	< 1	< 14	< 5
	07/13/09 - 07/13/09	< 3	< 4	< 7	< 4	< 8	< 4	< 5	< 14	< 3	< 3	< 29	< 5
	10/13/09 - 10/13/09	< 5	< 5	< 9	< 4	< 8	< 5	< 8	< 8	< 4	< 4	< 20	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BY-35	01/12/09 - 01/12/09	< 1	< 1	< 3	< 1	< 2	< 2	< 2	< 10	< 1	< 1	< 15	< 5
	04/14/09 - 04/14/09	< 1	< 1	< 3	< 1	< 3	< 1	< 3	< 13	< 1	< 1	< 18	< 6
	07/13/09 - 07/13/09	< 4	< 4	< 6	< 4	< 8	< 4	< 8	< 14	< 2	< 4	< 26	< 7
	10/13/09 - 10/13/09	< 4	< 4	< 10	< 5	< 8	< 5	< 8	< 10	< 4	< 5	< 25	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BY-36	01/12/09 - 01/12/09	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 13	< 1	< 2	< 20	< 6
	04/14/09 - 04/14/09	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 12	< 1	< 1	< 16	< 5
	07/13/09 - 07/13/09	< 4	< 4	< 10	< 4	< 7	< 4	< 8	< 15	< 3	< 4	< 33	< 11
	10/13/09 - 10/13/09	< 5	< 5	< 10	< 5	< 9	< 6	< 7	< 9	< 5	< 5	< 23	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-II.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	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
BY-37	01/12/09 - 01/12/09	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 12	< 1	< 1	< 18	< 6
	04/14/09 - 04/14/09	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 11	< 1	< 1	< 14	< 5
	07/13/09 - 07/13/09	< 4	< 3	< 11	< 4	< 9	< 5	< 8	< 13	< 4	< 4	< 28	< 10
	10/13/09 - 10/13/09	< 4	< 4	< 7	< 4	< 8	< 4	< 7	< 7	< 4	< 4	< 18	< 6
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-III.1 **CONCENTRATIONS OF GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BY-29												
Freshwater Drum	05/14/09	< 50	< 72	< 251	< 57	< 127	< 95	< 138	< 48	< 55	< 4090	< 1520
Shorthead Redhorse	05/14/09	< 54	< 84	< 217	< 48	< 104	< 89	< 141	< 50	< 48	< 4040	< 1160
Common Carp	10/14/09	< 59	< 61	< 144	< 52	< 114	< 79	< 77	< 48	< 48	< 795	< 254
Shorthead Redhorse	10/14/09	< 59	< 66	< 177	< 44	< 142	< 75	< 123	< 52	< 64	< 1120	< 185
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BY-31												
Common Carp	05/14/09	< 44	< 54	< 162	< 36	< 100	< 76	< 111	< 34	< 34	< 2880	< 839
Freshwater Drum	05/14/09	< 50	< 88	< 233	< 51	< 124	< 91	< 142	< 52	< 54	< 4090	< 1030
Common Carp	10/14/09	< 51	< 62	< 168	< 41	< 98	< 67	< 118	< 52	< 53	< 904	< 256
River Carpsucker	10/14/09	< 55	< 58	< 185	< 60	< 152	< 63	< 117	< 63	< 58	< 1290	< 280
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-IV.1 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009

RESULTS IN UNITS OF PCI/KG DRY ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BY-12	05/19/09	< 107	< 103	< 222	< 102	< 196	< 117	< 176	< 86	306 ± 115	< 1050	< 294
	11/10/09	< 81	< 94	< 223	< 85	< 194	< 106	< 192	< 75	166 ± 88	< 1230	< 387
	MEAN	-	-	-	-	-	-	-	-	236 ± 198	-	-
BY-34	05/19/09	< 91	< 104	< 227	< 74	< 233	< 122	< 203	< 90	158 ± 78	< 1070	< 298
	11/10/09	< 73	< 82	< 212	< 59	< 180	< 103	< 157	< 65	113 ± 61	< 1170	< 371
	MEAN	-	-	-	-	-	-	-	-	136 ± 64	-	-

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

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009

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

COLLECTION	GROUP I				GROUP II			GROUP III
PERIOD	BY-21	BY-22	BY-23	BY-24	BY-01	BY-04	BY-06	BY-08
12/30/08 - 01/06/09	26 ± 5	20 ± 5	27 ± 5	31 ± 5	32 ± 5	26 ± 5	27 ± 5	29 ± 5
01/06/09 - 01/12/09	33 ± 6	33 ± 6	29 ± 5	29 ± 5	33 ± 5	31 ± 5	30 ± 5	34 ± 5
01/12/09 - 01/20/09	35 ± 5	31 ± 5	28 ± 5	38 ± 5	36 ± 5	32 ± 5	34 ± 5	32 ± 5
01/20/09 - 01/27/09	32 ± 5	35 ± 5	33 ± 5	35 ± 5	39 ± 6	37 ± 5	33 ± 5	34 ± 5
01/27/09 - 02/03/09	25 ± 5	28 ± 5	29 ± 5	29 ± 5	27 ± 5	25 ± 5	28 ± 5	28 ± 5
02/03/09 - 02/10/09	24 ± 5	25 ± 5	21 ± 5	24 ± 5	27 ± 5	28 ± 5	24 ± 5	27 ± 5
02/10/09 - 02/17/09	25 ± 5	22 ± 4	25 ± 5	22 ± 4	24 ± 5	24 ± 5	23 ± 4	22 ± 4
02/17/09 - 02/24/09	29 ± 5	26 ± 5	27 ± 5	30 ± 5	33 ± 5	30 ± 5	23 ± 5	30 ± 5
02/24/09 - 03/03/09	22 ± 5	24 ± 5	23 ± 5	24 ± 5	21 ± 5	19 ± 5	18 ± 4	20 ± 5
03/03/09 - 03/10/09	15 ± 4	22 ± 5	23 ± 5	19 ± 5	20 ± 5	24 ± 5	20 ± 5	19 ± 4
03/10/09 - 03/16/09	30 ± 4	30 ± 4	27 ± 4	26 ± 4	29 ± 4	26 ± 4	27 ± 4	25 ± 4
03/16/09 - 03/23/09	23 ± 4	25 ± 5	21 ± 4	24 ± 5	22 ± 4	25 ± 5	20 ± 4	23 ± 4
03/23/09 - 03/30/09	18 ± 4	14 ± 4	11 ± 3	14 ± 4	13 ± 4	11 ± 4	11 ± 4	11 ± 4
03/31/09 - 04/07/09	18 ± 4	17 ± 4	14 ± 4	13 ± 4	15 ± 4	14 ± 4	16 ± 4	13 ± 4
04/07/09 - 04/14/09	19 ± 4	20 ± 4	20 ± 4	19 ± 4	24 ± 5	18 ± 4	18 ± 4	21 ± 4
04/14/09 - 04/21/09	17 ± 4	15 ± 4	15 ± 4	15 ± 4	16 ± 4	16 ± 4	15 ± 4	15 ± 4
04/21/09 - 04/28/09	15 ± 4	17 ± 4	14 ± 4	20 ± 4	18 ± 4	12 ± 4	14 ± 4	15 ± 4
04/28/09 - 05/05/09	14 ± 4	7 ± 4	14 ± 4	18 ± 4	18 ± 4	18 ± 4	13 ± 4	14 ± 4
05/05/09 - 05/12/09	15 ± 4	10 ± 4	13 ± 4	14 ± 4	12 ± 4	11 ± 4	12 ± 4	12 ± 4
05/12/09 - 05/19/09	17 ± 4	14 ± 4	10 ± 4	10 ± 4	17 ± 4	12 ± 4	12 ± 4	13 ± 4
05/19/09 - 05/25/09	30 ± 5	23 ± 5	21 ± 5	22 ± 5	23 ± 5	25 ± 5	18 ± 4	26 ± 5
05/25/09 - 06/02/09	15 ± 4	13 ± 4	9 ± 3	12 ± 4	9 ± 3	10 ± 3	11 ± 4	12 ± 4
06/02/09 - 06/09/09	14 ± 4	14 ± 4	8 ± 4	12 ± 4	9 ± 4	11 ± 4	13 ± 4	11 ± 4
06/09/09 - 06/16/09	11 ± 4	16 ± 4	13 ± 4	20 ± 4	12 ± 4	15 ± 4	17 ± 4	16 ± 4
06/16/09 - 06/23/09	17 ± 4	17 ± 4	17 ± 4	16 ± 4	23 ± 5	18 ± 4	21 ± 4	18 ± 4
06/23/09 - 06/30/09	18 ± 4	20 ± 4	14 ± 4	17 ± 4	16 ± 4	19 ± 4	19 ± 4	18 ± 4
06/30/09 - 07/07/09	15 ± 4	15 ± 4	8 ± 4	9 ± 4	15 ± 4	13 ± 4	10 ± 4	9 ± 4
07/07/09 - 07/14/09	19 ± 5	15 ± 4	15 ± 4	34 ± 5	12 ± 4	15 ± 4	16 ± 4	12 ± 4
07/14/09 - 07/21/09	9 ± 4	8 ± 4	7 ± 4	10 ± 4	15 ± 5	12 ± 4	9 ± 4	8 ± 4
07/21/09 - 07/28/09	21 ± 5	15 ± 4	21 ± 5	15 ± 4	18 ± 4	23 ± 5	20 ± 4	18 ± 4
07/28/09 - 08/04/09	16 ± 4	18 ± 5	14 ± 4	16 ± 4	16 ± 4	13 ± 4	15 ± 4	14 ± 4
08/04/09 - 08/11/09	16 ± 4	15 ± 4	16 ± 4	17 ± 4	17 ± 4	17 ± 4	18 ± 4	21 ± 5
08/11/09 - 08/18/09	28 ± 5	28 ± 5	26 ± 5	22 ± 5	18 ± 4	22 ± 5	23 ± 5	22 ± 5
08/18/09 - 08/25/09	14 ± 4	11 ± 4	9 ± 4	10 ± 4	8 ± 4	6 ± 4	12 ± 4	10 ± 4
08/25/09 - 09/01/09	14 ± 4	18 ± 4	10 ± 4	15 ± 4	16 ± 4	13 ± 4	14 ± 4	18 ± 4
09/01/09 - 09/08/09	35 ± 5	30 ± 4	22 ± 4	24 ± 4	27 ± 4	28 ± 4	26 ± 4	35 ± 5
09/08/09 - 09/15/09	35 ± 6	38 ± 6	31 ± 5	35 ± 6	32 ± 5	33 ± 6	30 ± 5	46 ± 6
09/15/09 - 09/22/09	22 ± 5	22 ± 5	15 ± 4	24 ± 5	23 ± 5	21 ± 5	21 ± 5	26 ± 5
09/22/09 - 09/29/09	16 ± 4	22 ± 5	19 ± 5	22 ± 5	18 ± 5	24 ± 5	21 ± 5	25 ± 5
09/29/09 - 10/05/09	9 ± 4	14 ± 4	10 ± 4	11 ± 4	8 ± 4	9 ± 4	< 6	14 ± 4
10/05/09 - 10/13/09	11 ± 4	13 ± 4	12 ± 4	12 ± 4	11 ± 4	9 ± 4	13 ± 4	13 ± 4
10/13/09 - 10/19/09	17 ± 4	16 ± 4	10 ± 4	16 ± 4	14 ± 4	17 ± 5	11 ± 4	12 ± 4
10/19/09 - 10/27/09	19 ± 4	11 ± 4	12 ± 4	15 ± 4	14 ± 4	14 ± 4	11 ± 4	15 ± 4
10/27/09 - 11/03/09	23 ± 4	22 ± 4	21 ± 4	20 ± 4	18 ± 4	21 ± 4	17 ± 4	24 ± 4
11/03/09 - 11/10/09	30 ± 5	29 ± 5	25 ± 4	29 ± 5	27 ± 4	29 ± 5	23 ± 4	28 ± 4
11/10/09 - 11/17/09	19 ± 5	17 ± 4	14 ± 4	14 ± 4	14 ± 4	17 ± 4	17 ± 4	15 ± 4
11/17/09 - 11/24/09	22 ± 5	23 ± 5	16 ± 4	24 ± 5	24 ± 5	23 ± 5	24 ± 5	20 ± 4
11/24/09 - 12/01/09	28 ± 5	22 ± 5	23 ± 5	26 ± 5	22 ± 5	29 ± 5	24 ± 5	18 ± 4
12/01/09 - 12/08/09	24 ± 4	31 ± 4	19 ± 4	16 ± 4	20 ± 4	24 ± 4	25 ± 4	22 ± 4
12/08/09 - 12/15/09	32 ± 5	33 ± 5	35 ± 5	36 ± 6	33 ± 5	35 ± 5	32 ± 5	35 ± 5
12/15/09 - 12/22/09	41 ± 6	36 ± 6	25 ± 5	39 ± 6	41 ± 6	42 ± 6	40 ± 6	39 ± 6
12/22/09 - 12/29/09	27 ± 4	26 ± 4	25 ± 4	22 ± 4	31 ± 4	26 ± 4	28 ± 4	24 ± 4
MEAN	21 ± 15	21 ± 15	19 ± 14	21 ± 16	21 ± 16	21 ± 16	20 ± 14	21 ± 17

* THE MEAN AND 2 STANDARD DEVIATION VALUES 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 BYRON NUCLEAR GENERATING STATION, 2009**

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

GROUP I - NEARSITE LOCATIONS				GROUP II - FAR FIELD LOCATIONS				GROUP III - CONTROL LOCATIONS			
COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD
12/30/08 - 02/03/09	20	38	30 ± 8	12/30/08 - 02/03/09	25	39	31 ± 8	12/30/08 - 02/03/09	28	34	31 ± 5
02/03/09 - 03/03/09	21	30	24 ± 5	02/03/09 - 03/03/09	18	33	25 ± 9	02/03/09 - 03/03/09	20	30	25 ± 9
03/03/09 - 03/31/09	11	30	21 ± 12	03/03/09 - 03/30/09	11	29	21 ± 12	03/03/09 - 03/30/09	11	25	20 ± 12
03/31/09 - 04/28/09	13	20	17 ± 5	03/30/09 - 04/28/09	12	24	16 ± 6	03/30/09 - 04/28/09	13	21	16 ± 7
04/28/09 - 06/02/09	7	30	15 ± 11	04/28/09 - 06/02/09	9	25	15 ± 10	04/28/09 - 06/02/09	12	26	15 ± 12
06/02/09 - 06/30/09	8	20	15 ± 6	06/02/09 - 06/30/09	9	23	16 ± 9	06/02/09 - 06/30/09	11	18	16 ± 7
06/30/09 - 07/28/09	7	34	15 ± 13	06/30/09 - 07/28/09	9	23	15 ± 8	06/30/09 - 07/28/09	8	18	11 ± 9
07/28/09 - 09/01/09	9	28	17 ± 11	07/28/09 - 09/01/09	6	23	15 ± 9	07/28/09 - 09/01/09	10	22	17 ± 10
09/01/09 - 09/29/09	15	38	26 ± 14	09/01/09 - 09/29/09	18	33	25 ± 10	09/01/09 - 09/29/09	25	46	33 ± 19
09/29/09 - 11/03/09	9	23	15 ± 8	09/29/09 - 11/03/09	8	21	13 ± 8	09/29/09 - 11/03/09	12	24	15 ± 10
11/03/09 - 12/01/09	14	30	23 ± 11	11/03/09 - 12/01/09	14	29	23 ± 9	11/03/09 - 12/01/09	15	28	20 ± 11
12/01/09 - 12/29/09	16	41	29 ± 14	12/01/09 - 12/29/09	20	42	31 ± 15	12/01/09 - 12/29/09	22	39	30 ± 16
12/30/08 - 12/29/09	7	41	20 ± 15	12/30/08 - 12/29/09	6	42	20 ± 16	12/30/08 - 12/29/09	8	46	21 ± 17

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

TABLE C-V.3 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

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

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BY-01	12/30/08 - 03/30/09	< 4	< 7	< 20	< 2	< 11	< 8	< 13	< 3	< 3	< 932	< 525
	03/30/09 - 06/30/09	< 3	< 7	< 45	< 3	< 9	< 10	< 17	< 4	< 3	< 9770	< 2640
	06/30/09 - 09/29/09	< 5	< 14	< 55	< 3	< 14	< 16	< 24	< 5	< 4	< 18500	< 5540
	09/29/09 - 12/29/09	< 4	< 5	< 14	< 4	< 3	< 6	< 10	< 3	< 3	< 567	< 179
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BY-04	12/30/08 - 03/30/09	< 3	< 5	< 17	< 3	< 6	< 5	< 9	< 3	< 2	< 665	< 342
	03/30/09 - 06/30/09	< 2	< 6	< 28	< 3	< 7	< 9	< 13	< 3	< 2	< 8130	< 2740
	06/30/09 - 09/29/09	< 3	< 9	< 42	< 4	< 11	< 12	< 20	< 4	< 3	< 14200	< 5690
	09/29/09 - 12/29/09	< 3	< 6	< 20	< 3	< 8	< 6	< 14	< 3	< 3	< 512	< 207
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BY-06	12/30/08 - 03/30/09	< 4	< 6	< 22	< 3	< 11	< 7	< 14	< 4	< 3	< 1150	< 256
	03/30/09 - 06/30/09	< 4	< 9	< 34	< 2	< 11	< 11	< 18	< 3	< 2	< 9760	< 2800
	06/30/09 - 09/29/09	< 4	< 11	< 56	< 4	< 14	< 15	< 27	< 5	< 4	< 18500	< 4950
	09/29/09 - 12/29/09	< 4	< 5	< 17	< 4	< 6	< 6	< 11	< 3	< 3	< 436	< 207
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BY-08	12/30/08 - 03/30/09	< 3	< 5	< 18	< 3	< 6	< 5	< 9	< 3	< 2	< 829	< 241
	03/30/09 - 06/30/09	< 3	< 7	< 32	< 3	< 8	< 10	< 18	< 4	< 3	< 7160	< 3600
	06/30/09 - 09/29/09	< 4	< 12	< 43	< 4	< 9	< 13	< 20	< 3	< 3	< 11100	< 4900
	09/29/09 - 12/29/09	< 4	< 5	< 19	< 4	< 9	< 6	< 10	< 3	< 3	< 416	< 229
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BY-21	12/30/08 - 03/31/09	< 3	< 4	< 25	< 3	< 9	< 8	< 14	< 3	< 4	< 1330	< 397
	03/31/09 - 06/30/09	< 3	< 9	< 30	< 3	< 9	< 11	< 16	< 3	< 3	< 10200	< 4660
	06/30/09 - 09/29/09	< 3	< 8	< 38	< 3	< 6	< 9	< 17	< 3	< 3	< 8900	< 3440
	09/29/09 - 12/29/09	< 4	< 7	< 24	< 2	< 8	< 7	< 11	< 3	< 3	< 584	< 146
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-V.3 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

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

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BY-22	12/30/08 - 03/31/09	< 3	< 6	< 18	< 3	< 8	< 6	< 10	< 3	< 2	< 955	< 485
	03/31/09 - 06/30/09	< 3	< 5	< 36	< 3	< 6	< 7	< 15	< 3	< 2	< 7440	< 3130
	06/30/09 - 09/29/09	< 5	< 15	< 68	< 4	< 16	< 14	< 25	< 5	< 4	< 20100	< 6390
	09/29/09 - 12/29/09	< 4	< 7	< 10	< 2	< 7	< 5	< 11	< 4	< 3	< 397	< 207
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BY-23	12/30/08 - 03/31/09	< 3	< 5	< 18	< 3	< 7	< 7	< 11	< 3	< 3	< 890	< 404
	03/31/09 - 06/30/09	< 4	< 12	< 40	< 4	< 14	< 12	< 23	< 5	< 4	< 9900	< 3780
	06/30/09 - 09/29/09	< 3	< 7	< 29	< 3	< 9	< 9	< 17	< 2	< 2	< 10100	< 3270
	09/29/09 - 12/29/09	< 4	< 5	< 14	< 2	< 8	< 5	< 12	< 4	< 3	< 438	< 104
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BY-24	12/30/08 - 03/31/09	< 4	< 7	< 22	< 3	< 12	< 8	< 12	< 4	< 4	< 1150	< 491
	03/31/09 - 06/30/09	< 2	< 6	< 36	< 3	< 9	< 9	< 15	< 3	< 2	< 7780	< 3200
	06/30/09 - 09/29/09	< 5	< 12	< 57	< 4	< 16	< 18	< 25	< 6	< 4	< 21300	< 5860
	09/29/09 - 12/29/09	< 3	< 6	< 16	< 3	< 9	< 5	< 12	< 3	< 3	< 541	< 312
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-VI.1 CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009

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

COLLECTION PERIOD	GROUP I				GROUP II			GROUP III
	BY-21	BY-22	BY-23	BY-24	BY-01	BY-04	BY-06	BY-08
12/30/08 - 01/06/09	< 49	< 48	< 48	< 48	< 65	< 65	< 64	< 67
01/06/09 - 01/12/09	< 52	< 51	< 52	< 52	< 28	< 51	< 52	< 50
01/12/09 - 01/20/09	< 52	< 52	< 51	< 51	< 59	< 61	< 59	< 59
01/20/09 - 01/27/09	< 59	< 56	< 56	< 56	< 59	< 44	< 58	< 58
01/27/09 - 02/03/09	< 59	< 59	< 60	< 60	< 68	< 66	< 67	< 69
02/03/09 - 02/10/09	< 56	< 57	< 56	< 56	< 55	< 56	< 30	< 54
02/10/09 - 02/17/09	< 16	< 16	< 17	< 17	< 15	< 15	< 15	< 16
02/17/09 - 02/24/09	< 51	< 40	< 39	< 39	< 50	< 50	< 51	< 25
02/24/09 - 03/03/09	< 16	< 16	< 16	< 16	< 17	< 17	< 17	< 18
03/03/09 - 03/10/09	< 9	< 18	< 18	< 19	< 18	< 18	< 18	< 17
03/10/09 - 03/16/09	< 43	< 43	< 43	< 44	< 60	< 62	< 62	< 61
03/16/09 - 03/23/09	< 62	< 37	< 62	< 62	< 69	< 69	< 69	< 68
03/23/09 - 03/30/09	< 22	< 21	< 21	< 21	< 24	< 25	< 24	< 24
03/31/09 - 04/07/09	< 69	< 68	< 52	< 69	< 59	< 58	< 58	< 60
04/07/09 - 04/14/09	< 47	< 47	< 47	< 47	< 65	< 66	< 66	< 64
04/14/09 - 04/21/09	< 65	< 65	< 64	< 51	< 70	< 68	< 69	< 68
04/21/09 - 04/28/09	< 63	< 63	< 64	< 64	< 63	< 64	< 63	< 63
04/28/09 - 05/05/09	< 46	< 62	< 46	< 46	< 25	< 45	< 46	< 47
05/05/09 - 05/12/09	< 57	< 66	< 57	< 57	< 66	< 67	< 66	< 64
05/12/09 - 05/19/09	< 62	< 62	< 63	< 63	< 64	< 42	< 63	< 65
05/19/09 - 05/25/09	< 68	< 64	< 64	< 64	< 37	< 68	< 68	< 65
05/25/09 - 06/02/09	< 58	< 67	< 67	< 67	< 59	< 58	< 32	< 60
06/02/09 - 06/09/09	< 33	< 33	< 33	< 33	< 33	< 32	< 32	< 31
06/09/09 - 06/16/09	< 41	< 19	< 19	< 19	< 41	< 41	< 41	< 28
06/16/09 - 06/23/09	< 55	< 55	< 55	< 30	< 57	< 56	< 56	< 53
06/23/09 - 06/30/09	< 35	< 53	< 53	< 53	< 66	< 65	< 66	< 68
06/30/09 - 07/07/09	< 43	< 43	< 44	< 19	< 66	< 29	< 67	< 65
07/07/09 - 07/14/09	< 52	< 65	< 65	< 65	< 67	< 65	< 66	< 69
07/14/09 - 07/21/09	< 55	< 55	< 54	< 54	< 34	< 35	< 35	< 34
07/21/09 - 07/28/09	< 63	< 63	< 63	< 63	< 65	< 63	< 64	< 66
07/28/09 - 08/04/09	< 44	< 44	< 44	< 44	< 34	< 35	< 35	< 33
08/04/09 - 08/11/09	< 50	< 50	< 49	< 49	< 45	< 44	< 45	< 46
08/11/09 - 08/18/09	< 37	< 37	< 37	< 37	< 41	< 43	< 42	< 42
08/18/09 - 08/25/09	< 62	< 62	< 63	< 63	< 56	< 54	< 54	< 56
08/25/09 - 09/01/09	< 58	< 58	< 58	< 58	< 53	< 53	< 53	< 51
09/01/09 - 09/08/09	< 63	< 63	< 63	< 64	< 49	< 26	< 48	< 50
09/08/09 - 09/15/09	< 53	< 53	< 53	< 53	< 48	< 49	< 49	< 47
09/15/09 - 09/22/09	< 32	< 32	< 32	< 32	< 51	< 52	< 51	< 53
09/22/09 - 09/29/09	< 69	< 69	< 69	< 70	< 56	< 57	< 57	< 55
09/29/09 - 10/05/09	< 21	< 21	< 21	< 21	< 67	< 65	< 66	< 68
10/05/09 - 10/13/09	< 68	< 68	< 68	< 67	< 52	< 54	< 53	< 52
10/13/09 - 10/19/09	< 20	< 49	< 49	< 49	< 37	< 38	< 37	< 37
10/19/09 - 10/27/09	< 60	< 60	< 60	< 60	< 50	< 49	< 49	< 48
10/27/09 - 11/03/09	< 50	< 21	< 50	< 50	< 56	< 54	< 56	< 52
11/03/09 - 11/10/09	< 64	< 64	< 65	< 65	< 53	< 55	< 54	< 51
11/10/09 - 11/17/09	< 57	< 57	< 56	< 57	< 48	< 49	< 48	< 29
11/17/09 - 11/24/09	< 68	< 68	< 68	< 68	< 59	< 59	< 59	< 58
11/24/09 - 12/01/09	< 67	< 67	< 66	< 28	< 41	< 67	< 68	< 69
12/01/09 - 12/08/09	< 49	< 49	< 50	< 50	< 53	< 53	< 53	< 51
12/08/09 - 12/15/09	< 53	< 58	< 59	< 59	< 23	< 53	< 53	< 53
12/15/09 - 12/22/09	< 69	< 69	< 70	< 70	< 62	< 61	< 61	< 61
12/22/09 - 12/29/09	< 62	< 64	< 65	< 65	< 47	< 49	< 47	< 46
MEAN	-	-	-	-	-	-	-	-

TABLE C-VII.1 CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION	CONTROL FARM	INDICATOR FARM	
PERIOD	BY-26-1	BY-20-1	BY-30-1
01/06/09	< 0.6	< 0.6	< 0.6
02/03/09	< 0.7	< 0.9	< 0.8
03/03/09	< 0.7	< 0.8	< 0.7
04/07/09	< 0.9	< 0.9	< 0.9
05/05/09	< 0.7	< 0.5	< 0.4
05/19/09	< 0.8	< 0.8	< 0.7
06/02/09	< 0.5	< 0.5	< 0.6
06/16/09	< 0.7	< 0.6	< 0.7
06/30/09	< 0.7	< 0.8	< 0.7
07/14/09	< 0.9	< 0.8	< 0.9
07/28/09	< 0.8	< 0.7	< 0.8
08/11/09	< 0.7	< 0.8	< 0.7
08/25/09	< 0.8	< 0.8	< 0.8
09/08/09	< 0.7	< 0.7	< 0.7
09/22/09	< 0.8	< 0.7	< 0.8
10/05/09	< 0.7	< 0.9	< 0.7
10/20/09	< 0.8	< 0.7	< 0.7
11/03/09	3.6 ± 0.6 (1)	< 0.8	< 0.6
12/01/09	< 0.6	< 0.9	< 0.8
MEAN	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VII.2 **CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BY-20-1	01/06/09	< 7	< 8	< 13	< 7	< 13	< 7	< 13	< 6	< 7	< 56	< 14
	02/03/09	< 4	< 5	< 11	< 4	< 9	< 5	< 8	< 4	< 5	< 34	< 7
	03/03/09	< 5	< 5	< 13	< 5	< 11	< 5	< 8	< 4	< 5	< 31	< 10
	04/07/09	< 2	< 3	< 8	< 2	< 6	< 3	< 5	< 2	< 2	< 34	< 11
	05/05/09	< 2	< 2	< 7	< 2	< 4	< 2	< 4	< 1	< 2	< 42	< 13
	05/19/09	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 1	< 1	< 22	< 7
	06/02/09	< 6	< 5	< 13	< 6	< 11	< 5	< 9	< 5	< 5	< 23	< 10
	06/16/09	< 4	< 5	< 12	< 4	< 10	< 5	< 9	< 4	< 4	< 43	< 13
	06/30/09	< 4	< 5	< 11	< 4	< 10	< 6	< 9	< 4	< 4	< 44	< 14
	07/14/09	< 5	< 5	< 13	< 5	< 11	< 6	< 9	< 4	< 5	< 34	< 10
	07/28/09	< 5	< 6	< 13	< 5	< 13	< 6	< 9	< 5	< 5	< 45	< 12
	08/11/09	< 3	< 2	< 7	< 3	< 6	< 3	< 4	< 3	< 3	< 13	< 4
	08/25/09	< 4	< 4	< 11	< 5	< 10	< 5	< 9	< 4	< 4	< 23	< 6
	09/08/09	< 6	< 8	< 15	< 8	< 14	< 6	< 13	< 6	< 6	< 45	< 14
	09/22/09	< 5	< 6	< 14	< 7	< 13	< 6	< 11	< 5	< 6	< 27	< 8
	10/05/09	< 5	< 5	< 13	< 5	< 11	< 5	< 9	< 4	< 5	< 23	< 8
	10/20/09	< 4	< 4	< 9	< 4	< 9	< 4	< 7	< 4	< 4	< 21	< 7
	11/03/09	< 6	< 7	< 18	< 8	< 15	< 8	< 13	< 6	< 6	< 47	< 12
	12/01/09	< 4	< 5	< 12	< 4	< 9	< 5	< 8	< 3	< 4	< 38	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BY-26-1	01/06/09	< 6	< 7	< 17	< 6	< 16	< 7	< 14	< 6	< 7	< 52	< 14
	02/03/09	< 5	< 6	< 17	< 6	< 13	< 6	< 11	< 5	< 6	< 46	< 11
	03/03/09	< 5	< 6	< 12	< 5	< 14	< 5	< 10	< 4	< 5	< 32	< 9
	04/07/09	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 2	< 2	< 32	< 8
	05/05/09	< 2	< 2	< 6	< 2	< 4	< 2	< 4	< 1	< 2	< 39	< 12
	05/19/09	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 1	< 1	< 24	< 6
	06/02/09	< 5	< 5	< 10	< 5	< 11	< 5	< 8	< 4	< 5	< 22	< 8
	06/16/09	< 4	< 5	< 13	< 5	< 11	< 5	< 9	< 4	< 4	< 42	< 14
	06/30/09	< 5	< 4	< 9	< 5	< 8	< 5	< 9	< 4	< 4	< 39	< 11
	07/14/09	< 7	< 8	< 15	< 7	< 17	< 9	< 12	< 7	< 7	< 49	< 10
	07/28/09	< 5	< 5	< 14	< 4	< 10	< 5	< 9	< 4	< 5	< 41	< 11
	08/11/09	< 6	< 6	< 14	< 8	< 15	< 6	< 10	< 6	< 6	< 28	< 8
	08/25/09	< 4	< 5	< 11	< 5	< 11	< 5	< 8	< 4	< 5	< 23	< 5
	09/08/09	< 6	< 6	< 15	< 5	< 10	< 5	< 11	< 4	< 5	< 34	< 11
	09/22/09	< 6	< 6	< 13	< 5	< 14	< 7	< 10	< 5	< 5	< 22	< 8
	10/05/09	< 3	< 4	< 11	< 4	< 9	< 4	< 8	< 4	< 5	< 22	< 6
	10/20/09	< 5	< 4	< 13	< 6	< 11	< 6	< 11	< 5	< 5	< 27	< 7
	11/03/09	< 5	< 6	< 13	< 6	< 13	< 5	< 9	< 5	< 4	< 39	< 11
	12/01/09	< 4	< 4	< 11	< 4	< 9	< 4	< 8	< 3	< 4	< 34	< 12
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BY-30-1	01/06/09	< 5	< 7	< 15	< 6	< 12	< 7	< 11	< 5	< 5	< 44	< 14
	02/03/09	< 5	< 5	< 13	< 5	< 12	< 6	< 10	< 4	< 5	< 43	< 13
	03/03/09	< 5	< 6	< 12	< 5	< 12	< 6	< 9	< 5	< 6	< 36	< 11
	04/07/09	< 2	< 3	< 7	< 2	< 5	< 3	< 5	< 2	< 2	< 38	< 10
	05/05/09	< 2	< 2	< 6	< 2	< 4	< 2	< 4	< 2	< 2	< 44	< 14
	05/19/09	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 1	< 2	< 26	< 7
	06/02/09	< 6	< 6	< 14	< 7	< 12	< 5	< 10	< 5	< 6	< 28	< 9
	06/16/09	< 3	< 3	< 8	< 3	< 6	< 3	< 6	< 3	< 3	< 29	< 9
	06/30/09	< 4	< 5	< 12	< 5	< 10	< 5	< 9	< 4	< 4	< 41	< 12
	07/14/09	< 5	< 5	< 15	< 6	< 12	< 6	< 12	< 5	< 6	< 38	< 15
	07/28/09	< 5	< 5	< 13	< 5	< 10	< 5	< 9	< 4	< 5	< 40	< 15
	08/11/09	< 4	< 6	< 14	< 5	< 13	< 6	< 9	< 4	< 5	< 28	< 6
	08/25/09	< 7	< 6	< 14	< 7	< 14	< 7	< 11	< 6	< 7	< 30	< 10
	09/08/09	< 5	< 6	< 13	< 6	< 14	< 7	< 10	< 5	< 5	< 37	< 14
	09/22/09	< 7	< 6	< 16	< 8	< 15	< 7	< 11	< 7	< 6	< 28	< 10
	10/05/09	< 4	< 4	< 8	< 5	< 8	< 4	< 7	< 3	< 4	< 20	< 6
	10/20/09	< 5	< 5	< 12	< 5	< 10	< 5	< 9	< 4	< 5	< 25	< 6
	11/03/09	< 4	< 4	< 12	< 4	< 10	< 5	< 9	< 4	< 5	< 33	< 10
	12/01/09	< 4	< 4	< 10	< 4	< 10	< 5	< 8	< 4	< 4	< 38	< 12
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-VIII.1 **CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATING STATION, 2009**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	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
BY-CONTROL													
Potatoes	09/08/09	< 12	< 13	< 36	< 13	< 28	< 14	< 24	< 55	< 11	< 14	< 103	< 31
Swiss Chard	09/08/09	< 10	< 15	< 29	< 11	< 27	< 14	< 23	< 59	< 12	< 12	< 110	< 30
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BY-QUAD 1													
Cabbage	09/08/09	< 5	< 6	< 12	< 5	< 12	< 6	< 10	< 24	< 5	< 5	< 52	< 10
Potatoes	09/08/09	< 14	< 14	< 33	< 11	< 28	< 14	< 25	< 52	< 10	< 13	< 105	< 26
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BY-QUAD 2													
Beet greens	09/08/09	< 11	< 12	< 19	< 7	< 21	< 11	< 19	< 57	< 10	< 11	< 96	< 22
Beets	09/08/09	< 9	< 9	< 26	< 9	< 21	< 11	< 17	< 50	< 9	< 10	< 92	< 19
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BY-QUAD 3													
Kale	09/08/09	< 10	< 11	< 26	< 10	< 22	< 12	< 20	< 55	< 9	< 11	< 100	< 28
Turnips	09/08/09	< 7	< 9	< 17	< 8	< 10	< 6	< 14	< 22	< 6	< 6	< 49	< 14
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BY-QUAD 4													
Beet greens	09/09/09	< 10	< 11	< 24	< 13	< 26	< 14	< 23	< 51	< 10	< 11	< 112	< 28
Beets	09/09/09	< 8	< 8	< 21	< 8	< 19	< 9	< 16	< 36	< 7	< 8	< 71	< 21
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-IX.1 QUARTERLY TLD RESULTS FOR BYRON NUCLEAR GENERATING STATION, 2009

RESULTS IN UNITS OF MILLI-ROENTGEN/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BY-01-1	21.8 ± 6.4	25	19	19	24
BY-01-2	21.5 ± 7.0	24	18	19	25
BY-04-1	23.8 ± 5.3	26	21	22	26
BY-04-2	24.0 ± 5.9	26	21	22	27
BY-06-1	22.3 ± 6.0	26	19	21	23
BY-06-2	22.0 ± 7.1	24	19	19	26
BY-08-1	21.8 ± 5.3	23	18	22	24
BY-08-2	21.5 ± 7.0	25	18	19	24
BY-21-1	21.3 ± 3.0	23	20	20	22
BY-21-2	20.0 ± 3.7	21	18	19	22
BY-22-1	25.8 ± 6.6	29	22	24	28
BY-22-2	26.0 ± 5.2	29	23	25	27
BY-23-1	24.3 ± 5.5	27	21	23	26
BY-23-2	24.3 ± 5.3	28	22	23	24
BY-24-1	23.8 ± 7.5	27	20	21	27
BY-24-2	25.3 ± 10	28	21	21	31
BY-101-1	20.8 ± 5.5	24	18	19	22
BY-101-2	21.0 ± 7.3	23	17	19	25
BY-102-1	26.8 ± 5.7	30	23	27	27
BY-102-2	27.0 ± 6.3	28	25	24	31
BY-103-1	25.0 ± 5.9	27	22	23	28
BY-103-2	25.5 ± 6.0	29	23	23	27
BY-103-3	26.0 ± 6.3	29	22	25	28
BY-104-1	25.5 ± 7.0	28	22	23	29
BY-104-2	25.3 ± 6.6	29	22	23	27
BY-104-3	24.0 ± 6.3	28	21	22	25
BY-105-1	25.8 ± 7.7	28	22	23	30
BY-105-2	26.5 ± 7.4	28	23	24	31
BY-106-1	25.8 ± 7.0	27	24	22	30
BY-106-2	25.5 ± 7.0	28	22	23	29
BY-107-1	28.3 ± 7.5	31	25	25	32
BY-107-2	28.3 ± 6.6	30	25	26	32
BY-107-3	22.3 ± 5.3	25	20	20	24
BY-108-1	27.5 ± 2.6	29	26	28	27
BY-108-2	24.5 ± 7.4	27	20	23	28
BY-109-1	25.0 ± 4.3	27	25	22	26
BY-109-2	24.8 ± 5.5	28	23	22	26
BY-110-1	23.3 ± 7.5	28	22	19	24
BY-110-2	24.3 ± 8.9	27	20	21	29
BY-111-3	25.3 ± 3.8	28	24	24	25
BY-111-4	25.5 ± 5.3	27	22	25	28
BY-112-3	25.3 ± 3.4	27	23	25	26
BY-112-4	25.5 ± 6.2	27	24	22	29
BY-113-1	25.5 ± 4.8	28	23	24	27
BY-113-2	22.0 ± 4.9	25	20	20	23
BY-114-1	23.5 ± 8.7	29	20	20	25
BY-114-2	24.5 ± 6.2	28	23	21	26
BY-115-1	24.0 ± 6.3	28	21	22	25
BY-115-2	23.5 ± 5.3	25	20	23	26

TABLE C-IX.1 QUARTERLY TLD RESULTS FOR BYRON NUCLEAR GENERATING STATION, 2009

RESULTS IN UNITS OF MILLI-ROENTGEN/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BY-116-1	24.5 ± 3.8	26	22	24	26
BY-116-2	24.3 ± 7.5	27	21	21	28
BY-116-3	24.8 ± 6.4	26	20	26	27
BY-201-3	25.0 ± 9.4	28	21	21	30
BY-201-4	26.3 ± 4.7	28	23	26	28
BY-202-1	27.0 ± 3.5	26	(1)	26	29
BY-202-2	26.8 ± 5.5	28	25	24	30
BY-203-1	21.3 ± 6.4	24	19	18	24
BY-203-2	24.3 ± 7.5	27	21	21	28
BY-204-1	24.0 ± 4.9	24	21	24	27
BY-204-2	26.5 ± 4.8	28	24	25	29
BY-205-1	27.3 ± 9.4	34	24	24	27
BY-205-2	23.8 ± 5.3	26	22	21	26
BY-206-1	25.8 ± 5.5	29	24	23	27
BY-206-2	25.8 ± 4.4	28	23	25	27
BY-207-1	25.3 ± 4.1	27	23	24	27
BY-207-2	26.3 ± 8.7	30	23	22	30
BY-208-1	27.5 ± 7.4	29	24	25	32
BY-208-2	27.5 ± 6.8	26	28	24	32
BY-209-1	26.0 ± 7.7	27	23	23	31
BY-209-4	26.0 ± 4.6	28	24	24	28
BY-210-3	25.8 ± 8.2	27	22	23	31
BY-210-4	25.3 ± 6.6	27	22	23	29
BY-211-1	25.8 ± 7.7	28	22	23	30
BY-211-4	25.8 ± 6.4	28	23	23	29
BY-212-1	27.3 ± 4.7	29	24	27	29
BY-212-4	29.0 ± 9.9	34	23	27	32
BY-213-1	26.8 ± 5.5	28	25	24	30
BY-213-4	27.3 ± 4.7	29	24	27	29
BY-214-1	24.8 ± 5.0	28	22	24	25
BY-214-4	25.3 ± 7.5	28	22	22	29
BY-215-1	26.0 ± 4.9	29	24	24	27
BY-215-4	26.8 ± 4.1	29	24	27	27
BY-216-1	28.3 ± 5.3	30	26	26	31
BY-216-2	25.3 ± 4.4	28	24	23	26
BY-301-1	20.3 ± 4.1	22	18	19	22
BY-302-1	23.8 ± 3.0	25	22	23	25
BY-309-1	23.5 ± 2.0	23	23	21	25
BY-309-2	23.5 ± 4.8	26	22	23	25
BY-309-3	24.3 ± 7.7	27	22	21	28
BY-309-4	21.8 ± 3.0	23	20	20	23
BY-314-1	22.5 ± 4.8	25	20	21	24

(1) SEE PROGRAM EXCEPTIONS SECTIOIN FOR EXPLANATION

TABLE C-IX.2 MEAN QUARTLY TLD RESULTS FOR THE INNER RING, OUTER RING, SPECIAL INTEREST, OTHER AND CONTROL LOCATIONS FOR BYRON NUCLEAR GENERATING STATION, 2009

RESULTS IN UNITS OF MILLI-ROENTGENS/QUARTER ± 2 STANDARD DEVIATIONS OF THE STATION DATA

COLLECTION PERIOD	INNER RING ± 2 S.D.	OUTER RING	SPECIAL INTEREST	OTHER	CONTROL
JAN-MAR	27.5 ± 3.3	28.1 ± 4.2	23.4 ± 3.2	25.9 ± 4.7	24.0 ± 3
APR-JUN	22.1 ± 4.0	23.2 ± 3.4	22.3 ± 5.5	20.3 ± 3.1	18.0 ± 0.0
JUL-SEP	22.9 ± 4.4	23.8 ± 4.1	23.0 ± 6.6	21.3 ± 4.0	20.5 ± 4
OCT-DEC	27.2 ± 4.8	28.6 ± 4.1	22.4 ± 3.8	25.6 ± 4.9	24.0 ± 0.0

TABLE C-IX.3 SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR BYRON NUCLEAR GENERATING STATION, 2009

RESULTS IN UNITS OF MILLI-ROENTGEN/QUARTER

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
INNER RING	144	17	32	24.9 ± 6.4
OUTER RING	127	18	34	26.0 ± 6.3
SPECIAL INTEREST	28	18	28	22.8 + 4.8
OTHER	56	18	31	23.3 ± 6.5
CONTROL	8	18	25	21.6 ± 5.8

INNER RING STATIONS - BY-101-1, BY-101-2, BY-102-1, BY-102-2, BY-103-1, BY-103-2, BY-103-3, BY-104-1, BY-104-2, BY-104-3, BY-105-1, BY-105-2, BY-106-1, BY-106-2, BY-107-1, BY-107-2, BY-107-3, BY-108-1, BY-108-2, BY-109-1, BY-109-2, BY-110-1, BY-110-2, BY-111-3, BY-111-4, BY-112-3, BY-112-4, BY-113-1, BY-113-2, BY-114-1, BY-114-2, BY-115-1, BY-115-2, BY-116-1, BY-116-2, BY-116-3

OUTER RING STATIONS - BY-201-3, BY-201-4, BY-202-1, BY-202-2, BY-203-1, BY-203-2, BY-204-1, BY-204-2, BY-205-1, BY-205-2, BY-206-1, BY-206-2, BY-207-1, BY-207-2, BY-208-1, BY-208-2, BY-209-1, BY-209-4, BY-210-3, BY-210-4, BY-211-1, BY-211-4, BY-212-1, BY-212-4, BY-213-1, BY-213-4, BY-214-1, BY-214-4, BY-215-1, BY-215-4, BY-216-1, BY-216-2

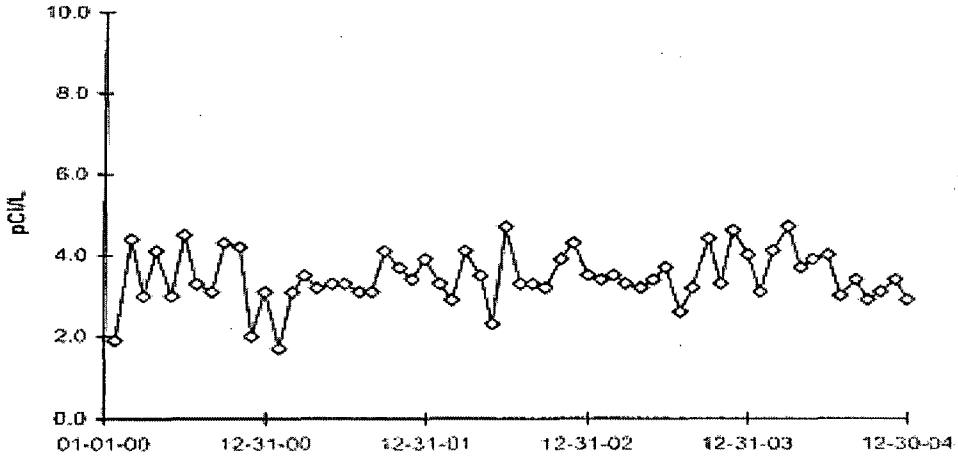
SPECIAL INTEREST STATIONS - BY-301-1, BY-302-1, BY-309-1, BY-309-2, BY309-3, BY-309-4, BY-314-1

OTHER STATIONS - BY-01-1, BY-01-2, BY-04-1, BY-04-2, BY-06-1, BY-06-2, BY-21-1, BY-21-2, BY-22-1, BY-22-2, BY-23-1, BY-23-2, BY-24-1, BY-24-2

CONTROL STATIONS - BY-08-1, BY-08-2

FIGURE C-1
Surface Water - Gross Beta - Station BY-12 and BY-29 (C) Collected in the Vicinity of BNGS, 2000 - 2004

BY-12 Oregon Pool of Rock River, Downstream



BY-29 (C) Byron, Upstream

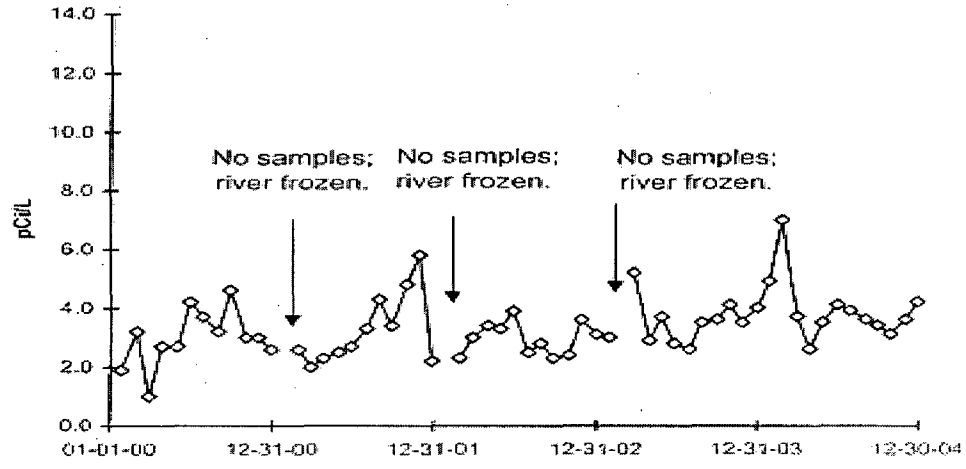
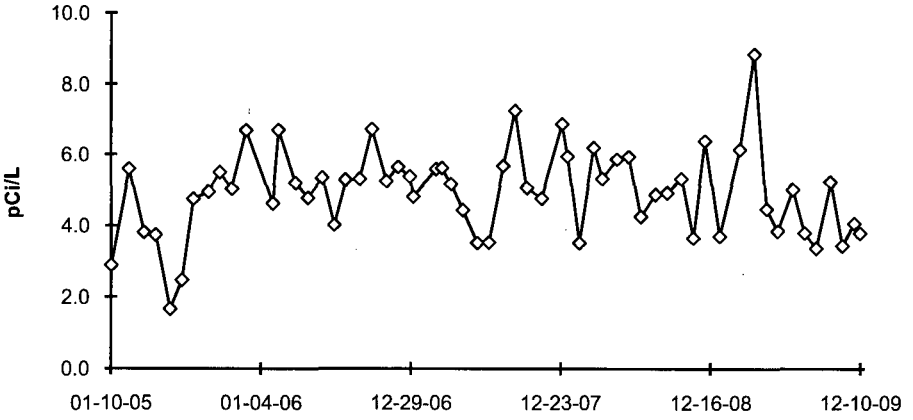
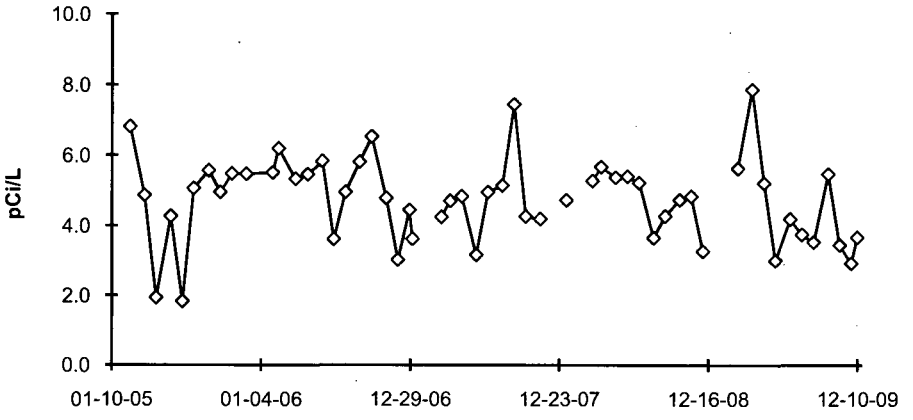


FIGURE C-1 (cont.)
Surface Water - Gross Beta - Station BY-12 and BY-29 (C)
Collected in the Vicinity of BNGS, 2005 - 2009

BY-12 Oregon Pool of Rock River, Downstream



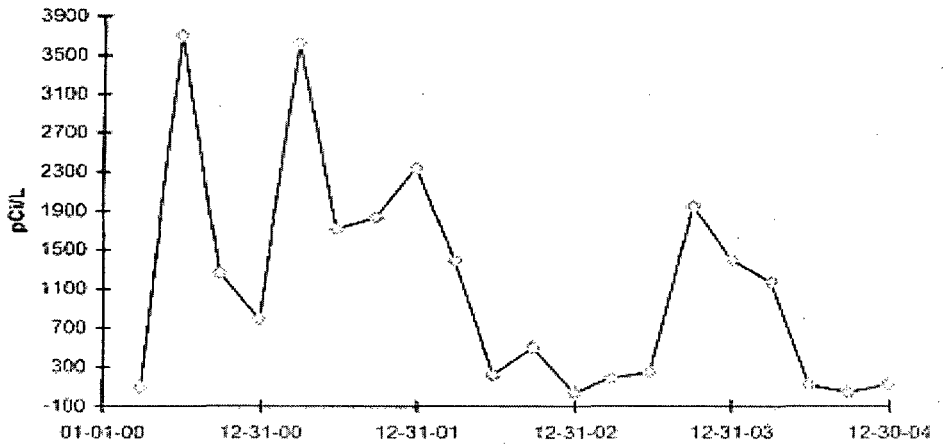
BY-29 (C) Byron, Upstream



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

FIGURE C-2
Surface Water - Tritium - Stations BY-12 and BY-29 (C) Collected in the Vicinity of BNGS, 2000 - 2004

BY-12 Oregon Pool of Rock River, Downstream



BY-29(C) Byron, Upstream

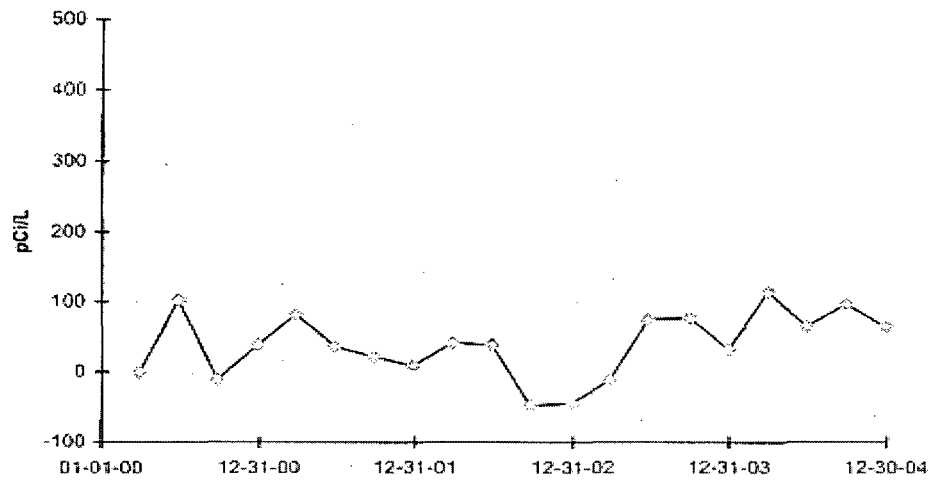
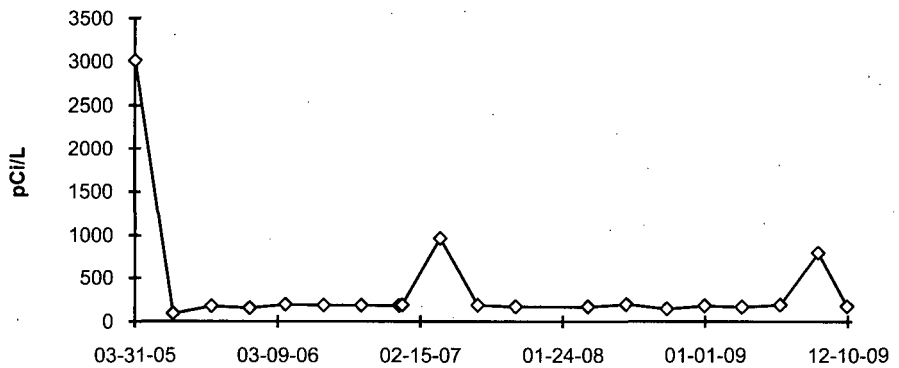
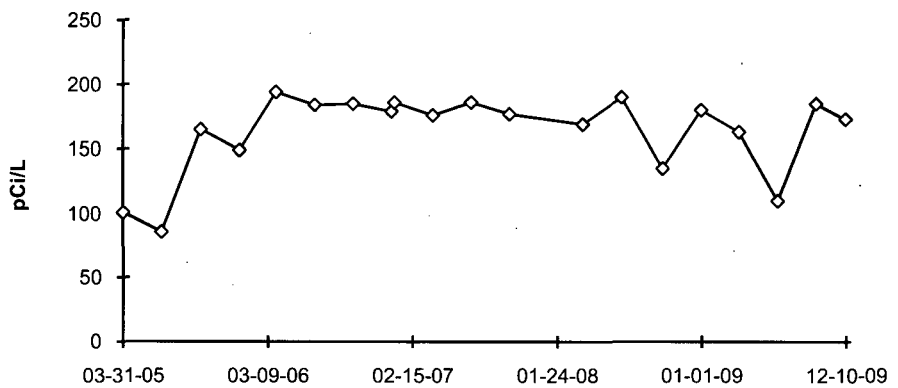


FIGURE C-2 (cont.)
Surface Water - Tritium - Stations BY-12 and BY-29 (C)
Collected in the Vicinity of BNGS, 2005 - 2009

BY-12 Oregon Pool of Rock River, Downstream



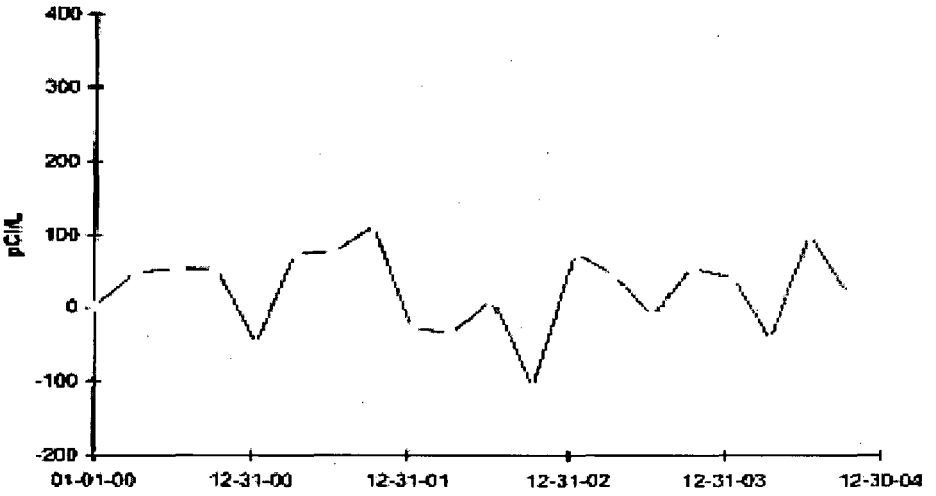
BY-29 (C) Byron, Upstream



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

FIGURE C-3
Ground Water - Tritium - Stations BY-14-1 and BY-18 Collected in the Vicinity of BNGS, 2000 - 2004

BY-14-1 3200 N. German Church Road



BY-18 McCoy Farmstead Well

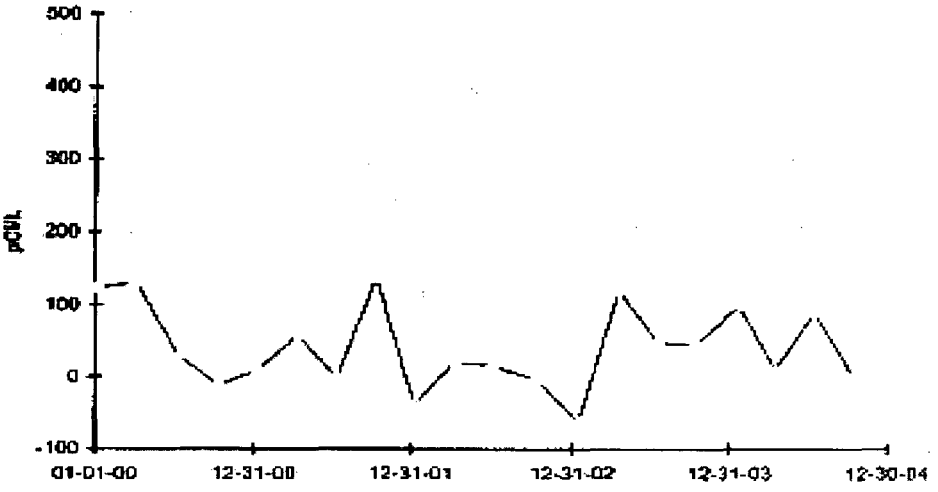
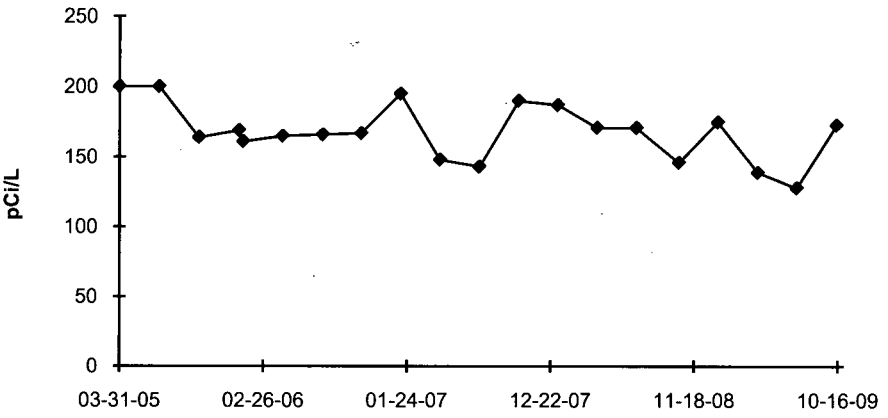
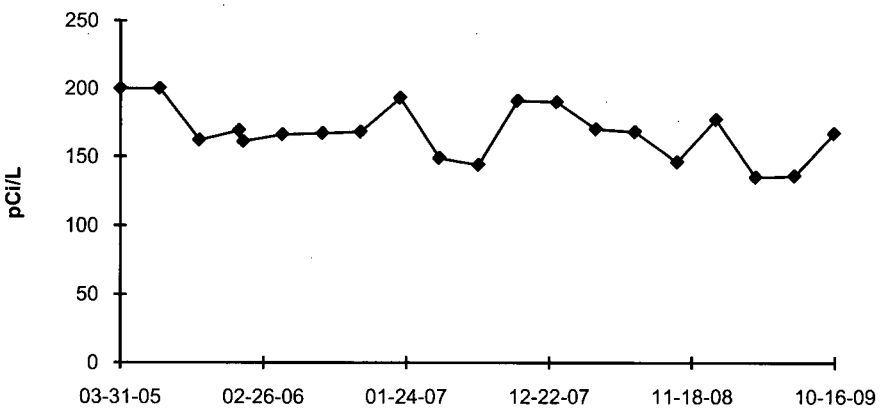


FIGURE C-3 (cont.)
Ground Water - Tritium - Stations BY-14-1 and BY-18 Collected in the Vicinity of BNGS, 2005 - 2009

BY-14-1 3200 N. German Church Road



BY-18 McCoy Farmstead Well



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

FIGURE C-4
Ground Water - Tritium - Station BY-32
Collected in the Vicinity of BNGS, 2000 - 2004
BY-32 Wolford Well

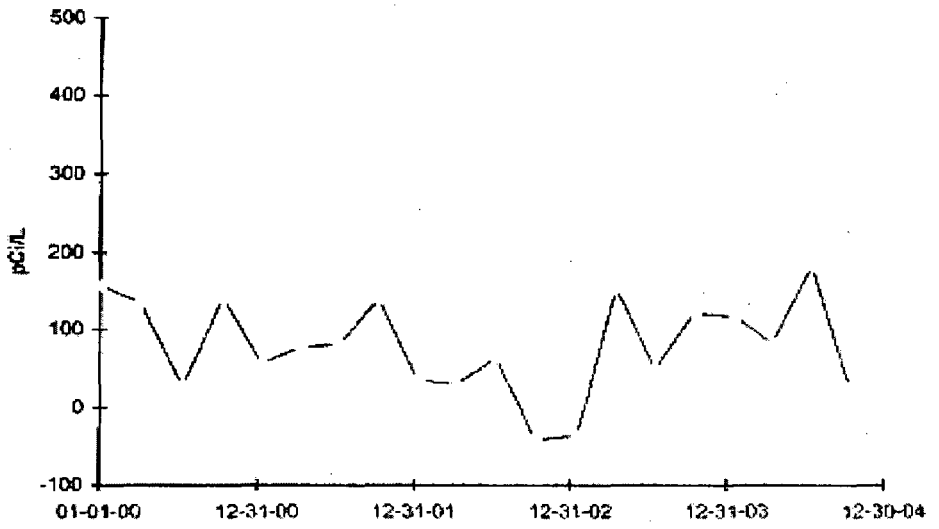
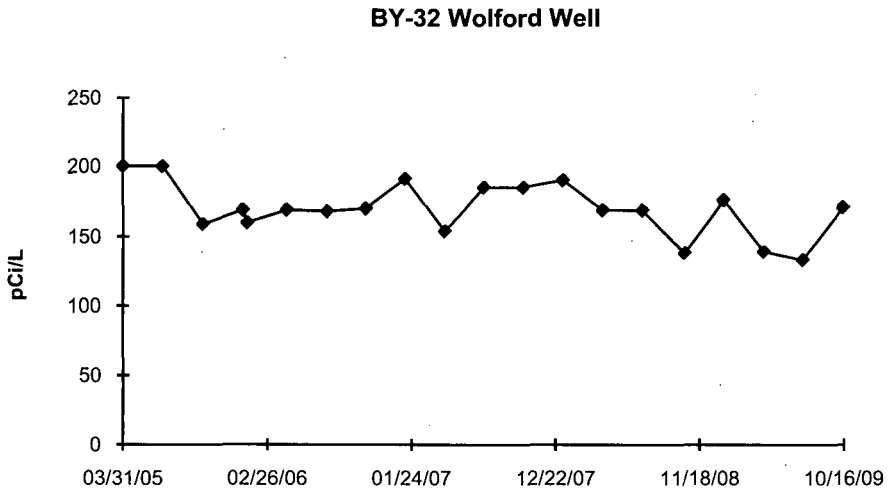
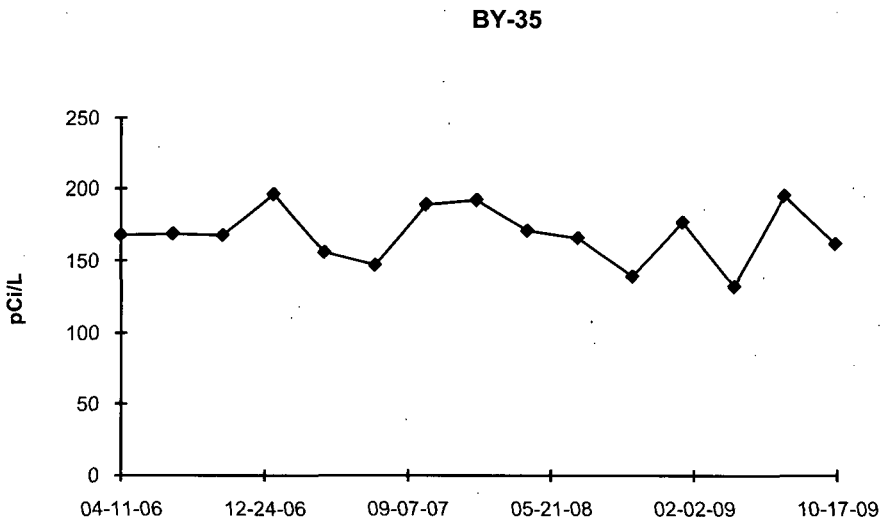


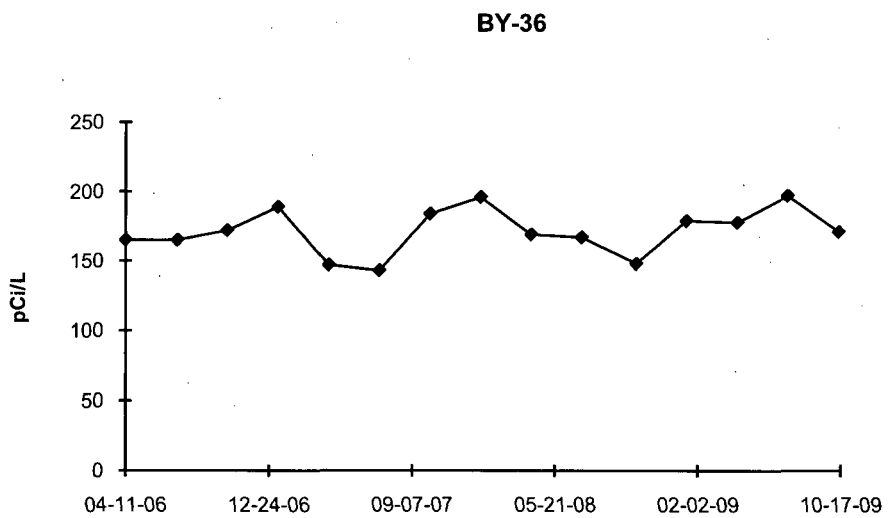
FIGURE C-4 (cont.)
Ground Water - Tritium - Station BY-32
Collected in the Vicinity of BNGS, 2005 - 2009



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

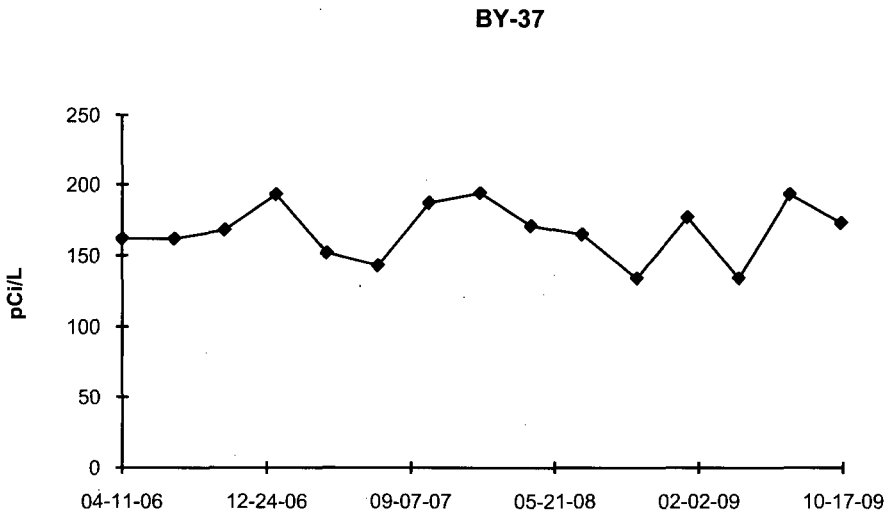
FIGURE C-5
Ground Water - Tritium - Stations BY-35 and BY-36 Collected in the Vicinity of BNGS, 2006-2009





NEW STATIONS IN 2006

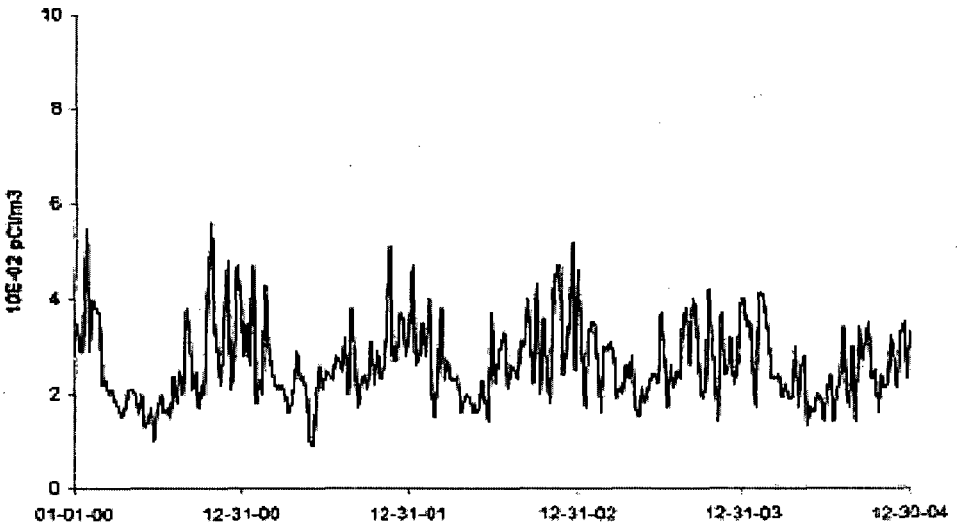
FIGURE C-6
Ground Water - Tritium - Stations BY-37
Collected in the Vicinity of BNGS, 2006-2009



NEW STATION IN 2006

FIGURE C-7
Air Particulates - Gross Beta - Stations BY-08 (C) and BY-21 Collected in the Vicinity of BNGS, 2000 - 2004

BY-08 (C) Leaf River



BY-21 Byron Nearsite N

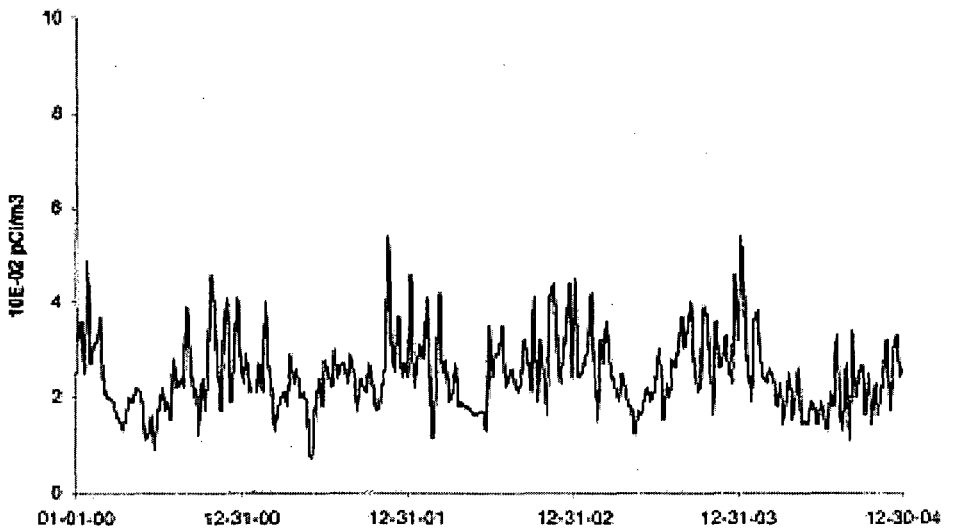
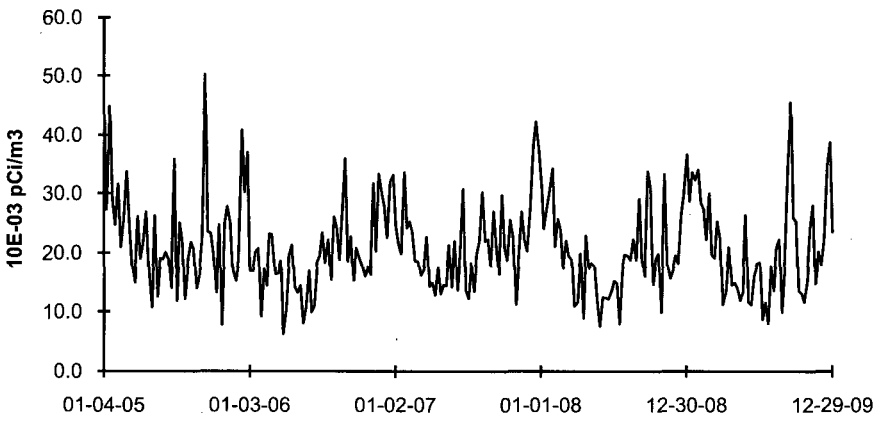
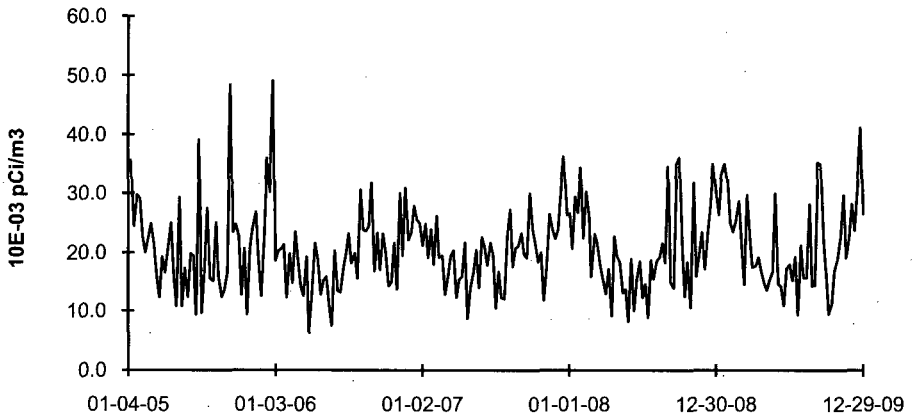


FIGURE C-7 (cont.)
Air Particulates - Gross Beta - Stations BY-08 (C) and BY-21 Collected in the Vicinity of BNGS, 2005 - 2009

BY-08 (C) Leaf River



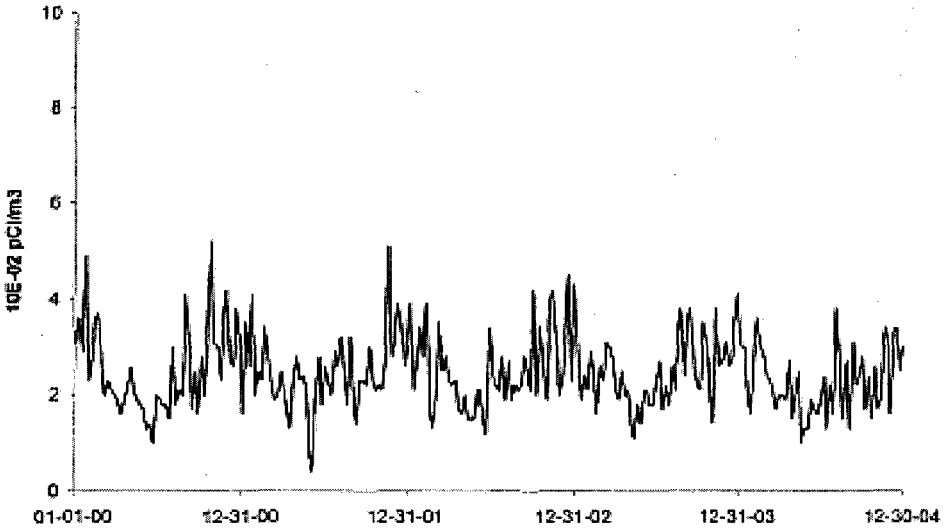
BY-21 Byron Nearsite N



DUE TO VENDOR CHANGE IN 2005, THE REPORTED UNITS CHANGED FROM E-02 PCI/M3 TO E-03 PCI/M3

FIGURE C-8
Air Particulates - Gross Beta - Stations BY-22 and BY-23 Collected in the Vicinity of BNGS, 2000 - 2004

BY-22 Byron Nearsite ESE



BY-23 Byron Nearsite S

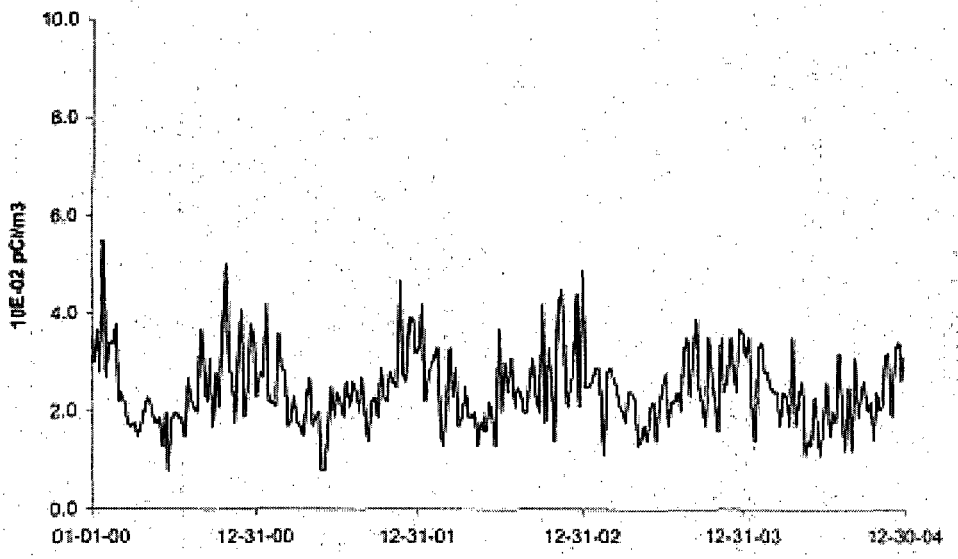
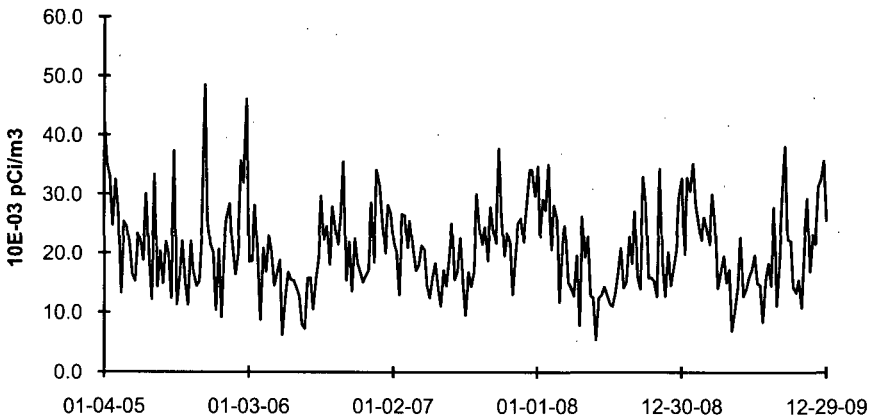
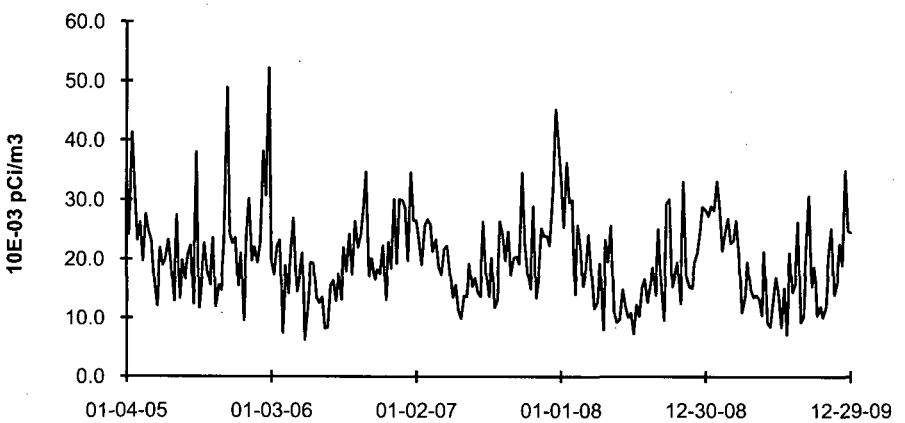


FIGURE C-8 (cont.)
Air Particulates - Gross Beta - Stations BY-22 and BY-23 Collected in the Vicinity of BNGS, 2005 - 2009

BY-22 Byron Nearsite ESE



BY-23 Byron Nearsite S



DUE TO VENDOR CHANGE IN 2005, THE REPORTED UNITS CHANGED FROM E-02 PCI/M3 TO E-03 PCI/M3

FIGURE C-9
Air Particulates - Gross Beta - Station BY-24
Collected in the Vicinity of BNGS, 2000 - 2004
BY-24 Byron Nearsite SW

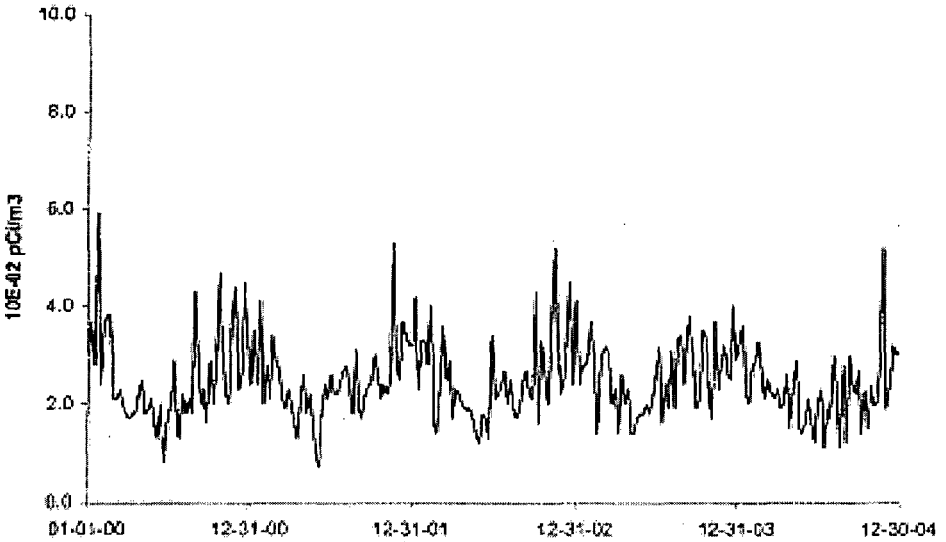
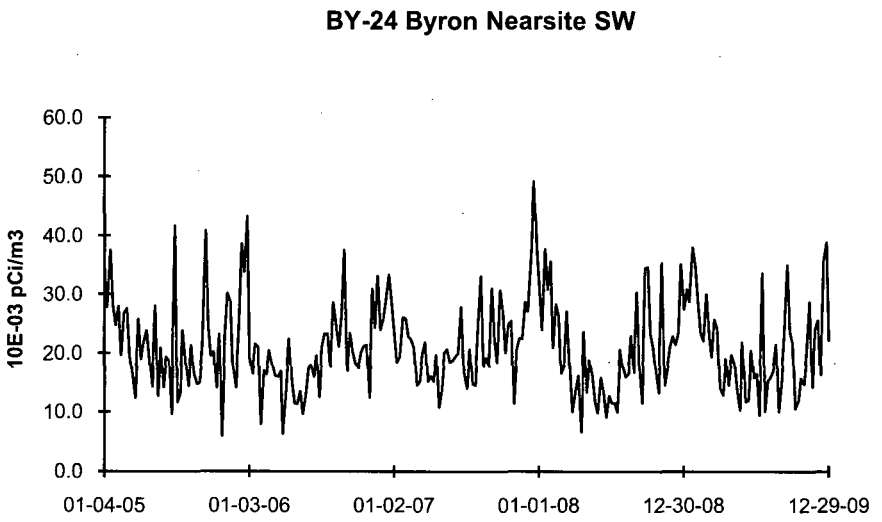


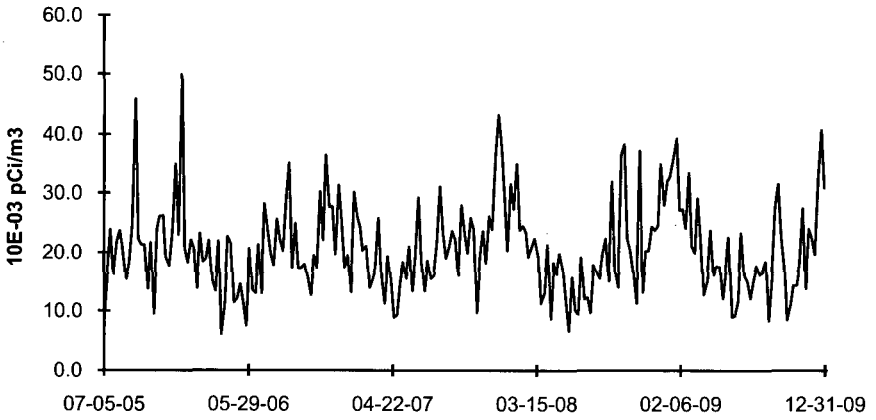
FIGURE C-9 (cont.)
Air Particulates - Gross Beta - Station BY-24
Collected in the Vicinity of BNGS, 2005 - 2009



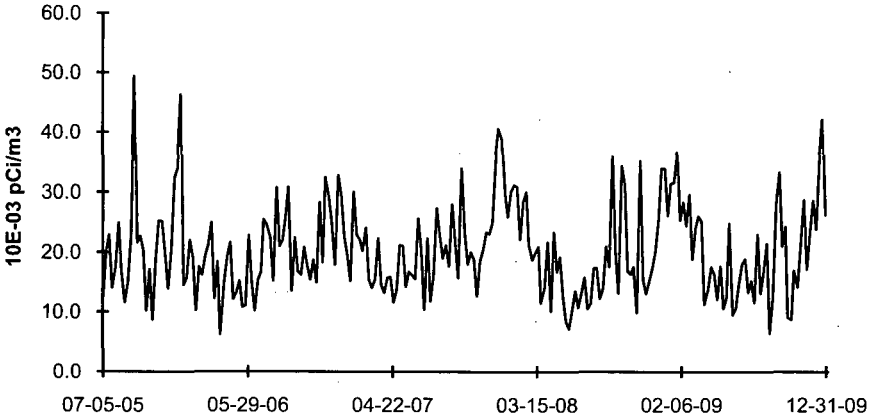
DUE TO VENDOR CHANGE IN 2005, THE REPORTED UNITS CHANGED FROM E-02 PCI/M3 TO E-03 PCI/M3

FIGURE C-10
Air Particulates - Gross Beta - Stations BY-01 and BY-04 Collected in the Vicinity of BNGS, 2005 - 2009

BY-01

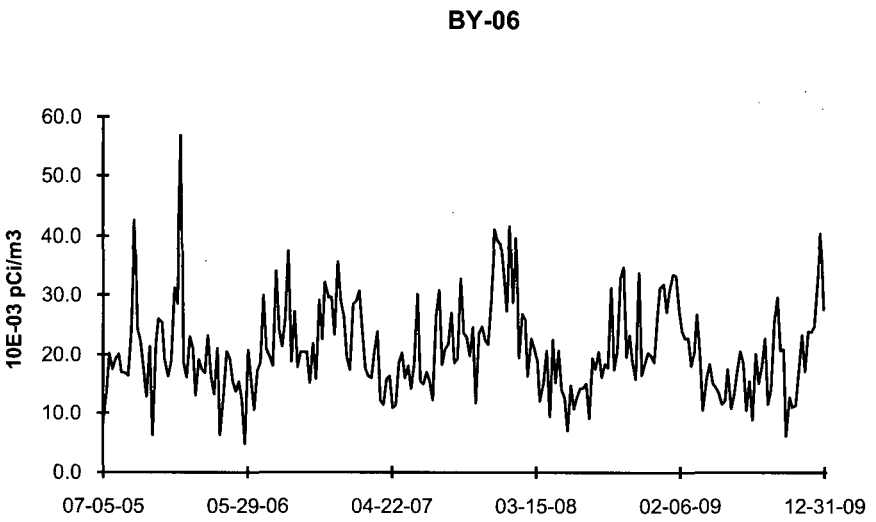


BY-04



AIR PARTICULATE GROSS BETA ANALYSES OF FAR FIELD LOCATIONS STARTED IN JULY 2005

FIGURE C-11
Air Particulates - Gross Beta - Station BY-06
Collected in the Vicinity of BNGS, 2005 - 2009



AIR PARTICULATE GROSS BETA ANALYSES OF FAR FIELD LOCATIONS STARTED IN JULY 2005

APPENDIX D

INTER-LABORATORY COMPARISON PROGRAM

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TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2009
(PAGE 1 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
March 2009	E6533-396	Milk	Sr-89	pCi/L	102	97.7	1.04	A
			Sr-90	pCi/L	14.9	15.6	0.96	A
	E6534-396	Milk	I-131	pCi/L	66.7	79.3	0.84	A
			Ce-141	pCi/L	87.5	94.9	0.92	A
			Cr-51	pCi/L	275	305	0.90	A
			Cs-134	pCi/L	82.0	93.7	0.88	A
			Cs-137	pCi/L	111	111	1.00	A
			Co-58	pCi/L	114	119	0.96	A
			Mn-54	pCi/L	136	128	1.06	A
			Fe-59	pCi/L	112	99.9	1.12	A
			Zn-65	pCi/L	160	156	1.03	A
			Co-60	pCi/L	142	142	1.00	A
	E6536-396	AP	Ce-141	pCi	120	115	1.04	A
			Cr-51	pCi	385	371	1.04	A
			Cs-134	pCi	113	114	0.99	A
			Cs-137	pCi	149	135	1.10	A
			Co-58	pCi	153	145	1.06	A
			Mn-54	pCi	155	155	1.00	A
			Fe-59	pCi	118	121	0.98	A
			Zn-65	pCi	195	189	1.03	A
			Co-60	pCi	190	173	1.10	A
	E6535-396	Charcoal	I-131	pCi	82.8	79.4	1.04	A
June 2009	E6742-396	Milk	Sr-89	pCi/L	107	112	0.96	A
			Sr-90	pCi/L	19.0	16.7	1.14	A
	E6743-396	Milk	I-131	pCi/L	98.1	102.0	0.96	A
			Ce-141	pCi/L	260	284	0.92	A
			Cr-51	pCi/L	389	400	0.97	A
			Cs-134	pCi/L	144.0	166	0.87	A
			Cs-137	pCi/L	185	192	0.96	A
			Co-58	pCi/L	86.9	91.9	0.95	A
			Mn-54	pCi/L	133	137	0.97	A
			Fe-59	pCi/L	126	122	1.03	A
			Zn-65	pCi/L	173	175	0.99	A
			Co-60	pCi/L	298	312	0.96	A
	E6745-396	AP	Ce-141	pCi	186	163	1.14	A
			Cr-51	pCi	262	231	1.13	A
			Cs-134	pCi	101	95	1.06	A
			Cs-137	pCi	135	111	1.22	W
			Co-58	pCi	61	53	1.16	A
			Mn-54	pCi	83.1	79	1.05	A
			Fe-59	pCi	84	70	1.19	A
			Zn-65	pCi	137	101	1.36	N (1)
			Co-60	pCi	202	180	1.12	A
	E6744-396	Charcoal	I-131	pCi	92.2	95.8	0.96	A

TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2009
(PAGE 2 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
September 2009	E6897-396	Milk	Sr-89	pCi/L	113	107	1.06	A
			Sr-90	pCi/L	17.4	18.8	0.93	A
	E6898-396	Milk	I-131	pCi/L	89.2	98.6	0.90	A
			Ce-141	pCi/L	249	275	0.91	A
			Cr-51	pCi/L	213	221	0.96	A
			Cs-134	pCi/L	104.0	123	0.85	A
			Cs-137	pCi/L	172	185	0.93	A
			Co-58	pCi/L	96.3	99.4	0.97	A
			Mn-54	pCi/L	201	206	0.98	A
			Fe-59	pCi/L	154	147	1.05	A
			Zn-65	pCi/L	213	204	1.04	A
			Co-60	pCi/L	154	160	0.96	A
	E6900-396	AP	Ce-141	pCi	181	161	1.12	A
			Cr-51	pCi	145	130	1.12	A
			Cs-134	pCi	71.8	72	0.99	A
			Cs-137	pCi	115	109	1.06	A
			Co-58	pCi	62	58	1.06	A
			Mn-54	pCi	129	121	1.07	A
			Fe-59	pCi	97	98	0.98	A
			Zn-65	pCi	110	120	0.92	A
			Co-60	pCi	98.7	94.1	1.05	A
	E6899-396	Charcoal	I-131	pCi	89.5	92.3	0.97	A
December 2009	E6946-396	Milk	Sr-89	pCi/L	131	131	1.00	A
			Sr-90	pCi/L	19.3	17.9	1.08	A
	E6947-396	Milk	I-131	pCi/L	79.2	87.3	0.91	A
			Ce-141	pCi/L	193	202	0.96	A
			Cr-51	pCi/L	512	548	0.93	A
			Cs-134	pCi/L	222	253	0.88	A
			Cs-137	pCi/L	163	179	0.91	A
			Co-58	pCi/L	200	211	0.95	A
			Mn-54	pCi/L	178	178	1.00	A
			Fe-59	pCi/L	176	178	0.99	A
			Zn-65	pCi/L	326	345	0.94	A
			Co-60	pCi/L	240	256	0.94	A
	E6949-396	AP	Ce-141	pCi	103	103	1.00	A
			Cr-51	pCi	290	280	1.04	A
			Cs-134	pCi	116	129	0.90	A
			Cs-137	pCi	93.4	91.5	1.02	A
			Co-58	pCi	111	108	1.03	A
			Mn-54	pCi	81.0	90.8	0.89	A
			Fe-59	pCi	106	90.8	1.17	A
			Zn-65	pCi	155	176	0.88	A
			Co-60	pCi	135	131	1.03	A

TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2009
(PAGE 3 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
December 2009	E6948-396	Charcoal	I-131	pCi	93.3	93.9	0.99	A

(1) Detector 7 appears to have a slightly high bias. Detector 7 was removed from service until it can be recalibrated. NCR 09-23

(a) Teledyne Brown Engineering reported result.

(b) 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.

(c) Ratio of Teledyne Brown Engineering to Analytics results.

(d) Analytics evaluation based on TBE internal QC limits: A= Acceptable. Reported result falls within ratio limits of 0.80-1.20. W-Acceptable with warning. Reported result falls within 0.70-0.80 or 1.20-1.30. N = Not Acceptable. Reported result falls outside the ratio limits of < 0.70 and > 1.30.

TABLE D-2 **ERA ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM**
TELEDYNE BROWN ENGINEERING, 2009
(PAGE 1 OF 1)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Control Limits	Evaluation (c)
April 2009	RAD 77	Water	Sr-89	pCi/L	57.4	48.3	37.8 - 55.7	N (1)
			Sr-90	pCi/L	30.6	31.4	22.9 - 36.4	A
			Ba-133	pCi/L	55.2	52.7	43.4 - 58.3	A
			Cs-134	pCi/L	65.8	72.9	59.5 - 80.2	A
			Cs-137	pCi/L	157	168	151 - 187	A
			Co-60	pCi/L	86.4	88.9	80.0 - 100	A
			Zn-65	pCi/L	85.5	84.4	76.0 - 101	A
			Gr-A	pCi/L	47.7	54.2	28.3 - 67.7	A
			Gr-B	pCi/L	45.2	43.5	29.1 - 50.8	A
			I-131	pCi/L	25.2	26.1	21.7 - 30.8	A
			H-3	pCi/L	19733	20300	17800 - 22300	A
October 2009	RAD 79	Water	Sr-89	pCi/L	64.75	62.2	50.2 - 70.1	A
			Sr-90	pCi/L	30.30	30.7	22.4 - 35.6	A
			Ba-133	pCi/L	97.9	92.9	78.3 - 102	A
			Cs-134	pCi/L	76.8	79.4	65.0 - 87.3	A
			Cs-137	pCi/L	59.9	54.6	49.1 - 62.9	A
			Co-60	pCi/L	121	117	105 - 131	A
			Zn-65	pCi/L	115	99.5	89.6 - 119	A
			Gr-A	pCi/L	19.6	23.2	11.6 - 31.1	A
			Gr-B	pCi/L	28.5	26.0	16.2 - 33.9	A
			I-131	pCi/L	22.1	22.2	18.4 - 26.5	A
			H-3	pCi/L	16133	16400	14300 - 18000	A

(1) Calculation did not allow for Y-90 ingrowth on the Sr-89 mount. NCR 09-14

(a) Teledyne Brown Engineering reported result.

(b) 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.

(c) ERA evaluation: A=acceptable. Reported result falls within the Warning Limits. NA=not acceptable. Reported result falls outside of the Control Limits. CE=check for Error. Reported result falls within the Control Limits and outside of the Warning Limit.

TABLE D-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2009
(PAGE 1 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
March 2009	09-MaW20	Water	Cs-134	Bq/L	18.8	22.5	18.5 - 29.3	A
			Cs-137	Bq/L	0.0601		(1)	A
			Co-57	Bq/L	17.0	18.9	13.2 - 24.6	A
			Co-60	Bq/L	16.1	17.21	12.05 - 22.37	A
			H-3	Bq/L	332	330.9	231.6 - 430.2	A
			Mn-54	Bq/L	13.8	14.7	10.26 - 19.06	A
			Sr-90	Bq/L	6.88	7.21	5.05- 9.37	A
			Zn-65	Bq/L	13.2	13.6	9.5 - 17.7	A
	09-GrW20	Water	Gr-A	Bq/L	0.529	0.635	>0.0 - 1.270	A
			Gr-B	Bq/L	1.87	1.27	0.64 - 1.91	A
	09-MaS20	Soil	Cs-134	Bq/kg	433	467	327 - 607	A
			Cs-137	Bq/kg	649	605	424 - 787	A
			Co-57	Bq/kg	-0.120		(1)	A
			Co-60	Bq/kg	3.91	4.113	(2)	A
			Mn-54	Bq/kg	339	307	215 - 399	A
			K-40	Bq/kg	644	570	399 - 741	A
			Sr-90	Bq/kg	245	257	180 - 334	A
			Zn-65	Bq/kg	272	242	169 - 315	A
	09-RdF20	AP	Cs-134	Bq/sample	2.77	2.93	2.05 - 3.81	A
			Cs-137	Bq/sample	1.41	1.52	1.06 - 1.98	A
			Co-57	Bq/sample	1.24	1.30	0.91 - 1.69	A
			Co-60	Bq/sample	1.33	1.22	0.85 - 1.59	A
			Mn-54	Bq/sample	2.42	2.2709	1.5898 - 2.9522	A
			Sr-90	Bq/sample	0.713	0.64	0.448 - 0.832	A
			Zn-65	Bq/sample	1.30	1.36	0.95 - 1.77	A
	09-GrF20	AP	Gr-A	Bq/sample	0.188	0.348	>0.0 - 0.696	A
			Gr-B	Bq/sample	0.313	0.279	0.140 - 0.419	A
March 2009	09-RdV20	Vegetation	Cs-134	Bq/sample	3.48	3.40	2.38 - 4.42	A
			Cs-137	Bq/sample	1.15	0.93	0.65 - 1.21	W
			Co-57	Bq/sample	3.12	2.36	1.65 - 3.07	N (3)
			Co-60	Bq/sample	-0.0105		(1)	A
			Mn-54	Bq/sample	2.98	2.3	1.61 - 2.99	W
			K-40	Bq/sample	64.1		(4)	
			Sr-90	Bq/sample	1.09	1.260	0.882 - 1.638	A
			Zn-65	Bq/sample	1.73	1.3540	0.948 - 1.760	W
September 2009	09-MaW21	Water	Cs-134	Bq/L	26.5	32.2	22.5 - 41.9	A
			Cs-137	Bq/L	37.2	41.2	28.8 - 53.6	A
			Co-57	Bq/L	32.2	36.6	25.6 - 47.6	A
			Co-60	Bq/L	14.0	15.40	10.8 - 20.0	A
			H-3	Bq/L	705	634.1	443.9 - 824.3	A
			Mn-54	Bq/L	-0.1015		(1)	A
			Sr-90	Bq/L	13.9	12.99	9.09- 16.89	A
			Zn-65	Bq/L	26.2	26.9	18.8 - 35.0	A
	09-GrW21	Water	Gr-A	Bq/L	1.27	1.047	>0.0 - 2.094	A
			Gr-B	Bq/L	9.70	7.53	3.77 - 11.30	A

TABLE D-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2009
(PAGE 2 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
September 2009	09-MaS21	Soil	Am-241	Bq/kg	74.7	89.8	62.9 - 116.7	A
			Cs-134	Bq/kg	0.554		(1)	A
			Cs-137	Bq/kg	706	669	468 - 870	A
			Co-57	Bq/kg	606	586	410 - 762	A
			Co-60	Bq/kg	350	327.000	229 - 425	A
			Mn-54	Bq/kg	876	796	557 - 1035	A
			K-40	Bq/kg	425	375	263 - 488	A
			Sr-90	Bq/kg	505	455	319 - 592	A
			Zn-65	Bq/kg	1370	1178	825 - 1531	A
	09-RdF21	AP	Cs-134	Bq/sample	-0.02		(1)	A
			Cs-137	Bq/sample	1.4	1.4	0.98 - 1.82	A
			Co-57	Bq/sample	5.98	6.48	4.54 - 8.42	A
			Co-60	Bq/sample	1.01	1.03	0.72 - 1.34	A
			Mn-54	Bq/sample	5.16	5.49	3.84 - 7.14	A
			Sr-90	Bq/sample	0.925	0.0835	0.585 - 1.086	A
			Zn-65	Bq/sample	4.39	3.93	2.75 - 5.11	A
	09-GrF21	AP	Gr-A	Bq/sample	0.357	0.659	>0.0 - 1.318	A
			Gr-B	Bq/sample	1.403	1.320	0.66 - 1.98	A
	09-RdV21	Vegetation	Cs-134	Bq/sample	-0.0027		(1)	A
			Cs-137	Bq/sample	2.36	2.43	1.70 - 3.16	A
			Co-60	Bq/sample	2.58	2.57	1.80 - 3.34	A
			Mn-54	Bq/sample	8.36	7.9	5.5 - 10.3	A
			K-40	Bq/sample	57.8		(4)	
			Sr-90	Bq/sample	1.73	1.78	1.25 - 2.31	A
			Zn-65	Bq/sample	-0.59		(1)	A

(1) False positive test.

(2) Sensativity evaluation.

(3) Homogeniety problem. MAPEP requires using entire sample but due to geometry limitations we can only use part of the sample. NCR 09-13

(4) Not evaluated by MAPEP.

(a) Teledyne Brown Engineering reported result.

(b) 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.

(c) DOE/MAPEP evaluation: A=acceptable, W=acceptable with warning, N=not acceptable.

APPENDIX E

EFFLUENT REPORT

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INTRODUCTION

Liquid effluents from Byron Station are released to the Rock River in controlled batches after radioassay of each batch. Gaseous effluents are released to the atmosphere and are calculated on the basis of analyses of weekly grab samples and grab samples of batch releases prior to the release of noble gases as well as continuously collected composite samples of iodine and particulate radioactivity sampled during the course of the year. The results of effluent analyses are summarized on a monthly basis. Airborne concentrations of noble gases, I-131, and particulate radioactivity in offsite areas are calculated using isotopic composition of effluents and meteorological data.

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

SUMMARY

Calculations based on gaseous and liquid effluents, Rock River flow and meteorological data indicate that public dose due to radioactive material attributable to Byron Station during the period does not exceed regulatory or Offsite Dose Calculation Manual (ODCM) limits.

The Total Effective Dose Equivalent (TEDE) due to licensed activities at Byron Station calculated for the maximum-exposed individual for the period is 3.09E-01 mrem. The annual limit on TEDE is 100 mrem.

The assessment of radiation doses to the public is performed in accordance with the ODCM. The results of these analyses confirm that the station is operating in compliance with 10CFR50 Appendix I, 10CFR20 and 40CFR190.

There were no additional operational controls implemented which affected the areas of radiological effluents in 2009.

There were no measurements which exceeded the reporting levels, including any which would not have been attributable to station effluents.

The results of the current radiological environmental monitoring program are approximately the same as those found during the pre-operational studies conducted at Byron Station.

1.0 EFFLUENTS

1.1 Gaseous Effluents to the Atmosphere

Measured concentrations and isotopic composition of noble gases, radioiodine, tritium and particulate radioactivity released to the atmosphere during the year, are listed in Table 1.1-1.

A total of 1.20E+01 curies of fission and activation gases were released with a maximum average quarterly release rate of 1.33E+00 µCi/sec.

A total of 1.01E-04 curies of 1-131 were released during the year with a maximum average quarterly release rate of 6.41E-06 µCi/sec.

A total of 1.51E-05 curies were released as airborne particulate matter with a maximum average quarterly release rate of 1.12E-06 µCi/sec. Alpha-emitting radionuclides were below detectable limits.

A total of 0.00E+00 curies of other radioisotopes were released with a maximum average quarterly release rate of 0.00E+00 µCi/sec.

A total of 1.05E+02 curies of tritium were released with a maximum average quarterly release rate of 2.60E+00 µCi/sec.

1.2 Liquids Released to Rock River

A total of 2.76E+10 liters of radioactive liquid wastes (prior to dilution) containing 2.10E-02 curies (excluding tritium, noble gases and alpha) were discharged from the station. These wastes were released at a maximum quarterly average concentration of 1.01E-09 µCi/ml. A total of 1.81E+03 curies of tritium were released. Quarterly release totals of principal radionuclides in liquid effluents are given in Table 1.2-1.

2.0 SOLID RADIOACTIVE WASTE

Solid radioactive wastes were shipped by truck. For detail, refer to Byron Station 2009 Effluent Report.

3.0 DOSE TO MAN

3.1 Gaseous Effluent Pathways

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

3.1.1 Noble Gases

3.1.1.1 Gamma Dose Rates

Offsite Gamma air and whole body dose rates are shown in Table 3.1-1 and were calculated based on measured release rates, isotopic composition of the noble gases, and average meteorological data for the period. Dose rates based on concurrent meteorological data are shown in Table 3.4-1. Based on measured effluents and average meteorological data, the maximum total body dose to an individual would be 1.73E-02 mrem for the year (Table 3.1-1), with an occupancy or shielding factor of 0.7 included. The maximum total body dose based on measured effluents and concurrent meteorological data would be 9.72E-06 mrem (Table 3.4-1). The maximum gamma air dose was 1.64E-04 mrad (Table 3.1-1) based on measured effluents and average meteorological data, and 1.93E-05 mrad based on concurrent meteorological data (Table 3.4-1).

3.1.1.2 Beta Air and Skin Dose Rates

The range of beta particles in air is relatively small (on the order of a few meters or less); consequently, plumes of gaseous effluents may be considered "semi-infinite" for purpose of calculating the dose from beta radiation incident on the skin. However, the actual dose to sensitive skin tissues is difficult to calculate due to the effect of the beta particle energies, thickness of inert skin and clothing covering sensitive tissues. For purposes of this report the skin is taken to have a thickness of 7.0 mg/cm^2 and an occupancy factor

of 1.0 is used. The skin dose based on concurrent meteorological data for the year was 2.52E-04 mrem (Table 3.4-1)

The maximum offsite beta air dose for the year, based on measured effluents and average meteorological data, was 6.36E-04 mrad (Table 3.1-1). The beta air dose based on concurrent meteorological data was 4.52E-04 mrad (Table 3.4-1).

3.1.2 Radioactive Iodine

The human thyroid exhibits a significant capacity to concentrate ingested or inhaled iodine. The minimal levels of radioiodine, 1-131, released during routine operation of the station, may be made available to man resulting in a dose to the thyroid. The principal pathway of interest for this radionuclide is ingestion of radioiodine in milk. Calculations made for 2009 and previous years indicate that contributions to doses from inhalation of I-131 and I-133 and ingestion of I-133 in milk are negligible.

3.1.2.1 Dose to Thyroid

The hypothetical thyroid dose to the maximum exposed individual living near the station via ingestion of milk was calculated. The radionuclide considered was I-131 and the source of milk was taken to be the nearest dairy farm with the cows pastured from May through October. The maximum thyroid dose was 7.10E-02 mrem during the year (Table 3.1-1[infant]).

3.2 Liquid Effluent Pathways

The three principal pathways through the aquatic environment for potential doses to man from liquid waste are ingestion of potable water, eating aquatic foods, and exposure while on the shoreline. Not all of these pathways are significant or applicable at a given time or station but a reasonable approximation of the dose can be made by adjusting the dose formula for season of the year or type and degree of use of the aquatic environment. NRC developed equations* were used to calculate the doses to the whole body, lower GI tracts, thyroid, bone and skin; specific parameters for use in the equations are given in the Exelon Offsite Dose Calculation

Manual. The maximum whole body dose for the year was 2.92E-01 mrem (adult) and no organ dose exceeded 3.60E-01 mrem (Table 3.2-1 [adult]).

3.3 Assessment of Dose to Member of Public

During the period January to December 2009, Byron Station did not exceed the limits below as shown in Table 3.1-1 and Table 3.2-1 (based on yearly average meteorological data), and Table 3.4-1 (based on concurrent meteorological data):

- The RETS limits on dose or dose commitment to a member of the public due to radioactive materials in liquid effluents from each reactor unit (1.5 mrem to the whole body or 5 mrem to any organ during any calendar quarter; 3 mrem to the whole body or 10 mrem to any organ during the calendar year).

- The RETS limits on air dose in noble gases released in gaseous effluents to a member of the public from each reactor unit (5 mrads for gamma radiation or 10 mrad for beta radiation during any calendar quarter; 10 mrad for gamma radiation or 20 mrad for beta radiation during a calendar year).

- The RETS limits on dose to a member of the public due to iodine-131, iodine-133, tritium, and radionuclides in particulate form 'with half-lives greater than eight days in gaseous effluents released from each reactor unit (7.5 mrem to any organ during any calendar quarter; 15 mrem to any organ during any calendar year).

- The 10CFR20 limit on Total Effective Dose Equivalent to individual members of the public (100 mrem).

4.0 SITE METEOROLOGY

A summary of the site meteorological measurements taken during each calendar quarter of the year is given in Appendix E. The data are presented as cumulative joint frequency distributions of the wind direction for the 250' level and wind speed class by atmospheric stability class determined from the temperature difference between the 250' and 30' levels. Data recovery for all measurements on the tower as 99.8% during 2009 (Table 3.4-1).

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APPENDIX E-1

DATA TABLES AND FIGURES

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Table 1.1-1

Byron Station Unit One 2009

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1A
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES
Reg Guide 1.21 - Unit 1 2009

REPORT FOR 2009	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
1. Total Release	Ci	2.67E-01	2.28E-01	3.63E-01	1.06E+01	1.14E+01
2. Avg. Release Rate	uCi/sec	3.39E-02	2.89E-02	4.61E-02	1.33E+00	3.62E-01
Iodine-131						
1. Total Release	Ci	0.00E+00	0.00E+00	6.99E-06	5.96E-06	1.29E-05
2. Avg. Release Rate	uCi/sec	0.00E+00	0.00E+00	8.86E-07	7.56E-07	4.10E-07
Particulates Half Life >= 8 days						
1. Total Release	Ci	0.00E+00	4.56E-06	8.85E-06	0.00E+00	1.34E-05
2. Avg. Release Rate	uCi/sec	0.00E+00	5.78E-07	1.12E-06	0.00E+00	4.25E-07
Tritium						
1. Total Release	Ci	2.60E+00	3.11E+01	1.16E+01	7.74E+00	5.31E+01
2. Avg. Release Rate	uCi/sec	3.29E-01	3.95E+00	1.47E+00	9.82E-01	1.68E+00
Gross Alpha						
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2. Avg. Release Rate	uCi/sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Byron Station Unit Two 2009

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1A
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES
Reg Guide 1.21 - Unit 2

REPORT FOR 2009	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
1. Total Release	Ci	1.57E-01	1.30E-01	2.33E-02	1.07E-02	6.27E-01
2. Avg. Release Rate	uCi/sec	1.99E-02	1.65E-02	2.96E-02	1.36E-02	1.99E-02
Iodine-131						
1. Total Release	Ci	0.00E+00	0.00E+00	3.80E-05	5.05E-05	8.85E-05
2. Avg. Release Rate	uCi/sec	0.00E+00	0.00E+00	4.81E-06	6.41E-06	2.81E-06
Particulates Half Life >= 8 days						
1. Total Release	Ci	0.00E+00	0.00E+00	6.86E-07	9.77E-07	1.66E-06
2. Avg. Release Rate	uCi/sec	0.00E+00	0.00E+00	8.71E-08	1.24E-07	5.27E-08
Tritium						
1. Total Release	Ci	9.13E+00	5.94E+00	2.05E+01	1.61E+01	5.16E+01
2. Avg. Release Rate	uCi/sec	1.16E+00	7.53E-01	2.60E+00	2.04E+00	1.64E+00
Gross Alpha						
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2. Avg. Release Rate	uCi/sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 1.2-1

Byron Station Unit One 2009

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES
Reg Guide 1.21 - Unit 1 2009

REPORT FOR 2009	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
1. Total Release	Ci	3.35E-03	2.64E-03	2.32E-03	2.77E-03	1.05E-02
2. Avg. Diluted Conc.	uCi/ml	1.01E-09	7.41E-10	6.49E-10	8.38E-10	7.61E-10
Tritium						
1. Total Release	Ci	1.63E+02	2.12E+02	4.14E+02	1.18E+02	9.07E+02
2. Avg. Diluted Conc.	uCi/ml	4.92E-05	5.96E-05	1.16E-04	3.56E-05	6.59E-05
Dissolved and Entrained Gases						
1. Total Release	Ci	3.54E-03	4.88E-06	1.64E-03	0.00E+00	5.18E-03
2. Avg. Diluted Conc.	uCi/ml	1.07E-09	1.37E-12	4.58E-10	0.00E+00	3.76E-10
Gross Alpha Radioactivity						
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Volume of liquid waste	liters	3.32E+09	3.56E+09	3.58E+09	3.30E+09	1.38E+10
Volume of dil. water	liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Byron Station Unit Two 2009

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES
Reg Guide 1.21 - Unit 2 2009

REPORT FOR 2009	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
1. Total Release	Ci	3.35E-03	2.64E-03	2.32E-03	2.77E-03	1.05E-02
2. Avg. Diluted Conc.	uCi/ml	1.01E-09	7.41E-10	6.49E-10	8.38E-10	7.61E-10
Tritium						
1. Total Release	Ci	1.63E+02	2.12E+02	4.14E+02	1.18E+02	9.07E+02
2. Avg. Diluted Conc.	uCi/ml	4.92E-05	5.96E-05	1.16E-04	3.56E-05	6.59E-05
Dissolved and Entrained Gases						
1. Total Release	Ci	3.54E-03	4.88E-06	1.64E-03	0.00E+00	5.18E-03
2. Avg. Diluted Conc.	uCi/ml	1.07E-09	1.37E-12	4.58E-10	0.00E+00	3.76E-10
Gross Alpha Radioactivity						
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Volume of liquid waste	liters	3.32E+09	3.56E+09	3.58E+09	3.30E+09	1.38E+10
Volume of dil. water	liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 3.1-1

Byron Station Unit One 2009

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

Unit 1 2009

Report for: 2009
Unit Range - From: 1 To: 1

=== I&P DOSE LIMIT ANALYSIS ========== ANNUAL 2009 =========

Annual - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
2009 - Admin. Any Organ	INFANT	THYROID	3.55E-02	1.13E+01	3.15E-01
2009 - Admin. Total Body	CHILD	TBODY	8.67E-03	1.05E+01	8.25E-02
2009 - T.Spc. Any Organ	INFANT	THYROID	3.55E-02	1.50E+01	2.37E-01

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Grs/Goat/Milk (GMILK)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	1.90E+01
CR-51	6.50E-06
CO-58	1.11E-04
I-131	7.90E+01
I-132	3.13E-03
I-133	2.05E+00
CS-136	4.02E-05
TE-123M	0.00E+00

2009 - T.Spc. Total Body	CHILD	TBODY	8.67E-03	1.50E+01	5.78E-02

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation (VEG)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.97E+01
CR-51	2.73E-05
CO-58	7.99E-04
I-131	2.44E-01
I-132	8.75E-04
I-133	8.84E-03
CS-136	8.23E-03
TE-123M	0.00E+00

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

2009 Unit 1

Report for: 2009
Unit Range - From: 1 To: 1

=== NG DOSE LIMIT ANALYSIS ========== ANNUAL 2009 =========

Annual - Limit	Dose (mrad)	Limit (mrad)	Max % of Limit
2009 - Admin. Gamma	8.18E-05	7.50E+00	1.09E-03
2009 - Admin. Beta	3.18E-04	1.50E+01	2.12E-03
2009 - T.Spc. Gamma	8.18E-05	1.00E+01	8.18E-04

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	4.11E+01
KR-85	1.28E+01
XE-138	2.76E+00
KR-85M	3.03E-02
XE-135	6.92E+00
XE-133M	1.35E-01
XE-131M	1.23E-01
XE-133	3.62E+01

2009 - T.Spc. Beta	3.18E-04	2.00E+01	1.59E-03

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	9.16E-01
KR-85	9.15E+01
XE-138	9.00E-02
KR-85M	3.07E-03
XE-135	5.61E-01
XE-133M	3.85E-02
XE-131M	5.55E-02
XE-133	6.80E+00

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

2009 Unit 1

Report for: 2009
Unit Range - From: 1 To: 1

=== MAXIMUM DOSE ANALYSIS ========== ANNUAL 2009 =========

Dose Type	Age Group	Organ	Dose (mrem)
Any Organ	ADULT	GILLI	1.85E-01

Liquid Receptor: 0 Liquid Receptor
Gaseous Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA

Liquid Dose: 1.80E-01 % of Total: 9.71E+01
Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	7.93E+01
MN-54	3.25E-01
CO-58	7.03E+00
CO-60	3.85E+00
NB-95	1.09E+00
AG-110M	4.65E-03
TE-125M	8.42E+00
I-131	4.10E-05
CS-137	1.35E-02

Gaseous Dose: 5.25E-03 % of Total: 2.84E+00
Critical Pathway: Vegetation (VEG)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.99E+01
CR-51	2.44E-04
CO-58	2.94E-03
I-131	6.87E-02
I-132	1.27E-03
I-133	1.29E-02
CS-136	1.17E-03
TE-123M	0.00E+00

=== MAXIMUM DOSE ANALYSIS ========== ANNUAL 2009 =========

Dose Type	Age Group	Organ	Dose (mrem)
Total Body	ADULT	TBODY	1.51E-01

Liquid Receptor: 0 Liquid Receptor
Gaseous Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

Liquid Dose: 1.46E-01 % of Total: 9.67E+01
Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.76E+01
MN-54	2.49E-02
CO-58	9.58E-01
CO-60	5.57E-01
NB-95	1.18E-04
AG-110M	8.33E-06
TE-125M	3.48E-01
I-131	1.10E-04
CS-137	5.63E-01

Gaseous Dose: 5.26E-03 % of Total: 3.48E+00
Critical Pathway: Vegetation (VEG)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.98E+01
CR-51	4.36E-05
CO-58	9.88E-04
I-131	1.45E-01
I-132	1.36E-03
I-133	5.53E-03
CS-136	5.96E-03
TE-123M	0.00E+00

Table 3.1-1 (cont.)

Byron Station Unit Two 2009

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

Unit 2 2009

Report for: 2009
Unit Range - From: 2 To: 2

=== I&P DOSE LIMIT ANALYSIS ========== ANNUAL 2009 =========

Annual - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
2009 - Admin. Any Organ	INFANT	THYROID	3.55E-02	1.13E+01	3.15E-01
2009 - Admin. Total Body	CHILD	TBODY	8.67E-03	1.05E+01	8.25E-02
2009 - T.Spc. Any Organ	INFANT	THYROID	3.55E-02	1.50E+01	2.37E-01

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Grs/Goat/Milk (GMILK)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	1.90E+01
CR-51	6.50E-06
CO-58	1.11E-04
I-131	7.90E+01
I-132	3.13E-03
I-133	2.05E+00
CS-136	4.02E-05
TE-123M	0.00E+00

2009 - T.Spc. Total Body	CHILD	TBODY	8.67E-03	1.50E+01	5.78E-02

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation (VEG)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.97E+01
CR-51	2.73E-05
CO-58	7.99E-04
I-131	2.44E-01
I-132	8.75E-04
I-133	8.84E-03
CS-136	8.23E-03
TE-123M	0.00E+00

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

2009 Unit 2

Report for: 2009
Unit Range - From: 2 To: 2

=== NG DOSE LIMIT ANALYSIS ========== ANNUAL 2009 =========

Annual - Limit	Dose (mrad)	Limit (mrad)	Max % of Limit
2009 - Admin. Gamma	8.18E-05	7.50E+00	1.09E-03
2009 - Admin. Beta	3.18E-04	1.50E+01	2.12E-03
2009 - T.Spc. Gamma	8.18E-05	1.00E+01	8.18E-04

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	4.11E+01
KR-85	1.28E+01
XE-138	2.76E+00
KR-85M	3.03E-02
XE-135	6.92E+00
XE-133M	1.35E-01
XE-131M	1.23E-01
XE-133	3.62E+01

2009 - T.Spc. Beta	3.18E-04	2.00E+01	1.59E-03

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	9.16E-01
KR-85	9.15E+01
XE-138	9.00E-02
KR-85M	3.07E-03
XE-135	5.61E-01
XE-133M	3.85E-02
XE-131M	5.55E-02
XE-133	6.80E+00

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

2009 Unit 2

Report for: 2009
Unit Range - From: 2 To: 2

=== MAXIMUM DOSE ANALYSIS ========== ANNUAL 2009 =========

Dose Type	Age Group	Organ	Dose (mrem)
Any Organ	ADULT	GILLI	1.85E-01

Liquid Receptor: 0 Liquid Receptor
Gaseous Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA

Liquid Dose: 1.80E-01 % of Total: 9.71E+01
Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	7.93E+01
MN-54	3.25E-01
CO-58	7.03E+00
CO-60	3.85E+00
NB-95	1.09E+00
AG-110M	4.65E-03
TE-125M	8.42E+00
I-131	4.10E-05
CS-137	1.35E-02

Gaseous Dose: 5.25E-03 % of Total: 2.84E+00
Critical Pathway: Vegetation (VEG)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.99E+01
CR-51	2.44E-04
CO-58	2.94E-03
I-131	6.87E-02
I-132	1.27E-03
I-133	1.29E-02
CS-136	1.17E-03
TE-123M	0.00E+00

=== MAXIMUM DOSE ANALYSIS ========== ANNUAL 2009 =========

Dose Type	Age Group	Organ	Dose (mrem)
Total Body	ADULT	TBODY	1.51E-01

Liquid Receptor: 0 Liquid Receptor
Gaseous Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

Liquid Dose: 1.46E-01 % of Total: 9.67E+01
Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.76E+01
MN-54	2.49E-02
CO-58	9.58E-01
CO-60	5.57E-01
NB-95	1.18E-04
AG-110M	8.33E-06
TE-125M	3.48E-01
I-131	1.10E-04
CS-137	5.63E-01

Gaseous Dose: 5.26E-03 % of Total: 3.48E+00
Critical Pathway: Vegetation (VEG)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.98E+01
CR-51	4.36E-05
CO-58	9.88E-04
I-131	1.45E-01
I-132	1.36E-03
I-133	5.53E-03
CS-136	5.96E-03
TE-123M	0.00E+00

Table 3.2-1 (cont.)

Byron Station Unit One 2009

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

LIQUID DOSE SUMMARY

Unit 1 2009

Report for: 2009
Unit Range - From: 1 To: 1
Liquid Receptor

=== PERIOD DOSE BY ORGAN AND AGE GROUP (mrem) ========== ANNUAL 2009 =========

Agegrp	Bone	Liver	Thyroid	Kidney	Lung	GI-LLI	Skin	TB
ADULT	4.70E-03	1.46E-01	1.44E-01	1.58E-01	1.43E-01	1.80E-01	0.00E+00	1.46E-01
TEEN	5.11E-03	1.11E-01	1.08E-01	1.07E-01	1.07E-01	1.34E-01	0.00E+00	1.10E-01
CHILD	6.54E-03	1.23E-01	1.21E-01	1.19E-01	1.19E-01	1.29E-01	0.00E+00	1.22E-01
INFANT	1.34E-05	5.27E-02	5.27E-02	5.27E-02	5.27E-02	5.27E-02	0.00E+00	5.27E-02

=== SITE DOSE LIMIT ANALYSIS ============================== ANNUAL 2009 =========

Annual - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
2009 - Admin. Any Organ	ADULT	GILLI	1.80E-01	7.50E+00	2.40E+00
2009 - Admin. Total Body	ADULT	TBODY	1.46E-01	2.25E+00	6.49E+00
2009 - T.Spc. Any Organ	ADULT	GILLI	1.80E-01	1.00E+01	1.80E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	7.93E+01
MN-54	3.25E-01
CO-58	7.03E+00
CO-60	3.85E+00
NB-95	1.09E+00
AG-110M	4.65E-03
TE-125M	8.42E+00
I-131	4.10E-05
CS-137	1.35E-02

2009 - T.Spc. Total Body	ADULT	TBODY	1.46E-01	3.00E+00	4.87E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.76E+01
MN-54	2.49E-02
CO-58	9.58E-01
CO-60	5.57E-01
NB-95	1.18E-04
AG-110M	8.33E-06
TE-125M	3.48E-01
I-131	1.10E-04
CS-137	5.63E-01

Table 3.2-1 (cont.)

Byron Station Unit Two 2009

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

LIQUID DOSE SUMMARY

Unit 2 2009

Report for: 2009
Unit Range - From: 2 To: 2

Liquid Receptor

=== PERIOD DOSE BY ORGAN AND AGE GROUP (mrem) ========== ANNUAL 2009 =========

Agegrp	Bone	Liver	Thyroid	Kidney	Lung	GI-LLI	Skin	TB
ADULT	4.70E-03	1.46E-01	1.44E-01	1.58E-01	1.43E-01	1.80E-01	0.00E+00	1.46E-01
TEEN	5.11E-03	1.11E-01	1.08E-01	1.07E-01	1.07E-01	1.34E-01	0.00E+00	1.10E-01
CHILD	6.54E-03	1.23E-01	1.21E-01	1.19E-01	1.19E-01	1.29E-01	0.00E+00	1.22E-01
INFANT	1.34E-05	5.27E-02	5.27E-02	5.27E-02	5.27E-02	5.27E-02	0.00E+00	5.27E-02

=== SITE DOSE LIMIT ANALYSIS ========== ANNUAL 2009 =========

Annual - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
2009 - Admin. Any Organ	ADULT	GILLI	1.80E-01	7.50E+00	2.40E+00
2009 - Admin. Total Body	ADULT	TBODY	1.46E-01	2.25E+00	6.49E+00
2009 - T.Spc. Any Organ	ADULT	GILLI	1.80E-01	1.00E+01	1.80E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	7.93E+01
MN-54	3.25E-01
CO-58	7.03E+00
CO-60	3.85E+00
NB-95	1.09E+00
AG-110M	4.65E-03
TE-125M	8.42E+00
I-131	4.10E-05
CS-137	1.35E-02

2009 - T.Spc. Total Body	ADULT	TBODY	1.46E-01	3.00E+00	4.87E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.76E+01
MN-54	2.49E-02
CO-58	9.58E-01
CO-60	5.57E-01
NB-95	1.18E-04
AG-110M	8.33E-06
TE-125M	3.48E-01
I-131	1.10E-04
CS-137	5.63E-01

Table 3.4-1

Byron Station - Unit 1

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

2009

TYPE OF DOSE	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
GAMMA AIR (mrad)	1.390E-06(SSE)	2.000E-06(SE)	4.630E-06(W)	4.020E-06(W)	1.076E-05(W)
BETA AIR (mrad)	7.210E-06(SSE)	6.460E-06(ESE)	1.580E-05(SE)	4.090E-04(W)	4.261E-04(W)
WHOLE BODY (mrem)	6.620E-07(SE)	1.050E-06(SE)	2.400E-06(SE)	7.190E-07(S)	4.828E-06(SE)
SKIN (mrem)	2.870E-06(SSE)	3.210E-06(SE)	8.860E-06(SE)	2.300E-04(WNW)	2.375E-04(WNW)
ORGAN (mrem)	4.250E-05(SSE)	5.050E-04(ESE)	2.770E-04(SE)	1.000E-04(W)	8.097E-04(ESE)
CRITICAL PERSON	Teenager	Teenager	Teenager	Teenager	Teenager
CRITICAL ORGAN	Liver	Liver	Thyroid	Thyroid	Thyroid

COMPLIANCE STATUS

TYPE OF DOSE	10 CFR 50 APP. I QUARTERLY OBJECTIVE	% OF APP. I	10 CFR 50 APP.I YEARLY OBJECTIVE	% OF APP. I
GAMMA AIR (mrad)	5.0	0.00	10.0	0.00
BETA AIR (mrad)	10.0	0.00	20.0	0.00
WHOLE BODY (mrem)	2.5	0.00	5.0	0.00
SKIN (mrem)	7.5	0.00	15.0	0.00
ORGAN (mrem)	7.5	0.01	15.0	0.01
CRITICAL PERSON		Teenager		Teenager
CRITICAL ORGAN		Liver		Thyroid

Calculation used release data from the following:
Unit 1 - Vent

Date of calculation: 2/19/2010

Data Recovery (priority parameters) 99.8%

Table 3.4-1

Byron Station - Unit 2

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

2009

TYPE OF DOSE	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
GAMMA AIR (mrad)	1.670E-06(SSE)	9.370E-07(SE)	2.750E-06(W)	4.100E-06(W)	8.559E-06(ESE)
BETA AIR (mrad)	4.940E-06(SSE)	3.570E-06(ESE)	1.040E-05(SE)	1.310E-05(W)	2.564E-05(ESE)
WHOLE BODY (mrem)	8.530E-07(SE)	4.790E-07(SE)	1.700E-06(SE)	1.860E-06(SE)	4.892E-06(SE)
SKIN (mrem)	2.960E-06(SSE)	1.580E-06(SE)	6.020E-06(SE)	6.620E-06(WNW)	1.480E-05(SE)
ORGAN (mrem)	1.490E-04(SSE)	9.640E-05(ESE)	4.950E-04(SE)	2.150E-04(W)	7.996E-04(SE)
CRITICAL PERSON	Teenager	Teenager	Teenager	Teenager	Teenager
CRITICAL ORGAN	Liver	Liver	Thyroid	Thyroid	Thyroid

COMPLIANCE STATUS

TYPE OF DOSE	10 CFR 50 APP. I QUARTERLY OBJECTIVE	% OF APP. I	10 CFR 50 APP.I YEARLY OBJECTIVE	% OF APP. I
GAMMA AIR (mrad)	5.0	0.00	10.0	0.00
BETA AIR (mrad)	10.0	0.00	20.0	0.00
WHOLE BODY (mrem)	2.5	0.00	5.0	0.00
SKIN (mrem)	7.5	0.00	15.0	0.00
ORGAN (mrem)	7.5	0.01	15.0	0.01
CRITICAL PERSON		Teenager		Teenager
CRITICAL ORGAN		Thyroid		Thyroid

Calculation used release data from the following:
Unit 2 - Vent

Date of calculation: 2/19/2010

Data Recovery (priority parameters) 99.8%

APPENDIX F

METEOROLOGICAL DATA

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Byron Generating Station

Period of Record: January - March 2009
Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

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

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

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

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	1	1	0	0	2
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	1	2	0	0	3
SE	0	0	1	2	0	0	3
SSE	0	0	1	2	0	0	3
S	0	0	0	0	0	0	0
SSW	0	0	3	1	0	0	4
SW	0	0	0	0	1	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	2	2	0	4
WNW	0	0	1	5	0	0	6
NW	0	0	3	2	0	0	5
NNW	0	0	1	1	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	1	12	18	3	0	34

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	3	20	43	28	0	0	94
NNE	1	16	36	10	0	0	63
NE	0	10	8	9	1	0	28
ENE	1	2	14	9	0	0	26
E	4	16	17	1	0	0	38
ESE	3	9	18	11	8	0	49
SE	1	6	19	11	2	0	39
SSE	2	16	50	26	1	0	95
S	2	15	19	28	6	0	70
SSW	0	13	18	13	7	0	51
SW	0	13	27	16	7	0	63
WSW	2	15	10	18	2	0	47
W	0	17	36	35	11	6	105
WNW	2	35	73	37	3	1	151
NW	0	34	60	32	1	0	127
NNW	2	17	68	37	0	0	124
Variable	3	2	0	0	0	0	5
Total	26	256	516	321	49	7	1175

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	24	4	0	0	0	30
NNE	6	4	3	0	0	0	13
NE	0	3	9	1	0	0	13
ENE	1	3	3	1	0	0	8
E	5	13	21	1	0	0	40
ESE	4	11	10	6	4	1	36
SE	1	17	24	16	11	0	69
SSE	0	15	36	13	0	0	64
S	0	9	28	15	2	0	54
SSW	2	14	12	5	8	0	41
SW	2	22	10	6	1	0	41
WSW	6	13	12	3	0	0	34
W	8	38	35	10	0	0	91
WNW	8	28	21	0	0	0	57
NW	10	37	19	0	0	0	66
NNW	4	35	23	0	0	0	62
Variable	1	0	0	0	0	0	1
Total	60	286	270	77	26	1	720

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	0	0	0	0	2
NNE	0	1	0	0	0	0	1
NE	0	1	0	0	0	0	1
ENE	1	1	0	0	0	0	2
E	3	5	0	0	0	0	8
ESE	2	6	5	0	0	0	13
SE	1	9	3	0	0	0	13
SSE	1	13	11	0	0	0	25
S	0	14	13	2	0	0	29
SSW	2	9	0	0	0	0	11
SW	3	2	0	0	0	0	5
WSW	1	3	0	0	0	0	4
W	6	7	0	0	0	0	13
WNW	5	3	0	0	0	0	8
NW	1	5	0	0	0	0	6
NNW	1	8	0	0	0	0	9
Variable	0	0	0	0	0	0	0
Total	27	89	32	2	0	0	150

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	9	3	0	0	0	12
SE	0	11	1	0	0	0	12
SSE	0	11	2	0	0	0	13
S	0	0	2	0	0	0	2
SSW	1	2	0	0	0	0	3
SW	4	0	0	0	0	0	4
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	2	0	0	0	0	0	2
NW	3	0	0	0	0	0	3
NNW	3	0	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	13	33	8	0	0	0	54

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

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

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

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

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	1	1	0	0	2
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	1	2	1	0	4
SE	0	0	0	2	1	0	3
SSE	0	0	1	1	0	0	2
S	0	0	0	0	0	0	0
SSW	0	0	2	1	1	0	4
SW	0	0	0	0	0	1	1
WSW	0	0	0	0	0	0	0
W	0	0	0	1	4	0	5
WNW	0	0	1	1	4	0	6
NW	0	0	2	2	1	0	5
NNW	0	0	0	0	1	0	1
Variable	0	0	0	0	0	0	0
Total	0	1	8	11	13	1	34

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	15	34	17	17	1	85
NNE	1	7	17	34	8	0	67
NE	1	2	6	7	9	2	27
ENE	0	4	3	10	10	0	27
E	0	4	6	21	7	2	40
ESE	0	6	11	9	4	12	42
SE	1	6	4	13	11	8	43
SSE	0	12	24	36	16	5	93
S	0	7	14	16	23	7	67
SSW	0	10	13	13	9	11	56
SW	0	9	21	14	16	8	68
WSW	2	5	8	15	10	3	43
W	0	10	31	23	35	12	111
WNW	0	11	40	52	36	4	143
NW	0	11	35	52	29	6	133
NNW	0	5	28	42	28	2	105
Variable	1	3	0	0	0	0	4
Total	7	127	295	374	268	83	1154

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 21
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	5	24	0	0	29
NNE	0	3	4	8	0	0	15
NE	0	2	3	7	3	0	15
ENE	1	5	3	5	1	0	15
E	1	4	8	18	7	1	39
ESE	0	2	4	2	5	12	25
SE	0	4	8	19	11	24	66
SSE	0	1	10	18	14	12	55
S	1	0	6	18	28	11	64
SSW	0	1	5	21	10	11	48
SW	1	1	6	14	7	6	35
WSW	0	3	7	18	5	0	33
W	0	4	18	47	13	0	82
WNW	1	5	14	41	0	0	61
NW	1	4	20	43	2	0	70
NNW	0	4	16	41	8	0	69
Variable	0	0	0	0	0	0	0
Total	6	43	137	344	114	77	721

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	5	1	0	0	6
NNE	0	0	0	2	0	0	2
NE	0	0	1	1	0	0	2
ENE	0	0	0	0	0	0	0
E	0	2	3	2	0	0	7
ESE	0	0	6	2	1	0	9
SE	0	0	1	6	3	0	10
SSE	0	0	1	5	6	1	13
S	0	0	3	7	8	4	22
SSW	0	0	3	12	10	0	25
SW	0	0	7	3	0	0	10
WSW	0	1	6	1	0	0	8
W	0	0	2	5	0	0	7
WNW	0	0	3	5	0	0	8
NW	0	1	5	5	0	0	11
NNW	0	1	3	6	0	0	10
Variable	0	0	0	0	0	0	0
Total	0	5	49	63	28	5	150

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

Byron Generating Station

Period of Record: January - March 2009
Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	2	0	0	0	2
NNE	1	2	1	0	0	0	4
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	1	0	1
SE	1	0	0	4	4	0	9
SSE	0	0	0	3	0	0	3
S	0	2	6	10	2	1	21
SSW	0	0	3	2	1	0	6
SW	0	0	1	0	0	0	1
WSW	0	0	1	0	0	0	1
W	0	0	1	0	0	0	1
WNW	0	0	1	1	0	0	2
NW	0	0	1	1	0	0	2
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	2	4	18	21	8	1	54

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

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

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

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	3	1	0	0	4
NE	0	0	0	0	1	0	1
ENE	0	0	3	0	0	0	3
E	0	0	4	1	0	0	5
ESE	0	0	2	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	1	0	0	0	1
WSW	0	0	0	2	0	0	2
W	0	0	0	0	0	0	0
WNW	0	0	2	1	0	0	3
NW	0	1	1	6	0	0	8
NNW	0	0	0	1	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	1	16	12	1	0	30

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

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	1	0	0	1
NNE	0	0	6	2	0	0	8
NE	0	1	5	1	1	0	8
ENE	0	1	4	0	0	0	5
E	0	1	6	0	0	0	7
ESE	0	1	4	0	0	0	5
SE	0	0	1	2	0	0	3
SSE	0	0	0	3	0	0	3
S	0	0	0	1	0	0	1
SSW	0	0	0	7	0	0	7
SW	0	0	1	0	0	0	1
WSW	0	1	1	1	3	0	6
W	0	0	1	3	1	0	5
WNW	0	0	4	3	0	0	7
NW	0	2	1	6	0	0	9
NNW	0	2	0	3	0	0	5
Variable	0	0	0	0	0	0	0
Total	0	9	34	33	5	0	81

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

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	16	26	16	0	0	62
NNE	5	19	31	13	2	0	70
NE	6	13	31	15	5	0	70
ENE	1	26	50	25	1	0	103
E	4	32	46	0	0	0	82
ESE	2	6	22	7	0	0	37
SE	2	14	11	8	0	0	35
SSE	0	9	17	16	1	0	43
S	1	14	17	7	4	0	43
SSW	2	16	17	23	0	0	58
SW	2	5	11	10	0	0	28
WSW	4	16	16	12	6	1	55
W	3	27	14	20	4	0	68
WNW	0	34	55	36	2	0	127
NW	9	35	46	37	1	0	128
NNW	3	30	24	12	0	0	69
Variable	0	1	0	0	0	0	1
Total	48	313	434	257	26	1	1079

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	18	2	0	0	0	24
NNE	6	19	9	0	0	0	34
NE	6	13	11	6	0	0	36
ENE	12	13	22	13	0	0	60
E	6	50	13	0	0	0	69
ESE	4	8	31	2	0	0	45
SE	1	11	15	2	0	0	29
SSE	1	8	18	9	1	1	38
S	4	15	43	6	1	0	69
SSW	2	9	25	10	3	0	49
SW	8	9	4	3	0	0	24
WSW	6	13	5	2	0	0	26
W	7	33	10	2	0	0	52
WNW	4	19	23	1	0	0	47
NW	3	17	6	0	0	0	26
NNW	3	7	8	2	0	0	20
Variable	1	0	0	0	0	0	1
Total	78	262	245	58	5	1	649

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

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	5	0	0	0	0	12
NNE	3	3	0	0	0	0	6
NE	3	1	0	0	0	0	4
ENE	2	2	2	0	0	0	6
E	4	12	1	0	0	0	17
ESE	2	13	2	0	0	0	17
SE	1	12	1	0	0	0	14
SSE	5	8	17	1	0	0	31
S	2	6	7	0	0	0	15
SSW	5	10	0	0	0	0	15
SW	4	5	0	0	0	0	9
WSW	14	1	0	0	0	0	15
W	22	7	0	0	0	0	29
WNW	21	5	0	0	0	0	26
NW	19	1	0	0	0	0	20
NNW	6	8	0	0	0	0	14
Variable	0	0	0	0	0	0	0
Total	120	99	30	1	0	0	250

Hours of calm in this stability class: 4
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	2	0	2	0	0	0	4
E	2	3	0	0	0	0	5
ESE	1	3	1	0	0	0	5
SE	0	4	1	0	0	0	5
SSE	2	8	1	0	0	0	11
S	4	9	1	0	0	0	14
SSW	1	4	0	0	0	0	5
SW	2	0	0	0	0	0	2
WSW	3	0	0	0	0	0	3
W	3	0	0	0	0	0	3
WNW	6	0	0	0	0	0	6
NW	4	0	0	0	0	0	4
NNW	1	0	0	0	0	0	1
Variable	1	0	0	0	0	0	1
Total	32	31	6	0	0	0	69

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

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

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

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

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	3	1	0	4
NE	0	0	0	0	0	1	1
ENE	0	0	1	0	0	0	1
E	0	0	2	4	0	0	6
ESE	0	0	1	2	0	0	3
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	1	0	0	1
WSW	0	0	0	1	1	0	2
W	0	0	0	0	0	0	0
WNW	0	0	0	2	1	0	3
NW	0	1	0	2	5	0	8
NNW	0	0	0	0	1	0	1
Variable	0	0	0	0	0	0	0
Total	0	1	4	15	9	1	30

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

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	0	0	1	0	2
NNE	0	0	2	1	1	0	4
NE	0	0	2	7	1	1	11
ENE	0	0	2	2	0	0	4
E	0	0	7	3	0	0	10
ESE	0	0	3	1	0	0	4
SE	0	0	1	0	1	1	3
SSE	0	0	0	1	1	0	2
S	0	0	0	0	2	0	2
SSW	0	0	0	1	6	0	7
SW	0	0	0	0	0	0	0
WSW	0	1	1	1	1	3	7
W	0	0	1	1	2	1	5
WNW	0	0	3	3	1	0	7
NW	0	1	0	1	5	1	8
NNW	0	2	0	1	2	0	5
Variable	0	0	0	0	0	0	0
Total	0	5	22	23	24	7	81

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

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	11	8	11	14	0	46
NNE	3	8	18	29	9	3	70
NE	5	12	16	25	6	7	71
ENE	4	12	20	31	12	7	86
E	3	7	52	39	9	2	112
ESE	1	3	11	20	8	0	43
SE	1	8	7	10	5	3	34
SSE	0	5	13	3	11	4	36
S	0	6	16	11	10	1	44
SSW	2	7	11	24	13	2	59
SW	2	7	7	8	12	0	36
WSW	3	7	9	6	11	8	44
W	1	20	20	13	8	2	64
WNW	0	15	27	30	21	10	103
NW	3	21	33	50	41	9	157
NNW	0	20	23	21	9	1	74
Variable	0	0	0	0	0	0	0
Total	30	169	291	331	199	59	1079

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	5	1	1	0	7
NNE	0	3	7	18	0	0	28
NE	0	6	18	16	1	0	41
ENE	0	13	12	9	15	5	54
E	1	12	30	29	9	0	81
ESE	1	4	8	13	15	0	41
SE	0	4	2	17	16	0	39
SSE	1	1	6	9	14	6	37
S	0	2	8	17	20	7	54
SSW	0	1	6	20	20	5	52
SW	0	3	10	10	7	6	36
WSW	0	5	12	5	2	2	26
W	0	3	19	30	1	0	53
WNW	0	3	15	22	5	0	45
NW	0	5	12	16	0	0	33
NNW	1	1	10	12	1	0	25
Variable	0	0	0	0	0	0	0
Total	4	66	180	244	127	31	652

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

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	1	10	6	0	0	18
NNE	0	2	4	6	0	0	12
NE	1	6	3	2	0	0	12
ENE	0	5	1	0	0	0	6
E	1	1	4	5	2	0	13
ESE	1	3	1	8	5	0	18
SE	0	1	6	6	0	0	13
SSE	1	1	4	8	9	0	23
S	0	1	2	7	11	0	21
SSW	2	2	2	6	4	0	16
SW	0	1	1	2	0	0	4
WSW	1	2	3	8	0	0	14
W	0	0	6	9	0	0	15
WNW	0	3	17	6	0	0	26
NW	1	4	8	8	0	0	21
NNW	1	0	8	12	0	0	21
Variable	0	0	0	0	0	0	0
Total	10	33	80	99	31	0	253

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2009
Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	1	0	0	0	2
NNE	0	0	1	0	0	0	1
NE	0	1	1	1	0	0	3
ENE	0	0	0	0	0	0	0
E	0	0	0	3	0	0	3
ESE	0	0	2	3	2	0	7
SE	0	0	3	3	3	0	9
SSE	0	0	1	3	1	0	5
S	0	0	0	7	1	0	8
SSW	0	1	2	6	0	0	9
SW	0	0	2	3	0	0	5
WSW	0	1	2	2	0	0	5
W	0	0	2	1	0	0	3
WNW	0	3	0	0	0	0	3
NW	0	2	2	2	0	0	6
NNW	1	1	1	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	1	10	20	34	7	0	72

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

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

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

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

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

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

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

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	0	0	0	3
NNE	0	4	1	0	0	0	5
NE	0	2	0	0	0	0	2
ENE	0	10	1	0	0	0	11
E	0	7	0	0	0	0	7
ESE	0	5	0	0	0	0	5
SE	0	2	0	0	0	0	2
SSE	0	0	0	0	0	0	0
S	0	2	3	0	0	0	5
SSW	0	2	5	1	0	0	8
SW	0	0	5	0	0	0	5
WSW	0	1	4	1	0	0	6
W	0	1	8	0	0	0	9
WNW	0	2	1	0	0	0	3
NW	0	1	2	0	0	0	3
NNW	0	3	3	0	0	0	6
Variable	0	0	0	0	0	0	0
Total	0	43	35	2	0	0	80

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

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	10	34	15	0	0	0	59
NNE	5	22	1	0	0	0	28
NE	5	7	6	0	0	0	18
ENE	11	13	15	0	0	0	39
E	17	42	8	0	0	0	67
ESE	7	17	4	0	0	0	28
SE	11	20	17	0	0	0	48
SSE	4	15	11	1	0	0	31
S	4	8	19	1	0	0	32
SSW	5	13	30	6	0	0	54
SW	7	16	23	1	0	0	47
WSW	12	17	18	9	0	0	56
W	8	17	19	6	0	0	50
WNW	9	45	31	17	5	0	107
NW	15	47	33	1	0	0	96
NNW	12	39	22	0	0	0	73
Variable	2	0	0	0	0	0	2
Total	144	372	272	42	5	0	835

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	11	14	0	0	0	0	25
NNE	10	13	1	0	0	0	24
NE	10	18	7	0	0	0	35
ENE	12	29	6	0	0	0	47
E	16	36	3	0	0	0	55
ESE	5	14	3	1	0	0	23
SE	6	21	15	1	0	0	43
SSE	6	28	9	1	0	0	44
S	7	32	15	0	0	0	54
SSW	6	13	22	8	0	0	49
SW	17	12	14	0	0	0	43
WSW	15	24	3	0	0	0	42
W	12	34	2	2	0	0	50
WNW	13	21	6	3	0	0	43
NW	8	28	4	0	0	0	40
NNW	6	25	1	0	0	0	32
Variable	3	0	0	0	0	0	3
Total	163	362	111	16	0	0	652

Hours of calm in this stability class: 2
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	5	6	0	0	0	0	11
NNE	4	11	1	0	0	0	16
NE	6	2	0	0	0	0	8
ENE	5	17	0	0	0	0	22
E	21	39	0	0	0	0	60
ESE	4	10	0	0	0	0	14
SE	4	14	0	0	0	0	18
SSE	2	27	1	0	0	0	30
S	11	17	1	0	0	0	29
SSW	14	6	0	0	0	0	20
SW	16	1	0	0	0	0	17
WSW	21	2	0	0	0	0	23
W	13	4	0	0	0	0	17
WNW	13	3	0	0	0	0	16
NW	26	0	0	0	0	0	26
NNW	15	6	0	0	0	0	21
Variable	1	0	0	0	0	0	1
Total	181	165	3	0	0	0	349

Hours of calm in this stability class: 9
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	5	1	0	0	0	0	6
NNE	5	0	0	0	0	0	5
NE	4	0	0	0	0	0	4
ENE	6	0	0	0	0	0	6
E	14	12	0	0	0	0	26
ESE	6	14	0	0	0	0	20
SE	6	5	0	0	0	0	11
SSE	6	6	0	0	0	0	12
S	15	7	0	0	0	0	22
SSW	8	2	0	0	0	0	10
SW	7	0	0	0	0	0	7
WSW	6	0	0	0	0	0	6
W	11	0	0	0	0	0	11
WNW	23	0	0	0	0	0	23
NW	35	0	0	0	0	0	35
NNW	22	0	0	0	0	0	22
Variable	1	0	0	0	0	0	1
Total	180	47	0	0	0	0	227

Hours of calm in this stability class: 22
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

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

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

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

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

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

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

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

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

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	8	22	25	7	0	0	62
NNE	3	13	17	2	0	0	35
NE	2	10	4	6	0	0	22
ENE	2	9	7	8	0	0	26
E	9	33	18	14	3	0	77
ESE	4	16	12	3	1	0	36
SE	4	17	11	7	6	0	45
SSE	1	12	6	11	3	0	33
S	2	1	10	8	3	0	24
SSW	4	7	16	21	8	0	56
SW	2	5	15	16	5	0	43
WSW	4	14	9	16	9	0	52
W	4	11	14	12	4	0	45
WNW	7	24	26	20	10	15	102
NW	6	15	48	25	8	0	102
NNW	4	16	37	13	3	0	73
Variable	1	1	0	0	0	0	2
Total	67	226	275	189	63	15	835

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	4	11	3	0	0	19
NNE	0	4	11	3	0	0	18
NE	3	13	10	2	0	0	28
ENE	3	17	15	19	0	0	54
E	3	18	25	18	3	1	68
ESE	1	3	9	9	7	0	29
SE	2	1	7	17	5	0	32
SSE	2	2	5	20	8	1	38
S	1	2	8	19	8	0	38
SSW	2	1	16	26	20	4	69
SW	1	9	9	11	8	0	38
WSW	1	10	17	13	0	0	41
W	1	6	26	6	1	0	40
WNW	3	8	19	19	2	3	54
NW	1	6	29	15	2	1	54
NNW	1	5	14	12	0	0	32
Variable	0	2	0	0	0	0	2
Total	26	111	231	212	64	10	654

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

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	5	2	4	0	0	11
NNE	0	2	6	4	1	0	13
NE	2	4	6	8	0	0	20
ENE	3	10	8	3	1	0	25
E	2	9	27	18	0	0	56
ESE	0	3	4	12	7	0	26
SE	0	2	4	10	6	0	22
SSE	0	0	3	7	3	0	13
S	0	1	4	14	6	0	25
SSW	1	3	6	10	3	0	23
SW	3	1	8	5	1	0	18
WSW	0	6	5	5	0	0	16
W	0	2	26	3	0	0	31
WNW	0	3	11	7	0	0	21
NW	0	6	9	7	0	0	22
NNW	0	2	9	5	0	0	16
Variable	0	0	0	0	0	0	0
Total	11	59	138	122	28	0	358

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

Byron Generating Station

Period of Record: July - September 2009
Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	3	15	3	0	0	21
NNE	2	4	3	0	0	0	9
NE	5	7	1	0	0	0	13
ENE	6	12	3	0	0	0	21
E	5	7	8	3	0	0	23
ESE	2	1	1	15	5	0	24
SE	0	2	5	11	0	0	18
SSE	1	6	6	4	0	0	17
S	0	2	5	4	2	0	13
SSW	1	1	5	5	0	0	12
SW	1	4	6	2	0	0	13
WSW	2	5	3	1	0	0	11
W	0	4	9	2	0	0	15
WNW	0	3	8	1	0	0	12
NW	0	3	4	3	0	0	10
NNW	1	0	8	6	0	0	15
Variable	0	0	0	0	0	0	0
Total	26	64	90	60	7	0	247

Hours of calm in this stability class: 2
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

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

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

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

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	1	0	0	0	1
ESE	0	2	0	0	0	0	2
SE	0	1	1	0	0	0	2
SSE	0	0	2	0	0	0	2
S	0	0	1	0	0	0	1
SSW	0	0	6	0	0	0	6
SW	0	0	3	0	0	0	3
WSW	0	2	2	2	0	0	6
W	0	0	4	2	0	0	6
WNW	0	0	1	0	0	0	1
NW	0	2	4	0	0	0	6
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	7	25	4	0	0	36

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	3	9	52	9	0	0	73
NNE	1	8	10	0	0	0	19
NE	0	4	11	30	0	0	45
ENE	4	11	17	16	0	0	48
E	8	54	44	7	0	0	113
ESE	2	12	22	10	0	0	46
SE	2	22	18	6	0	0	48
SSE	2	20	27	11	0	0	60
S	5	22	33	12	1	0	73
SSW	7	14	34	11	0	0	66
SW	2	31	18	4	0	0	55
WSW	0	37	27	27	2	0	93
W	4	48	41	45	6	0	144
WNW	6	27	67	19	1	0	120
NW	5	18	39	12	0	0	74
NNW	3	15	37	6	0	0	61
Variable	1	0	0	0	0	0	1
Total	55	352	497	225	10	0	1139

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	15	8	0	0	0	25
NNE	1	17	3	0	0	0	21
NE	2	15	16	3	0	0	36
ENE	2	16	12	7	0	0	37
E	12	21	12	7	0	0	52
ESE	8	27	15	1	2	0	53
SE	5	33	31	8	1	0	78
SSE	2	28	44	13	0	0	87
S	11	28	33	8	0	0	80
SSW	3	13	25	19	0	0	60
SW	7	18	11	8	0	0	44
WSW	10	27	8	5	2	0	52
W	9	22	5	2	1	0	39
WNW	7	27	8	0	0	0	42
NW	7	12	2	0	0	0	21
NNW	3	12	2	0	0	0	17
Variable	0	0	0	0	0	0	0
Total	91	331	235	81	6	0	744

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	3	0	0	0	0	0	3
NNE	1	3	0	0	0	0	4
NE	0	0	1	0	0	0	1
ENE	0	3	5	0	0	0	8
E	1	18	0	0	0	0	19
ESE	4	8	2	0	0	0	14
SE	1	31	7	0	0	0	39
SSE	2	10	4	0	0	0	16
S	5	19	8	0	0	0	32
SSW	6	2	3	0	0	0	11
SW	6	0	0	0	0	0	6
WSW	6	0	0	0	0	0	6
W	8	0	0	0	0	0	8
WNW	10	3	0	0	0	0	13
NW	2	2	0	0	0	0	4
NNW	2	2	0	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	57	101	30	0	0	0	188

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

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

Hours of calm in this stability class: 4
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

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

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

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

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	1	0	0	1
ESE	0	0	2	0	0	0	2
SE	0	0	1	1	0	0	2
SSE	0	0	0	1	0	0	1
S	0	0	0	2	0	0	2
SSW	0	0	2	3	0	0	5
SW	0	0	2	2	0	0	4
WSW	0	1	1	4	0	0	6
W	0	0	2	1	1	0	4
WNW	0	0	2	0	1	0	3
NW	0	0	3	1	1	0	5
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	2	15	16	3	0	36

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	3	17	34	5	0	61
NNE	1	2	6	31	1	0	41
NE	1	1	4	9	6	3	24
ENE	0	2	3	10	28	11	54
E	2	14	51	44	8	0	119
ESE	1	2	12	16	5	4	40
SE	2	4	24	10	4	6	50
SSE	2	5	17	18	7	2	51
S	3	12	22	17	11	4	69
SSW	4	4	25	20	13	2	68
SW	1	16	25	19	5	1	67
WSW	0	16	19	21	6	2	64
W	1	22	37	50	39	5	154
WNW	2	19	20	46	12	5	104
NW	2	9	16	59	18	0	104
NNW	2	6	17	28	4	0	57
Variable	1	0	0	0	0	0	1
Total	27	137	315	432	172	45	1128

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 13
Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	4	17	0	0	21
NNE	0	0	4	8	0	0	12
NE	0	0	9	17	4	1	31
ENE	1	3	9	18	9	4	44
E	0	9	20	7	2	3	41
ESE	1	6	11	16	8	5	47
SE	2	5	20	28	12	8	75
SSE	3	3	8	21	36	9	80
S	0	6	12	20	30	4	72
SSW	1	4	16	26	36	5	88
SW	1	4	16	8	18	4	51
WSW	0	6	16	10	3	2	37
W	0	2	21	18	2	5	48
WNW	0	7	18	12	2	0	39
NW	0	3	23	13	0	0	39
NNW	0	4	4	9	2	0	19
Variable	0	0	0	0	0	0	0
Total	9	62	211	248	164	50	744

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	1	3	1	0	0	6
NNE	0	0	2	0	0	0	2
NE	0	1	0	4	0	0	5
ENE	0	0	0	2	0	0	2
E	0	0	6	5	1	0	12
ESE	0	1	0	7	10	0	18
SE	0	0	2	5	6	1	14
SSE	0	0	2	14	10	0	26
S	0	0	3	5	7	0	15
SSW	1	4	2	9	11	0	27
SW	0	5	7	3	0	0	15
WSW	0	1	9	0	0	0	10
W	0	1	9	0	0	0	10
WNW	0	1	2	0	0	0	3
NW	0	0	11	7	0	0	18
NNW	0	1	4	2	0	0	7
Variable	0	0	0	0	0	0	0
Total	2	16	62	64	45	1	190

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

Byron Generating Station

Period of Record: October - December 2009
Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	0	0	0	0	2
NNE	1	0	2	0	1	0	4
NE	0	3	2	0	0	0	5
ENE	0	3	1	0	0	0	4
E	0	0	4	1	2	1	8
ESE	0	0	0	1	5	5	11
SE	0	0	0	0	2	1	3
SSE	0	0	0	2	0	0	2
S	0	0	1	2	2	0	5
SSW	0	0	0	2	3	0	5
SW	0	0	4	0	0	0	4
WSW	0	0	3	0	0	0	3
W	1	0	2	0	0	0	3
WNW	0	0	1	0	0	0	1
NW	0	0	2	0	0	0	2
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	2	9	23	8	15	7	64

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

APPENDIX G

ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

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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 2009

Prepared By

Teledyne Brown Engineering
Environmental Services

Exelon SM
Nuclear

Byron Nuclear Generating Station
Byron, IL 61010

May 2010

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Appendices

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 third 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 samples, collected from the environment, both on and off station property in 2009. During that time period, 26 analyses were performed on 26 samples from 13 locations.

In accordance with Byron's Radiological Groundwater Protection Program, gamma-emitting radionuclides associated with licensed plant operations were not sampled in 2009. 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 2009, the number of Radiological Groundwater Protection Program (RGPP) monitoring wells sampled was reduced from 22 to 13 based on the evaluation and recommendation from an environmental consulting firm. The 9 wells removed from the sampling program in 2009 had not tested positive for tritium since the program began in 2006 and were determined to be low risk for contamination based on their locations commensurate with local hydrogeology.

Tritium was not detected in any of the groundwater samples at concentrations greater than the United States Environmental Protection Agency (USEPA) drinking water standard (and the Nuclear Regulatory Commission Reporting Limit) of 20,000 pCi/L. Low levels of tritium were detected at concentrations greater than the LLD of 200 pCi/L in two of 13 groundwater sample locations. The tritium concentrations in these two monitoring wells ranged from 1,010 ± 157 pCi/L to 1,360 ± 187 pCi/L. These two monitoring wells (AR-4 & AR-11) are located near Circ Water Blowdown vaults (3 & 4) along the blowdown line located west of the station, where historical leakage through vacuum breakers was known to have occurred. Well AR-4 has shown an overall decrease in

tritium concentration since first sampled in 2006. Well AR-11 has shown an overall decrease in tritium concentration since first sampled in 2006 and a slight decrease from 2008.

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.

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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 1280 and 1254 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 2009.

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

1. Sample Collection

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

Groundwater

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

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

D. Characteristics of Tritium (H-3)

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

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

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

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

III. Program Description

A. Sample Analysis

This section describes the general analytical methodologies used by TBE to analyze the environmental samples for radioactivity for the Byron Nuclear Generating Station RGPP in 2009.

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

1. Concentrations of gamma emitters in groundwater (as required by procedure).

2. Concentrations of strontium in groundwater (as required by procedure).

3. Concentrations of tritium in groundwater.

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 strontium-90 comes from the former atmospheric testing of thermonuclear weapons. Levels of tritium in precipitation increased significantly during the 1950s and early 1960s, and later with

additional testing, resulting in the release of significant amounts of tritium to the atmosphere. The Canadian heavy water nuclear power reactors, other commercial power reactors, nuclear research and weapons production continue to influence tritium concentrations in the environment.

b. Precipitation Data

Precipitation samples are routinely collected at stations around the world for the analysis of tritium and other radionuclides. Two publicly available databases that provide tritium concentrations in precipitation are Global Network of Isotopes in Precipitation (GNIP) and USEPA's RadNet database. GNIP provides tritium precipitation concentration data for samples collected world wide from 1960 to 2006. RadNet provides tritium precipitation concentration data for samples collected at stations through out 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 1,360 pCi/l. Within the station boundary, concentrations of tritium at the bottom of the Galena-Platteville aquifer ranged from 1,010 – 1,360 pCi/L. Outside of the station boundary, tritium concentrations were all less than detection limit (<200 pCi/L). This is based on evaluation of groundwater sample results obtained as part of the Byron Station REMP. Of the thirteen wells sampled in 2009, two contained levels of tritium above the lower limit of detection (LLD) of 200 pCi/L. They were: AR-4 (1,350 and 1,360 pCi/L), and AR-11 (1,010 & 1,110 pCi/L). Well AR-4 has shown an overall decrease in tritium concentration since first sampled in 2006. Well AR-11 has shown an overall decrease in tritium concentration since first sampled in 2006 and a slight decrease from 2008. 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-90 was not analyzed in 2009.

Gamma Emitters

Gamma-emitting radionuclides associated with licensed plant operations were not analyzed in 2009.

B. Drinking Water Well Survey

No drinking water well surveys were conducted in 2009.

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 have been no new leaks, spills or releases at Byron Station in 2009.

E. Trends

Well AR-4 has shown an overall decrease in tritium concentration since first sampled in 2006. Well AR-11 has shown an overall decrease in tritium concentration since first sampled in 2006 and a slight decrease from 2008.

F. Investigations

No investigations were initiated in 2009 due to anomalous sample results.

G. Actions Taken

1. Compensatory Actions

   No compensatory actions were initiated in 2009.

2. Installation of Monitoring Wells

   No new monitoring wells were installed in 2009.

3. Actions to Recover/Reverse Plumes

No actions were undertaken to recover/reverse plumes in 2009.

APPENDIX A

LOCATION DESIGNATION

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TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Distance and Direction, Byron Nuclear Generating Station, 2009

Site	Site Type	Temporary/Permanent	Distance and Direction
AR-1	Monitoring Well	Permanent	0.36 miles/NNW
AR-10	Monitoring Well	Permanent	0.28 miles/NE
AR-11	Monitoring Well	Permanent	1.36 miles/WNW
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
CAR-1	Monitoring Well	Permanent	2.25 miles/WNW
CAR-2	Monitoring Well	Permanent	1.52 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

Figure A-1
Monitoring Well Locations, Byron Nuclear Generating Station, 2009

APPENDIX B

DATA TABLES

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TABLE B-I.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BYRON NUCLEAR GENERATION STATION, 2009**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
AR-1	04/27/09	< 157
AR-1	10/13/09	< 165
AR-10	04/27/09	< 155
AR-10	10/13/09	< 194
AR-11	04/29/09	1110 ± 167
AR-11	10/15/09	1010 ± 157
AR-2	04/29/09	< 152
AR-2	10/15/09	< 152
AR-3	04/29/09	< 155
AR-3	10/14/09	< 149
AR-4	04/29/09	1350 ± 189
AR-4	10/15/09	1360 ± 187
AR-7	04/27/09	< 157
AR-7	10/13/09	< 170
AR-8	04/27/09	< 151
AR-8	10/13/09	< 163
AR-9	04/27/09	< 153
AR-9	10/13/09	< 182
CAR-1	04/29/09	< 152
CAR-1	10/14/09	< 149
CAR-3	04/27/09	< 153
CAR-3	10/13/09	< 191
DF-24	04/29/09	< 154
DF-24	10/14/09	< 170
TW-13	04/29/09	< 152
TW-13	10/14/09	< 151