

Byron Environmental Audit – Request for Additional Information Response

Question #: HH-2

Category: Human Health

Statement of Question:

The ER (Page 4-30) states, "The highest daily blowdown temperature reported in recent years was 36°C (97°F), in August 2009 (Byron Station Monthly Discharge Monitoring Report for August 2009)." Does this statement remain true since the submission of the license renewal application?

Response:

After the ER was prepared, drought conditions were experienced in Illinois during 2012, which caused higher than normal ambient river temperatures and correspondingly higher blowdown temperatures. The highest daily blowdown temperature reported in July 2012 was 39.4 °C (103 °F), which is well below the optimal temperature range for growth and reproduction of thermophilic organisms.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: HH-3

Category: Human Health – Microbiological Organisms

Statement of Question:

Provide a description of the procedures or protocol that Exelon maintains to ensure that workers performing maintenance and cleaning of cooling towers are not exposed to *Legionella* spp. or other potentially harmful thermophilic microorganisms.

Response:

Exelon Generation maintains no standing procedures that specifically address *Legionella* spp. hazards during cooling tower maintenance activities at Byron Station. However, as part of its commitment to occupational safety and health, Exelon Generation has implemented a Job Hazard Analysis procedure, which provides a standard methodology for identifying industrial hazards prior to performance of jobs (SA-AA-116-2124). The Job Hazard Analysis procedure, which is used to break down the steps of the job, identify the potential hazards, and establish recommended actions to protect workers, is used particularly for infrequently performed jobs where hazards may not be evident or anticipated. This procedure prompts work planners and supervisors to (1) list potential hazards for each step of the job by identifying the hazardous conditions that could potentially lead to an accident and (2) review all work in the area and adjacent areas to determine how each job or evolution affects workers in the area. All possible factors that may influence safe execution of the job, including chemical and biological hazards, would be considered and appropriate worker protection measures would be employed during performance of the work.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: HH-4

Category: Human Health – Microbiological Organisms

Statement of Question:

The ER (Page 4-30) states that Exelon chlorinates Rock River water used in the circulating and service water systems to control the survival and growth of thermophilic microorganisms. Briefly describe the chlorination process (i.e., concentration, periodicity, etc.)

Response:

Rock River water used in three plant systems is chlorinated as follows:

- Circulating water is chlorinated for 2 hours per day per unit by injecting sodium hypochlorite and sodium bromide upstream of the circulating water pumps for a period of 2 hours per day for each unit during operation. The target concentration during chlorination is between 0.2 and 0.5 parts per million (ppm).
- Non-essential service water is continuously chlorinated by injecting sodium hypochlorite to achieve a target concentration of 0.05 – 0.2 ppm.
- Essential service water is continuously chlorinated by injecting sodium hypochlorite to achieve a target concentration of 0.05 – 0.2 ppm.

Residual biocide concentration is eliminated by feeding sodium bisulfate prior to returning water to the Rock River.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: HH-5

Category: Human Health – Microbiological Organisms

Statement of Question:

Does Exelon monitor for any thermophilic microorganisms in Byron's cooling system, cooling towers, or in the Rock River near the Byron thermal discharge? If so, describe the monitoring methods, periodicity, and results.

Response:

Exelon monitors bacteria in systems containing Rock River water as follows:

- Circulating water is monitored for total aerobic bacteria and sessile bacteria;
- The natural draft cooling tower fill outlet is monitored for total aerobic bacteria;
- Non-essential service water is monitored for total aerobic bacteria;
- Essential service water is monitored for total aerobic bacteria.

Results are typically less than detectable and maintained below the procedurally established goal threshold of < 10,000 colony forming units per milliliter (cfu/ml). No targeted monitoring for thermophilic microorganisms is performed.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-1

Category: Meteorology, Air Quality and Noise

Statement of Question:

Provide a copy of Byron's Federally Enforceable State Operating Permit for stationary emission sources (standby emergency diesel generators, auxiliary boilers, auxiliary feedwater pumps, essential service water makeup water pumps, a fire pump, and cooling towers).

Response:

The requested information is attached.

List Attachments Provided:

1. Federally Enforceable State Operating Permit, ID No. 141820AAA, Expiration Date: December 13, 2007
2. Application for Renewal of Federally Enforceable State Operating Permit, ID No. 141820AAA, September 11, 2007
3. Letter from Exelon Nuclear (M. Snow) to IEPA (B. Beasley) regarding FESOP Renewal Application Byron Nuclear Power Station, Application No. 78090018, December 10, 2007 [updating information in the 9/11/2007 application and waiving the statutory 180-day final decision deadline]
4. Letter from Exelon Nuclear (B. Adams) to IEPA (B. Beasley) regarding FESOP Renewal Application Byron Nuclear Power Station, Application No. 78090018, June 11, 2008 [waiving the statutory 180-day final decision deadline]



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

P.O. Box 19506, SPRINGFIELD, ILLINOIS 62794-9506

RENEE CIPRIANO, DIRECTOR

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

Exelon Generation Company, LLC
Attn: Mr. Terry Steinert
4300 Winfield Road
Warrenville, Illinois 60555

Application No.: 78090018

Applicant's Designation: BYRONFESOP

Subject: Byron Generating Station

Date Issued: December 13, 2002

Location: Byron Nuclear Power Station, 4450 North German Church Road, Byron, Ogle County

I.D. No.: 141820AAA

Date Received: December 10, 2001

Expiration Date: December 13, 2007

This Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of six (6) large diesel engine generators (greater than 600 horsepower, each), various smaller diesel engines (used for electric generation or pumping water)*, two (2) auxiliary boilers (93.0 mmBtu/hr, each), one (1) gasoline storage and dispensing facility with vapor balance systems, one (1) Rad Waste Volume Reduction System (RWVRS), and various cooling towers as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- * This permit does not address emergency engine maintained at the source by the Illinois Department of Nuclear Safety.
- 1a. This Federally Enforceable State Operating Permit (FESOP) is issued to limit the emissions of air pollutants from all the emission units combined, as listed in the above paragraph to less than major source thresholds, for example, less than 100 tons per year of nitrogen oxide (NO_x), as further described in Attachment A. As a result, the source is excluded from requirements to obtain a Clean Air Act Permit Program (CAAPP) permit.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- 2a. Total usage of distillate fuel oil for large engines (generators and other engines with a capacity greater than 600 horsepower each) shall not exceed 72,800 gallons per month and 364,000 gallons per year, based on AP-42 emission factors.
- b. Total usage of distillate fuel oil for the small engines with a capacity of 600 horsepower each or smaller shall not exceed 8,000 gallons per month and 40,000 gallons per year, based on AP-42 emission factors.

GEORGE H. RYAN, GOVERNOR

- c. Total usage of distillate fuel oil for the boilers shall not exceed 34,000 gallons per month and 100,000 gallons per year, based on AP-42 emission factors.
 - d. Operation of the Rad Waste Volume Reduction System (RWVRS) shall not exceed 200 hours per month and 1,512 hours per year, based on information provided in the permit application.
 - e. Annual throughput of gasoline through the gasoline storage tanks shall not exceed 50,000 gallons/year.
 - f. Compliance with annual limits shall be determined from a running total of twelve months of data.
3. Each gasoline storage tank shall be equipped and operated with a submerged loading pipe, pursuant to 35 IAC 215.583(a)(1).
- 4a. The cooling towers (two - natural draft counter flow and eight - induced draft counter flow cells) shall each be equipped, operated and maintained with drift eliminators or other comparable features designed to limit the loss of water droplets from the cooling towers to not more than 0.0005% for natural draft and 0.001% for induced draft counter flow cooling towers, respectively of the circulating water flow (0.000005 and 0.00001 drift).
- b. The particulate matter (PM₁₀) emissions from two natural draft counter flow and eight induced draft counter flow cells cooling towers shall not exceed 36.6 tons/year and 2.3 tons/year, respectively. These limits are based on information in the application indicating a nominal emission rate of 8.36 lbs/hour and 0.52 lb/hour for natural draft and induced draft counter flow cooling towers operating at a design flow rate of 1,400,000 gallons/minute and 44,000 gallons/minute, respectively.
5. Emissions of volatile organic material (VOM) from storage and handling of gasoline shall not exceed 2.0 ton per year. This limit is based on standard USEPA emission factors for breathing and working losses and information provided in the permit application.
6. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act shall not equal or exceed 10 tons per year of any single HAP or 25 tons per year of any combination of such HAPs, or such lesser quantity as USEPA may establish in rule which would require the Permittee to obtain a CAAPP permit from the Illinois EPA. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.
7. At all times, the Permittee shall to the extent practicable, maintain and operate the above referenced emission sources, in a manner consistent with good air pollution control practice for minimizing emissions.

- 8a. Organic liquid by-products or waste materials shall not be used in these fuel combustion emission sources without written approval from the Illinois EPA.
- b. At the above location, the Permittee shall not keep, store, or utilize:
 - i. Distillate fuel oil (Grades No. 1 and 2) with a sulfur content greater than the larger of the following two values:
 - A. 0.28 weight percent, or
 - B. The wt. percent given by the formula: Maximum wt. percent sulfur = $(0.000015) \times (\text{Gross heating value of oil, Btu/lb})$.
 - c. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- 9. The Permittee shall maintain records of the following items:
 - a. Fuel usage for the large engines (generators and other engines with a capacity greater than 600 horsepower), for the other engines and for the boilers, (gallons/month and gallons/year, for each of these groups of units).
 - b. Documentation for sulfur content of fuel oil, e.g., analysis results of representative fuel samples or copies of fuel supplier certifications.
 - c. The Permittee shall maintain the following records for each gasoline storage dispensing facility, including associated gasoline storage tanks:
 - i. A logbook or other record that identifies each shipment of gasoline added to each tank, with date and amount;
 - ii. A logbook or other record of each inspection of the tanks and dispensing facilities to verify proper operation, with date and responsible individual;
 - iii. The combined gasoline throughput of the storage tanks, (gallons/month and gallons/year).
 - d. The Permittee shall keep the following records for cooling towers with supporting data.
 - i. The following reference information for the cooling towers, which shall be updated in the event of significant changes to the operation of the tower:
 - A. Cooling water flow rate (gallons/hour) based on representative operation of the cooling towers; and

- B. Cooling water total dissolved solids (TDS) content, based on representative sampling of water discharge.
- ii. The following operating records for each tower:
 - A. Operation of cooling towers (e.g., log for number of towers operating each hour).
 - B. Total operation of cooling towers (e.g., hours/month); and
 - C. Emissions of particulate matter (tons/year), with supporting calculations.
- 10. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.
- 11a. The Permittee shall submit an Annual Emissions Statement to the Agency by May 1st of each year. This report shall include the fuel oil consumption by the large diesel engines (generators and pumps greater than 600 horsepower), the other engines, and the boilers. If there has been no exceedance during the prior year, the Annual Emissions Statement shall include a statement to that effect.
- b. If there is an exceedance of the requirements of this permit, as determined by the records required by this permit or by other means, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, a description of the exceedance and efforts to reduce emissions and future occurrences.
- 12. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

Telephone: 217/782-5811

Facsimile: 217/782-6348

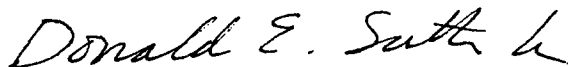
and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University
Peoria, Illinois 61614

Telephone: 309/693-5461

Facsimile: 309/693-5467

If you have any questions concerning this permit, please call Youra Benofamil at 217/782-2113.

A handwritten signature in cursive script that reads "Donald E. Sutton".

Donald E. Sutton, P. E.
Manager, Permit Section
Division of Air Pollution Control

DES:YB:jar

cc: Illinois EPA, FOS Region 2
Illinois EPA, Compliance Section
Lotus Notes, USEPA

I.D. No.: 141820AAA
Application No.: 78090018
Facility: Byron Nuclear Power Station

Attachment A

This attachment provides a summary of the maximum emissions from the source operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario that results in maximum emissions from this source. This is handling 504,000 gallons of distillate fuel oil. The resulting maximum emissions are well below the levels, e.g., 100 tons per year of NO_x, at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

1. Large Diesel Engines (Generators and other engines with a capacity greater than 600 horsepower each):

Limit on Total Fuel Usage: 364,000 Gallons/Year

<u>Pollutant</u>	<u>Emission Rate</u> <u>(Lb/mmBtu)</u>	<u>Emissions</u> <u>(Tons/Yr)</u>
NO _x	3.2	81.52
CO	0.85	21.68
SO ₂	1.01 * 0.28 = 0.2828	7.20
VOM	0.09	2.28
PM	0.0697	1.78

These emissions reflect, AP-42 emission factors for internal combustion units, and a conversion factor of 140,000 Btu per gallon of distillate oil.

2. Small Diesel Engines with a capacity of 600 horsepower each or smaller:

Limit on Total Fuel Usage: 40,000 Gallons/Year

<u>Pollutant</u>	<u>Emission Rate</u> <u>(Lb/mmBtu)</u>	<u>Emissions</u> <u>(Tons/Yr)</u>
NO _x	4.41	12.36
CO	0.95	2.68
SO ₂	0.29	0.80
VOM	0.36	1.00
PM	0.31	0.88

These emissions reflect AP-42 emission factors for internal combustion units and a conversion factor of 140,000 Btu per gallon of distillate oil.

3. Two Boilers:

Limit on Total Fuel Usage: 100,000 Gallons/Year

<u>Pollutant</u>	<u>Emission Rate (Lb/1,000 Gal)</u>	<u>Emissions (Tons/Yr)</u>
NO _x	20.0	1.00
CO	5.0	0.26
SO ₂	142 * 0.28 = 39.76	1.98
VOM	0.2	0.01
PM	2.0	0.10

These emissions reflect, AP-42 emission factors for distillate fuel oil fired boilers.

4. Rad Waste Volume Reduction System (RWVRS):

Limit on hours of Operation: 1,512 Hours/Year

<u>Pollutant</u>	<u>Emission Rate (Lb/Hr)</u>	<u>Emissions (Tons/Yr)</u>
NO _x	0.131	0.10
CO	0.980	0.75
SO ₂	0.200	0.16
VOM	0.310	0.25

These emissions reflect, emission factors supplied by the Permittee which are based on tests.

5. Emissions from all gasoline storage and handling, in total:

Limit on Gasoline Throughput: 50,000 gallons year
2.0 ton VOM per year

This reflects standard USEPA emission factors from Compilation of Air Pollutant Emission Factors, AP-42 for breathing and working losses.

6. Cooling Towers:

	<u>Pollutant</u>	<u>Emissions (Tons/Year)</u>
Two Natural Draft Counter Flow	PM/PM ₁₀	36.6
Eight Induced Draft Counter Flow Cells	PM/PM ₁₀	2.30

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7. Propane-Fired Engine Generators:

Limit on Total Fuel Usage: 3,000 Gallons/Year

<u>Pollutant</u>	<u>Emission Rate (Lb/1000 Gallons)</u>	<u>Emissions (Tons/Year)</u>
NO _x	14	0.02

YB:psj



STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS
FOR
OPERATING PERMITS

May, 1993

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special permit conditions(s).

1. The issuance of this permit does not release the Permittee from compliance with state and federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or with applicable local laws, ordinances and regulations.
2. The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be ground for revocation under 35 Ill. Adm. Code 201.166.
3.
 - a. The Permittee shall not authorize, cause, direct or allow any modification, as defined in 35 Ill. Adm. Code 201.102, of equipment, operations or practices which are reflected in the permit application as submitted unless a new application or request for revision of the existing permit is filed with the Illinois EPA and unless a new permit or revision of the existing permit(s) is issued for such modification.
 - b. This permit only covers emission sources and control equipment while physically present at the indicated plant location(s). Unless the permit specifically provides for equipment relocation, this permit is void for an item of equipment on the day it is removed from the permitted location(s) or if all equipment is removed, notwithstanding the expiration date specified on the permit.
4. The Permittee shall allow any duly authorized agent of the Illinois EPA, upon the presentation of credentials, at reasonable times:
 - a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;
 - b. To have access to and to copy any records required to be kept under the terms and conditions of this permit;
 - c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit;
 - d. To obtain and remove samples of any discharge or emission of pollutants; and
 - e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring or recording any activity, discharge or emission authorized by this permit.
5. The issuance of this permit:
 - a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are located;

- b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the facilities;
 - c. Does not take into consideration or attest to the structural stability of any unit or part of the project; and
 - d. In no manner implies or suggests that the Illinois EPA (or its officers, agents, or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.
6. The facilities covered by this permit shall be operated in such a manner that the disposal of air contaminants collected by the equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.
7. The Permittee shall maintain all equipment covered under this permit in such a manner that the performance of such equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.
8. The Permittee shall maintain a maintenance record on the premises for each item of air pollution control equipment. This records shall be made available to any agent of the Environmental Protection Agency at any time during normal working hours and/or operating hours. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.
9. No person shall cause or allow continued operation during malfunction, breakdown or startup of any emission source or related air pollution control equipment if such operation would cause a violation of an applicable emission standard or permit limitation. Should a malfunction, breakdown or startup occur which results in emissions in excess of any applicable standard or permit limitation, the Permittee shall:
- a. Immediately report the incident to the Illinois EPA's Regional Field Operations Section Office by telephone, telegraph, or other method as constitutes the fastest available alternative, and shall comply with all reasonable directives of the Illinois EPA with respect to the incident;
 - b. Maintain the following records for a period of no less than two (2) years:
 - i. Date and duration of malfunction, breakdown, or startup,
 - ii. Full and detailed explanation of the cause,
 - iii. Contaminants emitted and an estimate of quantity of emissions,
 - iv. Measures taken to minimize the amount of emissions during the malfunction, breakdown or startup, and
 - v. Measures taken to reduce future occurrences and frequency of incidents.
10. If the permit application contains a compliance program and project completion schedule, the Permittee shall submit a project completion status report within thirty (30) days of any date specified in the compliance program and project completion schedule or at six month intervals, whichever is more frequent.
11. The Permittee shall submit an Annual Emission Report as required by 35 Ill. Adm. Code 201.302 and 35 Ill. Adm. Code Part 234.

Directory Environmental Protection Agency Bureau of Air

September 1, 1992

For assistance in preparing a permit application,
contact the Permit Section:

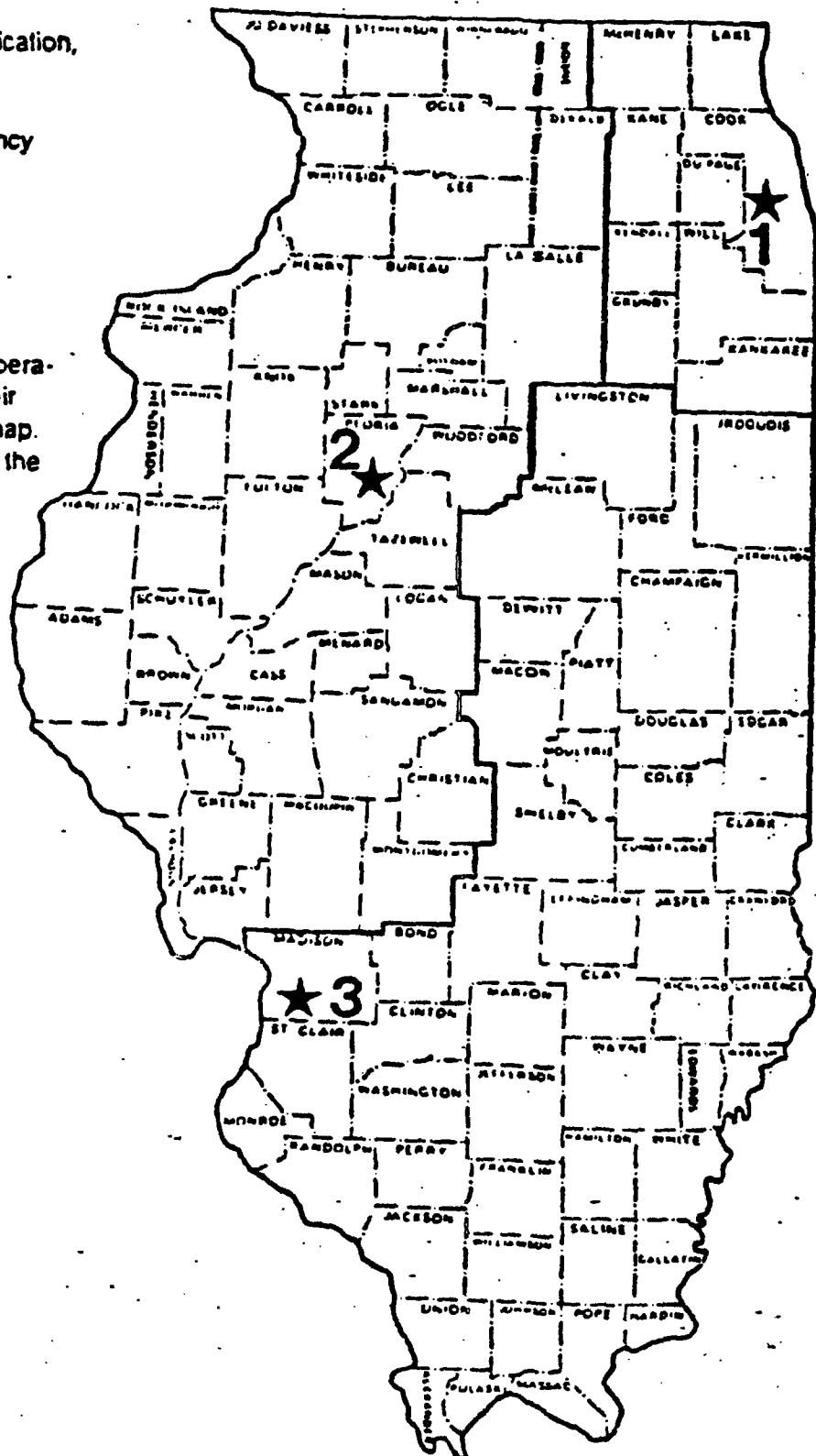
Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section
2200 Churchill Road
Springfield, Illinois 62706
217/782-2113

Or contact a regional office of the Field Operations Section. The regional offices and their areas of responsibility are shown on the map. The addresses and telephone numbers of the regional offices are as follows:

ILLINOIS EPA
REGION 1
BUREAU OF AIR, FOS
9511 WEST HARRISON
DES PLAINES, IL 60016
847-294-4000

Illinois EPA
Region 2
5415 North University
Peoria, Illinois 61614
309/693-5461

Illinois EPA
Region 3
2009 Mall Street
Collinsville, Illinois 62234
618/346-5120



Section 215.583

**Gasoline Dispensing Facilities - Storage Tank
Filling Operations**

- a) Subject to subsection (b) below, no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank at a gasoline dispensing facility unless:
 - 1) The tank is equipped with a submerged loading pipe; and
 - 2) The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:
 - A) A vapor collection system that meets the requirements of subsection (d)(4) below; or
 - B) A refrigeration-condensation system or any other system approved by the Agency that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled; and
 - C) The delivery vessel displays the appropriate sticker pursuant to the requirements of Section 215.584(b) or (d) of this Part.
- b) The requirements of subsection (a)(2) above shall not apply to transfers of gasoline to a stationary storage tank at a gasoline dispensing facility if:
 - 1) The tank is equipped with a floating roof or other system of equal or better emission control as approved by the Agency;
 - 2) The tank has a capacity of less than 2000 gallons and is in place and operating before January 1, 1979;
 - 3) The tank has a capacity of less than 575 gallons; or
 - 4) The tank is not located in any of the following counties: Boone, Cook, DuPage, Kane, Lake, Madison, McHenry, Peoria, Rock Island, St. Clair, Tazewell, Will or Winnebago.
- c) Subject to subsection (b) above, each owner of a gasoline dispensing facility shall:
 - 1) Install all control systems and make all process modifications required by subsection (a) above;

- 2) Provide instructions to the operator of the gasoline dispensing facility describing necessary maintenance operations and procedures for prompt notification of the owner in the case of any malfunction of a vapor control system; and
 - 3) Repair, replace or modify any worn out or malfunctioning component or element of design.
- d) Subject to subsection (b) above, each operator of a gasoline dispensing facility and each delivery vessel operator shall:
- 1) Maintain and operate each vapor control system in accordance with the owner's instructions;
 - 2) Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;
 - 3) Maintain gauges, meters or other specified testing devices in proper working order;
 - 4) Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:
 - A) A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B, and
 - B) Avoidable leaks of liquid during the filling of storage tanks; and
 - 5) Within 15 business days after discovery of the leak by the owner, operator, or the Agency, repair and retest a vapor collection system which exceeds the limits of subsection (d)(4)(A) above.
- e) Gasoline dispensing facilities were required to take certain actions to achieve compliance which are summarized in Appendix C of this Part.

Exelon Generation
Byron Generating Station
4450 North German Church Road
Byron, IL 61010-9794
Tel 815-234-5441

www.exeloncorp.com

September 11, 2007

LTR: BYRON 2007-0102

File: 2.09.0810

1.10.0101

State of Illinois
Environmental Protection Agency
Division of Air Pollution Control
1021 N. Grand Avenue East
P.O. Box 19506
Springfield, IL 62794-9506
Attn: Mr. Ed Bakowski

**Subject: Renewal of Federally Enforceable State Operating Permit
Byron Nuclear Generating Station
Permit I.D. No. 141820AAA**

Dear Mr. Bakowski,

Exelon Generation Company, LLC ("Exelon") is requesting that the Illinois Environmental Protection Agency ("Agency") renew the Federally Enforceable State Operating Permit (FESOP) for the Byron Nuclear Generating Station (Byron Station). To support this request, application form APC 205A is enclosed (Attachment 1) along with evidence of signatory authority (Attachment 2) and supporting emission inventory information (Attachments 3, 4 and 5). In addition, Exelon requests the Agency consider the following comment concerning the existing FESOP.

1. Attachment A of the current permit lists the following under paragraph 7:

Propane-Fired Engine Generators:
Limit on Total Fuel Usage: 3,000 gallons/year

<u>Pollutant</u>	<u>Emissions Rate (Lb/1000 gallons)</u>	<u>Emissions (Tons/year)</u>
NO _x	14	0.02

Exelon suggests this paragraph is removed from Attachment A

September 11, 2007

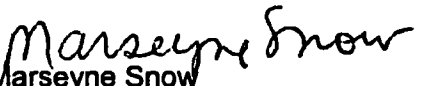
Mr. Ed Bakowski

Page 2

Discussion: The propane-fired generator onsite at Byron Station is not controlled or operated by Byron Station. The propane-fired generator and the associated propane tank are operated and maintained by ComEd and are exempt per 35 IAC 201.146(i). Also, the current Annual Emissions Report forms for Byron Station do not reference the propane-fired generator or the associated propane tank (exempt per 35 IAC 201.146(uu)). Additionally the current permit does not discuss the propane-fired generator or the associated propane tank except in Attachment A.

Thank you for your consideration of this permit renewal and the opportunity to propose changes in the permit. If you have any questions or comments, please call Zoe Cox at (815) 406-3035.

Respectfully,


Marseyne Snow
Byron Nuclear Generating Station
Plant Manager

MS/ZC/sdk

Enclosure

bcc: Z. Cox – Chemistry – Byron
K. Hersey – Environmental - Cantera

Attachment 1

APPLICATION FOR RENEWAL OF A FESOP



STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
1021 NORTH GRAND AVENUE EAST
P. O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

APPLICATION FOR <u>RENEWAL</u> OF A FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)	FOR AGENCY USE ONLY	
	I.D. NO.	_____
	PERMIT NO.	_____
	DATE	_____
OPERATION OF: <u>Byron Generating Station</u> (A)		

1a. NAME OF OWNER: <u>Exelon Generation Co., L.L.C.</u>		2a. NAME OF OPERATOR: <u>Byron Generating Station</u>	
1b. STREET ADDRESS OF OWNER: <u>4300 Winfield Road</u>		2b. STREET ADDRESS OF OPERATOR: <u>4450 N. German Church Road</u>	
1c. CITY OF OWNER: <u>Warrenville</u>		2c. CITY OF OPERATOR: <u>Byron</u>	
1d. STATE OF OWNER: <u>IL</u>	1e. ZIP CODE: <u>60555</u>	2d. STATE OF OPERATOR: <u>IL</u>	2e. ZIP CODE: <u>61010</u>

3a. NAME OF CORPORATE DIVISION OR PLANT: <u>Byron Generating Station</u>		3b. STREET ADDRESS OF EMISSION SOURCE: <u>4450 N. German Church Road</u>		
3c. CITY OF EMISSION SOURCE: <u>Byron</u>	3d. LOCATED WITHIN CITY LIMITS: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	3e. TOWNSHIP: <u>Rockvale</u>	3f. COUNTY: <u>Ogle</u>	3g. ZIP CODE: <u>61010</u>

4. ALL CORRESPONDENCE TO: (TITLE AND/OR NAME OF INDIVIDUAL) <u>Ms. Zoe Cox</u>	5. WHO IS THE PERMIT APPLICANT? <input type="checkbox"/> OWNER <input checked="" type="checkbox"/> OPERATOR
6. ADDRESS FOR CORRESPONDENCE: (CHECK ONLY ONE)	<input type="checkbox"/> OWNER <input checked="" type="checkbox"/> OPERATOR <input type="checkbox"/> EMISSION SOURCE

7. THE UNDERSIGNED HEREBY MAKES APPLICATION FOR A PERMIT AND CERTIFIES THAT THE STATEMENTS CONTAINED HEREIN ARE TRUE AND CORRECT, AND FURTHER CERTIFIES THAT ALL PREVIOUSLY SUBMITTED INFORMATION REFERENCED IN THIS APPLICATION REMAINS TRUE, CORRECT AND CURRENT. BY AFFIXING HIS SIGNATURE HERETO HE FURTHER CERTIFIES THAT HE IS AUTHORIZED TO EXECUTE THIS APPLICATION.

AUTHORIZED SIGNATURE(S): (B)

BY <u>Marseyne Snow</u> <u>7/10/07</u> BY _____	SIGNATURE _____ DATE _____
<u>Marseyne Snow</u>	TYPED OR PRINTED NAME OF SIGNER _____
<u>Plant Manager-Byron Station</u>	TITLE OF SIGNER _____

- (A) THIS FORM IS TO PROVIDE THE ILLINOIS EPA WITH GENERAL INFORMATION ABOUT THE EQUIPMENT TO BE OPERATED.
- (B) THIS APPLICATION MUST BE SIGNED IN ACCORDANCE WITH 35 ILL. ADM. CODE 201.154 OR 201.159 WHICH STATES: "ALL APPLICATIONS AND SUPPLEMENTS THERETO SHALL BE SIGNED BY THE OWNER AND OPERATOR OF THE EMISSION SOURCE OR AIR POLLUTION CONTROL EQUIPMENT, OR THEIR AUTHORIZED AGENT, AND SHALL BE ACCOMPANIED BY EVIDENCE OF AUTHORITY TO SIGN THE APPLICATION."

IF THE OWNER OR OPERATOR IS A CORPORATION, SUCH CORPORATION MUST HAVE ON FILE WITH THE ILLINOIS EPA A CERTIFIED COPY OF A RESOLUTION OF THE CORPORATION'S BOARD OF DIRECTORS AUTHORIZING THE PERSONS SIGNING THIS APPLICATION TO CAUSE OR ALLOW THE CONSTRUCTION OR OPERATION OF THE EQUIPMENT TO BE COVERED BY THE PERMIT.

SITE FEE BILLING INFORMATION		10. CONTACT PERSON FOR APPLICATION: <div style="text-align: right;">Zoe Cox</div>	
9a. COMPANY NAME: <div style="text-align: center;">Byron Generating Station</div>		11. CONTACT PERSON'S TELEPHONE NUMBER: <div style="text-align: right;">(815) 406-3035</div>	
9b. STREET ADDRESS: <div style="text-align: center;">4450 N. German Church Road</div>		12. CONTACT PERSON'S FACSIMILE NUMBER: <div style="text-align: right;">(815) 406-3301</div>	
9c. CITY: <div style="text-align: center;">Byron</div>		13. FEDERAL EMPLOYER IDENTIFICATION NUMBER (FEIN): <div style="text-align: right;">23-3064219</div>	
9d. STATE: <div style="text-align: center;">IL</div>	9f. BILLING CONTACT PERSON: <div style="text-align: center;">Zoe Cox</div>	14. PRIMARY STANDARD INDUSTRIAL CLASSIFICATION (SIC) CATEGORY: <div style="text-align: center;">Electric Power Generation</div>	
9e. ZIP CODE: <div style="text-align: center;">61010</div>	9g. CONTACT TELEPHONE NO.: <div style="text-align: center;">(815) 406-3035</div>	15. PRIMARY SIC NUMBER: <div style="text-align: center;">4911</div>	16. TAXPAYER IDENTIFICATION NUMBER (TIN): <div style="text-align: center;">23-3064219</div>

17a. I. D. NO.: 141820AAA
17b. HAS THE OPERATION AS DESCRIBED IN THE FESOP APPLICATION BEEN MODIFIED* AS DEFINED IN 35 ILL. ADM. CODE 201.102? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF "YES", SUBMIT THE APPLICABLE FORM(S) AND UPDATED FLOW DIAGRAM(S).
17c. DATE THE OPERATION WAS MODIFIED:

* **MODIFICATION:** ANY PHYSICAL CHANGE IN, OR CHANGE IN THE METHOD OF OPERATIONS OF, AN EMISSION SOURCE OR OF AIR POLLUTION CONTROL EQUIPMENT WHICH INCREASES THE AMOUNT OF ANY SPECIFIED AIR CONTAMINANT EMITTED BY SUCH SOURCE OR EQUIPMENT OR WHICH RESULTS IN THE EMISSION OF ANY SPECIFIED AIR CONTAMINANT NOT PREVIOUSLY EMITTED. IT SHALL BE PRESUMED THAT AN INCREASE IN THE USE OF RAW MATERIALS, THE TIME OF OPERATION, OR THE RATE OF PRODUCTION WILL CHANGE THE AMOUNT OF ANY SPECIFIED AIR CONTAMINANT EMITTED. NOT WITHSTANDING ANY OTHER PROVISIONS OF THIS DEFINITION, FOR PURPOSES OF PERMITS ISSUED PURSUANT TO SUBPART D, THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY MAY SPECIFY CONDITIONS UNDER WHICH AN EMISSION SOURCE OR AIR POLLUTION CONTROL EQUIPMENT MAY BE OPERATED WITHOUT CAUSING A MODIFICATION AS HEREIN DEFINED, AND NORMAL CYCLICAL VARIATIONS, BEFORE THE DATE OPERATING PERMITS ARE REQUIRED, SHALL NOT BE CONSIDERED MODIFICATIONS. 35 ILL. ADM. CODE 201.102.

Attachment 2

EVIDENCE OF SIGNATURE AUTHORITY



Nuclear

**EXELON GENERATION COMPANY, LLC
EVIDENCE OF AUTHORITY TO SIGN
ENVIRONMENTAL PERMITS AND OTHER
ENVIRONMENTAL RELATED DOCUMENTS**


The undersigned certifies that he has been appointed an officer of the Exelon Generation Company, LLC and is authorized to act as a corporate representative for the purposes of signing and/or authorizing others to act as corporate representatives for the purpose of signing environmental permit applications, permit required reports, and other representations regarding environmental requirements, including but not limited to those made to Pollution Control Boards, the Illinois Environmental Protection Agency, the Pennsylvania Department of Environmental Protection, the New Jersey Department of Environmental Protection, the United States Corps of Engineers, and the United States Environmental Protection Agency. Based on the authority vested in me as an Exelon Generation Company, LLC Officer, I hereby authorize and appoint the following individuals to act as corporate representative for the purpose of signing environmental permit applications, permit required reports, and other representations regarding environmental requirements, including but not limited to those made to the above listed agencies:

<u>Authorized Individuals</u>	<u>Title</u>
Charles Pardee	Senior Vice President Exelon Generation Company LLC
Thomas Coutu	Site Vice President Braidwood Station
Dave Hoots	Site Vice President Byron Station
Bryan C. Hanson	Site Vice President Clinton Power Station
Danny Bost	Site Vice President Dresden Station
Susan Landahl	Site Vice President LaSalle Station
Timothy Tulon	Site Vice President Quad Cities Station
Ron DeGregorio	Site Vice President Limerick Generating Station
Timothy S. Rausch	Site Vice President Oyster Creek
Joseph Grimes	Site Vice President Peach Bottom APS

Authorized Individuals**Title**

Russell West	Site Vice President Three Mile Island
Dan Enright	Plant Manager LaSalle Station
Christopher Mudrick	Plant Manager Limerick Generating Station
Jim Randich	Plant Manager Oyster Creek
Mike Massaro	Plant Manager Peach Bottom APS
Thomas J. Dougherty	Plant Manager Three Mile Island
Randy Gideon	Plant Manager Quad Cities Station
Gregory Boerschig	Plant Manager Braidwood Station
Marseyne Snow	Plant Manager Byron Station
Russ Kearney	Plant Manager Clinton Power Station
Kent Scott	Manager, Regulatory Assurance Clinton Power Station
Dave Wozniak	Plant Manager Dresden Station
Ronald Schuster	Plant Manager Zion Station
Zigmund Karpa	Director Environmental Exelon Generation Company LLC
Kathleen Namors	Manager, Facilities Exelon Generation Company LLC
Scott Sklenar	Manager, Environmental Exelon Generation Company LLC
Dominic Imburgia	Manager, Environmental Exelon Generation Company LLC

Signed: _____



Thomas S. O'Neill
Vice President Regulatory and Legal Affairs
Exelon Nuclear
Exelon Generation Company, LLC

Date: _____

3/2/07

Attachment 3

EXEMPT AND INSIGNIFICANT EMISSION SOURCES

Attachment 3

Emission Unit	Size	Basis for Insignificance
Unit 1 Auxiliary Diesel Feedwater Pump	1500 hp	35 IAC 201.146(i)
Unit 2 Auxiliary Diesel Feedwater Pump	1500 hp	35 IAC 201.146(i)
Emergency Diesel Fire Pump	500 hp	35 IAC 201.146(i)
SX Cooling Tower Makeup Water Diesel Pump 1	228 hp	35 IAC 201.146(i)
SX Cooling Tower Makeup Water Diesel Pump 2	228 hp	35 IAC 201.146(i)
Security Diesel Generator	460 hp	35 IAC 201.146 (i)
Illinois Department of Nuclear Safety Generator	600 hp	Not controlled by Station
River Screen House Communication Tower Propane Generator	47 hp	35 IAC 201.146(i)
Counterflow Natural Draft Cooling Towers (2 total)	1,400,000 gpm	35 IAC 201.146(vv)(2)
Counterflow Induced Draft Cooling Tower (8 cells)	44,000 gpm	35 IAC 201.146(vv)(2)
Diesel Storage Tank	125,000 gal	35 IAC 201.146(n)
Diesel Storage Tank	50,000 gal	35 IAC 201.146(n)
Diesel Storage Tank 2A	50,000 gal	35 IAC 201.146(n)
Diesel Storage Tank 2B	50,000 gal	35 IAC 201.146(n)
Diesel Storage Tank 1A	25,000 gal	35 IAC 201.146(n)
Diesel Storage Tank 1B	25,000 gal	35 IAC 201.146(n)
Diesel Storage Tank 1C	25,000 gal	35 IAC 201.146(n)
Diesel Storage Tank 1D	25,000 gal	35 IAC 201.146(n)
Diesel Generator Fuel Day Tank 1A	500 gal	35 IAC 201.146(n)
Diesel Generator Fuel Day Tank 1B	500 gal	35 IAC 201.146(n)
Diesel Generator Fuel Day Tank 2A	500 gal	35 IAC 201.146(n)
Diesel Generator Fuel Day Tank 2B	500 gal	35 IAC 201.146(n)
Unit 1 Auxiliary Diesel Feed Pump Day Tank	500 gal	35 IAC 201.146(n)
Unit 2 Auxiliary Diesel Feed Pump Day Tank	500 gal	35 IAC 201.146(n)
Diesel Fire Pump Day Tank	650 gal	35 IAC 201.146(n)
SX Make-up Pump Diesel Storage Day Tank (0A)	2,000 gal	35 IAC 201.146(n)
SX Make-up Pump Diesel Storage Day Tank (0B)	2,000 gal	35 IAC 201.146(n)
Security Diesel Generator Day Tank	500 gal	35 IAC 201.146(n)
Illinois Department of Nuclear Safety Diesel Storage Tank	550 gal	Not controlled by Station
Diesel Storage Tank (AST)	2,000 gal	35 IAC 201.146(n)
River Screen House Communication Tower Propane Tank	1,000 gal	35 IAC 201.146(uu)
Clean Turbine Oil Tank	20,000 gal	35 IAC 201.146(n)(3)
Dirty Turbine Oil Tank	20,000 gal	35 IAC 201.146(n)(3)
Unit 1 Turbine Oil Reservoir	15,000 gal	35 IAC 201.146(n)(3)
Unit 2 Turbine Oil Reservoir	15,000 gal	35 IAC 201.146(n)(3)
Diesel Generator Lube Oil Drain Tank	3,000 gal	35 IAC 201.146(n)(3)
Diesel Generator Lube Oil Drain Tank	3,000 gal	35 IAC 201.146(n)(3)
Auxiliary Building Waste Oil Tank	1,000 gal	35 IAC 201.146(n)(3)
Turbine Building Waste Oil Tank	1,000 gal	35 IAC 201.146(n)(3)
Waste Oil Storage Tank	1,000 gal	35 IAC 201.146(n)(3)
Outdoor oil separator	60,000 gal	35 IAC 201.146(n)(3)
WWTP oil separator	2,000 gal	35 IAC 201.146(n)(3)
Circulating Water Pump House oil separator	500 gal	35 IAC 201.146(n)(3)
River Screen House oil separator	500 gal	35 IAC 201.146(n)(3)
Ambient Temperature Parts Washers (9 total)	5-100 gal	35 IAC 201.146(v)
Miscellaneous Welding	N/A	35 IAC 201.146(y)

Attachment 4

EMISSION CALCULATION METHODS

Attachment 4

Source Type	Emissions Calculations-tons/year (tpy)	Ref
Boilers-Fuel Oil	$CO = \text{gal used/yr} * 0.005 \text{ lb CO/gal} * \text{ton/2000 lb}$ $NO_x = \text{gal used/yr} * 0.02 \text{ lb NO}_x/\text{gal} * \text{ton/2000 lb}$ $PM = \text{gal used/yr} * 0.002 \text{ lb PM/gal} * \text{ton/2000 lb}$ $PM_{10} = \text{gal used/yr} * 0.001 \text{ lb PM}_{10}/\text{gal} * \text{ton/2000 lb}$ $SO_2 = \text{gal used/yr} * (0.142 * \%S) \text{ lb SO}_2/\text{gal} * \text{ton/2000 lb}$ $VOM = \text{gal used/yr} * 0.0002 \text{ lb VOM/gal} * \text{ton/2000 lb}$ $Lead = \text{gal used} * \text{mmBtu/gal} * 0.000009 \text{ lb Lead/mmBtu} * \text{ton/2000 lb}$	1
Stationary Diesel Engines >600 hp	$CO = \text{gal used/yr} * \text{mmBtu/gal} * 0.85 \text{ lb CO/mmBtu} * \text{ton/2000 lb}$ $NO_x = \text{gal used/yr} * \text{mmBtu/gal} * 3.2 \text{ lb NO}_x/\text{mmBtu} * \text{ton/2000 lb}$ $PM = \text{gal used/yr} * \text{mmBtu/gal} * 0.0697 \text{ lb PM/mmBtu} * \text{ton/2000 lb}$ $PM_{10} = \text{gal used/yr} * \text{mmBtu/gal} * 0.0573 \text{ lb PM}_{10}/\text{mmBtu} * \text{ton/2000 lb}$ $SO_2 = \text{gal used/yr} * \text{mmBtu/gal} * (1.01 * \%S) \text{ lb SO}_2/\text{mmBtu} * \text{ton/2000 lb}$ $VOM = \text{gal used/yr} * \text{mmBtu/gal} * 0.09 \text{ lb VOM/mmBtu} * \text{ton/2000 lb}$	2
Dry Active Waste Processor & Rad Waste Liquor Volume Reduction System	$CO = \text{waste processed lb/yr} * 0.00449 \text{ lb CO/lb waste} * \text{ton/2000 lb}$ $NO_x = \text{waste processed lb/yr} * 0.00419 \text{ lb NO}_x/\text{lb waste} * \text{ton/2000 lb}$ $PM = \text{waste processed lb/yr} * 0.00000068 \text{ lb PM/hr} * \text{ton/2000 lb}$ $PM_{10} = \text{waste processed lb/yr} * 0.00000068 \text{ lb PM}_{10}/\text{hr} * \text{ton/2000 lb}$ $SO_2 = \text{waste processed lb/yr} * 0.00000390 \text{ lb SO}_2/\text{lb waste} * \text{ton/2000 lb}$ $VOM = \text{waste processed lb/yr} * 0.00487 \text{ lb VOM/lb waste} * \text{ton/2000 lb}$	3
Stationary Diesel Engines ≤600 hp	$CO = \text{gal used/yr} * \text{mmBtu/gal} * 0.95 \text{ lb CO/mmBtu} * \text{ton/2000 lb}$ $NO_x = \text{gal used/yr} * \text{mmBtu/gal} * 4.41 \text{ lb NO}_x/\text{mmBtu} * \text{ton/2000 lb}$ $PM = \text{gal used/yr} * \text{mmBtu/gal} * 0.31 \text{ lb PM/mmBtu} * \text{ton/2000 lb}$ $PM_{10} = \text{gal used/yr} * \text{mmBtu/gal} * 0.31 \text{ lb PM}_{10}/\text{mmBtu} * \text{ton/2000 lb}$ $SO_2 = \text{gal used/yr} * \text{mmBtu/gal} * 0.29 \text{ lb SO}_2/\text{mmBtu} * \text{ton/2000 lb}$ $VOM = \text{gal used/yr} * \text{mmBtu/gal} * 0.36 \text{ lb VOM/mmBtu} * \text{ton/2000 lb}$	4
Propane Generators <10 mmBtu/hr	$CO = \text{gal used/yr} * 0.0019 \text{ lb CO/gal} * \text{ton/2000 lb}$ $NO_x = \text{gal used/yr} * 0.014 \text{ lb NO}_x/\text{gal} * \text{ton/2000 lb}$ $PM = \text{gal used/yr} * 0.0004 \text{ lb PM/gal} * \text{ton/2000 lb}$ $PM_{10} = \text{gal used/yr} * 0.0004 \text{ lb PM}_{10}/\text{gal} * \text{ton/2000 lb}$ $SO_2 = \text{gal used/yr} * (0.0001 * \%S) \text{ lb SO}_2/\text{gal} * \text{ton/2000 lb}$ $VOM = \text{gal used/yr} * 0.0003 \text{ lb VOM/gal} * \text{ton/2000 lb}$	5
Natural Draft Cooling Towers	$PM_{10} = 0.000073 \text{ lb PM}_{10}/\text{gal water} * \text{TDS ppm/1,000,000} * \text{gal/yr} * \text{ton/2000 lb}$ OR $PM_{10} = \text{gal water/yr} * DF * \text{TDS mg/L} * 0.2642 \text{ L/gal} * 0.000002204 \text{ lb/mg} * \text{ton/2000 lb}$	6
Induced Draft Cooling Towers	$PM_{10} = 0.0017 \text{ lb PM}_{10}/\text{gal water} * \text{TDS ppm/1,000,000} * \text{gal/yr} * \text{ton/2000 lb}$ OR $PM_{10} = \text{gal water/yr} * DF * \text{TDS mg/L} * 0.2642 \text{ L/gal} * 0.000002204 \text{ lb/mg} * \text{ton/2000 lb}$	6
Diesel Storage Tanks	$VOM = \text{gal throughput/yr} * 1/100,000,000 * CF1$	7
Gasoline Storage Tanks	$VOM = \text{gal throughput/yr} * 1/350,750 * CF1$	7
Gasoline Dispensing Facilities	$VOM = \text{gal throughput/yr} * 0.0117 * CF2 * \text{ton/2000 lb}$	7
Turbine Oil Storage Tanks	$VOM = \text{gal throughput/yr} * 1/100,000,000 * CF1$	7
Turbine Oil Reservoirs	$VOM = \text{gal throughput/yr} * 1/100,000,000 * CF1$	7
Lube Oil Tanks	$VOM = \text{gal throughput/yr} * 1/100,000,000 * CF1$	7
Waste Oil Tanks/Oil Separators	$VOM = \text{gal throughput/yr} * 1/100,000,000 * CF1$	7
Diesel Unloading Area	$VOM = \text{gal throughput/yr} * 0.01246 * S * 0.009 * 130/530 * \text{ton/2000 lb}$	8
Turbine Oil Unloading Area	$VOM = \text{gal throughput/yr} * 0.01246 * S * 0.009 * 130/530 * \text{ton/2000 lb}$	8
Gasoline Unloading Area	$VOM = \text{gal throughput/yr} * 0.01246 * S * 6.2 * 66/530 * \text{ton/2000 lb}$	8
Parts Washers	$VOM = 0.33 * \text{number of units} * 0.445$ OR $VOM = (\text{gallons added-gallons removed}) * 8.34 * SG * \text{ton/2000 lb}$	9
Sandblasting	$PM = \text{lb abrasive used} * 0.00069 \text{ lb PM/lb abrasive} * \text{ton/2000 lb}$ $PM_{10} = \text{lb abrasive used} * 0.00069 \text{ lb PM}_{10}/\text{lb abrasive} * \text{ton/2000 lb}$	10
Welding	$PM = \text{lb electrode used} * 0.0448 \text{ lb PM/lb electrode} * \text{ton/2000 lb}$ $PM_{10} = \text{lb electrode used} * 0.0448 \text{ lb PM}_{10}/\text{lb electrode} * \text{ton/2000 lb}$ $Lead = \text{lb electrode used} * 0.000081 \text{ lb Lead/lb electrode} * \text{ton/2000 lb}$	11

References:

1 = USEPA AP-42 Tables 1.3-1, 1.3-3 and 1.3-7

2 = USEPA AP-42 Tables 3.4-1 and 3.4-2

3 = Manufacturer and Commonwealth Edison Test Data in 1982 Permit Application

4 = USEPA AP-42 Table 3.3-1

5 = USEPA AP-42 Table 1.5-1

6 = USEPA AP-42 Table 13.4-1 or Manufacturers Equation where DF=drift factor expressed numerically (not percent)

7 = USEPA AP-42 Table 5.2-7 and IEPA 2000 Annual Emission Report Instructions Appendix G Storage Tanks

CF1 = 1.00 no controls

CF1 = 0.20 for any one (1) of underground, submerged loading and vapor recovery

CF1 = 0.15 for any two (2) of underground, submerged loading and vapor recovery

CF1 = 0.10 if underground, submerged loading and vapor recovery

CF2 = 1 for no Stage II vapor control

CF2 = 0.154 for Stage II vapor control

8 = USEPA AP-42 Section 5.2 Equation 1, Table 5.2-1 and Table 7.1-2

S = 0.60 for submerged loading

S = 1.45 for splash loading

S = 1.00 for Stage I vapor balance system

9 = USEPA AP-42 Tables 4.6-2 and 4.6-3, control efficiency is midpoint of range given for Cold Cleaner Type A

SG = specific gravity of solvent

10 = USEPA AP-42 Table 13.2.6-1

11 = USEPA AP-42 Tables 12.19-1 and 12.19-2 (midpoint of SMAW ranges)

Attachment 5

EMISSION INVENTORY

Attachment 5

Byron Station Emission Sources (bold type designates sources not in FESOP)	Capacity	Potential Annual Use*	Potential Emissions (tons per year)							Actual Annual Use *	Actual Emissions (tons per year)**						
			CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead		CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead
Large Combustion Sources		Fuel (gal)								Fuel (gal)							
Unit 1 Auxiliary Boiler	93 mmBtu/hr	5819143	14.55	58.19	5.82	2.91	115.68	0.58	0.00	50000	0.13	0.50	0.05	0.03	0.99	0.01	0.00
Unit 2 Auxiliary Boiler	93 mmBtu/hr	5819143	14.55	58.19	5.82	2.91	115.68	0.58	0.00	50000	0.13	0.50	0.05	0.03	0.99	0.01	0.00
Diesel Generator 1A	22861 hp	3640484	216.61	815.47	17.76	14.60	72.07	22.94	0.00	86000	5.12	19.26	0.42	0.34	1.70	0.54	0.00
Diesel Generator 1B	22861 hp	3640484	216.61	815.47	17.76	14.60	72.07	22.94	0.00	86000	5.12	19.26	0.42	0.34	1.70	0.54	0.00
Diesel Generator 2A	22861 hp	3640484	216.61	815.47	17.76	14.60	72.07	22.94	0.00	86000	5.12	19.26	0.42	0.34	1.70	0.54	0.00
Diesel Generator 2B	22861 hp	3640484	216.61	815.47	17.76	14.60	72.07	22.94	0.00	86000	5.12	19.26	0.42	0.34	1.70	0.54	0.00
Rad Waste Volume Reduction System	1.4 mmBtu/hr		0.75	0.10	0.00	0.00	0.16	0.25			0.75	0.10	0.00	0.00	0.16	0.25	
Other Combustion Sources		Fuel (gal)								Fuel (gal)							
Unit 1 Auxiliary Diesel Feedwater Pump	1500 hp	238866	14.21	53.51	1.17	0.96	4.73	1.50	0.00	10000	0.60	2.24	0.05	0.04	0.20	0.06	0.00
Unit 2 Auxiliary Diesel Feedwater Pump	1500 hp	238866	14.21	53.51	1.17	0.96	4.73	1.50	0.00	10000	0.60	2.24	0.05	0.04	0.20	0.06	0.00
Emergency Diesel Fire Pump	500 hp	79622	5.29	24.58	1.73	1.73	1.62	2.01	0.00	10000	0.67	3.09	0.22	0.22	0.20	0.25	0.00
SX Cooling Tower Makeup Water Diesel Pump 1	228 hp	36308	2.41	11.21	0.79	0.79	0.74	0.91	0.00	10000	0.67	3.09	0.22	0.22	0.20	0.25	0.00

Attachment 5

Byron Station Emission Sources (bold type designates sources not in FESOP)	Capacity	Potential Annual Use*	Potential Emissions (tons per year)							Actual Annual Use *	Actual Emissions (tons per year)**						
			CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead		CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead
Other Combustion Sources (con't)		Fuel (gal)								Fuel (gal)							
SX Cooling Tower Makeup Water Diesel Pump 2	228 hp	36308	2.41	11.21	0.79	0.79	0.74	0.91	0.00	10000	0.67	3.09	0.22	0.22	0.20	0.25	0.00
Security Diesel Generator	460 hp	73252	4.87	22.61	1.59	1.59	1.49	1.85	0.00	10000	0.67	3.09	0.22	0.22	0.20	0.25	0.00
Illinois Dept of Nuclear Safety Diesel Generator	600 hp	***								***							
RSH Communication Tower Propane Generator	47 hp	11578	0.01	0.08	0.00	0.00	0.00	0.00		3000	0.00	0.02	0.00	0.00	0.00	0.00	
Cooling Towers		Water (gal)								Water (gal)							
2 Natural Draft Counterflow Cooling Towers	1E+06 gpm	1400000			36.62	36.62				1400000			36.62	36.62			
8 Induced Draft Counterflow Cooling Tower Cells	44000 gpm	44000			2.30	2.30				44000			2.30	2.30			
Fuel Storage Tanks		Fuel (gal)								Fuel (gal)							
Diesel Tank	125000 gallons	26751205						0.27		474000						0.00	
Diesel Tank	50000 gallons	26751205						0.27		474000						0.00	
Diesel Tank 2A	50000 gallons	3640484						0.04		86000						0.00	

Attachment 5

Byron Station Emission Sources (bold type designates sources not in FESOP)	Capacity	Potential Annual Use*	Potential Emissions (tons per year)							Actual Annual Use *	Actual Emissions (tons per year)**						
			CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead		CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead
Fuel Storage Tanks (con't)		Fuel (gal)								Fuel (gal)							
Diesel Tank 2B	50000 gallons	3640484						0.04		86000						0.00	
Diesel Tank 1A	25000 gallons	1820242						0.02		43000						0.00	
Diesel Tank 1B	25000 gallons	1820242						0.02		43000						0.00	
Diesel Tank 1C	25000 gallons	1820242						0.02		43000						0.00	
Diesel Tank 1D	25000 gallons	1820242						0.02		43000						0.00	
Diesel Generator fuel oil day tank 1A	500 gallons	3640484						0.04		86000						0.00	
Diesel Generator fuel oil day tank 1B	500 gallons	3640484						0.04		86000						0.00	
Diesel Generator fuel oil day tank 2A	500 gallons	3640484						0.04		86000						0.00	
Diesel Generator fuel oil day tank 2B	500 gallons	3640484						0.04		86000						0.00	
Unit 1 auxiliary feed pump diesel fuel oil day tank	500 gallons	238866						0.00		10000						0.00	
Unit 2 auxiliary feed pump diesel fuel oil day tank	500 gallons	238866						0.00		10000						0.00	
Diesel fire pump fuel oil day tank	650 gallons	79622						0.00		10000						0.00	

Attachment 5

Byron Station Emission Sources (bold type designates sources not in FESOP)	Capacity	Potential Annual Use*	Potential Emissions (tons per year)							Actual Annual Use *	Actual Emissions (tons per year)**						
			CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead		CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead
Fuel Storage Tanks (con't)		Fuel (gal)								Fuel (gal)							
SX make-up pump diesel oil storage day tank (0A)	2000 gallons	36308						0.00		10000						0.00	
SX make-up pump diesel oil storage day tank (0B)	2000 gallons	36308						0.00		10000						0.00	
Security Diesel Generator fuel oil day tank	500 gallons	73252						0.00		10000						0.00	
Illinois Dept of Nuclear Safety Diesel UST	550 gallons	***								***							
Diesel AST	2000 gallons	50000						0.00		50000						0.00	
Gasoline AST and dispensing facility	2500 gallons	17500						0.15		17500						0.15	
RSH Communication Tower propane tank	1000 gallons	11578						0.03		3000						0.01	
Other Storage Tanks		Organics (gal)								Organics (gal)							
Clean Turbine Oil Tank	20000 gallons	80000						0.00		80000						0.00	
Dirty Turbine Oil Tank	20000 gallons	80000						0.00		80000						0.00	
Unit 1 Turbine Oil Reservoir	15000 gallons	60000						0.00		60000						0.00	
Unit 2 Turbine Oil Reservoir	15000 gallons	60000						0.00		60000						0.00	

Attachment 5

Byron Station Emission Sources (bold type designates sources not in FESOP)	Capacity	Potential Annual Use*	Potential Emissions (tons per year)							Actual Annual Use *	Actual Emissions (tons per year)**						
			CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead		CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead
<i>Other Storage Tanks (con't)</i>		Organics (gal)								Organics (gal)							
Diesel Generator Lube Oil drain tank	3000 gallons	3000						0.00		3000						0.00	
Diesel Generator Lube Oil drain tank	3000 gallons	3000						0.00		3000						0.00	
Auxiliary Building Waste Oil tank	1000 gallons	1000						0.00		1000						0.00	
Turbine Building Waste Oil tank	1000 gallons	1000						0.00		1000						0.00	
Waste Oil storage tank	1000 gallons	1000						0.00		1000						0.00	
Outdoor oil separator	60000 gallons	120000						0.00		120000						0.00	
WWTP oil separator	2000 gallons	4000						0.00		4000						0.00	
CWPH oil separator	500 gallons	1000						0.00		1000						0.00	
RSH oil separator	500 gallons	1000						0.00		1000						0.00	

Attachment 5

Byron Station Emission Sources (bold type designates sources not in FESOP)	Capacity	Potential Annual Use*	Potential Emissions (tons per year)							Actual Annual Use *	Actual Emissions (tons per year)**						
			CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead		CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead
<i>Parts Washers</i>		Solvent (gal)								Solvent (gal)							
Vehicle Maintenance Building (BY- BM-16-1)	20 gallons							0.15								0.15	
Vehicle Maintenance Building (BY- BM-16-2)	20 gallons							0.15								0.15	
EM Shop (BY- EM-25-1)	30 gallons							0.15								0.15	
Vehicle Maintenance Building (BY- MM-50-1)	60 gallons							0.15								0.15	
Auxiliary Building (CM- 05)	5 gallons							0.15								0.15	
Mower Shop (BY-FH-25-1)	30 gallons							0.15								0.15	
Auxiliary Building (CM- 30)	30 gallons							0.15								0.15	
MM Shop (BY- MM-50-2)	30 gallons							0.15								0.15	
MM Shop	100 gallons							0.15								0.15	

Attachment 5

Byron Station Emission Sources (bold type designates sources not in FESOP)	Capacity	Potential Annual Use*	Potential Emissions (tons per year)							Actual Annual Use *	Actual Emissions (tons per year)**						
			CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead		CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead
Sandblasting		Abrasive (lb)								Abrasive (lb)							
MM Shop Pro-Blast PB-484S sandblaster	900 cfm	5000			0.00	0.00				500			0.00	0.00			
Torit DFT2-16 (99.999% filtration efficiency @ 0.5 um)	6700 cfm	10000			0.00	0.00				1000			0.00	0.00			
Torit VS 3000 (99.9% filtration efficiency @ 1um)	2500 cfm	10000			0.00	0.00				1000			0.00	0.00			
Empire PRS-6S (99% filtration efficiency @ 1 um)	800 cfm	5000			0.00	0.00				500			0.00	0.00			
Econline MINI	1.3 hp	1000			0.00	0.00				100			0.00	0.00			
Welding		Electrodes (lb)								Electrodes (lb)							
Miscellaneous welding		3000			0.0672	0.07			0.00	3000			0.07	0.07			0.00

Attachment 5

Byron Station Emission Sources (bold type designates sources not in FESOP)	Capacity	Potential Annual Use*	Potential Emissions (tons per year)							Actual Annual Use *	Actual Emissions (tons per year)**						
			CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead		CO	NOx	PM	PM ₁₀	SO ₂	VOM	Lead
<i>Other Sources</i>		Fuel (gal)								Fuel (gal)							
Fuel Truck Unloading Area (1C)		26751205								504000							
Fuel Truck Unloading Area (1D)		280000								280000							
Fuel Truck Loading area for SX pumps		72615								20000							
Fuel Truck Unloading area for fire pumps		79622								79622							
Total			939.71	3555.06	128.91	110.03	533.83	104.74	0.02	Total	25.32	95.00	41.73	41.36	10.17	5.09	0.00

Attachment 5

*** Potential and Actual Use based on 140,000 Btu/gallon of Distillate Oil (Diesel) and 90,500 Btu/gal of propane.**

**** Actual Use and Emissions are configured in the Table for demonstration purposes only.**

For example, large Diesel Generator use is capped at 344,000 gallons that may be distributed in various ways across the four units.

Likewise, storage tank throughputs represent only one of many possible configurations.

However, total fuel consumed in combustion units and total fuel throughput in storage tanks will not exceed the values presented as a whole.

***** Sources controlled by governmental units are not considered in Station inventory per instruction of Chris Romaine, Illinois EPA on Feb 22, 2001.**

Exelon Generation
Byron Generating Station
4450 North German Church Road
Byron, IL 61010-9794
Tel 815-234-5441

www.exeloncorp.com

December 10, 2007

LTR: BYRON 2007-0139

File: 2.09.0810

1.10.0101

Mr. Bruce Beasley
Illinois Environmental Protection Agency
Division of Air Pollution Control Permit Section
1021 North Grand Avenue East
P.O. Box 19506
Springfield, Illinois 62794-9506

Subject: FESOP Renewal Application Byron Nuclear Power Station
Exelon Generation Company, LLC
Application No: 78090018 I.D. No. 141820AAA

Dear Mr. Beasley:

On September 11, 2007, an application for renewal of the subject permit was submitted to the Agency.

The emission sources identified in the permit are primarily for the purpose of providing alternate electrical supplies (diesel generators) and alternate steam sources (auxiliary boilers). During normal operating conditions, the diesel generators and auxiliary boilers are not required to operate. To conform to the facility's operating license issued by the Nuclear Regulatory Commission (NRC), large diesel engines and auxiliary boilers are operated at a prescribed frequency to demonstrate and assure operational readiness. Although the FESOP conditions accommodate a reasonable amount of distillate fuel oil consumption to allow for readiness testing and equipment maintenance, the conditions do not accommodate the range of operational dynamics that may occur.

In October 2007 a water leak occurred in the essential cooling water system that resulted in the need to operate the auxiliary boilers to provide a steam supply to the plant while repairs were undertaken. Due to the time required to affect the necessary repairs, the monthly and annual auxiliary boiler distillate fuel oil consumption was greater than 34,000 gallons and 100,000 gallons, respectively (resulting additional emissions were minimal).

Notwithstanding unforeseen circumstances, the resulting facility wide maximum annual emissions will still not challenge the 100-ton NO_x limit (most restrictive permit parameter) applicable to a FESOP.

To better address the operational flexibility of the auxiliary boilers in the future, it is proposed to increase the auxiliary boiler distillate fuel oil use. In order to maintain the current permitted facility emissions, a reduction in the permitted distillate fuel oil use by the large diesel engines is proposed.

The following table summarizes the proposed permit limitation changes.

CURRENT Auxiliary Boiler Permit Limits			PROPOSED Auxiliary Boiler Permit Limits		
Permitted Fuel Use			Proposed Fuel Use		
100,000	Gallons/yr		210,000	Gallons/yr	
34,000	Gallons/month		no monthly limit	Gallons/month	
Permitted Emissions			Proposed Emissions		
Pollutant	Emission Rate (Lb/1,000 Gal)	Emissions (Tons/yr)	Pollutant	Emission Rate (Lb/1,000 Gal)	Emissions (Tons/yr)
NOx	20	1.00	NOx	20	2.10
CO	5	0.26	CO	5	0.53
SO2	39.78	1.98	SO2*	7.1	0.75
VOM	0.2	0.01	VOM	0.2	0.02
PM	2	0.10	PM	2	0.21
			*Byron Station uses Low and Ultra Low Sulfur Fuels		
CURRENT Large Diesel Permit Limits			PROPOSED Large Diesel Permit Limits		
Permitted Fuel Use			Proposed Fuel Use		
364,000	Gallons/yr		340,000	Gallons/yr.	
72,800	Gallons/month		no monthly limit	Gallons/month	
Permitted Emissions			Proposed Emissions		
Pollutant	Emission Rate (lb/mmBTU)	Emissions (Tons/year)	Pollutant	Emission Rate (lb/mmBTU)	Emissions (Tons/year)
NOx	3.2	81.52	NOx	3.2	76.16
CO	0.85	21.68	CO	0.85	20.23
SO2	0.2828	7.20	SO2*	0.0505	1.20
VOM	0.09	2.28	VOM	0.09	2.14
PM	0.0697	1.78	PM	0.0697	1.66
			*Byron Station uses Low and Ultra Low Sulfur Fuels		

Recognizing that the large diesel engines and auxiliary boilers are intended solely to provide back-up electrical and steam sources to the Station, historical distillate fuel oil use has been limited. For the period 2002 through 2006, the annual average distillate fuel oil consumption by the large diesel engines has been 106,000 gallons. For the same period the annual average auxiliary boiler distillate fuel oil consumption was 32,200 gallons.

Byron Station intends to maintain and operate the auxiliary boilers and large diesel engines as in the past, which has resulted in minimal air emissions from the facility.

Byron Station requests that:

1. Distillate fuel oil use by the auxiliary boilers to be increased to 210,000 gallons per year.
2. Eliminate the monthly distillate fuel oil consumption limitations.

On September 11, 2007, Exelon Generation Company applied for renewal of the Byron Nuclear Station's FESOP permit, which expires December 13, 2007. In order to accommodate the foregoing, it is requested that a renewed permit be issued as soon as practicable. However, at your request, Exelon Generation Company, LLC hereby waives the statutory 180 day final decision deadline date for the above referenced Operating Permit application renewal and agrees to a new due date of June 13, 2008.

We would appreciate the Agency's timely consideration of our request. If additional information or a meeting is required, please contact Zoe Cox at (815) 406-3035.

Respectfully,



Marseyne Snow
Byron Nuclear Generating Station
Plant Manager

MS/KH/ZC/sdk

cc: Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University St.
Peoria, IL 61614

bcc: Z. Cox-Environmental Specialist-Byron
K. Hersey-Senior Environmental Specialist-Cantera

Exelon Generation
Byron Generating Station
4450 North German Church Road
Byron, IL 61010-9794
Tel 815-234-5441

www.exeloncorp.com

June 11, 2008

LTR: BYRON 2008-0060

File: 2.09.0810

1.10.0101

Mr. Bruce Beasly
Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section
1021 North Grand Avenue East
P.O. Box 19506
Springfield, Illinois 62794-9506

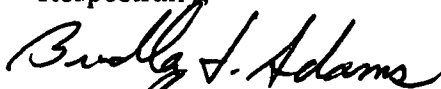
Subject: FESOP Renewal Application
Byron Nuclear Power Station
Exelon Generation Company, LLC
Application No: 78090018
I.D. No. 141820AAA

Dear Mr. Beasly:

On June 10, 2008 the Agency requested via voice mail an extension to the deadline to renew Byron Station's FESOP. Per your request, Exelon Generation Company, LLC hereby waives the statutory 180 day final decision deadline date for the above referenced Operating Permit application renewal and agrees to a new due date of September 19, 2008. In doing so we request the permit changes, submitted to the Agency in December 2007 under Byron Letter 2007-0139, are considered for inclusion in the renewal of the FESOP.

We would appreciate the Agency's timely consideration of our request. If additional information or a meeting is required, please contact Zoe Cox at (815) 406-3035.

Respectfully,



Bradley J. Adams
Byron Nuclear Generating Station
Plant Manager

CC: Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University St.
Peoria, IL 61614

**Bcc: Z. Cox-Environmental Specialist-Byron
K. Hersey-Senior Environmental Specialist-Cantera**

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-2 **Category:** Meteorology, Air Quality and Noise

Statement of Question:

Provide copies of Byron's annual air emission reports for the most recent five years.

Response:

The requested information is attached.

List Attachments Provided:

1. 2012 Annual Emission Report for Byron Generating Station
2. 2011 Annual Emission Report for Byron Generating Station
3. 2010 Annual Emission Report for Byron Generating Station
4. 2009 Annual Emission Report for Byron Generating Station
5. 2008 Annual Emission Report for Byron Generating Station

Exelon Generation Company, LLC
Byron Station
4450 North German Church Road
Byron, IL 61010-9794

www.exeloncorp.com

Nuclear

February 21, 2013

LTR: BYRON 2013-0014
File: 2.09.0810
1.10.0101

Illinois Environmental Protection Agency
Bureau of Air
Air Quality Planning Section (#39)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
Attn: Annual Emission Report

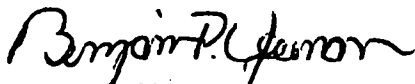
Subject: 2012 Annual Emission Report

In accordance with the requirements of 35 Illinois Administrative Code Part 254, "Environmental Protection – Annual Emissions Reporting Rule," Exelon Generation Company hereby submits the 2012 Annual Emissions Report for Byron Station, ID No. 141820AAA. Included in the Annual Emissions Report are the following:

1. Annual Source Emission Summary
2. Annual Source Emissions Forms

If you have any questions regarding this matter, please contact Ms. Zoe Cox, Environmental/Radwaste Supervisor, at (815) 406-3035.

Respectfully,



Benjamin P. Youman
Plant Manager
Byron Nuclear Generating Station

BPY/JG/eh

Attachment

bcc: K. Hersey – Environmental – Cantera (electronic)
J. Golich – Environmental – Byron Station

[illegible]

141820AAA - Exelon Generation Co LLC

- SOURCE DATA -

SOURCE
IDS AND
LOCATION

AIRS: 17-141-0069	IEPA USE ONLY	SIC 1: 4911	NAICS 1: 221113
FINDS: ILD984889907	IEPA USE ONLY	SIC 2:	NAICS 2:
FEIN: 360938600		SIC 3:	NAICS 3:
D&B: 000-692-9509		SIC 4:	NAICS 4:
LATITUDE: 42:04:27.0372		SIC 5:	NAICS 5:
LONGITUDE: 89:16:58.4616		SIC 6:	NAICS 6:

SOURCE
ADDRESS

Exelon Generation Co LLC	CONTACT: Zoe Cox Jeff Golich	EXT:
4450 N German Church Rd	PHONE: 815-406-3035 3206	
Byron, IL 61010	FAX: 815-406-3301	
	E-MAIL:	

ANNUAL
EMISSION
REPORT
MAILING
ADDRESS

Exelon - Byron Generating Station	CONTACT: Zoe Cox Jeff Golich	EXT:
4450 N German Church Rd	PHONE: 815-406-3035 3206	
Byron, IL 61010	FAX: 815-406-3301	
	E-MAIL:	

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.


AUTHORIZED SIGNATURE

2/21/13
DATE

Byron Plattner
TYPED OR PRINTED NAME AND TITLE

815-406-3700
TELEPHONE NUMBER

The Illinois EPA is authorized to require, and you must disclose, the information on this form pursuant to 35 Ill. Adm. Code 201.302(a, b) and 254. It is not necessary to use this form in providing the information. Failure to disclose the information may result in penalties as provided for in the Environmental Protection Act, 415 ILCS 5/24-45.

141820AAA - Exelon Generation Co LLC

- ANNUAL SOURCE EMISSIONS -

POLLUTANT CODE	SOURCES REPORTED EMISSIONS FOR 2012 (TONS/YEAR)	ALLOWABLE EMISSIONS (TONS/YEAR)	EMISSIONS REPORTED FOR 2011 (TONS/YEAR)	IEPA 2012 ESTIMATED EMISSIONS (TONS/YEAR)
CO	7.51	25.362960	5.650000	6.058557
CO2	1501.63	39,591.686400	1,100.900000	2,963.898270
METHANE	0.0	0.436800	0.000000	0.022680
N2O	0.0	0.131040	0.000000	0.006804
NH3	.05	1.438080	0.040000	0.113630
NOX	28.29	94.975356	21.300000	22.784417
PART	23.24	41.662992	21.210000	39.403404
PM10	23.13	41.058192	21.130000	39.382812
PM2.5	23.12	25.479384	21.130000	23.907786
SO2	.02	10.126704	0.020000	2.109257
VOM	.90	5.035766	0.670000	2.507895

141820AAA - Exelon Generation Co LLC

- PERMIT LISTING -

PERMIT NUMBER	TYPE OF PERMIT	OPERATION NAME	STATUS	STATUS DATE	EXPIRES
78090018	FESOP	BYRON GENERATING STATION	GRANTED	12-13-2002	12-13-2007

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 20100102

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 29.12 % 35.56 MAR - MAY: 21.28 % 36.03
JUN - AUG: 29.05 % 12.64 SEP - NOV: 20.55 % 21.77

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

FUEL TYPE: 21 DISTILLATE OIL #2 _____
INPUT (MMBTU/HR): 232.8 _____

HEAT CONTENT: 139000 Btu/gal 137,357
SULFUR CONTENT (%): 0.05 .001
ASH CONTENT (%): _____
NITROGEN CONTENT (%): _____

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	6.0	<u>8.6</u>	HOURS/DAY:	_____	_____
DAYS/WEEK:	1.0	<u>1.0</u>	DAYS/WEEK:	_____	_____
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:	_____	_____
HOURS/YEAR:	308	<u>447.5</u>	HOURS/SEASON:	_____	_____
			START TIME:	_____	_____
			END TIME:	_____	_____
RATE/HR:	0.3120	<u>.286</u>	RATE/HR:	_____	_____

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20100102

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED
CO	3	3	22600	.85	32.26	36.49
CO2	3	3		165	6102	7083.9
NH3	3	3		.8	.258	.038
NOX	3	3		3.2	121.3	137.38
PART	3	3		.0697	2.65	2.99
PM10	3	3		.0573	2.54	2.46
PM2.5	3	3		.0573	2.39	2.46
SO2	3	3		.002	10.71	.09
VOM	3	3		.09	2.65	3.86

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED
NOX	3		3.2		130.29	
VOM	3		.09		3.66	

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK	0001	CAPTURE EFFICIENCY:	16.70	%
STACK	0002	CAPTURE EFFICIENCY:	16.70	%
STACK	0003	CAPTURE EFFICIENCY:	16.70	%

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 20100102

MODE 01 -

CAPTURING STACKS:

STACK	0004	CAPTURE EFFICIENCY:	16.70	% _____
STACK	0023	CAPTURE EFFICIENCY:	16.60	% _____
STACK	0024	CAPTURE EFFICIENCY:	16.60	% _____

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 10100501

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 31.50 % 94.0 MAR - MAY: 34.80 % 2.4
JUN - AUG: 33.70 % 0.0 SEP - NOV: 0.00 % 3.6

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

FUEL TYPE: 21 DISTILLATE OIL #2
INPUT (MMBTU/HR): 93

HEAT CONTENT: 139000 Btu/gal 137,357
SULFUR CONTENT (%): 0.05 ,001
ASH CONTENT (%):
NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	2.0	<u>4.5</u>	HOURS/DAY:		
DAYS/WEEK:	1.0	<u>1</u>	DAYS/WEEK:		
WEEKS/YEAR:	4	<u>4</u>	WEEKS/SEASON:		
HOURS/YEAR:	8	<u>18.3</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0620	<u>230</u>	RATE/HR:		

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 10100501

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
CO	3 3	5	.06 .3
CO2	3 3	22300 22300	1376.5 5098.536
METHANE	3 3	.28 .052	.1 .003
N2O	3 3	.11 .11	.03 .007
NH3	3 3	.8 .8	.288 .048
NOX	3 3	20 20	.23 1.2
PART	3 3	2 2	.023 .12
PM10	3 3	1 1	.023 .06
PM2.5	3 3	.25 .25	.0155 .015
SO2	3 3	.28 .14	.453 .017
VOM	3 3	.252 .252	.0023 .015

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
NOX	3	20	1.194
VOM	3	.252	.015

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0005 CAPTURE EFFICIENCY: 50.00 %

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____

SCC: 10100501

CEASED OPERATION: / _____

MODE 01 -

CAPTURING STACKS:

STACK 0006 CAPTURE EFFICIENCY: 50.00 % _____

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20200101

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 23.90 % 22.41 MAR - MAY: 10.51 % 25.15
JUN - AUG: 26.05 % 36.21 SEP - NOV: 39.54 % 16.23

BEGAN OPERATION: /

CEASED OPERATION: /

FUEL TYPE: 21 DISTILLATE OIL #2

HEAT CONTENT: 139000 Btu/gal

INPUT (MMBTU/HR): 4.1

SULFUR CONTENT (%): 0.05

ASH CONTENT (%):

NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	0.8	<u>0.8</u>	HOURS/DAY:		
DAYS/WEEK:	1.0	<u>1.6</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	39	<u>39.6</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0141	<u>0.013</u>	RATE/HR:		

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20200101

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD			EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA REP			IEPA	REPORTED	IEPA	REPORTED
CO	3	3		.95	.95	3.99	1.84
CO2	3	3	21800	164	164	632.2	317.1
NH3	3	3		.8	.8	.01	.01
NOX	3	3		4.41	4.41	18.39	8.53
PART	3	3		.31	.31	.52	.6
PM10	3	3		.31	.31	.52	.6
PM2.5	3	3		.31	.31	.52	.6
SO2	3	3		.29	.29	1.19	.56
VOM	3	3		.36	.36	1.49	.7

POLLUTANT CODE	METHOD			EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA REP			IEPA	REPORTED	IEPA	REPORTED
NOX	3			4.41		9.28	
VOM	3			.36		.76	

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0020 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

SCC: 50300599

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 25.00 % 6 MAR - MAY: 25.00 % 6JUN - AUG: 25.00 % 6 SEP - NOV: 25.00 % 0

BEGAN OPERATION: /

CEASED OPERATION: /

UNITS: TONS BURNED

UNITS: TONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	0.0	<u>0</u>	HOURS/DAY:		
DAYS/WEEK:	0.0	<u>6</u>	DAYS/WEEK:		
WEEKS/YEAR:	0	<u>0</u>	WEEKS/SEASON:		
HOURS/YEAR:	0	<u>0</u>	HOURS/SEASON:		
PWR (LB/HR):	0.0000	<u>.0600</u>	START TIME:		
RATE/HR:	0.0000	<u>.0000</u>	END TIME:		
			PWR (LB/HR):		
			RATE/HR:		

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

SCC: 50300599

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
CO	3 3		.98 0 0
NOX	3 3		.131 0 0
SO2	3 3		.0004 0 0
VOM	3 3		.0062 0 0

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
NOX	3		0
VOM	3		0

CAPTURING CONTROLS:

CONTROL 0003 CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

BEGAN OPERATION: 12 / 1998

CEASED OPERATION: /

TANK TYPE: ABOVEGROUND

CAPACITY :	2500	gal	_____	TEMPERATURE (F):	70	_____
DIAMETER (FT):	10.0		_____	ROOF COLOR:	WHITE	_____
HEIGHT (FT):	10		_____	SHELL COLOR:	WHITE	_____
LENGTH (FT):			_____	ROOF PAINT CONDITION:	GOOD	_____
VAPOR SPACE (FT):	1.5		_____	SHELL PAINT CONDITION:	GOOD	_____
LOCATION:	ABOVEGROUND					
SEAL TYPE:	DOUBLE					
SUPPORT TYPE:	CONCRETE					

MATERIAL	MWT	VP (psia)	DENSITY	----- ANNUAL (gallons)	THROUGHPUTS PEAK OZONE (gallons)
Unleaded Gasoline	N/A	6.40	6.42	14,880	

141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 33.00 % 8.1 MAR - MAY: 18.60 % 22.8
JUN - AUG: 21.60 % 43.0 SEP - NOV: 26.80 % 26.1

BEGAN OPERATION: 12 / 1998

CEASED OPERATION: /

UNITS: 1000 GALLONS THROUGHPUT

UNITS: 1000 GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8,784</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0011	<u>.0017</u>	RATE/HR:		

141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
VOM	3 3		.46 .0142 .0218

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
VOM	3		.18

CAPTURING CONTROLS:

CONTROL 0005

CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- OTHER SOURCE DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500102

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 25.00 % 25 MAR - MAY: 25.00 % 25
JUN - AUG: 25.00 % 25 SEP - NOV: 25.00 % 25

BEGAN OPERATION: 09 / 1977

CEASED OPERATION: /

UNITS: MILLION GALLONS THROUGHPUT

UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8,784</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	84.0000	<u>84.0</u>	RATE/HR:		

141820AAA - Exelon Generation Co LLC

- OTHER SOURCE DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500102

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
PART	3 3		8.38 4.59 <u>5.01</u>
PM10	3 3		8.38 4.59 <u>5.01</u>
PM2.5	3 3		5.2 4.59 <u>5.01</u>

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
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CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0021 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- OTHER SOURCE DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500101

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 25.00 % 25 MAR - MAY: 25.00 % 25
JUN - AUG: 25.00 % 25 SEP - NOV: 25.00 % 25

BEGAN OPERATION: /

CEASED OPERATION: /

UNITS: MILLION GALLONS THROUGHPUT

UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8,764</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	2.6400	<u>2.64</u>	RATE/HR:		

141820AAA - Exelon Generation Co LLC

- OTHER SOURCE DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500101

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
-------------------	--------------------	----------------------------------	--

PART	3 3		.526 .14
PM10	3 3		.526 .14
PM2.5	3 3		.17 .14

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
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CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0022 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0001 - Venturi scrubber

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 / _____
CEASED OPERATION: / / _____

CONTROL CODE: 129 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
SO2	99.800	_____	3	_____	_____	_____	_____	_____

CAPTURING CONTROLS:

CONTROL 0004 CAPTURE EFFICIENCY: 100.00 % _____

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0002 - HEPA FILTER

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

CONTROL CODE: 101

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
PART	99.000		3					
PM10								

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0007 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0003 - GAS SOLID SEPARATOR

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

CONTROL CODE: 059

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
PART	99.990		3					

CAPTURING CONTROLS:

CONTROL 0001

CAPTURE EFFICIENCY:

100.00

%

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0004 - ACTIVATED CHARCOAL

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 048 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	98.000		3					

CAPTURING CONTROLS:

CONTROL 0002 CAPTURE EFFICIENCY: 100.00 % _____

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0005 - Vapor recovery system

PERMIT: 78090018

BEGAN OPERATION: 12 / 1998

CONTROL CODE: 110

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	99.000							

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0019

CAPTURE EFFICIENCY:

100.00

%

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK	DIAMETER (FT)	HEIGHT (FT)	FLOW RATE (ACFM)	TEMPERATURE (F)
0001 - 1A DIESEL GENERATOR	2.90	133	21296	950
0002 - 1B DIESEL GENERATOR	2.90	133	21296	950
0003 - 2A DIESEL GENERATOR	2.90	133	21296	950
0004 - 2B DIESEL GENERATOR	2.90	133	21296	950
0005 - U1 AUXILIARY BOILER	3.70	140	34468	515
0006 - U2 AUXILIARY BOILER	3.70	140	34468	515
0007 - RADWASTE VOLUME REDUCTION	2.70	57	11537	728
0019 - GASOLINE STORAGE AND HANDLING POINT 00012	0.20	14	2	70
0020 - SMALL ENGINES TYPICAL	2.50	29	16397	368

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK	DIAMETER (FT)	HEIGHT (FT)	FLOW RATE (ACFM)	TEMPERATURE (F)
0021 - COOLING TOWER NATURAL DRAFT	14.90	57	361801	76
0022 - COOLING TOWERS, 8 INDUCED DRAFT	14.20	30	282068	85
0023 - 1B AUXILIARY DIESEL FEEDWATER PUMP	0.83	103	2800	612
0024 - 2B AUXILIARY DIESEL FEEDWATER PUMP	0.83	103	2800	612

Report: APCA0530

Illinois Environmental Protection Agency
Division of Air Pollution Control
DAPC - ANNUAL EMISSIONS REPORT - 2012

Page: 28
Date: 11-26-2012

141820AAA - Exelon Generation Co LLC

Exelon Generation Company, LLC www.exeloncorp.com
Byron Station
4450 North German Church Road
Byron, IL 61010-9794

April 26, 2012

LTR: BYRON 2012-0050
File: 2.09.0810
1.10.0101

Illinois Environmental Protection Agency
Bureau of Air
Air Quality Planning Section (#39)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
Attn: Annual Emission Report

Subject: 2011 Annual Emission Report

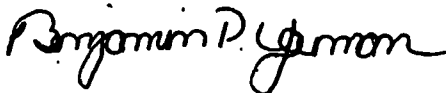
In accordance with the requirements of 35 Illinois Administrative Code Part 254, "Environmental Protection – Annual Emissions Reporting Rule," Exelon Generation Company hereby submits the 2011 Annual Emissions Report for Byron Station, ID No. 141820AAA. Included in the Annual Emissions Report are the following:

1. Annual Source Emission Summary
2. Annual Source Emissions Forms

Byron Station has boilers that are subject to the boiler MACT requirements (40 CFR 63 Subpart JJJJJJ). Initial notification of boiler activity was submitted to the Illinois Environmental Protection Agency in January 2012. Notification of compliance status will be submitted by the July 2012 regulatory deadline (40 CFR 63.11225).

If you have any questions regarding this matter, please contact Ms. Zoe Cox, Environmental/Radwaste Supervisor, at (815) 406-3035.

Respectfully,



Benjamin P. Youman
Plant Manager
Byron Nuclear Generating Station

BPY/ZC/eh

Attachment

bcc: Jennifer Gould – Environmental – Cantera (electronic)
Zoe Cox – Environmental – Byron Station

[illegible]

1820AAA - Exelon Generation Co LLC

- SOURCE DATA -

AIRS: 17-141-0069	IEPA USE ONLY	SIC 1: 4911	NAICS 1: 221113
FINDS: ILD984889907	IEPA USE ONLY	SIC 2:	NAICS 2:
FEIN: 360938600		SIC 3:	NAICS 3:
D&B: 000-692-9509		SIC 4:	NAICS 4:
LATITUDE: 42:04:27.0372		SIC 5:	NAICS 5:
LONGITUDE: 89:16:58.4616		SIC 6:	NAICS 6:

Exelon Generation Co LLC	CONTACT: Zoe Cox	EXT:
	PHONE: 815-406-3035	
	FAX: 815-406-3301	
4450 N German Church Rd	E-MAIL:	
Byron, IL 61010		

Exelon - Byron Generating Station	CONTACT: Zoe Cox	EXT:
	PHONE: 815-406-3035	
	FAX: 815-406-3301	
4450 N German Church Rd	E-MAIL:	
Byron, IL 61010		

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Benjamin P. Youman
AUTHORIZED SIGNATURE

4/24/12
DATE

Benjamin P. Youman Plant Manager
TYPED OR PRINTED NAME AND TITLE

815 406-3700
TELEPHONE NUMBER

The Illinois EPA is authorized to require, and you must disclose, the information on this form pursuant to 35 Ill. Adm. Code 201.302(a, b) and 254. It is not necessary to use this form in providing the information. Failure to disclose the information may result in penalties as provided for in the Environmental Protection Act, 415 ILCS 5/24-45.

1820AAA - Exelon Generation Co LLC

- ANNUAL SOURCE EMISSIONS -

POLLUTANT CODE	SOURCES REPORTED EMISSIONS FOR 2011 (TONS/YEAR)	ALLOWABLE EMISSIONS (TONS/YEAR)	EMISSIONS REPORTED FOR 2010 (TONS/YEAR)	IEPA 2011 ESTIMATED EMISSIONS (TONS/YEAR)
CO	5.65	25.362960	5.660000	6.798947
CO2	1100.9	39,591.686400	1,099.150000	2,963.898270
METHANE	0	0.436800	0.000000	0.022680
N2O	0	0.131040	0.000000	0.006804
NH3	0.04	1.438080	0.040000	0.113630
NOX	21.30	94.975356	21.350000	22.883387
PART	21.21	41.662992	20.500000	39.403404
PM10	21.13	41.058192	20.420000	39.382812
PM2.5	21.13	25.479384	20.420000	23.907786
SO2	0.02	10.126704	0.020000	2.109559
VOM	0.67	5.035766	0.710000	2.512579

11820AAA - Exelon Generation Co LLC

- PERMIT LISTING -

PERMIT NUMBER	TYPE OF PERMIT	OPERATION NAME	STATUS	STATUS DATE	EXPIRES
090018	FESOP	BYRON GENERATING STATION	GRANTED	12-13-2002	12-13-2007

11820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20100102

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 28.52 % 29.13 MAR - MAY: 20.00 % 21.28
JUN - AUG: 29.14 % 29.05 SEP - NOV: 22.34 % 20.55

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

FUEL TYPE: 21 DISTILLATE OIL #2
INPUT (MMBTU/HR): 232.8

HEAT CONTENT: 139000 Btu/gal 137,447
SULFUR CONTENT (%): 0.05 0.002
ASH CONTENT (%):
NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	6.5	<u>6.0</u>	HOURS/DAY:		
DAYS/WEEK:	1.0	<u>1.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	334	<u>308</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.2880	<u>0.312</u>	RATE/HR:		

1820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20100102

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED
CO	3	3	22600	.85	32.26	33.67
CO2	3	0			6102	6508.8
NH3	3	3		.8	.258	.23
NOX	3	3		3.2	121.3	126.75
PART	3	3		.0697	2.65	2.76
PM10	3	3		.0573	2.54	2.27
PM2.5	3	3		.0573	2.39	2.27
SO2	3	3		.002	10.71	.08
VOM	3	3		.09	2.65	3.56

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK	0001	CAPTURE EFFICIENCY:	16.70	%
STACK	0002	CAPTURE EFFICIENCY:	16.70	%
STACK	0003	CAPTURE EFFICIENCY:	16.70	%
STACK	0004	CAPTURE EFFICIENCY:	16.70	%

1820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____

SCC: 20100102

CEASED OPERATION: / _____

MODE 01 -

CAPTURING STACKS:

STACK 0023 CAPTURE EFFICIENCY: 16.60 % _____

STACK 0024 CAPTURE EFFICIENCY: 16.60 % _____

1820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

SCC: 10100501

MODE 01 -

DESCRIPTION CORRECTION:

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

PERCENT THROUGHPUTS: DEC - FEB: 59.00 % 31.5 MAR - MAY: 0.00 % 34.8
JUN - AUG: 41.00 % 33.7 SEP - NOV: 0.00 % 0

FUEL TYPE: 21 DISTILLATE OIL #2
INPUT (MMBTU/HR): 93

HEAT CONTENT: 139000 Btu/gal 137,447
SULFUR CONTENT (%): 0.05 0.002
ASH CONTENT (%):
NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	1.9	<u>2.0</u>	HOURS/DAY:		
DAYS/WEEK:	1.0	<u>1.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	4	<u>4.0</u>	WEEKS/SEASON:		
HOURS/YEAR:	8	<u>8.1</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0640	<u>0.062</u>	RATE/HR:		

1820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

SCC: 10100501

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
CO	3	3		5	.06	.299
CO2	3	0	22300	22,300	8028	1427.2
METHANE	3	0	.28	0.052	.1	.018
N2O	3	0	.11	0.11	.03	.007
NH3	3	3		0.8	.288	.048
NOX	3	3		20	.23	1.195
PART	3	3		2	.023	.119
PM10	3	3		1	.023	.06
PM2.5	3	3		0.25	.0155	.015
SO2	3	3		0.28	.453	.017
VOM	3	3		0.252	.0023	.015

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0005 CAPTURE EFFICIENCY: 50.00 %
STACK 0006 CAPTURE EFFICIENCY: 50.00 %

1820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20200101

CEASED OPERATION: /

CODE 01 -

DESCRIPTION CORRECTION:

		PERCENT THROUGHPUTS:	DEC - FEB:	36.72 %	<u>23.9</u>	MAR - MAY:	14.51 %	<u>10.51</u>
BEGAN OPERATION:	/		JUN - AUG:	27.65 %	<u>26.05</u>	SEP - NOV:	21.12 %	<u>39.54</u>
CEASED OPERATION:	/							
FUEL TYPE:	21	DISTILLATE OIL #2	HEAT CONTENT:		139000 Btu/gal	<u>137,447</u>		
INPUT (MMBTU/HR):	4.1		SULFUR CONTENT (%):		0.05	<u>0.002</u>		
			ASH CONTENT (%):					
			NITROGEN CONTENT (%):					

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	0.9	<u>0.75</u>	HOURS/DAY:		
DAYS/WEEK:	1.0	<u>1.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	45	<u>39.1</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0132	<u>0.0141</u>	RATE/HR:		

1820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

SCC: 20200101

MODE 01 -

POLLUTANT CODE	METHOD			EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP		IEPA	REPORTED	IEPA	REPORTED
CO	3	3		.95	<u>0.95</u>	3.99	1.74 <u>1.84</u>
CO2	3	0	21800		<u>164</u>	632.2	287.76 <u>317.1</u>
NH3	3	3		.8	<u>0.8</u>	.01	.01 <u>0.01</u>
NOX	3	3		4.41	<u>4.41</u>	18.39	8.06 <u>8.53</u>
PART	3	3		.31	<u>0.31</u>	.52	.57 <u>0.60</u>
PM10	3	3		.31	<u>0.31</u>	.52	.57 <u>0.60</u>
PM2.5	3	3		.31	<u>0.31</u>	.52	.57 <u>0.60</u>
SO2	3	3		.29	<u>0.29</u>	1.19	.53 <u>0.56</u>
VOM	3	3		.36	<u>0.36</u>	1.49	.66 <u>0.70</u>

POLLUTANT CODE	METHOD			EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP		IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0020 CAPTURE EFFICIENCY: 100.00 %

1820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

SCC: 50300599

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 25.00 % 0 MAR - MAY: 25.00 % 0
BEGAN OPERATION: / JUN - AUG: 25.00 % 0 SEP - NOV: 25.00 % 0
CEASED OPERATION: /

UNITS: TONS BURNED

UNITS: TONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	0.0	<u>0</u>	HOURS/DAY:		
DAYS/WEEK:	0.0	<u>0</u>	DAYS/WEEK:		
WEEKS/YEAR:	0	<u>0</u>	WEEKS/SEASON:		
HOURS/YEAR:	0	<u>0</u>	HOURS/SEASON:		
			START TIME:		
PWR (LB/HR):		<u>0</u>	END TIME:		
RATE/HR:	0.0000	<u>0</u>	PWR (LB/HR):		
			RATE/HR:		

1820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

SCC: 50300599

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
CO	3	3			.98	0 0
NOX	3	3			.131	0 0
SO2	3	3			.0004	0 0
VOM	3	3			.0062	0 0

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CONTROL 0003 CAPTURE EFFICIENCY: 100.00 % _____

CAPTURING STACKS:

1820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

 BEGAN OPERATION: 12 / 1998 _____
 CEASED OPERATION: / _____

TANK TYPE: ABOVEGROUND

CAPACITY :	2500	gal	_____	TEMPERATURE (F) :	70	_____
DIAMETER (FT) :	10.0	_____		ROOF COLOR:	WHITE	_____
HEIGHT (FT) :	10	_____		SHELL COLOR:	WHITE	_____
LENGTH (FT) :		_____		ROOF PAINT CONDITION:	GOOD	_____
VAPOR SPACE (FT) :	1.5	_____		SHELL PAINT CONDITION:	GOOD	_____
LOCATION:	ABOVEGROUND					
SEAL TYPE:	DOUBLE					
SUPPORT TYPE:	CONCRETE					

MATERIAL	MWT	VP (psia)	DENSITY	THROUGHPUTS ANNUAL (gallons)	PEAK OZONE (gallons)
Unleaded Gasoline	N/A	6.40	6.42	9,703	

1820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 26.10 % 33.0 MAR - MAY: 35.80 % 18.6
JUN - AUG: 20.90 % 21.6 SEP - NOV: 17.20 % 26.8

BEGAN OPERATION: 12 / 1998 _____
CEASED OPERATION: / _____

UNITS: 1000 GALLONS THROUGHPUT

UNITS: 1000 GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:	_____	_____
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:	_____	_____
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:	_____	_____
HOURS/YEAR:	8,760	<u>8,760</u>	HOURS/SEASON:	_____	_____
			START TIME:	_____	_____
			END TIME:	_____	_____
RATE/HR:	0.0015	<u>0.0011</u>	RATE/HR:	_____	_____

11820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR		EMISSION RATE (LB/HR)	
		IEPA	REPORTED	IEPA	REPORTED

VOM	3	3		.46	.02 <u>0.0142</u>
-----	---	---	--	-----	-------------------

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
		IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CONTROL	0005	CAPTURE EFFICIENCY:	100.00	% <u></u>
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CAPTURING STACKS:

1820AAA - Exelon Generation Co LLC

- OTHER SOURCE DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 38500102

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 25.00 % 25 MAR - MAY: 25.00 % 25
JUN - AUG: 25.00 % 25 SEP - NOV: 25.00 % 25
BEGAN OPERATION: 09 / 1977 _____
CEASED OPERATION: / _____

UNITS: MILLION GALLONS THROUGHPUT

UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:	_____	_____
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:	_____	_____
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:	_____	_____
HOURS/YEAR:	8,760	<u>8,760</u>	HOURS/SEASON:	_____	_____
			START TIME:	_____	_____
			END TIME:	_____	_____
RATE/HR:	84.0000	<u>84.0</u>	RATE/HR:	_____	_____

1820AAA - Exelon Generation Co LLC

- OTHER SOURCE DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500102

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
PART	3	3			8.38	4.43 <u>4.59</u>
PM10	3	3			8.38	4.43 <u>4.59</u>
PM2.5	3	3			5.2	4.43 <u>4.59</u>

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0021 CAPTURE EFFICIENCY: 100.00 %

1820AAA - Exelon Generation Co LLC

- OTHER SOURCE DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

SCC: 38500101

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 25.00 % 25 MAR - MAY: 25.00 % 25
JUN - AUG: 25.00 % 25 SEP - NOV: 25.00 % 25
BEGAN OPERATION: /
CEASED OPERATION: /

UNITS: MILLION GALLONS THROUGHPUT

UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8,760</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	2.6400	<u>2.64</u>	RATE/HR:		

1820AAA - Exelon Generation Co LLC

- OTHER SOURCE DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500101

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR		EMISSION RATE (LB/HR)	
		IEPA	REPORTED	IEPA	REPORTED

PART	3	3		.526	.14	<u>0.14</u>
PM10	3	3		.526	.14	<u>0.14</u>
PM2.5	3	3		.17	.14	<u>0.14</u>

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
		IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0022 CAPTURE EFFICIENCY: 100.00 %

1820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0001 - Venturi scrubber

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982
CEASED OPERATION: /

CONTROL CODE: 129

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
SO2	99.800		3					

CAPTURING CONTROLS:

CONTROL 0004 CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

1820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0002 - HEPA FILTER

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 101 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
PART	99.000	_____	3	_____	_____	_____	_____	_____
PM10		_____		_____	_____	_____	_____	_____

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0007 CAPTURE EFFICIENCY: 100.00 % _____

1820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0003 - GAS SOLID SEPARATOR

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 059 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
PART	99.990	_____	3	_____	_____	_____	_____	_____

CAPTURING CONTROLS:

CONTROL 0001 CAPTURE EFFICIENCY: 100.00 % _____

CAPTURING STACKS:

1820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0004 - ACTIVATED CHARCOAL

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 048 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	98.000		3					

CAPTURING CONTROLS:

CONTROL 0002 CAPTURE EFFICIENCY: 100.00 % _____

CAPTURING STACKS:

1820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0005 - Vapor recovery system

PERMIT: 78090018

BEGAN OPERATION: 12 / 1998 _____
CEASED OPERATION: / _____

CONTROL CODE: 110 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	99.000	_____	_____	_____	_____	_____	_____	_____

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0019 CAPTURE EFFICIENCY: 100.00 % _____

- STACK DATA -

STACK		DIAMETER (FT)	HEIGHT (FT)	FLOW RATE (ACFM)	TEMPERATURE (F)
0001	- 1A DIESEL GENERATOR	2.90	133	21296	950
0002	- 1B DIESEL GENERATOR	2.90	133	21296	950
0003	- 2A DIESEL GENERATOR	2.90	133	21296	950
0004	- 2B DIESEL GENERATOR	2.90	133	21296	950
0005	- U1 AUXILIARY BOILER	3.70	140	34468	515
0006	- U2 AUXILIARY BOILER	3.70	140	34468	515
0007	- RADWASTE VOLUME REDUCTION	2.70	57	11537	728
0019	- GASOLINE STORAGE AND HANDLING POINT 00012	0.20	14	2	70
0020	- SMALL ENGINES TYPICAL	2.50	29	16397	368

1820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK	DIAMETER (FT)	HEIGHT (FT)	FLOW RATE (ACFM)	TEMPERATURE (F)
0021 - COOLING TOWER NATURAL DRAFT	14.90	57	361801	76
0022 - COOLING TOWERS, 8 INDUCED DRAFT	14.20	30	282068	85
0023 - 1B AUXILIARY DIESEL FEEDWATER PUMP	0.83	103	2800	612
0024 - 2B AUXILIARY DIESEL FEEDWATER PUMP	0.83	103	2800	612

Exelon Generation Company, LLC
Byron Station
4450 North German Church Road
Byron, IL 61010-9794

www.exeloncorp.com

April 14, 2011

LTR: BYRON 2011-0057
File: 2.09.0810
1.10.0101

Illinois Environmental Protection Agency
Bureau of Air
Air Quality Planning Section (#39)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
Attn: Annual Emission Report

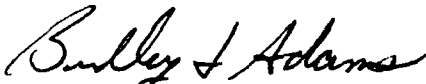
Subject: 2010 Annual Emission Report

In accordance with the requirements of 35 Illinois Administrative Code Part 254, "Environmental Protection – Annual Emissions Reporting Rule," Exelon Generation Company hereby submits the 2010 Annual Emissions Report for Byron Station, ID No. 141820AAA. Included in the Annual Emissions Report are the following:

1. Annual Source Emission Summary
2. Annual Source Emissions Forms

If you have any questions regarding this matter, please contact Ms. Zoe Cox, Environmental Specialist, at (815) 406-3035.

Respectfully,



Bradley J. Adams
Plant Manager
Byron Nuclear Generating Station

BJA/ZC/ca

Attachment

bcc: Kevin Hersey – Environmental – Cantera
Zoe Cox – Chemistry – Byron Station

bcc: Kevin Hersey – Environmental – Cantera
Zoe Cox – Chemistry – Byron Station

[illegible]

There were no exceedences of any annual permit requirements during the calendar year 2010 addressed in this report.

141820AAA - Exelon Generation Co LLC

- SOURCE DATA -

SOURCE
IDS AND
LOCATION

AIRS: 17-141-0069	IEPA USE ONLY	SIC 1: 4911	NAICS 1: 221113
FINDS: ILD984889907	IEPA USE ONLY	SIC 2:	NAICS 2:
FEIN: 360938600		SIC 3:	NAICS 3:
D&B: 000-692-9509		SIC 4:	NAICS 4:
LATITUDE: 42:04:26.9400		SIC 5:	NAICS 5:
LONGITUDE: 89:16:58.0800		SIC 6:	NAICS 6:

SOURCE
ADDRESS

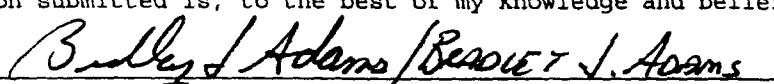
Exelon Generation Co LLC	CONTACT: Zoe Cox	EXT:
	PHONE: 815-406-3035	
4450 N German Church Rd	FAX: 815-406-3301	
Byron, IL 61010	E-MAIL:	

ANNUAL
EMISSION
REPORT
MAILING
ADDRESS

Exelon - Byron Generating Station	CONTACT: Zoe Cox	EXT:
	PHONE: 815-406-3035	
4450 N German Church Rd	FAX: 815-406-3301	
Byron, IL 61010	E-MAIL:	

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.


AUTHORIZED SIGNATURE

PLANT MANAGER

4.11.11
DATE

The Illinois EPA is authorized to require, and you must disclose, the information on this form pursuant to 35 Ill. Adm. Code 201.302(a, b) and 254. It is not necessary to use this form in providing the information. Failure to disclose the information may result in penalties as provided for in the Environmental Protection Act, 415 ILCS 5/24-45.

Illinois Environmental Protection Agency
Division of Air Pollution Control
DAPC - ANNUAL EMISSIONS REPORT - 2010

141820AAA - Exelon Generation Co LLC

- ANNUAL SOURCE EMISSIONS -

POLLUTANT CODE	SOURCES REPORTED EMISSIONS FOR 2010 (TONS/YEAR)	ALLOWABLE EMISSIONS (TONS/YEAR)	EMISSIONS REPORTED FOR 2009 (TONS/YEAR)	IEPA 2010 ESTIMATED EMISSIONS (TONS/YEAR)
CO	<u>5.66</u>	25.362960	6.500000	6.798947
CO2		39,591.686400	1,257.110000	2,963.898270
METHANE		0.436800	0.000000	0.022680
N2O		0.131040	0.000000	0.006804
NH3	<u>0.04</u>	1.438080	0.040000	0.113630
NOX	<u>21.35</u>	94.975356	24.510000	22.883387
PART	<u>20.50</u>	41.662992	20.920000	39.403404
PM10	<u>20.42</u>	41.058192	20.830000	39.382812
PM2.5	<u>20.42</u>	25.479384	20.830000	23.907786
SO2	<u>0.02</u>	10.126704	0.040000	2.109559
VOM	<u>0.71</u>	5.035766	0.720000	2.512579

141820AAA - Exelon Generation Co LLC

- PERMIT LISTING -

PERMIT NUMBER	TYPE OF PERMIT	OPERATION NAME	STATUS	STATUS DATE	EXPIRES
78090018	FESOP	BYRON GENERATING STATION	GRANTED	12-13-2002	12-13-2007

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 20100102

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 34.62 % 28.52 MAR - MAY: 23.40 % 20.00
JUN - AUG: 16.08 % 29.14 SEP - NOV: 25.90 % 22.34
BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____
FUEL TYPE: 21 DISTILLATE OIL #2 _____
INPUT (MMBTU/HR): 232.8 _____
HEAT CONTENT: 139000 Btu/gal 137,690
SULFUR CONTENT (%): 0.05 0.002
ASH CONTENT (%): _____
NITROGEN CONTENT (%): _____

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	7.1	<u>6.5</u>	HOURS/DAY:		
DAYS/WEEK:	1.0	<u>1.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	371	<u>334</u>	HOURS/SEASON:		
RATE/HR: 0.2960			START TIME:		
			END TIME:		
			RATE/HR:		

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

SCC: 20100102

MODE 01 -

POLLUTANT CODE	METHOD			EMISSION FACTOR		EMISSION RATE (LB/HR)		
	IEPA	REP		IEPA	REPORTED	IEPA	REPORTED	
CO	3	3			.85	0.85	32.26	34.61 33.67
CO2	3	3		22600		6102	6689.6	
NH3	3	3			.8	0.8	.258	.237 0.230
NOX	3	3			3.2	3.2	121.3	130.29 126.75
PART	3	3			.0697	0.0697	2.65	2.84 2.76
PM10	3	3			.0573	0.0573	2.54	2.33 2.27
PM2.5	3	3			.0573	0.0573	2.39	2.33 2.27
SO2	3	3			.002	0.002	10.71	.08 0.08
VOM	3	3			.09	0.09	2.65	3.66 3.56

POLLUTANT CODE	METHOD			EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)		
	IEPA	REP		IEPA	REPORTED	IEPA	REPORTED	
NOX	3			3.2		130.29		
VOM	3			.09		3.66		

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0001 CAPTURE EFFICIENCY: 16.70 %
STACK 0002 CAPTURE EFFICIENCY: 16.70 %

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 20100102

MODE 01 -

CAPTURING STACKS:

STACK	0003	CAPTURE EFFICIENCY:	16.70	% _____
STACK	0004	CAPTURE EFFICIENCY:	16.70	% _____
STACK	0023	CAPTURE EFFICIENCY:	16.60	% _____
STACK	0024	CAPTURE EFFICIENCY:	16.60	% _____

Illinois Environmental Protection Agency
Division of Air Pollution Control
DAPC - ANNUAL EMISSIONS REPORT - 2010

41820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

SCC: 10100501

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 20.90 % 59.0 MAR - MAY: 17.30 % 0
JUN - AUG: 33.50 % 41.0 SEP - NOV: 28.30 % 0
BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /
FUEL TYPE: 21 DISTILLATE OIL #2
INPUT (MMBTU/HR): 93
HEAT CONTENT: 139000 Btu/gal 137,690
SULFUR CONTENT (%): 0.05 0.002
ASH CONTENT (%):
NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	1.3	<u>1.9</u>	HOURS/DAY:		
DAYS/WEEK:	1.0	<u>1.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	5	<u>4.0</u>	WEEKS/SEASON:		
HOURS/YEAR:	7	<u>7.8</u>	HOURS/SEASON:		
RATE/HR: 0.0600 <u>0.064</u>			START TIME:		
			END TIME:		
			RATE/HR:		

41820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

SCC: 10100501

MODE 01 -

POLLUTANT CODE	METHOD			EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP		IEPA	REPORTED	IEPA	REPORTED
CO	3	3		5	<u>5</u>	.06	.299 <u>0.299</u>
CO2	3	3		22300		8028	1338
METHANE	3	3		.28		.1	.017
N2O	3	3		.11		.03	.007
NH3	3	3		.8	<u>0.8</u>	.288	.048 <u>0.048</u>
NOX	3	3		20	<u>20</u>	.23	1.194 <u>1.195</u>
PART	3	3		2	<u>2</u>	.023	.119 <u>0.119</u>
PM10	3	3		1	<u>1</u>	.023	.06 <u>0.06</u>
PM2.5	3	3		.25	<u>0.25</u>	.0155	.015 <u>0.015</u>
SO2	3	3		.28	<u>0.28</u>	.453	.017 <u>0.017</u>
VOM	3	3		.252	<u>0.252</u>	.0023	.015 <u>0.015</u>

POLLUTANT CODE	METHOD			EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP		IEPA	REPORTED	IEPA	REPORTED
NOX	3			20		1.194	
VOM	3			.252		.015	

APTURING CONTROLS:

APTURING STACKS:

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 10100501

MODE 01 -

CAPTURING STACKS:

STACK	0005	CAPTURE EFFICIENCY:	50.00	% _____
STACK	0006	CAPTURE EFFICIENCY:	50.00	% _____

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 20200101

MODE 01 -

DESCRIPTION CORRECTION:

BEGAN OPERATION: / _____
CEASED OPERATION: / _____
FUEL TYPE: 21 DISTILLATE OIL #2 _____
INPUT (MMBTU/HR): 4.1 _____

PERCENT THROUGHPUTS:
DEC - FEB: 26.27 % 36.72 MAR - MAY: 22.71 % 14.51
JUN - AUG: 24.70 % 27.65 SEP - NOV: 26.32 % 21.12
HEAT CONTENT: 139000 Btu/gal 137,690
SULFUR CONTENT (%): 0.05 0.002
ASH CONTENT (%): _____
NITROGEN CONTENT (%): _____

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	1.3	<u>0.85</u>	HOURS/DAY:		
DAYS/WEEK:	1.0	<u>1.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	69	<u>45.4</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0153	<u>0.0132</u>	RATE/HR:		

.41820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 20200101

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED
CO	3	3	21800	.95	3.99	2
CO2	3	3		<u>0.95</u>	632.2	333.54
NH3	3	3		.8	.01	.01
NOX	3	3		<u>0.8</u>	18.39	9.28
PART	3	3		4.41	.52	<u>4.41</u>
PM10	3	3		<u>0.31</u>	.65	<u>0.57</u>
PM2.5	3	3		.31	.52	<u>0.31</u>
SO2	3	3		<u>0.31</u>	.65	<u>0.57</u>
VOM	3	3		.29	1.19	.61
				<u>0.29</u>	.76	<u>0.53</u>
				.36	1.49	.76
				<u>0.36</u>		<u>0.66</u>

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED
NOX	3		4.41		9.28	
VOM	3		.36		.76	

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0020 CAPTURE EFFICIENCY: 100.00 % _____

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

SCC: 50300599

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 25.00 % 0 MAR - MAY: 25.00 % 0
JUN - AUG: 25.00 % 0 SEP - NOV: 25.00 % 0

BEGAN OPERATION: / _____
CEASED OPERATION: / _____

UNITS: TONS BURNED

UNITS: TONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	0.0	<u>0</u>	HOURS/DAY:		
DAYS/WEEK:	0.0	<u>0</u>	DAYS/WEEK:		
WEEKS/YEAR:	0	<u>0</u>	WEEKS/SEASON:		
HOURS/YEAR:	0	<u>0</u>	HOURS/SEASON:		
PWR (LB/HR):	0.0000	<u>0</u>	START TIME:		
RATE/HR:	0.0000	<u>0</u>	END TIME:		
			PWR (LB/HR):		
			RATE/HR:		

041820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM PERMIT: 78090018

BEGAN OPERATION: 11 / 1982
CEASED OPERATION: /

SCC: 50300599

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
CO	3	3			.98	0 0
NOX	3	3			.131	0 0
SO2	3	3			.0004	0 0
VOM	3	3			.0062	0 0

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
NOX	3				0	
VOM	3				0	

CAPTURING CONTROLS:

CONTROL 0003 CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

SCC: 38500102

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 25.00 % 25 MAR - MAY: 25.00 % 25
JUN - AUG: 25.00 % 25 SEP - NOV: 25.00 % 25

BEGAN OPERATION: 09 / 1977 _____
CEASED OPERATION: / _____

UNITS: MILLION GALLONS THROUGHPUT UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:	_____	_____
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:	_____	_____
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:	_____	_____
HOURS/YEAR:	8,760	<u>8760</u>	HOURS/SEASON:	_____	_____
PWR (LB/HR):		_____	START TIME:	_____	_____
			END TIME:	_____	_____
RATE/HR:	84.0000	<u>84.0</u>	PWR (LB/HR):	_____	_____
			RATE/HR:	_____	_____

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS PERMIT: 78090018

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
PART	3	3			8.38	4.51 4.43
PM10	3	3			8.38	4.51 4.43
PM2.5	3	3			5.2	4.51 4.43

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0021 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____

SCC: 38500101

CEASED OPERATION: / _____

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 25.00 % 25 MAR - MAY: 25.00 % 25

BEGAN OPERATION: / _____

JUN - AUG: 25.00 % 25 SEP - NOV: 25.00 % 25

CEASED OPERATION: / _____

UNITS: MILLION GALLONS THROUGHPUT

UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:	_____	_____
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:	_____	_____
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:	_____	_____
HOURS/YEAR:	8,760	<u>8760</u>	HOURS/SEASON:	_____	_____
PWR (LB/HR):		_____	START TIME:	_____	_____
			END TIME:	_____	_____
RATE/HR:	2.6400	<u>2.64</u>	PWR (LB/HR):	_____	_____
			RATE/HR:	_____	_____

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

SCC: 38500101

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
PART	3	3			.526	.14 <u>0.14</u>
PM10	3	3			.526	.14 <u>0.14</u>
PM2.5	3	3			.17	.14 <u>0.14</u>

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0022 CAPTURE EFFICIENCY: 100.00 %

.41820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

BEGAN OPERATION: 12 / 1998 _____
CEASED OPERATION: / _____

TANK TYPE: ABOVEGROUND

CAPACITY :	2500	gal	_____	TEMPERATURE (F):	70	_____
DIAMETER (FT):	10.0		_____	ROOF COLOR:	WHITE	_____
HEIGHT (FT):	10		_____	SHELL COLOR:	WHITE	_____
LENGTH (FT):			_____	ROOF PAINT CONDITION:	GOOD	_____
VAPOR SPACE (FT):	1.5		_____	SHELL PAINT CONDITION:	GOOD	_____
LOCATION:	ABOVEGROUND					
SEAL TYPE:	DOUBLE					
SUPPORT TYPE:	CONCRETE					

MATERIAL	MWT	VP (psia)	DENSITY	THROUGHPUTS ANNUAL(gallons)	PEAK OZONE(gallons)
Unleaded Gasoline	N/A	6.40	6.42	13,402	

41820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01 -

DESCRIPTION CORRECTION:

BEGAN OPERATION: 12 / 1998

CEASED OPERATION: /

PERCENT THROUGHPUTS:

DEC - FEB: 22.80 % 26.1

JUN - AUG: 23.40 % 20.9

MAR - MAY: 31.80 % 35.8

SEP - NOV: 22.00 % 17.2

UNITS: 1000 GALLONS THROUGHPUT

UNITS: 1000 GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8760</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0014	<u>0.0015</u>	RATE/HR:		

141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

VOM	3	3			.46	.18 <u>0.02</u>

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

VOM	3				.18	

CAPTURING CONTROLS:

CONTROL 0005 CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0001 - VENTURI SCRUBBER

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 129 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
SO2	99.800		3					

CAPTURING CONTROLS:

CONTROL 0004 CAPTURE EFFICIENCY: 100.00 % _____

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0002 - HEPA FILTER

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 127 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
PART	99.000	_____	3	_____	_____	_____	_____	_____
PM10		_____		_____	_____	_____	_____	_____

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0007 CAPTURE EFFICIENCY: 100.00 % _____

.41820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0003 - GAS SOLID SEPARATOR

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 059 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
PART	99.990		3					

CAPTURING CONTROLS:

CONTROL 0001 CAPTURE EFFICIENCY: 100.00 % _____

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0004 - ACTIVATED CHARCOAL

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 048 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	98.000	_____	3	_____	_____	_____	_____	_____

CAPTURING CONTROLS:

CONTROL 0002 CAPTURE EFFICIENCY: 100.00 % _____

CAPTURING STACKS:

.41820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0005 - VAPOR RECOVERY SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 12 / 1998
CEASED OPERATION: /

CONTROL CODE: 110

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	99.000							

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0019 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK	DIAMETER (FT)	HEIGHT (FT)	FLOW RATE (ACFM)	TEMPERATURE (F)
0001 - 1A DIESEL GENERATOR	2.90	133	21296	950
0002 - 1B DIESEL GENERATOR	2.90	133	21296	950
0003 - 2A DIESEL GENERATOR	2.90	133	21296	950
0004 - 2B DIESEL GENERATOR	2.90	133	21296	950
0005 - U1 AUXILIARY BOILER	3.70	140	34468	515
0006 - U2 AUXILIARY BOILER	3.70	140	34468	515
0007 - RADWASTE VOLUME REDUCTION	2.70	57	11537	728
0019 - GASOLINE STORAGE AND HANDLING POINT 00012	0.20	14	2	70
0020 - SMALL ENGINES TYPICAL	2.50	29	16397	368

41820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK	DIAMETER (FT)	HEIGHT (FT)	FLOW RATE (ACFM)	TEMPERATURE (F)
0021 - COOLING TOWER NATURAL DRAFT	14.90	57	361801	76
0022 - COOLING TOWERS, 8 INDUCED DRAFT	14.20	30	282068	85
0023 - 1B AUXILIARY DIESEL FEEDWATER PUMP	0.83	103	2800	612
0024 - 2B AUXILIARY DIESEL FEEDWATER PUMP	0.83	103	2800	612

Report: APCA0530

Illinois Environmental Protection Agency
Division of Air Pollution Control
DAPC - ANNUAL EMISSIONS REPORT - 2010

Page: 28
Date: 11-16-2010

141820AAA - Exelon Generation Co LLC

COPY

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Nuclear

Exelon Generation Company, LLC
Byron Station
4450 North German Church Road
Byron, IL 61010-9794

www.exeloncorp.com

April 24, 2010

LTR: BYRON 2010-0033
File: 2.09.0810
1.10.0101

Illinois Environmental Protection Agency
Bureau of Air
Air Quality Planning Section (#39)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
Attn: Annual Emission Report

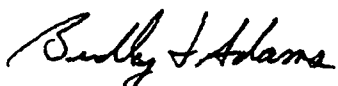
Subject: 2009 Annual Emission Report

In accordance with the requirements of 35 Illinois Administrative Code Part 254, "Environmental Protection - Annual Emissions Reporting Rule," Exelon Generation Company hereby submits the 2009 Annual Emissions Report for Byron Station, ID No. 141820AAA. Included in the Annual Emissions Report are the following:

1. Annual Source Emission Summary
2. Annual Source Emissions Forms

If you have any questions regarding this matter, please contact Mr. Stan Kerr, Chemistry manager, at (815) 406-3200.

Respectfully,



Bradley J. Adams
Plant Manager
Byron Nuclear Generating Station

BJA/ZC/sdk

Attachment

bcc: Kevin Hersey – Environmental – Cantera
Zoe Cox – Chemistry – Byron Station

141820AAA - Exelon Generation Co LLC

- SOURCE DATA -

SOURCE
IDS AND
LOCATION

AIRS: 17-141-0069	IEPA USE ONLY	SIC 1: 4911	NAICS 1: 221113
FINDS: ILD984889907	IEPA USE ONLY	SIC 2:	NAICS 2:
FEIN: 360938600		SIC 3:	NAICS 3:
D&B: 000-692-9509		SIC 4:	NAICS 4:
LATITUDE: 42:04:26.9400		SIC 5:	NAICS 5:
LONGITUDE: 89:16:58.0800		SIC 6:	NAICS 6:

SOURCE
ADDRESS

Exelon Generation Co LLC

4450 N German Church Rd
Byron, IL 61010

CONTACT: Zoe Cox

PHONE: 815-406-3035

EXT:

FAX: 815-406-3301

EMAIL:

ANNUAL
EMISSION
REPORT
MAILING
ADDRESS

Exelon - Byron Generating Station

4450 N German Church Rd
Byron, IL 61010

CONTACT: Zoe Cox

PHONE: 815-406-3035

EXT:

FAX: 815-406-3301

E-MAIL:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.


AUTHORIZED SIGNATURE4-15-10
DATEBRADLEY J. ADAMS PLANT MANAGER
TYPED OR PRINTED NAME AND TITLE815-406-3700
TELEPHONE NUMBER

141820AAA - Exelon Generation Co LLC

- ANNUAL SOURCE EMISSIONS -

POLLUTANT CODE	SOURCES REPORTED EMISSIONS FOR 2009 (TONS/YEAR)	ALLOWABLE EMISSIONS (TONS/YEAR)	EMISSIONS REPORTED FOR 2008 (TONS/YEAR)	IEPA 2009 ESTIMATED EMISSIONS (TONS/YEAR)
CO	<u>6.50</u>	25.362960	4.980000	6.798947
CO2		39,591.686400	965.200000	2,963.898270
METHANE		0.436800	0.000000	0.022680
N2O		0.131040	0.000000	0.006804
NH3	<u>0.04</u>	1.438080	0.030000	0.113630
NOX	<u>24.51</u>	94.975356	18.830000	22.883387
PART	<u>20.92</u>	41.662992	20.390000	39.403404
PM10	<u>20.83</u>	41.058192	20.320000	39.382812
PM2.5	<u>20.83</u>	25.479384	20.320000	23.907786
SO2	<u>0.04</u>	10.126704	0.050000	2.109559
VOM	<u>0.72</u>	5.035766	0.630000	2.512579

141820AAA - Exelon Generation Co LLC

- PERMIT LISTING -

PERMIT NUMBER	TYPE OF PERMIT	OPERATION NAME	STATUS	STATUS DATE	EXPIRES
78090018	FESOP	BYRON GENERATING STATION	GRANTED	12-13-2002	12-13-2007

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20100102

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

FUEL TYPE: 21 DISTILLATE OIL #2
INPUT (MMBTU/HR): 232.8

PERCENT THROUGHPUTS: DEC - FEB: 25.08 % 34.62 MAR - MAY: 33.81 % 23.40
JUN - AUG: 21.79 % 16.08 SEP - NOV: 19.32 % 25.90

HEAT CONTENT: 139000 Btu/gal 137,600
SULFUR CONTENT (%): 0.05 0.002
ASH CONTENT (%):
NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	5.2	<u>7.1</u>	HOURS/DAY:		
DAYS/WEEK:	5.0	<u>1.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	12	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	312	<u>371</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.2670	<u>0.296</u>	RATE/HR:		

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20100102

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED
CO	3	3	22600	<u>0.85</u>	32.26	31.18 <u>34.61</u>
CO2	3	3			6102	6034.2
NH3	3	3		<u>0.8</u>	.258	.21 <u>0.237</u>
NOX	3	3		<u>3.2</u>	121.3	117.37 <u>130.29</u>
PART	3	3		<u>0.0697</u>	2.65	2.56 <u>2.84</u>
PM10	3	3		<u>0.0573</u>	2.54	2.1 <u>2.33</u>
PM2.5	3	3		<u>0.0573</u>	2.39	2.1 <u>2.33</u>
SO2	3	3		<u>0.002</u>	10.71	.07 <u>0.08</u>
VOM	3	3		<u>0.09</u>	2.65	3.3 <u>3.66</u>

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK	0001	CAPTURE EFFICIENCY:	16.70	%	
STACK	0002	CAPTURE EFFICIENCY:	16.70	%	
STACK	0003	CAPTURE EFFICIENCY:	16.70	%	
STACK	0004	CAPTURE EFFICIENCY:	16.70	%	

I41820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20100102

CEASED OPERATION: /

MODE 01 -

CAPTURING STACKS:

STACK	0023	CAPTURE EFFICIENCY:	16.60	%	_____
STACK	0024	CAPTURE EFFICIENCY:	16.60	%	_____

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 10100501

CEASED OPERATION: /

MODE 01

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 18.00 % 21.0 MAR - MAY: 10.30 % 17.3
JUN - AUG: 31.40 % 33.5 SEP - NOV: 40.30 % 28.3

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

FUEL TYPE: 21 DISTILLATE OIL #2
INPUT (MMBTU/HR): 93

HEAT CONTENT: 139000 Btu/gal 137,600
SULFUR CONTENT (%): 0.05 0.002
ASH CONTENT (%):
NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	2.0	<u>1.34</u>	HOURS/DAY:		
DAYS/WEEK:	2.0	<u>1.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	3	<u>5</u>	WEEKS/SEASON:		
HOURS/YEAR:	10	<u>6.7</u>	HOURS/SEASON:		
RATE/HR: 0.0580 <u>0.060</u>			START TIME:		
			END TIME:		
			RATE/HR:		

I41820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 10100501

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
CO	3	3		5	.06	.3 0.299
CO2	3	3	22300		8028	1293.4
METHANE	3	3	.28		.1	.016
N2O	3	3	.11		.03	.0064
NH3	3	3		0.8	.288	.048 0.048
NOX	3	3		20	.23	1.198 1.194
PART	3	3		2	.023	.12 0.119
PM10	3	3		1	.023	.06 0.060
PM2.5	3	3		0.25	.0155	.015 0.015
SO2	3	3		0.28	.453	.017 0.017
VOM	3	3		0.252	.0023	.015 0.015

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK	0005	CAPTURE EFFICIENCY:	50.00	%	
STACK	0006	CAPTURE EFFICIENCY:	50.00	%	

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20200101

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 53.20 % 26.27 MAR - MAY: 13.60 % 22.71
JUN - AUG: 20.70 % 24.70 SEP - NOV: 12.50 % 26.32

BEGAN OPERATION: /

CEASED OPERATION: /

FUEL TYPE: 21 DISTILLATE OIL #2

HEAT CONTENT: 139000 Btu/gal

INPUT (MMBTU/HR): 4.1

SULFUR CONTENT (%): 0.05

ASH CONTENT (%):

NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	2.0	<u>1.32</u>	HOURS/DAY:		
DAYS/WEEK:	4.0	<u>1.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	15	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	120	<u>68.6</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0133	<u>0.0153</u>	RATE/HR:		

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20200101

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
CO	3	3		0.95	3.99	1.79 2.00
CO2	3	3	21800		632.2	289.94
NH3	3	3		0.8	.01	.01 0.01
NOX	3	3		4.41	18.39	8.3 9.28
PART	3	3		0.31	.52	.58 0.65
PM10	3	3		0.31	.52	.58 0.65
PM2.5	3	3		0.31	.52	.58 0.65
SO2	3	3		0.29	1.19	.55 0.61
VOM	3	3		0.36	1.49	.68 0.76

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0020 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

SCC: 50300599

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 25.00 % 0 MAR - MAY: 25.00 % 0
JUN - AUG: 25.00 % 0 SEP - NOV: 25.00 % 0BEGAN OPERATION: /
CEASED OPERATION: /

UNITS: TONS BURNED

UNITS: TONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	0.0	<u>0</u>	HOURS/DAY:		
DAYS/WEEK:	0.0	<u>0</u>	DAYS/WEEK:		
WEEKS/YEAR:	0	<u>0</u>	WEEKS/SEASON:		
HOURS/YEAR:	0	<u>0</u>	HOURS/SEASON:		
PWR (LB/HR):	0.0000	<u>0</u>	START TIME:		
RATE/HR:	0.0000	<u>0</u>	END TIME:		
			PWR (LB/HR):		
			RATE/HR:		

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

SCC: 50300599

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CO	3	3			.98	0	<u>Ø</u>
NOX	3	3			.131	0	<u>Ø</u>
SO2	3	3			.0004	0	<u>Ø</u>
VOM	3	3			.0062	0	<u>Ø</u>

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CONTROL 0003 CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500102

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

BEGAN OPERATION: 09 / 1977
CEASED OPERATION: /

DEC - FEB: 25.00 % 25.0 MAR - MAY: 25.00 % 25.0
JUN - AUG: 25.00 % 25.0 SEP - NOV: 25.00 % 25.0

UNITS: MILLION GALLONS THROUGHPUT

UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8,760</u>	HOURS/SEASON:		
PWR (LB/HR):			START TIME:		
			END TIME:		
RATE/HR:	84.0000	<u>84.0</u>	PWR (LB/HR):		
			RATE/HR:		

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500102

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
PART	3 3		8.38 4.41 <u>4.51</u>
PM10	3 3		8.38 4.41 <u>4.51</u>
PM2.5	3 3		5.2 4.41 <u>4.51</u>

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
-------------------	--------------------	----------------------------------	--

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0021 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500101

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 25.00 % 25.0 MAR - MAY: 25.00 % 25.0

BEGAN OPERATION: /

JUN - AUG: 25.00 % 25.0 SEP - NOV: 25.00 % 25.0

CEASED OPERATION: /

UNITS: MILLION GALLONS THROUGHPUT

UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8,760</u>	HOURS/SEASON:		
PWR (LB/HR):			START TIME:		
			END TIME:		
RATE/HR:	2.6400	<u>2.64</u>	PWR (LB/HR):		
			RATE/HR:		

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500101

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

PART	3	3			.526	.14	<u>0.14</u>
PM10	3	3			.526	.14	<u>0.14</u>
PM2.5	3	3			.17	.14	<u>0.14</u>

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0022 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

BEGAN OPERATION: 12 / 1998

CEASED OPERATION: /

TANK TYPE: ABOVEGROUND

CAPACITY :	2500	gal	_____	TEMPERATURE (F):	70	_____
DIAMETER (FT):	10.0	_____	_____	ROOF COLOR:	WHITE	_____
HEIGHT (FT):	10	_____	_____	SHELL COLOR:	WHITE	_____
LENGTH (FT):	_____	_____	_____	ROOF PAINT CONDITION:	GOOD	_____
VAPOR SPACE (FT):	1.5	_____	_____	SHELL PAINT CONDITION:	GOOD	_____
LOCATION:	ABOVEGROUND					
SEAL TYPE:	DOUBLE					
SUPPORT TYPE:	CONCRETE					

MATERIAL	MWT	VP (psia)	DENSITY	ANNUAL(gallons)	THROUGHPUTS PEAK OZONE(gallons)
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Unleaded Gasoline	N/A	6.40	6.42	12,278	
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141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 22.90 % 22.8 MAR - MAY: 33.00 % 31.8
JUN - AUG: 24.80 % 23.4 SEP - NOV: 19.30 % 22.0

BEGAN OPERATION: 12 / 1998

CEASED OPERATION: /

UNITS: 1000 GALLONS THROUGHPUT

UNITS: 1000 GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8,760</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0012	<u>0.0014</u>	RATE/HR:		

141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
-------------------	--------------------	----------------------------------	--

VOM	3 3		.46 .016 <u>0.018</u>
-----	-----	--	-----------------------

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
-------------------	--------------------	----------------------------------	--

CAPTURING CONTROLS:

CONTROL	0005	CAPTURE EFFICIENCY:	100.00 %
---------	------	---------------------	----------

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0001 - VENTURI SCRUBBER

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

CONTROL CODE: 129

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
SO2	99.800		3					

CAPTURING CONTROLS:

CONTROL 0004

CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0002 - HEPA FILTER

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

CONTROL CODE: 127

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
PART	99.000		3					
PM10								

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0007 CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0003 - GAS SOLID SEPARATOR

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

CONTROL CODE: 059

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
PART	99.990		3					

CAPTURING CONTROLS:

CONTROL 0001

CAPTURE EFFICIENCY:

100.00

%

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0004 - ACTIVATED CHARCOAL

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

CONTROL CODE: 048

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	98.000		3					

CAPTURING CONTROLS:

CONTROL 0002

CAPTURE EFFICIENCY:

100.00

%

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0005 - VAPOR RECOVERY SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 12 / 1998

CONTROL CODE: 110

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	99.000							

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0019

CAPTURE EFFICIENCY: 100.00 %

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK	DIAMETER (FT)	HEIGHT (FT)	FLOW RATE (ACFM)	TEMPERATURE (F)
0001 - 1A DIESEL GENERATOR	2.90	133	21296	950
0002 - 1B DIESEL GENERATOR	2.90	133	21296	950
0003 - 2A DIESEL GENERATOR	2.90	133	21296	950
0004 - 2B DIESEL GENERATOR	2.90	133	21296	950
0005 - U1 AUXILIARY BOILER	3.70	140	34468	515
0006 - U2 AUXILIARY BOILER	3.70	140	34468	515
0007 - RADWASTE VOLUME REDUCTION	2.70	57	11537	728
0019 - GASOLINE STORAGE AND HANDLING POINT 00012	0.20	14	2	70
0020 - SMALL ENGINES TYPICAL	2.50	29	16397	368

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK	DIAMETER (FT)	HEIGHT (FT)	FLOW RATE (ACFM)	TEMPERATURE (F)
0021 - COOLING TOWER NATURAL DRAFT	14.90	57	361801	76
0022 - COOLING TOWERS, 8 INDUCED DRAFT	14.20	30	282068	85
0023 - 1B AUXILIARY DIESEL FEEDWATER PUMP	0.83	103	2800	612
0024 - 2B AUXILIARY DIESEL FEEDWATER PUMP	0.83	103	2800	612

BYRON GENERATING STATION												
2009 Annual Emissions Inventory Report												
Summary of Points, Controls & Stacks												
Point #	Point Description	Control #	Control Description	Stack #	EMISSIONS TONS/YEAR							
					CO	NOX	PM10	PM2.5	SO2	VOM	NH3	
0001	Large Diesel Engines	N/A	N/A	0001 to 0004, 0023, 0024	6.43	24.19	0.53	0.43	0.02	0.68	0.04	
0002	2 Auxiliary Boilers	N/A	N/A	0005 and 0006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0007	Radiation Waste Volume Reduction System	0001	Venturi Scrubber	N/A	0	0	0	0	0	0	N/A	
		0002	HEPA Filter	0007	0	0	0	0	0	0	N/A	
		0003	Gas Solid Separator	N/A	0	0	0	0	0	0	N/A	
		0004	Activated Charcoal	N/A	0	0	0	0	0	0	N/A	
0012	Gasoline Storage and Handling	0005	Vapor Control System	0019	N/A	N/A	N/A	N/A	N/A	0.02	N/A	
0013	Small Diesel Engines	N/A	N/A	0020	0.07	0.32	0.02	0.02	0.02	0.03	0.00	
0014	Cooling Tower-Natural Draft	N/A	N/A	0021	N/A	N/A	19.74	19.74	N/A	N/A	N/A	
0014	Cooling Tower-Induced Draft	N/A	N/A	0022	N/A	N/A	0.63	0.63	0.63	N/A	N/A	
Source					2009 Fuel Consumption							
					1000/Gal							
Auxiliary Boilers					0.4							
Large Diesel Engines					108.9							
Small Diesel Engines					1.05							
					There were no exceedances of any annual permit requirements during the calendar year 2009 addressed in this report.							
					Total							
					6.50	24.51	20.92	20.93	20.93	0.72	0.04	

Exelon Generation Company, LLC
Byron Station
4450 North German Church Road
Byron, IL 61010-9794

www.exeloncorp.com

April 24, 2009

LTR: BYRON 2009-0053
File: 2.09.0810
1.10.0101

Illinois Environmental Protection Agency
Bureau of Air
Air Quality Planning Section (#39)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
Attn: Annual Emission Report

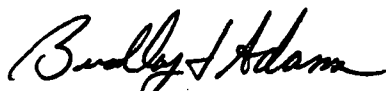
Subject: 2008 Annual Emission Report

In accordance with the requirements of 35 Illinois Administrative Code Part 254, "Environmental Protection - Annual Emissions Reporting Rule," Exelon Generation Company hereby submits the 2008 Annual Emissions Report for Byron Station, ID No. 141820AAA. Included in the Annual Emissions Report are the following:

1. Annual Source Emission Summary
2. Annual Source Emissions Forms

If you have any questions regarding this matter, please contact Mr. Stan Kerr, Chemistry manager, at (815) 406-3200.

Respectfully,



Bradley J. Adams
Plant Manager
Byron Nuclear Generating Station

BJA/ZC/sdk

Attachment

bcc: Kevin Hersey – Environmental – Cantera
Zoe Cox – Chemistry – Byron Station

Summary of Points, Controls & Stacks

[illegible]

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- SOURCE DATA -

SOURCE
IDS AND
LOCATION

AIRS: 17-141-0069	IEPA USE ONLY	SIC 1: 4911	NAICS 1: 221113
FINDS: ILD984889907	IEPA USE ONLY	SIC 2:	NAICS 2:
FEIN: 360938600		SIC 3:	NAICS 3:
D&B: 000-692-9509		SIC 4:	NAICS 4:
LATITUDE: 42:04:26.9400		SIC 5:	NAICS 5:
LONGITUDE: 89:16:58.0800		SIC 6:	NAICS 6:

SOURCE
ADDRESS

Exelon Generation Co LLC

4450 N German Church Rd
Byron, IL 61010

CONTACT: Zoe Cox

PHONE: 815-406-3035

EXT:

FAX: 815-406-3301

E-Mail: ZOE.COX@exeloncorp.com

ANNUAL
MISSION
REPORT
MAILING
ADDRESS

Exelon - Byron Generating Station

4450 N German Church Rd
Byron, IL 61010

CONTACT: Zoe Cox

PHONE: 815-406-3035

EXT:

FAX: 815-406-3301

E-MAIL: ZOE.COX@exeloncorp.com

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

AUTHORIZED SIGNATURE


BRADLEY J. ADAMS - PLANT MANAGER
TYPED OR PRINTED NAME AND TITLE

DATE

4-27-09
815-406-3700
TELEPHONE NUMBER

DAPC - ANNUAL EMISSIONS REPORT - 2008

41820AAA - Exelon Generation Co LLC

- ANNUAL SOURCE EMISSIONS -

POLLUTANT CODE	SOURCES REPORTED EMISSIONS FOR 2008 (TONS/YEAR)	ALLOWABLE EMISSIONS (TONS/YEAR)	EMISSIONS REPORTED FOR 2007 (TONS/YEAR)	IEPA 2008 ESTIMATED EMISSIONS (TONS/YEAR)
CO	4.98	25.362960	6.700000	6.798947
CO2		39,591.686400	2,963.898270	2,963.898270
METHANE		0.436800	0.022680	0.022680
N2O		0.131040	0.006804	0.006804
NH3	0.03	1.438080	0.080000	0.113630
NOX	18.83	94.975356	25.330000	22.883387
PART	20.39	41.662992	25.750000	39.403404
PM10	20.32	41.058192	25.600000	39.382812
PM2.5	20.32	25.479384	25.560000	23.907786
SO2	0.05	10.126704	0.290000	2.109559
VOM	0.63	5.035766	0.780000	2.512579

Illinois Environmental Protection Agency
Division of Air Pollution Control
DAFC - ANNUAL EMISSIONS REPORT - 2008Page: 03
Date: 11-14-2008

141820AAA - Exelon Generation Co LLC

- PERMIT LISTING -

PERMIT NUMBER	TYPE OF PERMIT	OPERATION NAME	STATUS	STATUS DATE	EXPIRES
78090018	FESOP	BYRON GENERATING STATION	GRANTED	12-13-2002	12-13-2007

Illinois Environmental Protection Agency
Division of Air Pollution Control
DAPC - ANNUAL EMISSIONS REPORT - 2008Page: 04
Date: 11-14-2008

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____

SCC: 20100102

CEASED OPERATION: / _____

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 19.83 % 25.08 MAR - MAY: 30.43 % 33.81
JUN - AUG: 25.29 % 21.79 SEP - NOV: 24.45 % 19.32

BEGAN OPERATION: 09 / 1978 _____

CEASED OPERATION: / _____

FUEL TYPE: 21 DISTILLATE OIL #2 _____

HEAT CONTENT: 139000 Btu/gal 137,481

INPUT (MMBTU/HR): 232.8 _____

SULFUR CONTENT (%): 0.05 0.002

ASH CONTENT (%): _____

NITROGEN CONTENT (%): _____

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	5.2	<u>5.2</u>	HOURS/DAY:	_____	_____
DAYS/WEEK:	6.0	<u>5.0</u>	DAYS/WEEK:	_____	_____
WEEKS/YEAR:	12	<u>12</u>	WEEKS/SEASON:	_____	_____
HOURS/YEAR:	371	<u>312</u>	HOURS/SEASON:	_____	_____
			START TIME:	_____	_____
			END TIME:	_____	_____
RATE/HR:	0.2870	<u>0.267</u>	RATE/HR:	_____	_____
CONFIDENTIAL:	N	_____	CONFIDENTIAL:	_____	_____

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20100102

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED
CO	3	3		.85	32.26	34.52 <u>31.18</u>
CO2	3	3	22600	22600	6102	6102
NH3	3	3		.8	.258	.23 <u>0.21</u>
NOX	3	3		3.2	121.3	129.94 <u>117.37</u>
PART	3	3		.0697	2.65	2.83 <u>2.56</u>
PM10	3	3		.0573	2.54	2.33 <u>2.10</u>
PM2.5	3	3		.0573	2.39	2.33 <u>2.10</u>
SO2	3	3		.0182 <u>0.0020</u>	10.71	.74 <u>0.07</u>
VOM	3	3		.09	2.65	3.65 <u>3.30</u>

POLLUTANT CODE	METHOD		EMISSION FACTOR IEPA	REPORTED	OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP			IEPA	REPORTED
NOX	3	3			121.3	121.3
VOM	3	3			2.65	2.65

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK	0001	CAPTURE EFFICIENCY:	16.70	%
STACK	0002	CAPTURE EFFICIENCY:	16.70	%

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0001 - 6 LARGE DIESEL GENERATORS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20100102

CEASED OPERATION: /

MODE 01 -

CAPTURING STACKS:

STACK	0003	CAPTURE EFFICIENCY:	16.70	%	_____
STACK	0004	CAPTURE EFFICIENCY:	16.70	%	_____
STACK	0023	CAPTURE EFFICIENCY:	16.60	%	_____
STACK	0024	CAPTURE EFFICIENCY:	16.60	%	_____

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 10100501

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

FUEL TYPE: 21 DISTILLATE OIL #2
INPUT (MMBTU/HR): 93

PERCENT THROUGHPUTS:
DEC - FEB: 0.10 % 18.0 MAR - MAY: 0.00 % 10.3
JUN - AUG: 0.60 % 31.4 SEP - NOV: 99.30 % 40.3

HEAT CONTENT: 139000 Btu/gal 137,481
SULFUR CONTENT (%): 0.05 0.002
ASH CONTENT (%):
NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	10.1	<u>2</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>2</u>	DAYS/WEEK:		
WEEKS/YEAR:	6	<u>2.5</u>	WEEKS/SEASON:		
HOURS/YEAR:	427	<u>10.2</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.2520	<u>0.058</u>	RATE/HR:		
CONFIDENTIAL:	N		CONFIDENTIAL:		

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 10100501

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA	REP	EMISSION FACTOR IEPA	REPORTED	EMISSION RATE (LB/HR) IEPA	REPORTED
CO	3	3		5	.06	1.26 0.300
CO2	3	3	22300	22300	8028	8028
METHANE	3	3	.28	.28	.1	.1
N2O	3	3	.11	.11	.03	.03
NH3	3	3		.8	.288	.202 0.048
NOX	3	3		20	.23	5.04 1.198
PART	3	3		2	.023	.504 0.120
PM10	3	3		1	.023	.252 0.060
PM2.5	3	3		.25	.0155	.063 0.015
SO2	3	3		5.68 0.28	.453	.644 0.017
VOM	3	3		.252	.0023	.064 0.015

POLLUTANT CODE	METHOD IEPA	REP	EMISSION FACTOR IEPA	REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA	REPORTED
NOX	3	3			.23	.23
VOM	3	3			.0023	.0023

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0005 CAPTURE EFFICIENCY: 50.00 %

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0002 - 2 AUXILIARY BOILERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978 _____

SCC: 10100501

CEASED OPERATION: / _____

MODE 01 -

CAPTURING STACKS:

STACK 0006 CAPTURE EFFICIENCY: 50.00 % _____

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20200101

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 27.98 % 53.2 MAR - MAY: 21.10 % 13.6
JUN - AUG: 26.98 % 20.7 SEP - NOV: 23.94 % 12.5

BEGAN OPERATION: /

CEASED OPERATION: /

FUEL TYPE: 21 DISTILLATE OIL #2

HEAT CONTENT: 139000 Btu/gal 137,481

INPUT (MMBTU/HR): 4.1

SULFUR CONTENT (%): 0.05 0.002

ASH CONTENT (%):

NITROGEN CONTENT (%):

UNITS: 1000 GALLONS BURNED

UNITS: 1000 GALLONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	1.0	<u>2.0</u>	HOURS/DAY:		
DAYS/WEEK:	4.0	<u>4.0</u>	DAYS/WEEK:		
WEEKS/YEAR:	12	<u>15.0</u>	WEEKS/SEASON:		
HOURS/YEAR:	49	<u>120.1</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0121	<u>0.0133</u>	RATE/HR:		
CONFIDENTIAL:	N		CONFIDENTIAL:		

141820AAA - Exelon Generation Co LLC

- FUEL COMBUSTION DATA -

POINT 0013 - SMALL DIESEL ENGINES

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 20200101

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP			EMISSION FACTOR IEPA REPORTED		EMISSION RATE (LB/HR) IEPA REPORTED	
CO	3	3		.95		3.99	1.62 <u>1.79</u>
CO2	3	3		21800	21800	632.2	632.2
NH3	3	3		.8		.01	.01 <u>0.01</u>
NOX	3	3		4.41		18.39	7.51 <u>8.30</u>
PART	3	3		.31		.52	.53 <u>0.58</u>
PM10	3	3		.31		.52	.53 <u>0.58</u>
PM2.5	3	3		.31		.52	.53 <u>0.58</u>
SO2	3	3		.29		1.19	.49 <u>0.55</u>
VOM	3	3		.36		1.49	.61 <u>0.68</u>

POLLUTANT CODE	METHOD IEPA REP			EMISSION FACTOR IEPA REPORTED		OZONE SEASON EMISSION RATE (LB/HR)	
						IEPA	REPORTED
NOX	3	3				18.39	18.39
VOM	3	3				1.49	1.49

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0020 CAPTURE EFFICIENCY: 100.00 %

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

SCC: 50300599

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB:

25.00 %

~~0~~

MAR - MAY:

25.00 %

~~0~~

JUN - AUG:

25.00 %

~~0~~

SEP - NOV:

25.00 %

~~0~~

BEGAN OPERATION: / _____

CEASED OPERATION: / _____

UNITS: TONS BURNED

UNITS: TONS BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	0.0	0	HOURS/DAY:	_____	
DAYS/WEEK:	0.0	0	DAYS/WEEK:	_____	
WEEKS/YEAR:	0	0	WEEKS/SEASON:	_____	
HOURS/YEAR:	0	0	HOURS/SEASON:	_____	
PWR (LB/HR):	0.0000	_____	START TIME:	_____	
RATE/HR:	0.0000	0	END TIME:	_____	
CONFIDENTIAL:	N	_____	PWR (LB/HR):	_____	
			RATE/HR:	_____	
			CONFIDENTIAL:	_____	

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0007 - RAD WASTE VOLUME REDUCTION SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

SCC: 50300599

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
CO	3 3		.98 0
NOX	3 3		.131 0
SO2	3 3		.0004 0
VOM	3 3		.0062 0

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
NOX	3 3		.131 .131
VOM	3 3		.0062 .0062

CAPTURING CONTROLS:

CONTROL 0003 CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500102

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB: 25.00 % 25 MAR - MAY: 25.00 % 25
JUN - AUG: 25.00 % 25 SEP - NOV: 25.00 % 25

BEGAN OPERATION: 09 / 1977

CEASED OPERATION: /

UNITS: MILLION GALLONS THROUGHPUT

UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8784</u>	HOURS/SEASON:		
PWR (LB/HR):			START TIME:		
			END TIME:		
RATE/HR:	84.0000	<u>84.0</u>	PWR (LB/HR):		
CONFIDENTIAL:	N		RATE/HR:		
			CONFIDENTIAL:		

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0014 - 2 NATURAL DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500102

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
-------------------	--------------------	----------------------------------	--

PART	3 3		8.38 5.58 <u>4.41</u>
PM10	3 3		8.38 5.58 <u>4.41</u>
PM2.5	3 3		5.2 5.58 <u>4.41</u>

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
-------------------	--------------------	----------------------------------	--

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK	0021	CAPTURE EFFICIENCY:	100.00 %
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Illinois Environmental Protection Agency
Division of Air Pollution Control
DAPC - ANNUAL EMISSIONS REPORT - 2008

Page: 016

Date: 11-14-2008

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500101

CEASED OPERATION: /

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

DEC - FEB:

25

MAR - MAY:

25

BEGAN OPERATION: /

JUN - AUG:

25

SEP - NOV:

25

CEASED OPERATION: /

UNITS: MILLION GALLONS THROUGHPUT

UNITS: MILLION GALLONS THROUGHPUT

ANNUAL OPERATION		PEAK OZONE SEASON OPERATION	
HOURS/DAY:	24	HOURS/DAY:	
DAYS/WEEK:	7	DAYS/WEEK:	
WEEKS/YEAR:	52	WEEKS/SEASON:	
HOURS/YEAR:	8784	HOURS/SEASON:	
PWR (LB/HR):		START TIME:	
RATE/HR:	2.64	END TIME:	
CONFIDENTIAL:		PWR (LB/HR):	
		RATE/HR:	
		CONFIDENTIAL:	

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- PROCESS DATA -

POINT 0015 - 8 INDUCED DRAFT COOLING TOWERS

PERMIT: 78090018

BEGAN OPERATION: 09 / 1978

SCC: 38500101

CEASED OPERATION: /

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
-------------------	--------------------	----------------------------------	--

PART	3		.526
PM10	3		.526
PM2.5	3		.17

0.14
0.14
0.14

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
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CAPTURING CONTROLS:

CAPTURING STACKS:

STACK	0022	CAPTURE EFFICIENCY:	100.00	%
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DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

BEGAN OPERATION: 12 / 1998

CEASED OPERATION: /

TANK TYPE: ABOVEGROUND

CAPACITY :	2500	gal	_____	TEMPERATURE (F):	70	_____
DIAMETER (FT):	10.0		_____	ROOF COLOR:	WHITE	_____
HEIGHT (FT):	10		_____	SHELL COLOR:	WHITE	_____
LENGTH (FT):			_____	ROOF PAINT CONDITION:	GOOD	_____
VAPOR SPACE (FT):	1.5		_____	SHELL PAINT CONDITION:	GOOD	_____
LOCATION:	ABOVEGROUND					
SEAL TYPE:	DOUBLE					
SUPPORT TYPE:	CONCRETE					

MATERIAL	MWT	VP (psia)	DENSITY	----- ANNUAL(gallons)	THROUGHPUTS PEAK OZONE(gallons)
Unleaded Gasoline	N/A	6.40	6.42	10,900	N/A

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS:

BEGAN OPERATION: 12 / 1998

CEASED OPERATION: /

DEC - FEB:

22.00

22.9

MAR - MAY:

31.40

33.0

JUN - AUG:

25.40

24.8

SEP - NOV:

21.20

19.3

UNITS: 1000 GALLONS STORAGE CAPACITY

UNITS: 1000 GALLONS STORAGE CAPACITY

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24</u>	HOURS/DAY:		
DAYS/WEEK:	7.0	<u>7</u>	DAYS/WEEK:		
WEEKS/YEAR:	52	<u>52</u>	WEEKS/SEASON:		
HOURS/YEAR:	8,760	<u>8784</u>	HOURS/SEASON:		
			START TIME:		
			END TIME:		
RATE/HR:	0.0013	<u>0.0012</u>	RATE/HR:		
CONFIDENTIAL:	N		CONFIDENTIAL:		

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- STORAGE TANK DATA -

POINT 0012 - GASOLINE STORAGE AND HANDLING

PERMIT: 78090018

SCC: 40301019

MODE 01 -

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	EMISSION RATE (LB/HR) IEPA REPORTED
-------------------	--------------------	----------------------------------	--

VOM	3 3		.46 .017 <u>D.D16</u>
-----	-----	--	-----------------------

POLLUTANT CODE	METHOD IEPA REP	EMISSION FACTOR IEPA REPORTED	OZONE SEASON EMISSION RATE (LB/HR) IEPA REPORTED
-------------------	--------------------	----------------------------------	--

VOM	3 3		.46 .46
-----	-----	--	---------

CAPTURING CONTROLS:

CONTROL	0005	CAPTURE EFFICIENCY:	100.00 %
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CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0001 - VENTURI SCRUBBER

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982
CEASED OPERATION: /

CONTROL CODE: 053

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
SO2	99.800		3					

CAPTURING CONTROLS:

CONTROL 0004 CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0002 - HEPA FILTER

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 017 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
PART	99.000	_____	3	_____		_____		_____
PM10		_____		_____		_____		_____

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0007 CAPTURE EFFICIENCY: 100.00 % _____

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0003 - GAS SOLID SEPARATOR

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982 _____
CEASED OPERATION: / _____

CONTROL CODE: 059 _____

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD	EFFICIENCY		METHOD		
	IEPA	REPORTED		IEPA	REPORTED			
PART	99.990	_____	3	_____	_____	_____	_____	

CAPTURING CONTROLS:

CONTROL 0001 CAPTURE EFFICIENCY: 100.00 % _____

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0004 - ACTIVATED CHARCOAL

PERMIT: 78090018

BEGAN OPERATION: 11 / 1982

CONTROL CODE: 048

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	98.000		3					

CAPTURING CONTROLS:

CONTROL 0002 CAPTURE EFFICIENCY: 100.00 %

CAPTURING STACKS:

141820AAA - Exelon Generation Co LLC

- CONTROL DEVICE DATA -

CONTROL 0005 - VAPOR RECOVERY SYSTEM

PERMIT: 78090018

BEGAN OPERATION: 12 / 1998

CONTROL CODE: 047

CEASED OPERATION: /

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	99.000							

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0019 CAPTURE EFFICIENCY: 100.00 %

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0001 - 1A DIESEL GENERATOR

BEGAN OPERATION: 09 / 1978

CEASED OPERATION: /

DESCRIPTION CORRECTION:

DIAMETER (FT): 2.90

HEIGHT (FT): 133

FLOW RATE (ACFM): IEPA - 21296 REPORTED -

TEMPERATURE (F): IEPA - 950 REPORTED -

LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400

LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800

DATUM : NAD27

SCALE : 12000

METHOD: 019

ACCURACY : 20

WHERE MEASURED : Center Of Facility

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0002 - 1B DIESEL GENERATOR

BEGAN OPERATION: 09 / 1978

CEASED OPERATION: /

DESCRIPTION CORRECTION:

DIAMETER (FT):	2.90	
HEIGHT (FT):	133	
FLOW RATE (ACFM):	IEPA - 21296	REPORTED -
TEMPERATURE (F):	IEPA - 950	REPORTED -
LATITUDE (DD:MM:SS.SSSS):	42:04:26.9400	
LONGITUDE (DD:MM:SS.SSSS):	89:16:58.0800	
DATUM :	NAD27	
SCALE :	12000	
METHOD:	019	
ACCURACY :	20	
WHERE MEASURED : Center Of Facility		

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0003 - 2A DIESEL GENERATOR

BEGAN OPERATION: 09 / 1978

CEASED OPERATION: /

DESCRIPTION CORRECTION:

DIAMETER (FT): 2.90

HEIGHT (FT): 133

FLOW RATE (ACFM): IEPA - 21296 REPORTED -

TEMPERATURE (F): IEPA - 950 REPORTED -

LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400

LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800

DATUM : NAD27

SCALE : 12000

METHOD: 019

ACCURACY : 20

WHERE MEASURED : Center Of Facility

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0004 - 2B DIESEL GENERATOR

BEGAN OPERATION: 09 / 1978 _____

CEASED OPERATION: / _____

DESCRIPTION CORRECTION:

DIAMETER (FT): 2.90 _____

HEIGHT (FT): 133 _____

FLOW RATE (ACFM): IEPA - 21296 REPORTED - _____

TEMPERATURE (F): IEPA - 950 REPORTED - _____

LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400 _____

LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800 _____

DATUM : NAD27 _____

SCALE : 12000 _____

METHOD: 019 _____

ACCURACY : 20 _____

WHERE MEASURED : Center Of Facility

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0005 - U1 AUXILIARY BOILER

BEGAN OPERATION: 09 / 1978

CEASED OPERATION: /

DESCRIPTION CORRECTION:

DIAMETER (FT): 3.70

HEIGHT (FT): 140

FLOW RATE (ACFM): IEPA - 34468 REPORTED -

TEMPERATURE (F): IEPA - 515 REPORTED -

LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400

LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800

DATUM : NAD27

SCALE : 12000

METHOD: 019

ACCURACY : 20

WHERE MEASURED : Center Of Facility

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0006 - U2 AUXILIARY BOILER

BEGAN OPERATION: 09 / 1978 _____
CEASED OPERATION: / _____

DESCRIPTION CORRECTION:

DIAMETER (FT):	3.70	_____
HEIGHT (FT):	140	_____
FLOW RATE (ACFM):	IEPA - 34468	REPORTED - _____
TEMPERATURE (F):	IEPA - 515	REPORTED - _____
LATITUDE (DD:MM:SS.SSSS):	42:04:26.9400	_____
LONGITUDE (DD:MM:SS.SSSS):	89:16:58.0800	_____
DATUM :	NAD27	_____
SCALE :	12000	_____
METHOD:	019	_____
ACCURACY :	20	_____

WHERE MEASURED : Center Of Facility

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0007 - RADWASTE VOLUME REDUCTION

BEGAN OPERATION: 11 / 1982

CEASED OPERATION: /

DESCRIPTION CORRECTION:

DIAMETER (FT): 2.70

HEIGHT (FT): 57

FLOW RATE (ACFM): IEPA - 11537 REPORTED -

TEMPERATURE (F): IEPA - 728 REPORTED -

LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400

LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800

DATUM : NAD27

SCALE : 12000

METHOD: 019

ACCURACY : 20

WHERE MEASURED : Center Of Facility

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0019 - GASOLINE STORAGE AND HANDLING POINT 00012

BEGAN OPERATION: 12 / 1998

CEASED OPERATION: /

DESCRIPTION CORRECTION:

DIAMETER (FT): 0.20

HEIGHT (FT): 14

FLOW RATE (ACFM): IEPA - 2 REPORTED -

TEMPERATURE (F): IEPA - 70 REPORTED -

LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400

LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800

DATUM : NAD27

SCALE : 12000

METHOD: 019

ACCURACY : 20

WHERE MEASURED : Center Of Facility

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0020 - SMALL ENGINES TYPICAL

BEGAN OPERATION: 09 / 1978
CEASED OPERATION: /

DESCRIPTION CORRECTION:

DIAMETER (FT): 2.50
HEIGHT (FT): 29
FLOW RATE (ACFM): IEPA - 16397 REPORTED -
TEMPERATURE (F): IEPA - 368 REPORTED -
LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400
LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800
DATUM : NAD27
SCALE : 12000
METHOD: 019
ACCURACY : 20
WHERE MEASURED : Center Of Facility

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0021 - COOLING TOWER NATURAL DRAFT

BEGAN OPERATION: 09 / 1978

CEASED OPERATION: /

DESCRIPTION CORRECTION:

DIAMETER (FT): 14.90

HEIGHT (FT): 57

FLOW RATE (ACFM): IEPA - 361801 REPORTED -

TEMPERATURE (F): IEPA - 76 REPORTED -

LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400

LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800

DATUM : NAD27

SCALE : 12000

METHOD: 019

ACCURACY : 20

WHERE MEASURED : Center Of Facility

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0022 - COOLING TOWERS, 8 INDUCED DRAFT

BEGAN OPERATION: / _____
CEASED OPERATION: / _____

DESCRIPTION CORRECTION:

DIAMETER (FT): 14.20 _____
HEIGHT (FT): 30 _____
FLOW RATE (ACFM): IEPA - 282068 REPORTED - _____
TEMPERATURE (F): IEPA - 85 REPORTED - _____
LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400 _____
LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800 _____
DATUM : NAD27 _____
SCALE : 12000 _____
METHOD: 019 _____
ACCURACY : 20 _____

WHERE MEASURED : Center Of Facility

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0023 - 1B AUXILIARY DIESEL FEEDWATER PUMP

BEGAN OPERATION: 09 / 1978

CEASED OPERATION: /

DESCRIPTION CORRECTION:

DIAMETER (FT): 0.83

HEIGHT (FT): 103

FLOW RATE (ACFM): IEPA - 2800 REPORTED -

TEMPERATURE (F): IEPA - 612 REPORTED -

LATITUDE (DD:MM:SS.SSSS): 42:04:26.9400

LONGITUDE (DD:MM:SS.SSSS): 89:16:58.0800

DATUM : NAD27

SCALE : 12000

METHOD: 019

ACCURACY : 20

WHERE MEASURED : Center Of Facility

DAPC - ANNUAL EMISSIONS REPORT - 2008

141820AAA - Exelon Generation Co LLC

- STACK DATA -

STACK 0024 - 2B AUXILIARY DIESEL FEEDWATER PUMP

BEGAN OPERATION: / _____
CEASED OPERATION: / _____

DESCRIPTION CORRECTION:

DIAMETER (FT):	0.83	_____
HEIGHT (FT):	103	_____
FLOW RATE (ACFM):	IEPA - 2800	REPORTED - _____
TEMPERATURE (F):	IEPA - 612	REPORTED - _____
LATITUDE (DD:MM:SS.SSSS):	42:04:26.9400	_____
LONGITUDE (DD:MM:SS.SSSS):	89:16:58.0800	_____
DATUM :	NAD27	_____
SCALE :	12000	_____
METHOD:	019	_____
ACCURACY :	20	_____

WHERE MEASURED : Center Of Facility

Attachment 2
Example Verification Completion Form
Page 1 of 1

Verification Documentation

Correspondence/Letter number: 2009- 0053 Origination Date: 04/21/09
 Agency/External Stakeholder: IEPA Submittal Due Date: 04/24/09
 Recipient of Correspondence: Bureau of Air, Air Quality Planning Section (39)
 (name and title if known)
 Purpose of Submittal: 2008 Annual Emission Report
 Originating Office: ☐ Cantera ☐ Kennett Square ☒ Site Byron
 (specify)
 Preparer: Zoe Cox (print) Zoe Cox (sign) 04-22-09 (date)
 Peer Reviewer: Dave Starke (print) Dave Starke (sign) 4-22-09 (date)
 Certified Mail Return Receipt Requested: ☒ Yes ☐ No

Approvals (check box if applicable)

	Applicable	Date Review Needed	Signature of Reviewer	Date of Review
Site Departments				
Chemistry	<input checked="" type="checkbox"/>	04/22/09	<u>Stan Kim</u>	4-23-09
Operations	<input type="checkbox"/>			
Engineering	<input type="checkbox"/>			
Regulatory Assurance	<input checked="" type="checkbox"/>	04/23/09	<u>Wendy T. Ayers</u>	4-27-09
Other: _____ (specify)	<input type="checkbox"/>			
Corporate				
SME/FAM	<input type="checkbox"/>			
Site Management				
Plant Manager <u>ONLY</u>	<input checked="" type="checkbox"/>	04/24/09	<input checked="" type="checkbox"/> Report Signed and Approved	
Site Vice President	<input type="checkbox"/>			

Attach additional page for comments.

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-3

Category: Meteorology, Air Quality and Noise

Statement of Question:

Identify combustion sources of hazardous air pollutants (HAPs) at Byron and amount released for the most recent five years.

Response:

Sources of Hazardous Air Pollutants (HAPs) at Byron Station are small engines (less than or equal to 600 HP) and large engines (greater than 600 HP). The total annual quantity of HAPs from small and large engines at Byron is well below the HAPs significance level of 10 tons per year. Hence, HAPs are not reported for Byron. The quantities and types of fuel used at Byron by these engines are reported in the annual air emissions reports, copies of which are provided in the Request for Additional Information Response Met-2.

The applicable HAPs emission factors (from USEPA, AP-42, Fifth Edition) for small and large engines at Byron are listed below:

	Small Engines Emission Factor (lb/MMBTU)	Large Engines Emission Factor (lb/MMBTU)	Boiler Emission Factor (lb/1000 gallons)
Benzene	9.33 E-04	7.76 E-04	2.14 E-04
Toluene	4.09 E-04	2.81 E-04	6.20 E-03
Xylenes	2.85 E-04	1.93 E-04	1.09 E-04
1,3 Butadiene	< 3.91 E-05	No Data	No Data
Formaldehyde	1.18 E-03	7.89 E-05	3.30 E-02
Acetaldehyde	7.67 E-04	2.52 E-05	No Data
Acrolein	< 9.25 E-05	7.88 E-06	No Data
Naphthalene	8.48 E-05	1.30 E-04	1.13 E-03

Fuel usages for the most recent 5 years for large engines (6 large diesel engines) and boilers (2 auxiliary boilers) and small engines (as reported in the annual emissions reports) are as summarized in the table below.

	Small Engines (gallons)	Large Engines (gallons)	Auxiliary Boilers (1000 gallons)
2008	1,600 @ 137,481 BTU/gal	83,300 @ 137,481 BTU/gal	0.6
2009	1,050 @ 137,600 BTU/gal	109,900 @ 137,600 BTU/gal	0.4
2010	600 @ 137,690 BTU/gal	96,100 @ 137,690 BTU/gal	0.5
2011	550 @ 137,447 BTU/gal	90,900 @ 137,447 BTU/gal	0.5
2012	510 @ 137,357 BTU/gal	127,800 @ 137,357 BTU/gal	4.2

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-4

Category: Meteorology, Air Quality and Noise

Statement of Question:

Are there expected upgrade/replacement activities for equipment/operation that could increase or decrease air emissions over the license renewal period?

Response:

No upgrade/replacement activities are planned for equipment/operation that could increase or decrease air emissions during the Byron period of extended operation.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-5

Category: Meteorology, Air and Noise

Statement of Question:

The ER provides carbon dioxide (CO₂) emissions from stationary combustion sources at Byron. Provide available site-wide emission inventory data (annual) for greenhouse gases (GHG) for the most recent 5 years. Emissions should include stationary combustion sources, mobile sources (commuters, visitors, delivery vehicle, etc.), and other sources (refrigerant leakage, emissions from switchyard, etc.). Address the following:

- a. Identify and discuss the GHG emission sources;
- b. Provide information (e.g. operating hours per year, fuel consumption and rates, and energy rating as applicable for each source) used to support the GHG emission values provided; and
- c. Provide a description of procedure EN-AA-201-2020.

Response:

- a. For Byron Station, the following potential sources of GHG emissions have been identified:

Direct

Emergency Diesel Generator 1
Emergency Diesel Generator 2
Emergency Diesel Generator 3
Emergency Diesel Generator 4
Emergency Diesel Generator U1 AF
Emergency Diesel Generator U2 AF
Auxiliary Boiler U1 – 93 MMBTU
Auxiliary Boiler U2 – 93 MMBTU
Small Diesel Engines
Propane Fired Engines
CO₂ purge/fire protection system
R134a (HFC-134a)
SF₆ (Sulfur hexafluoride)

Indirect

Electricity consumption

Supplemental

Halon 1211
Halon 1301
R11 (Trichlorofluoromethane)
R22 (Monochlorodifluoromethane)
R114 (Dichlorotetrafluoroethane)

- b. The table below summarizes the site-wide Byron Station GHG emission inventory data. Mobile sources are not included because Exelon Corporation does not compile site-specific data for such sources.

Byron Station GHG Emissions Summary (2008 through 2012)
[GHG CO2 Equivalents (metric tons)]

	2008	2009	2010	2011	2012
Direct					
Direct Stationary Combustion	854.51	1,294.47	985.85	937.83	1,357.67
Direct CO2 Fugitive	13.96	16.92	17.30	32.49	18.30
HFC / PFC Refrigerants	0.00	732.37	2,669.44	383.29	0.00
Indirect - Scope 2					
Purchased Electricity	6,139.29	5,721.07	7,146.84	7,698.39	7,034.23
Supplemental					
Ozone Depleting Refrigerants	5,094.21	3,106.73	1,239.89	2,965.14	5,551.97

Fuel usages reported in the Byron annual emissions reports for large engines (6 large diesel engines), boilers (2 auxiliary boilers), and small engines are as summarized in the table below for the most recent 5 years. These GHG emissions sources comprise the Direct Stationary Combustion category shown in the table above.

	Small Engines (gallons)	Large Engines (gallons)	Auxiliary Boilers (1000 gallons)
2008	1,600 @ 137,481 BTU/gal	83,300 @ 137,481 BTU/gal	0.6
2009	1,050 @ 137,600 BTU/gal	109,900 @ 137,600 BTU/gal	0.4
2010	600 @ 137,690 BTU/gal	96,100 @ 137,690 BTU/gal	0.5
2011	550 @ 137,447 BTU/gal	90,900 @ 137,447 BTU/gal	0.5
2012	510 @ 137,357 BTU/gal	127,800 @ 137,357 BTU/gal	4.2

- c. Exelon Generation has adopted Procedure EN-AA-201-2020, "Green House Gas Program," to define roles and responsibilities for ensuring the establishment of the Exelon greenhouse gas (GHG) inventory, which includes data on emissions, reductions of emissions, and offsets of emissions. The procedure provides for tracking and reporting of the parameters needed to assist Exelon Corporation in (1) complying with the U.S. EPA Climate Leaders program and the ISO 14064 Greenhouse Gases – Part 1 standard, and (2) meeting internal Exelon reporting requirements and voluntary commitments to the U.S. EPA Climate Leaders program. The procedure further specifies that GHG emissions for Exelon Nuclear sites will be tracked separately in accordance with the Mandatory Greenhouse Gas Reporting Rule (40 CFR Part 98) and monitored for change, but the procedure notes that baseline emissions established in 2009 for all Exelon Nuclear sites were significantly below the mandatory reporting threshold set forth in the Rule.

Procedure EN-AA-201-2020 directs Exelon Nuclear personnel to calculate GHG emissions for Exelon Nuclear sites using activity data and emission factors and to document the following data where it can be quantified.

- Direct emissions for each GHG
- GHG removals
- Energy indirect GHG emissions (i.e., generation of imported electricity, heat or steam consumed by the site)

- Other indirect GHG emissions
- Direct CO2 emissions from the combustion of biomass

In accordance with the procedure, the following data components are collected quarterly (except as indicated) from Exelon Nuclear sites to populate the GHG inventory database.

- Stationary Source Fuel Usage (based on air emissions permit compliance data)
- Refrigerant Usage (net usage based on purchases)
- Fire Training Activities (annual sum in pounds of materials burned)
- Supply Chain Data (purchases) of the following:
 - Gasoline
 - Diesel Fuel (on-road)
 - Propane
 - SF6
 - Halon
 - Carbon Dioxide for Chemical Injection
 - Carbon Dioxide for Fire Protection

Details of the process used by Exelon Nuclear for collecting, calculating, and maintaining the GHG inventory data are institutionalized in an Inventory Management Plan (IMP).

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-6

Category: Meteorology, Air Quality and Noise

Statement of Question:

Provide the following meteorological information from the data recorded at Byron's meteorological facility. The meteorological data should include the most recent 5 years for which data is available. Provide the following information:

- Mean monthly and annual temperatures.
- Mean monthly precipitation and annual precipitation.
- Seasonal and annual summary wind statistics in the form of wind direction and speed frequency distribution tables and wind roses. Discuss predominant wind direction and speed by season and annual average, local terrain features affecting wind direction and speed, and provide a value for annual average wind speed.

Response:

- Mean monthly temperature data are presented in the Byron Station Monthly Report on the Meteorological Monitoring Program, Section 7. These monthly reports provide the basis for the Byron Station Annual Report on the Meteorological Monitoring Program. The average monthly mean temperatures and the average annual temperature for the years 2008 through 2012 are presented in the table below.

**Byron Station Mean Monthly Temperatures (°F)
2008 - 2012**

	2008	2009	2010	2011	2012	AVERAGE Monthly Mean
January	21	13.5	17.7	18.2	27.5	19.58
February	19.9	26.2	24.2	24.8	30.1	25.04
March	32.7	38.1	41.2	35.4	51.8	39.84
April	48.6	47.8	55	47.1	49.4	49.58
May	57	59.6	61.4	59.4	64.9	60.46
June	69.5	68	69.8	69.8	71.9	69.8
July	71.5	66.2	74.2	76.5	78.2	73.32
August	68.8	67.2	73.3	71	70.6	70.18
September	63.8	62.5	63.2	59.4	61.8	62.14
October	50.8	46.6	54.6	53.3	49.1	50.88
November	37.8	44.2	40.1	41.7	39	40.56
December	19.6	24.3	19.7	32.5	32.6	25.74
AVERAGE Annual	46.75	47.02	49.53	49.09	52.24	

- b. Monthly and annual total precipitation data are presented for each year in the Byron Station Annual Report on the Meteorological Monitoring Program, Table 12. The mean monthly and annual total precipitation during 2008 through 2012 are presented in the table below. Copies of the annual reports are attached.

**Byron Station Monthly and Annual Precipitation Totals and Means (inches)*
2008 - 2012**

	2008	2009	2010	2011	2012	MEAN
January	0.55	0.65	0.89	0.77	0.97	0.77
February	2.31	2.06	0.64	1.9	1.71	1.72
March	0.99	6.06	1.62	2.24	2.21	2.62
April	4.69	4.9	2.65	3.64	2.93	3.76
May	3.21	4.33	5.38	4.86	2.44	4.04
June	4.5	6.6	7.04	2.64	0.84	4.32
July	6.05	3.12	9.91	5.84	3.29	5.64
August	2.09	6.49	4.08	4.35	2.73	3.95
September	6.6	2.04	2.39	4.48	1.41	3.38
October	1.89	6.44	3.23	1.6	3.45	3.32
November	1.6	1.1	1.42	4.09	0.68	1.78
December	4.48	3.63	1.38	2.05	2.42	2.79
ANNUAL	38.96	47.42	40.63	38.46	25.08	38.11

* Some data are missing -- actual precipitation may be under-reported.

- c. Seasonal and annual summary wind statistics in the form of wind direction and speed frequency distribution tables and wind roses are provided by season and for the year in each Byron Station Annual Report on the Meteorological Monitoring Program, Tables 7 through 11. Copies of the annual reports for the years 2008 through 2012 are attached.

The table on the following page presents the predominant quarterly and annual wind speeds and directions at the 30-ft level for the years 2008 through 2012. The predominant wind direction at the Byron site was south for three of the five years from 2008 through 2012. Slight seasonal variations are evident from the data, but the wind speed falls into either the 3.6 to 7.5 mph wind speed class or the 7.6 to 12.5 mph wind speed class most of the time, with the 3.6 to 7.5 mph class prevailing slightly on an annual basis. The Byron Station Annual Report on the Meteorological Monitoring Program does not calculate an average yearly wind speed. However, the data suggest it to be around the midpoint between 3.6 mph and 12.5 mph, which is approximately 8.1 mph.

The primary topographic feature in the area is the Rock River at an elevation just under 700 feet. The slope from higher terrain at the plant to the river is generally gradual in all directions. Terrain within a 50-mile radius of the Byron site is generally level, imposing little obstruction to mesoscale air flow. (Exelon Nuclear 2010a, Section 2.3.2.3)

**Byron Station Predominant Wind Speed (miles/hr) and Direction (at 30 ft)
2008 to 2012**

	2008		2009		2010		2011		2012	
	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction	Speed	Direction
1st Qtr	7.6 to 12.5	W	7.6 to 12.5	WNW	3.6 to 7.5	NW	7.6 to 12.5	NW	7.6 to 12.5	S
2nd Qtr	7.6 to 12.5	S	7.6 to 12.5	WNW	7.6 to 12.5	E	7.6 to 12.5	E	7.6 to 12.5	E
3rd Qtr	3.6 to 7.5	S	3.6 to 7.5	E	3.6 to 7.5	S	3.6 to 7.5	NNW	3.6 to 7.5	S
4th Qtr	7.6 to 12.5	S	7.6 to 12.5	W	3.6 to 7.5	WNW	7.6 to 12.5	S	3.6 to 7.5	S
Annual	3.6 to 7.5	S	3.6 to 7.5	WNW	3.6 to 7.5	WNW	3.6 to 7.5	S	3.6 to 7.5	S
% of Total	39.29%	9.95%	36.72%	9.33%	37.79%	9.20%	36.51%	8.64%	36.99%	10.52%

List Attachments Provided:

1. Annual Report on the Meteorological Monitoring Program at the Byron Nuclear Power Station, 2008. Prepared for Exelon Nuclear by Murray and Trettel, Inc. February 24, 2009.
2. Annual Report on the Meteorological Monitoring Program at the Byron Nuclear Power Station, 2009. Prepared for Exelon Nuclear by Murray and Trettel, Inc. March 1, 2010.
3. Annual Report on the Meteorological Monitoring Program at the Byron Nuclear Power Station, 2010. Prepared for Exelon Nuclear by Murray and Trettel, Inc. May 1, 2011.
4. Annual Report on the Meteorological Monitoring Program at the Byron Nuclear Power Station, 2011. Prepared for Exelon Nuclear by Murray and Trettel, Inc. April 3, 2012.
5. Annual Report on the Meteorological Monitoring Program at the Byron Nuclear Power Station, 2012. Prepared for Exelon Nuclear by Murray and Trettel, Inc. March 13, 2013

FILE:
2.12.1717

**Annual Report
on the
Meteorological Monitoring Program
at the
Byron Nuclear Power Station
2008**

prepared for

**Exelon Nuclear
Warrenville, IL 60555**

by

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For Exelon Use Only

Reviewed By: MA

Date: 2-24-09

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1. Introduction

The purpose of the meteorological program being conducted at the Byron Station site is to provide information sufficient to assess the local weather conditions and to determine the degree of atmospheric dispersion of airborne radioactive effluent from the station.

The meteorological tower is 250 ft. high and is instrumented at two levels. Wind speed and direction are measured at 30 ft. and 250 ft. Ambient temperature is measured at 30 ft. Differential temperature, referenced to 30 ft., is measured at 250 ft. Dew point temperature is measured at 30 ft. Precipitation is measured at approximately 3 ft.

Joint frequency stability wind rose tables of wind direction, wind speed, and stability are routinely tabulated from hourly measurements. The quarterly and annual tables are included in this report.

Descriptions of the instruments and digital recorder are given in Section 3 (Data Acquisition) of this report. Data reduction and processing are described in Section 4 (Data Analysis). The results given in Section 5 of this report include modeled maximum whole body doses, skin doses, organ doses based upon airborne releases, and site meteorology.

2. Summary

The Byron Station meteorological monitoring program produced 52,414 hours of valid data out of a possible 52,704 parameter hours during 2008 (366 days x 24 hours/day x 6 measured priority parameters), which represents an overall data recovery rate of 99.4%. Priority parameters are all parameters except dew point temperature and precipitation.

The stability wind rose tables included in this report have been generated using the 30 ft. wind data with the 250-30 ft. differential temperature data.

The maximum annual calculated cumulative doses resulting from airborne releases were as follows.

Unit 1:

gamma air dose	-	3.539×10^{-3} mrad
beta air dose	-	1.905×10^{-3} mrad
whole body dose	-	1.925×10^{-3} mrem
skin dose	-	3.937×10^{-3} mrem
organ (teenager thyroid)	-	4.753×10^{-4} mrem

Unit 2:

gamma air dose	-	1.048×10^{-4} mrad
beta air dose	-	4.328×10^{-4} mrad
whole body dose	-	5.769×10^{-5} mrem
skin dose	-	2.563×10^{-4} mrem
organ (teenager thyroid)	-	9.040×10^{-4} mrem

3. Data Acquisition

Wind speed and direction are measured with Climatronics F460 wind sensors. The wind speed sensors have a starting speed of 0.5 mph (0.22 mps), a range of 0 to 100 mph (0 to 44.7 mps), and a system accuracy of ± 1.0 mph at 100 mph (± 0.45 mps at 44.7 mps). The wind direction sensors have a threshold speed of 0.5 mph (0.22 mps), a range of 0 to 540°, and a system accuracy of $\pm 5^\circ$.

Ambient and differential temperatures are measured with the Climatronics 100093 system. Ambient temperature is measured within the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 0.5^\circ\text{F}$ ($\pm 0.3^\circ\text{C}$). Differential temperature is measured within the range of -10.0 to 10.0°F (-5.6 to 5.6°C) with an accuracy of $\pm 0.18^\circ\text{F}$ ($\pm 0.10^\circ\text{C}$). Dew point temperature is measured with the Climatronics 101197 system. Dew point temperature is measured with the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 2.7^\circ\text{F}$ (1.5°C).

Precipitation is measured with a Climatronics 100097-1 tipping bucket rain gauge and is measured in increments of one one-hundredth of an inch with a system accuracy of ± 0.01 " ($\pm 0.25\text{mm}$).

Instrument types and locations are summarized in Table 1.

The meteorological data are collected and stored by a Campbell Scientific CR1000 Data Logger. The Campbell Scientific CR1000 measures the analog voltages of the instruments and records the digital equivalent within the range of 0 to +5 volts. Data are obtained from the Campbell Scientific CR1000 by a direct dial telephone hookup to an in-house computer system.

As a backup to the CR1000, data are also recorded with a Johnson Yokogawa Corp. digital recorder (JYC DA100 data acquisition unit). Data are sampled every 10 seconds.

Data loggers are summarized in Table 2.

Table 1

Instrument Locations

<u>Measurement</u>	<u>Sensor Type</u>	<u>Location</u>	<u>Elevation</u>
Wind Speed	Climatronics 100075 F460	Tower	250 ft.
Wind Direction	Climatronics 100076 F460	Tower	250 ft.
Differential Temperature	Climatronics 100093	Tower	250 ft.
Wind Speed	Climatronics 100075 F460	Tower	30 ft.
Wind Direction	Climatronics 100076 F460	Tower	30 ft.
Ambient Temperature	Climatronics 100093	Tower	30 ft.
Dew Point Temperature	Climatronics 1001197	Tower	30 ft.
Precipitation	Climatronics 100097-1	Ground	3 ft.

Table 2

Data Loggers

<u>Measurement</u>	<u>Logger Type</u>	<u>Sampling Frequency</u>
Winds, Temperatures, and Precipitation	Campbell Scientific CR1000	1 sec.
Winds, Temperatures, and Precipitation	Johnson Yokogawa Corp. Digital Recorder (JYC DA100 and Contec IPC-PT/M300(PC)WOU) digital recorder	10 sec.

4. Data Analysis

The Byron data logger is routinely interrogated to obtain hourly average data. The data are then stored in the meteorological data base and listings of the data are generated. The data listings are examined by qualified personnel and any apparent problems are brought to the attention of the Project Manager or Meteorological Technician and the Instrument Maintenance staff.

Hourly values of wind speed, wind direction, ambient temperature, differential temperature, dew point temperature, and precipitation are obtained through measurements taken at the site. The standard deviation of wind direction (sigma) is derived. The wind direction variation is described in terms of the standard deviation of the direction about the mean direction. The CR1000 computes an hourly value of wind sigma by taking the Root-Mean-Square (RMS) of the four quarter-hour wind sigma values. The quarter-hour wind sigma values are calculated directly from the one second wind direction samples during the 15 minute period.

The data base files are edited approximately once a week. Missing data logger values are replaced with digital recorder values, when available. Invalid data are deleted from the data base.

When an hourly value is missing or invalid, the numeral 999 is entered into the computer data file in the appropriate location. When the wind direction changes substantially relative to its short term fluctuations, the numeral 888 can be entered into the wind sigma location to indicate shifting winds. When the wind blows with velocities near the sensing threshold of the instrument, the numeral 777 can be entered into the wind direction, wind speed, and wind sigma locations to indicate light and variable winds.

A professional meteorologist reviews the data, calibration findings, equipment maintenance reports, and other information and determines which data are valid. Only the valid data are retained in the data base.

As a quality control measure, a monthly comparison is made of Microtel and digital recorder data. An investigation is made into the reasons for any significant differences between the sets of values.

Joint frequency stability wind rose tables of hourly data measured at the site are generated. These tables indicate the prevailing wind direction, wind speed, and stability classes measured during the period of observation as well as the joint frequencies of occurrence of the wind direction, wind speed, and stability classes. The values are also used as input to the atmospheric transport and diffusion models. Wind direction, wind speed, and stability classes are given in Tables 3, 4, and 5.

Table 3

Wind Direction Classes

IF	348.75°	<	WD	11.25°	THEN	Class is	N
IF	11.25°	<	WD	33.75°	THEN	Class is	NNE
IF	33.75°	<	WD	56.25°	THEN	Class is	NE
IF	56.25°	<	WD	78.75°	THEN	Class is	ENE
IF	78.75°	<	WD	101.25°	THEN	Class is	E
IF	101.25°	<	WD	123.75°	THEN	Class is	ESE
IF	123.75°	<	WD	146.25°	THEN	Class is	SE
IF	146.25°	<	WD	168.75°	THEN	Class is	SSE
IF	168.75°	<	WD	191.25°	THEN	Class is	S
IF	191.25°	<	WD	213.75°	THEN	Class is	SSW
IF	213.75°	<	WD	236.25°	THEN	Class is	SW
IF	236.25°	<	WD	258.75°	THEN	Class is	WSW
IF	258.75°	<	WD	281.25°	THEN	Class is	W
IF	281.25°	<	WD	303.75°	THEN	Class is	WNW
IF	303.75°	<	WD	326.25°	THEN	Class is	NW
IF	326.25°	<	WD	348.75°	THEN	Class is	NNW

Table 4

Wind Speed Classes

IF	0.0 mph	<	WS	0.5 mph	THEN	Class is	1
IF	0.5 mph	<	WS	3.5 mph	THEN	Class is	2
IF	3.5 mph	<	WS	7.5 mph	THEN	Class is	3
IF	7.5 mph	<	WS	12.5 mph	THEN	Class is	4
IF	12.5 mph	<	WS	18.5 mph	THEN	Class is	5
IF	18.5 mph	<	WS	24.5 mph	THEN	Class is	6
IF	24.5 mph	<	WS		THEN	Class is	7

Table 5

Atmospheric Stability Classes

Class	Differential Temperature Interval (in °C/100m) ⁽¹⁾	Differential Temperature Interval (in °F over the 250-30 ft. interval) ⁽²⁾
Extremely Unstable	$\Delta T \leq -1.9$	$\Delta T \leq -2.3$
Moderately Unstable	$-1.9 < \Delta T \leq -1.7$	$-2.3 < \Delta T \leq -2.1$
Slightly Unstable	$-1.7 < \Delta T \leq -1.5$	$-2.1 < \Delta T \leq -1.9$
Neutral	$-1.5 < \Delta T \leq -0.5$	$-1.9 < \Delta T \leq -0.7$
Slightly Stable	$-0.5 < \Delta T \leq 1.5$	$-0.7 < \Delta T \leq 1.8$
Moderately Stable	$1.5 < \Delta T \leq 4.0$	$1.8 < \Delta T \leq 4.8$
Extremely Stable	$4.0 < \Delta T$	$4.8 < \Delta T$

⁽¹⁾ from ANSI/ANS 2.5

⁽²⁾ ANSI/ANS 2.5 intervals scaled for instrument heights on the Byron meteorological tower

A description of the procedures and computational techniques used to calculate the doses resulting from radioactive releases is found in the Murray and Trettel, Inc. "Offsite Dose Calculation Manual" (ODCM-Rev. 9), dated January 1996. The ODCM describes the atmospheric transport and diffusion models used to calculate the doses and concentrations resulting from airborne releases.

5. Results

5.1 Instrument Maintenance

The maintenance program followed during 2008 was composed of routinely scheduled visits and equipment repairs. Routine site visits were made to inspect the sensing and recording systems for proper operation. In addition, routine maintenance and calibration checks of all tower-mounted and ground level equipment were performed every four months. A description of the calibration and field procedures is found in the Murray and Trettel, Inc. "P1009 Procedures Manual" (June 2008).

In January, the 250 ft. wind direction sensor was replaced due to lower than expected readings. Throughout January, preparations were made for an equipment upgrade. Also in January, the digital recorder was replaced due to communication problems.

In March, a phone line for the met shelter was repaired. Also in March, the 250 ft. wind direction sensor was replaced due to bad readings. Cross arms, temperature assemblies and junction boxes were installed in preparation for the equipment upgrade.

In April, the majority of the meteorological upgrade was completed. The new rain gauge had yet to be installed.

In May, the annual tower inspection was performed. The new rain gauge was also installed.

In July, the data logger was unreachable by modem. The unit was rebooted to restore communication. Also in July, guy wire tensions were adjusted.

In August, a 93 MPH gust recorded by the control room was confirmed. As a result, an emergency tower inspection was performed. The tower was found to be undamaged. A new junction box for the rain gauge was also installed.

In December, some 30 ft. wind speed data was lost due to an ice storm.

No other significant problems were encountered with the equipment, and at the end of the year, no problems were evident at the site.

5.2 Data Recovery

The record of data recovery for the year is summarized in Table 6.

Table 6

Byron Site
Data Recovery Summary
2008

<u>Measurement</u>	<u>Elevation</u>	<u>Recovered Hours</u>	<u>Recovered Percent</u>	<u>Lost Hours</u>	<u>Percent Changed</u>
Wind Speed	30 ft.	8748	99.6	36	1.1
Wind Speed	250 ft.	8684	98.9	100	1.3
Wind Direction	30 ft.	8758	99.7	26	1.7
Wind Direction	250 ft.	8718	99.2	66	2.9
Ambient Temperature	30 ft.	8754	99.7	30	0.3
Differential Temperature	250-30 ft.	8752	99.6	32	0.5
Dew Point Temperature	30 ft.	8754	99.7	30	3.3
Precipitation	3 ft.	8620	98.1	164	2.3
AVERAGE*			99.4		

* average of priority parameters (all except dew point temperature and precipitation)

5.3 Summary of Billings for Equipment Repairs, Replacement Parts, and Other Work not Included in Fixed-Cost Maintenance Agreement - 2008

Description - Byron

Cost

January

Meteorological equipment maintenance	\$ 950.58
Meteorological parts, materials, and contractor services	1,134.25

February

Microtel equipment maintenance	75.00
--------------------------------	-------

March

Meteorological equipment maintenance	1,347.10
Meteorological parts, materials, and contractor services	88.94
2007 X/Q Calculations	500.00
Exelon Badge	167.57
Meteorological System Upgrade	5,000.00

April

Meteorological parts, materials, and contractor services	551.68
--	--------

May

Meteorological equipment maintenance	300.00
Meteorological parts, materials, and contractor services	535.53

June

Meteorological equipment maintenance	150.00
Meteorological parts, materials, and contractor services	466.62

July

Meteorological parts, materials, and contractor services	2,288.05
Data Logger equipment maintenance	337.80

August

Meteorological parts, materials, and contractor services	28.93
Meteorological equipment maintenance	927.34

September

Meteorological parts, materials, and contractor services	411.26
--	--------

October

Meteorological equipment maintenance	100.00
--------------------------------------	--------

November

Meteorological parts, materials, and contractor services	242.08
--	--------

December

-none-	0.00
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Annual Total: \$ 15,602.73

5.4 Stability Wind Rose Data

The quarterly and annual stability wind roses are given in Tables 7 through 11. Wind speed classes have been altered to reflect the sensor threshold.

For the year, winds measured at 30 ft. most frequently came from the south (9.95%) and fell into the 3.6-7.5 mph and 7.6-12.5 mph wind speed classes (39.29% and 33.34% respectively). Calms (wind speeds at or below the sensor threshold) were measured 0.00% of the time. Speeds greater than 24.5 mph were measured 0.23% of the time.

Stability based on the 250-30 ft. differential temperature most frequently fell into the neutral classification (48.16%).

TABLE 7

-14-

Byron Generating Station
30 ft. Wind Speed and Direction

January-March, 2008
250Ft-30Ft Delta-T (F)

Number of Observations = 2164
Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.00
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
- N	0.14	0.05	0.28	0.23	0.65	0.14	0.14	0.09	0.18	0.18	0.14	0.28	0.74	0.74	0.42	0.32	4.71				4.71				
3 SS	0.05	0.14	0.00	0.00	0.28	0.09	0.00	0.09	0.00	0.09	0.28	0.28	0.37	0.51	0.46	0.14	2.77					2.77			
MS	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.00	0.23	0.05	0.28	0.14	0.28	0.42	0.55	0.14	2.26						2.26		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.23	0.23	0.18	0.00	0.18	0.14	0.14	0.09	1.25							1.25	
																									11.00
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14		0.14						
4 SU	0.05	0.00	0.05	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.05	0.09	0.55			0.55					
- N	0.97	1.39	0.37	0.55	1.76	0.69	1.25	0.65	0.74	0.51	0.92	1.02	2.17	1.34	1.89	2.03	18.25				18.25				
7 SS	0.42	0.28	0.18	0.28	0.42	0.74	0.97	0.55	0.23	0.32	0.88	0.74	0.92	1.29	1.48	0.69	10.40					10.40			
MS	0.09	0.00	0.00	0.05	0.05	0.05	0.09	0.23	0.23	0.23	0.14	0.09	0.14	0.00	0.09	0.00	1.48						1.48		
ES	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05	0.51	0.42	0.00	0.00	0.05	0.00	0.00	0.00	1.06							1.06	
																									31.89
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05							
MU	0.09	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	0.00	0.05	0.42		0.42						
8 SU	0.23	0.00	0.05	0.00	0.05	0.00	0.09	0.00	0.00	0.00	0.00	0.09	0.42	0.23	0.14	0.23	1.52			1.52					
- N	2.13	1.34	0.74	1.20	0.79	1.48	1.62	2.59	1.85	0.74	0.88	1.29	3.10	4.76	2.26	2.36	29.11				29.11				
1 SS	0.42	0.09	0.00	0.18	0.18	0.69	0.46	1.71	1.48	0.46	0.42	0.32	0.09	0.46	0.42	0.05	7.44					7.44			
2 MS	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.23	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.51						0.51		
ES	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.23	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.37							0.37	
																									39.42
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.23	0.00	0.00	0.00	0.32	0.32							
1 MU	0.00	0.09	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.23		0.23						
3 SU	0.14	0.09	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.14	0.05	0.05	0.00	0.09	0.65			0.65					
- N	0.83	0.55	0.23	0.28	0.18	0.60	0.23	0.28	1.20	0.65	0.28	0.97	1.99	1.62	0.69	0.46	11.04				11.04				
1 SS	0.00	0.00	0.00	0.00	0.00	0.32	0.05	0.32	0.79	0.28	0.00	0.00	0.23	0.05	0.00	0.00	2.03					2.03			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32						0.32		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05							0.05	
																									14.65

TABLE 7 continued

-15-

Byron Generating Station
30 ft. Wind Speed and Direction

January-March, 2008
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES										
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL		
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
1	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05		0.05								
9	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.09	0.00	0.00	0.51			0.51							
-	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.14	0.05	0.37	0.69	0.32	0.00	0.00	1.76				1.76						
2	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.23	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.46					0.46					
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00				
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00			
																										2.77		
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
G	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05		0.05								
T	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	0.00	0.00	0.18			0.18							
	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00						
2	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05					
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00				
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00			
																										0.28		
TOT		5.64	4.07	1.89	2.87	4.57	5.22	5.13	7.49	8.23	4.57	4.44	5.78	12.52	12.25	8.60	6.75	100.00	0.37	0.88	3.42	64.88	23.15	4.57	2.73	100.00		

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.05	0.23	0.00	0.00	0.00	0.37	Extremely Unstable
0.18	0.14	0.00	0.00	0.05	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.23	0.09	0.00	0.05	0.88	Moderately Unstable
0.42	0.09	0.09	0.00	0.18	0.05	0.14	0.00	0.00	0.00	0.00	0.23	1.11	0.51	0.18	0.42	3.42	Slightly Unstable
4.07	3.33	1.62	2.26	3.37	2.91	3.23	3.60	4.16	2.22	2.26	3.93	8.69	8.78	5.27	5.18	64.88	Neutral
0.88	0.51	0.18	0.46	0.88	1.85	1.48	2.77	2.73	1.34	1.57	1.34	1.62	2.31	2.36	0.88	23.15	Slightly Stable
0.09	0.00	0.00	0.14	0.05	0.28	0.09	0.79	0.55	0.32	0.42	0.23	0.42	0.42	0.65	0.14	4.57	Moderately Stable
0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.32	0.79	0.69	0.18	0.00	0.23	0.14	0.14	0.09	2.73	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C A L M
0.18	0.18	0.28	0.32	0.92	0.32	0.18	0.18	0.65	0.55	0.88	0.69	1.57	1.80	1.57	0.69	11.00	< 3.5 mph
1.62	1.71	0.60	0.88	2.40	1.48	2.31	1.48	1.71	1.48	1.94	1.85	3.37	2.73	3.51	2.82	31.89	3.6 - 7.5 mph
2.87	1.43	0.79	1.39	1.06	2.40	2.22	4.76	3.47	1.29	1.29	1.71	3.74	5.50	2.82	2.68	39.42	7.6 - 12.5 mph
0.97	0.74	0.23	0.28	0.18	1.02	0.42	0.97	1.99	0.92	0.28	1.16	2.54	1.71	0.69	0.55	14.65	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.42	0.28	0.05	0.37	1.11	0.46	0.00	0.00	2.77	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.18	0.05	0.00	0.00	0.28	> 24.5 mph

TABLE 8

-16-

Byron Generating Station
30 ft. Wind Speed and Direction

April-June, 2008
250Ft-30Ft Delta-T (F)

Number of Observations = 2158
Values are Percent Occurrence

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES											
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL				
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00										
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00									
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00								
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00							
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00						
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00					
																									0.00				
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00										
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00									
- N	0.05	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.05	0.14	0.00	0.05	0.14	0.19	0.05	0.00	0.79				0.79								
3 SS	0.09	0.14	0.00	0.14	0.32	0.09	0.14	0.19	0.14	0.19	0.05	0.05	0.32	0.32	0.23	0.23	2.64					2.64							
MS	0.05	0.05	0.00	0.00	0.32	0.14	0.28	0.05	0.05	0.19	0.14	0.19	0.51	0.46	0.46	0.51	3.38						3.38						
ES	0.00	0.00	0.00	0.05	0.05	0.05	0.14	0.09	0.09	0.23	0.14	0.32	0.42	0.32	0.23	0.05	2.18							2.18					
																									8.99				
EU	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09											
MU	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.14		0.14										
4 SU	0.00	0.05	0.00	0.00	0.05	0.09	0.05	0.05	0.00	0.00	0.05	0.14	0.28	0.09	0.05	0.05	0.93			0.93									
- N	1.07	0.74	0.56	0.19	0.70	0.42	0.56	0.51	0.32	0.56	0.79	0.65	0.56	0.37	1.07	0.83	9.87				9.87								
7 SS	0.79	0.56	0.46	0.79	1.76	0.23	0.88	1.11	0.93	0.65	1.71	1.11	0.97	0.65	1.53	1.30	15.43					15.43							
MS	0.09	0.09	0.00	0.05	0.70	0.60	0.56	0.83	0.93	0.42	0.19	0.09	0.37	0.42	0.51	0.19	6.02						6.02						
ES	0.05	0.00	0.00	0.00	0.09	0.23	0.23	0.28	0.46	0.05	0.09	0.00	0.00	0.00	0.05	0.05	1.58							1.58					
																									34.06				
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.14	0.05	0.42	0.09	0.74	0.74											
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.23	0.00	0.14	0.00	0.46	0.23	1.11		1.11										
8 SU	0.05	0.00	0.00	0.00	0.23	0.05	0.09	0.00	0.14	0.14	0.23	0.28	0.00	0.19	0.56	0.19	2.13			2.13									
- N	1.62	0.70	0.51	1.53	1.39	0.51	0.70	1.11	1.53	0.65	1.25	1.99	0.93	1.30	1.53	1.30	18.54				18.54								
1 SS	0.28	0.23	0.42	0.79	0.83	0.93	1.44	2.13	1.71	0.93	1.16	0.51	0.46	0.46	0.19	0.37	12.84					12.84							
2 MS	0.00	0.05	0.00	0.14	0.00	0.09	0.42	0.28	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	1.02						1.02						
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05							0.05					
																									36.42				
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.19	0.05	0.37	0.37											
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.09	0.00	0.05	0.00	0.14	0.05	0.00	0.14	0.05	0.65		0.65										
3 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.19	0.05	0.00	0.00	0.00	0.14	0.09	0.14	0.14	0.88			0.88									
- N	0.09	0.14	0.74	0.37	0.37	0.19	0.23	0.32	1.71	0.51	0.83	0.46	1.11	1.30	0.60	0.42	9.41				9.41								
1 SS	0.00	0.09	0.14	0.05	0.14	0.23	0.14	0.51	1.53	0.79	0.42	0.19	0.32	0.05	0.00	0.00	4.59					4.59							
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14						0.14						
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00					
																									16.03				

TABLE 8
continued

-17-

Byron Generating Station
30-ft. Wind Speed and Direction

April-June, 2008
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	0.09							
1	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05		0.05						
9	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.00	0.05	0.14	0.00	0.00	0.00	0.28			0.28					
-	N	0.14	0.14	0.00	0.14	0.00	0.05	0.09	0.19	0.60	0.60	0.14	0.23	0.51	0.05	0.00	0.05	2.92				2.92				
2	SS	0.00	0.00	0.00	0.05	0.00	0.05	0.14	0.00	0.19	0.09	0.09	0.00	0.05	0.00	0.00	0.00	0.65					0.65			
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																										3.99
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.05							
6	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05		0.05						
T	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.05	0.14	0.00	0.00	0.00	0.37				0.37				
2	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05			
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																										0.51
TOT		4.36	2.97	2.87	4.31	7.04	3.94	6.49	8.11	10.61	6.39	7.51	6.81	7.74	6.35	8.43	6.07	100.00	1.34	1.99	4.22	41.89	36.19	10.57	3.80	100.00

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.23	0.19	0.05	0.60	0.14	1.34	Extremely Unstable
0.00	0.00	0.00	0.00	0.05	0.00	0.19	0.09	0.00	0.05	0.23	0.23	0.19	0.05	0.65	0.28	1.99	Moderately Unstable
0.05	0.05	0.00	0.00	0.28	0.14	0.32	0.23	0.23	0.14	0.28	0.46	0.56	0.37	0.74	0.37	4.22	Slightly Unstable
2.97	1.71	1.81	2.27	2.50	1.16	1.58	2.18	4.22	2.64	3.01	3.43	3.38	3.20	3.24	2.59	41.89	Neutral
1.16	1.02	1.02	1.81	3.06	1.53	2.73	3.94	4.54	2.64	3.43	1.85	2.13	1.48	1.95	1.90	36.19	Slightly Stable
0.14	0.19	0.00	0.19	1.02	0.83	1.25	1.20	1.07	0.65	0.32	0.28	0.88	0.88	0.97	0.70	10.57	Moderately Stable
0.05	0.00	0.00	0.05	0.14	0.28	0.37	0.42	0.56	0.28	0.23	0.32	0.42	0.32	0.28	0.09	3.80	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C A L M
0.19	0.19	0.00	0.23	0.74	0.28	0.56	0.37	0.32	0.74	0.32	0.60	1.39	1.30	0.97	0.79	8.99	< 3.5 mph
1.99	1.44	1.07	1.02	3.34	1.58	2.27	2.83	2.64	1.67	2.83	1.99	2.18	1.58	3.24	2.41	34.06	3.6 - 7.5 mph
1.95	0.97	0.93	2.46	2.46	1.58	2.69	3.57	3.38	1.76	2.87	2.83	1.67	1.99	3.15	2.18	36.42	7.6 - 12.5 mph
0.09	0.23	0.88	0.42	0.51	0.42	0.70	1.16	3.38	1.34	1.25	0.83	1.67	1.44	1.07	0.65	16.03	12.6 - 18.5 mph
0.14	0.14	0.00	0.19	0.00	0.09	0.28	0.19	0.83	0.70	0.23	0.42	0.70	0.05	0.00	0.05	3.99	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.19	0.00	0.14	0.14	0.00	0.00	0.00	0.51	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2008
250Ft-30Ft Delta-T (F)

Number of Observations = 2156
Values are Percent Occurrence

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
A	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00			
L	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00		
M	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
																										0.00
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
1	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05				0.05				
-	N	0.19	0.23	0.23	0.19	0.14	0.14	0.09	0.14	0.00	0.05	0.14	0.14	0.19	0.32	0.32	0.28	2.78					2.78			
3	SS	0.37	0.19	0.23	0.28	0.23	0.19	0.32	0.23	0.60	0.46	0.42	0.60	0.46	0.74	0.65	0.74	6.73						6.73		
	MS	0.37	0.05	0.05	0.23	0.28	0.23	0.19	0.23	0.79	0.65	0.37	0.51	0.65	0.74	1.07	0.56	6.96							6.96	
	ES	0.09	0.05	0.05	0.00	0.23	0.42	0.42	0.37	0.60	0.60	0.14	0.42	0.51	0.46	0.74	0.32	5.43							5.43	
																										21.94
	EU	0.00	0.00	0.00	0.05	0.14	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.23	0.23							
	MU	0.05	0.00	0.00	0.05	0.19	0.14	0.00	0.05	0.00	0.05	0.14	0.00	0.00	0.00	0.05	0.09	0.79		0.79						
4	SU	0.14	0.00	0.05	0.05	0.32	0.19	0.05	0.28	0.05	0.05	0.23	0.28	0.19	0.14	0.05	0.23	2.27				2.27				
-	N	2.04	0.97	0.83	0.70	0.88	0.83	1.35	1.35	1.11	0.74	1.90	1.86	1.67	1.58	1.62	1.72	21.15					21.15			
7	SS	0.70	0.60	0.42	1.16	1.35	0.65	1.11	0.97	1.25	1.30	2.09	1.76	1.62	0.79	1.25	1.21	18.23						18.23		
	MS	0.23	0.14	0.00	0.19	1.67	1.02	1.02	1.25	1.07	0.70	0.46	0.14	0.32	0.09	0.14	0.88	9.32							9.32	
	ES	0.00	0.05	0.00	0.00	0.42	1.35	1.16	0.83	0.56	0.05	0.00	0.00	0.00	0.00	0.05	0.00	4.45							4.45	
																										56.45
	EU	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.09	0.00	0.05	0.00	0.23	0.23							
	MU	0.09	0.00	0.00	0.09	0.00	0.05	0.00	0.00	0.09	0.09	0.23	0.19	0.09	0.00	0.00	0.09	1.02		1.02						
8	SU	0.19	0.00	0.00	0.09	0.05	0.05	0.09	0.19	0.23	0.00	0.14	0.09	0.28	0.09	0.19	0.09	1.76				1.76				
-	N	1.07	0.79	0.51	0.14	0.00	0.23	0.23	1.02	1.67	0.79	1.21	0.79	0.97	0.60	0.46	1.07	11.55					11.55			
1	SS	0.09	0.32	0.19	0.42	0.09	0.14	0.32	0.60	0.97	0.83	0.42	0.28	0.09	0.14	0.00	0.05	4.96						4.96		
2	MS	0.00	0.09	0.00	0.09	0.00	0.05	0.23	0.09	0.14	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.79							0.79	
	ES	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05							0.05	
																										20.36
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
3	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00			
-	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.32	0.05	0.05	0.14	0.28	0.00	0.00	1.11					1.11			
1	SS	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.14						0.14		
8	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
																										1.25

TABLE 9

continued

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Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2008
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES							
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
																									0.00
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
6 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
																									0.00
TOT	5.61	3.53	2.55	3.71	6.03	5.71	6.59	7.61	9.42	6.86	8.02	7.10	7.28	5.98	6.68	7.33	100.00	0.46	1.81	4.08	36.60	30.06	17.07	9.93	100.00

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.00	0.00	0.05	0.19	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.09	0.00	0.05	0.00	0.46	Extremely Unstable
0.14	0.00	0.00	0.14	0.19	0.19	0.00	0.05	0.09	0.14	0.37	0.19	0.09	0.00	0.05	0.19	1.81	Moderately Unstable
0.32	0.00	0.05	0.14	0.37	0.23	0.14	0.46	0.28	0.05	0.37	0.37	0.46	0.23	0.28	0.32	4.08	Slightly Unstable
3.29	1.99	1.58	1.02	1.02	1.21	1.67	2.50	3.06	1.90	3.29	2.83	2.97	2.78	2.41	3.06	36.60	Neutral
1.16	1.16	0.83	1.86	1.67	0.97	1.76	1.81	2.83	2.64	2.97	2.64	2.18	1.67	1.90	1.99	30.06	Slightly Stable
0.60	0.28	0.05	0.51	1.95	1.30	1.44	1.58	1.99	1.44	0.83	0.65	0.97	0.83	1.21	1.44	17.07	Moderately Stable
0.09	0.09	0.05	0.00	0.65	1.81	1.58	1.21	1.16	0.65	0.14	0.42	0.51	0.46	0.79	0.32	9.93	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CALM
1.02	0.51	0.56	0.70	0.88	0.97	1.02	0.97	1.99	1.76	1.07	1.67	1.81	2.27	2.83	1.90	21.94	< 3.5 mph
3.15	1.76	1.30	2.18	4.96	4.17	4.68	4.73	4.04	2.88	4.87	4.04	3.80	2.60	3.15	4.13	56.45	3.6 - 7.5 mph
1.44	1.21	0.70	0.83	0.19	0.56	0.88	1.90	3.11	1.86	1.99	1.35	1.53	0.83	0.70	1.30	20.36	7.6 - 12.5 mph
0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.37	0.09	0.05	0.14	0.28	0.00	0.00	1.25	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

October-December, 2008
250Ft-30Ft Delta-T (F)

Number of Observations = 2175
Values are Percent Occurrence

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
A	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00			
L	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00		
M	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
																										0.00
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
1	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
-	N	0.05	0.09	0.05	0.00	0.09	0.14	0.00	0.09	0.05	0.00	0.05	0.09	0.14	0.09	0.23	0.14	1.29				1.29				
3	SS	0.14	0.00	0.14	0.09	0.05	0.00	0.09	0.05	0.09	0.09	0.23	0.14	0.41	0.28	0.55	0.09	2.44					2.44			
	MS	0.09	0.00	0.00	0.05	0.18	0.32	0.00	0.05	0.32	0.05	0.23	0.09	0.55	0.46	0.18	0.32	2.90						2.90		
	ES	0.18	0.00	0.05	0.00	0.09	0.00	0.05	0.09	0.23	0.18	0.00	0.00	0.00	0.28	0.32	0.23	1.70							1.70	
																										8.32
	EU	0.00	0.09	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.23	0.23							
	MU	0.00	0.09	0.00	0.00	0.09	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.37		0.37						
4	SU	0.18	0.00	0.05	0.00	0.00	0.00	0.05	0.09	0.05	0.09	0.00	0.00	0.05	0.05	0.09	0.09	0.78			0.78					
-	N	0.87	0.37	0.32	0.18	0.64	0.28	0.41	0.46	0.78	0.28	0.69	0.74	0.92	0.83	1.43	1.52	10.71				10.71				
7	SS	0.46	0.23	0.23	0.18	1.66	1.33	0.69	0.87	1.61	1.24	0.83	0.51	1.38	1.24	1.47	1.33	15.26					15.26			
	MS	0.23	0.18	0.00	0.14	0.92	0.74	0.64	0.92	0.51	0.23	0.14	0.14	0.60	0.14	0.05	0.09	5.66						5.66		
	ES	0.05	0.00	0.00	0.05	0.23	0.37	0.46	0.51	0.09	0.05	0.05	0.00	0.00	0.00	0.00	0.00	1.84							1.84	
																										34.85
	EU	0.09	0.09	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.32	0.09	0.00	0.69	0.69							
	MU	0.05	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.18	0.05	0.00	0.41		0.41						
8	SU	0.09	0.00	0.00	0.00	0.00	0.09	0.14	0.05	0.09	0.05	0.05	0.00	0.14	0.09	0.14	0.05	0.97			0.97					
-	N	1.10	0.14	0.00	0.37	0.28	0.92	1.75	1.29	2.30	1.56	1.10	0.92	2.48	2.71	2.71	2.99	22.62				22.62				
1	SS	0.41	0.09	0.00	0.51	0.37	1.29	0.23	1.33	1.61	1.79	0.51	0.28	0.83	0.55	0.78	0.18	10.76					10.76			
2	MS	0.00	0.00	0.00	0.05	0.05	0.18	0.09	0.92	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61						1.61		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05							0.05	
																										37.10
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1	MU	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.14		0.14						
3	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.00	0.00	0.14			0.14					
-	N	1.01	0.23	0.00	0.18	0.00	1.06	0.51	0.69	1.24	0.78	0.23	0.32	1.61	1.10	0.74	1.89	11.59				11.59				
1	SS	0.37	0.00	0.00	0.00	0.00	0.00	0.05	1.20	1.06	0.60	0.00	0.09	0.05	0.05	0.23	0.05	3.72					3.72			
8	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32						0.32		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																										15.91

TABLE 10

continued

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Byron Generating Station
30 ft. Wind Speed and Direction

October-December, 2008
250Ft-30Ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.05							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.09		0.09						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.09			0.09					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.51	0.28	0.00	0.05	1.47	0.46	0.00	0.00	2.85				2.85				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60					0.60			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									3.68
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
6 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.14				0.14				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.14
TOT	5.38	1.61	0.83	1.84	4.69	6.94	5.24	8.97	11.54	7.26	4.09	3.40	11.31	8.83	9.10	8.97	100.00	0.97	1.01	1.98	49.20	32.78	10.48	3.59	100.00

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.09	0.18	0.00	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.32	0.14	0.00	0.97	Extremely Unstable
0.05	0.09	0.00	0.00	0.09	0.18	0.05	0.05	0.00	0.00	0.00	0.00	0.28	0.18	0.05	0.00	1.01	Moderately Unstable
0.28	0.00	0.05	0.00	0.00	0.09	0.18	0.14	0.14	0.14	0.05	0.05	0.37	0.14	0.23	0.14	1.98	Slightly Unstable
3.03	0.83	0.37	0.74	1.01	2.39	2.67	2.62	4.87	2.90	2.07	2.11	6.76	5.20	5.10	6.53	49.20	Neutral
1.38	0.32	0.37	0.78	2.07	2.62	1.06	3.54	4.87	3.72	1.56	1.01	2.67	2.11	3.03	1.66	32.78	Slightly Stable
0.32	0.18	0.00	0.23	1.15	1.24	0.74	2.02	1.33	0.28	0.37	0.23	1.15	0.60	0.23	0.41	10.48	Moderately Stable
0.23	0.00	0.05	0.05	0.32	0.37	0.55	0.60	0.32	0.23	0.05	0.00	0.00	0.28	0.32	0.23	3.59	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C A L M
0.46	0.09	0.23	0.14	0.41	0.46	0.14	0.28	0.69	0.32	0.51	0.32	1.10	1.10	1.29	0.78	8.32	< 3.5 mph
1.79	0.97	0.60	0.60	3.59	2.80	2.25	2.90	3.03	1.89	1.70	1.38	2.99	2.25	3.08	3.03	34.85	3.6 - 7.5 mph
1.75	0.32	0.00	0.92	0.69	2.57	2.30	3.59	4.32	3.40	1.66	1.20	3.54	3.86	3.77	3.22	37.10	7.6 - 12.5 mph
1.38	0.23	0.00	0.18	0.00	1.10	0.55	2.02	2.48	1.38	0.23	0.46	1.84	1.15	0.97	1.93	15.91	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	1.01	0.28	0.00	0.05	1.70	0.46	0.00	0.00	3.68	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.14	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

January-December, 2008
250Ft-30Ft Delta-T (F)

Number of Observations = 8653
Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MJ	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.00
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01			0.01					
N	0.10	0.09	0.14	0.12	0.23	0.10	0.06	0.09	0.07	0.09	0.08	0.14	0.30	0.34	0.25	0.18	2.39				2.39				
3 SS	0.16	0.12	0.09	0.13	0.22	0.09	0.14	0.14	0.21	0.21	0.24	0.27	0.39	0.46	0.47	0.30	3.64					3.64			
MS	0.13	0.02	0.01	0.09	0.20	0.20	0.12	0.08	0.35	0.23	0.25	0.23	0.50	0.52	0.57	0.38	3.87						3.87		
ES	0.07	0.01	0.02	0.01	0.09	0.12	0.16	0.14	0.29	0.31	0.12	0.18	0.28	0.30	0.36	0.17	2.63							2.63	
																									12.55
EU	0.00	0.02	0.01	0.02	0.05	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.14	0.14							
MJ	0.03	0.03	0.00	0.01	0.08	0.06	0.00	0.02	0.00	0.01	0.03	0.00	0.01	0.01	0.02	0.02	0.36		0.36						
4 SU	0.09	0.01	0.03	0.01	0.13	0.07	0.03	0.10	0.02	0.03	0.07	0.10	0.15	0.09	0.06	0.12	1.13			1.13					
N	1.24	0.87	0.52	0.40	0.99	0.55	0.89	0.74	0.74	0.52	1.07	1.06	1.33	1.03	1.50	1.53	14.99				14.99				
7 SS	0.59	0.42	0.32	0.60	1.29	0.74	0.91	0.88	1.01	0.88	1.38	1.03	1.23	0.99	1.43	1.13	14.83					14.83			
MS	0.16	0.10	0.00	0.10	0.83	0.60	0.58	0.81	0.68	0.39	0.23	0.12	0.36	0.16	0.20	0.29	5.62						5.62		
ES	0.02	0.01	0.00	0.01	0.20	0.49	0.46	0.42	0.40	0.14	0.03	0.00	0.01	0.00	0.02	0.01	2.23							2.23	
																									39.29
EU	0.02	0.02	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.01	0.07	0.09	0.14	0.02	0.43	0.43							
MJ	0.06	0.00	0.00	0.02	0.01	0.03	0.02	0.00	0.02	0.02	0.12	0.05	0.10	0.06	0.13	0.09	0.74		0.74						
8 SU	0.14	0.00	0.01	0.02	0.08	0.05	0.10	0.06	0.12	0.05	0.10	0.12	0.21	0.15	0.25	0.14	1.59			1.59					
N	1.48	0.74	0.44	0.81	0.61	0.79	1.07	1.50	1.84	0.94	1.11	1.25	1.87	2.35	1.75	1.93	20.47				20.47				
1 SS	0.30	0.18	0.15	0.47	0.37	0.76	0.61	1.44	1.44	1.01	0.62	0.35	0.37	0.40	0.35	0.16	9.00					9.00			
2 MS	0.00	0.03	0.00	0.07	0.01	0.12	0.18	0.38	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.98						0.98		
ES	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.07	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.13							0.13	
																									33.34
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.07	0.00	0.05	0.01	0.17	0.17							
1 MJ	0.00	0.02	0.00	0.00	0.00	0.02	0.05	0.02	0.00	0.01	0.00	0.03	0.05	0.00	0.03	0.01	0.25		0.25						
3 SU	0.03	0.02	0.00	0.00	0.00	0.01	0.05	0.05	0.01	0.00	0.00	0.05	0.07	0.03	0.03	0.06	0.42			0.42					
N	0.49	0.23	0.24	0.21	0.14	0.46	0.24	0.32	1.11	0.57	0.35	0.45	1.21	1.07	0.51	0.69	8.30				8.30				
1 SS	0.09	0.03	0.03	0.01	0.03	0.14	0.06	0.51	0.84	0.43	0.12	0.07	0.15	0.03	0.06	0.01	2.62					2.62			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20						0.20		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01							0.01	
																									11.97

TABLE 11
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

January-December, 2008
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES									
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL	
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.03	0.03								
1	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.05		0.05							
9	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.16	0.02	0.00	0.00	0.22			0.22						
	N	0.03	0.03	0.00	0.03	0.00	0.01	0.02	0.07	0.32	0.25	0.05	0.16	0.67	0.21	0.00	0.01	1.88				1.88					
2	SS	0.00	0.00	0.00	0.01	0.00	0.01	0.03	0.05	0.23	0.06	0.02	0.00	0.01	0.00	0.00	0.00	0.43					0.43				
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00			
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00		
																										2.61	
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01								
G	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02		0.02							
T	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.05			0.05						
	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01	0.07	0.00	0.00	0.00	0.13				0.13					
2	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02					0.02				
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00			
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00		
																										0.23	
TOT		5.25	3.04	2.03	3.18	5.58	5.45	5.86	8.04	9.95	6.28	6.01	5.77	9.72	8.36	8.21	7.28	100.00	0.79	1.42	3.42	48.16	30.54	10.67	5.00	100.00	

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.02	0.05	0.01	0.02	0.06	0.01	0.03	0.01	0.00	0.01	0.01	0.07	0.15	0.09	0.20	0.03	0.79	Extremely Unstable
0.09	0.06	0.00	0.03	0.09	0.12	0.07	0.05	0.02	0.05	0.15	0.10	0.20	0.08	0.18	0.13	1.42	Moderately Unstable
0.27	0.03	0.05	0.03	0.21	0.13	0.20	0.21	0.16	0.08	0.17	0.28	0.62	0.31	0.36	0.31	3.42	Slightly Unstable
3.34	1.96	1.34	1.57	1.98	1.92	2.29	2.73	4.08	2.42	2.66	3.07	5.45	4.99	4.01	4.35	48.16	Neutral
1.14	0.75	0.60	1.23	1.92	1.75	1.76	3.02	3.74	2.59	2.38	1.71	2.15	1.90	2.31	1.61	30.54	Slightly Stable
0.29	0.16	0.01	0.27	1.04	0.91	0.88	1.40	1.24	0.67	0.49	0.35	0.86	0.68	0.76	0.67	10.67	Moderately Stable
0.09	0.02	0.02	0.02	0.29	0.62	0.64	0.64	0.70	0.46	0.15	0.18	0.29	0.30	0.38	0.18	5.00	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CALM
0.46	0.24	0.27	0.35	0.74	0.51	0.47	0.45	0.91	0.84	0.69	0.82	1.47	1.62	1.66	1.04	12.55	< 3.5 mph
2.14	1.47	0.89	1.17	3.57	2.51	2.88	2.98	2.85	1.98	2.83	2.31	3.09	2.29	3.25	3.10	39.29	3.6 - 7.5 mph
2.00	0.98	0.60	1.40	1.10	1.78	2.02	3.46	3.57	2.08	1.95	1.77	2.62	3.05	2.61	2.35	33.34	7.6 - 12.5 mph
0.61	0.31	0.28	0.22	0.17	0.64	0.42	1.04	2.03	1.01	0.46	0.62	1.55	1.14	0.68	0.79	11.97	12.6 - 18.5 mph
0.03	0.03	0.00	0.05	0.00	0.02	0.07	0.12	0.57	0.31	0.07	0.21	0.88	0.24	0.00	0.01	2.61	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.03	0.12	0.01	0.00	0.00	0.23	> 24.5 mph

5.5 Precipitation

Monthly totals and the maximum 24-hour and maximum 1-hour precipitation amounts are summarized below. The month with the most measured precipitation was September*. The month with the least measured precipitation was January. The maximum 24-hour total was 2.18" (September) and the maximum 1-hour total was 1.05" (July*).

Table 12
Precipitation Totals (Inches) - 2008
Byron Site

<u>Month</u>	<u>Total</u>	<u>Maximum 24-hour</u>	<u>Maximum 1-hour</u>
January	0.55*	0.18*	0.10*
February	2.31*	0.89*	0.20*
March	0.99*	0.89*	0.34*
April	4.69*	1.20*	0.29*
May	3.21	1.30	0.53
June	4.50	1.32	0.50
July	6.05*	2.05*	1.05*
August	2.09	1.13	0.82
September	6.60*	2.18*	0.49*
October	1.89	0.69	0.24
November	1.60	0.40	0.19
December	4.48*	1.73*	0.37*
TOTAL:	38.96*		

* some data are missing - actual precipitation may be under-reported

5.6 Doses Resulting from Airborne Releases

The following are the maximum annual calculated cumulative offsite doses resulting from Byron airborne releases.

Unit 1:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	3.539×10^{-3} mrad	South-Southeast
beta air ⁽²⁾	1.905×10^{-3} mrad	Northwest
whole body ⁽³⁾	1.925×10^{-3} mrem	South-Southeast
skin ⁽⁴⁾	3.937×10^{-3} mrem	South-Southeast
organ ⁽⁵⁾ (teenager thyroid)	4.753×10^{-4} mrem	North-Northwest

Unit 2:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	1.048×10^{-4} mrad	South-Southeast
beta air ⁽²⁾	4.328×10^{-4} mrad	North-Northwest
whole body ⁽³⁾	5.769×10^{-5} mrem	South-Southeast
skin ⁽⁴⁾	2.563×10^{-4} mrem	West-Northwest
organ ⁽⁵⁾ (teenager thyroid)	9.040×10^{-4} mrem	West-Northwest

-
- ⁽¹⁾ Gamma Air Dose - Finite Cloud Model; M+T ODCM Rev. 9
⁽²⁾ Beta Air Dose - Finite Cloud Model; M+T ODCM Rev. 9
⁽³⁾ Whole Body Dose - Finite Cloud Model; M+T ODCM Rev. 9
⁽⁴⁾ Skin Dose - Finite Cloud Model; M+T ODCM Rev. 9
⁽⁵⁾ Inhalation and Food Pathways Dose - Finite Cloud Model; M+T ODCM Rev. 9

TABLE 13

Byron Station - Unit 1

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

2008

TYPE OF DOSE	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
GAMMA AIR (mrad)	4.000E-06(ESE)	1.480E-06(SE)	3.530E-03(SSE)	3.080E-06(SSE)	3.537E-03(SSE)
BETA AIR (mrad)	1.650E-05(ESE)	6.710E-06(NNW)	1.880E-03(NW)	1.990E-05(NNW)	1.899E-03(NW)
WHOLE BODY (mrem)	1.960E-06(SE)	9.180E-07(SE)	1.920E-03(SSE)	1.610E-06(SSE)	1.924E-03(SSE)
SKIN (mrem)	6.120E-06(SE)	2.800E-06(SE)	3.920E-03(SSE)	6.220E-06(SSE)	3.933E-03(SSE)
ORGAN (mrem)	2.180E-04(ESE)	1.090E-04(NNW)	1.240E-04(NW)	8.020E-05(NNW)	4.753E-04(NNW)
CRITICAL PERSON	Teenager	Teenager	Teenager	Teenager	Teenager
CRITICAL ORGAN	Thyroid	Thyroid	Liver	Liver	Thyroid

COMPLIANCE STATUS

TYPE OF DOSE	10 CFR 50 APP. I		10 CFR 50 APP. I	
	QUARTERLY OBJECTIVE	% OF APP. I	YEARLY OBJECTIVE	% OF APP. I
GAMMA AIR (mrad)	5.0	0.07	10.0	0.04
BETA AIR (mrad)	10.0	0.02	20.0	0.01
WHOLE BODY (mrem)	2.5	0.08	5.0	0.04
SKIN (mrem)	7.5	0.05	15.0	0.03
ORGAN (mrem)	7.5	0.00	15.0	0.00
CRITICAL PERSON		Teenager		Teenager
CRITICAL ORGAN		Thyroid		Thyroid

Calculation used release data from the following:

Unit 1 - Vent

Date of calculation: 2/17/2009

TABLE 13
continued

Byron Station - Unit 2

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

2008

TYPE OF DOSE	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
GAMMA AIR (mrad)	1.560E-06(ESE)	9.810E-07(SE)	4.970E-09(SSE)	1.030E-04(SSE)	1.048E-04(SSE)
BETA AIR (mrad)	6.840E-06(ESE)	5.530E-06(NNW)	2.720E-08(NW)	4.210E-04(NNW)	4.328E-04(NNW)
WHOLE BODY (mrem)	1.350E-06(SE)	1.110E-06(SE)	2.330E-09(SSE)	5.580E-05(SSE)	5.769E-05(SSE)
SKIN (mrem)	3.120E-06(SE)	2.620E-06(SE)	9.820E-09(SSE)	2.540E-04(WNW)	2.563E-04(WNW)
ORGAN (mrem)	2.280E-04(ESE)	2.550E-04(NNW)	2.770E-04(NW)	2.420E-04(NNW)	9.040E-04(NNW)
CRITICAL PERSON	Teenager	Teenager	Teenager	Teenager	Teenager
CRITICAL ORGAN	Thyroid	Thyroid	Liver	Thyroid	Thyroid

COMPLIANCE STATUS

TYPE OF DOSE	10 CFR 50 APP. I		10 CFR 50 APP. I	
	QUARTERLY OBJECTIVE	% OF 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	0.00	15.0	0.01
CRITICAL PERSON		Teenager		Teenager
CRITICAL ORGAN		Liver		Thyroid

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

Date of calculation: 2/17/2009

APPENDIX

Byron Meteorological Calibration

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Date: 1-7-8

POWER SUPPLIES

+15.000V \pm 0.150V	-15.000V \pm 0.150V
A: + <u>15.102</u> V	A: - <u>15.020</u> V
B: + <u>14.971</u> V	B: - <u>14.975</u> V

Signal Conditioners / Digital Recorder:

Signal Conditioner Voltage Out			Digital recorder			Specifications	
AF	AL	AL EQUIV	AF	AL		Signal Cond.	Recorder
3 ft.							
PRCP LO	<u>0.000</u> V	- V	<u>0.00</u> "	- "		0.000V \pm 0.050V	AL EQUIV \pm 0.01"
PRCP HI	<u>5.004</u> V	- V	<u>1.00</u> "	- "		5.000V \pm 0.050V	AL EQUIV \pm 0.01"
30 ft.							
WS ZERO	<u>0.015</u> V	- V	<u>0.3</u> mph	- mph		0.015V \pm 0.025V	AL EQUIV \pm 0.1mph
WS SPAN	<u>4.995</u> V	<u>5.000</u> V	<u>100</u> mph	<u>100.0</u> mph		5.000V \pm 0.025V	AL EQUIV \pm 0.1mph
WD ZERO	<u>0.003</u> V	- V	<u>324</u> °	<u>0</u> °		0.000V \pm 0.100V	AL EQUIV \pm 1°
WD SPAN	<u>5.011</u> V	- V	<u>541.18</u> °	<u>541</u> °		5.000V \pm 0.100V	AL EQUIV \pm 1°
T LO	<u>0.043</u> V	- V	<u>-20.76</u> °	<u>-20.80</u> °			AL EQUIV \pm 0.1°F
T HI	<u>5.024</u> V	- V	<u>122.69</u> °	<u>122.61</u> °			AL EQUIV \pm 0.1°F
T HI-LO	<u>4.981</u> V	- V				5.000V \pm 0.050V	
DP LO	<u>.133</u> V	- V	<u>-18.16</u> °	<u>-18.2</u> °			AL EQUIV \pm 0.1°F
DP HI	<u>5.126</u> V	- V	<u>125.62</u> °	<u>125.6</u> °			AL EQUIV \pm 0.1°F
DP HI-LO	<u>4.993</u> V	- V				5.000V \pm 0.050V	
250 ft.							
WS ZERO	<u>.015</u> V	- V	<u>0.3</u> mph	<u>0.3</u> mph		0.015V \pm 0.025V	AL EQUIV \pm 0.1mph
WS SPAN	<u>5.003</u> V	- V	<u>100.06</u> mph	<u>100.0</u> mph		5.000V \pm 0.025V	AL EQUIV \pm 0.1mph
WD ZERO	<u>.010</u> V	- V	<u>1.08</u> °	<u>1</u> °		0.000V \pm 0.100V	AL EQUIV \pm 1°
WD SPAN	<u>5.001</u> V	- V	<u>540.1</u> °	<u>540</u> °		5.000V \pm 0.100V	AL EQUIV \pm 1°
Δ T LO	<u>.009</u> V	- V	<u>-9.964</u> °	<u>-9.96</u> °			AL EQUIV \pm 0.1°F
Δ T HI	<u>4.980</u> V	- V	<u>9.92</u> °	<u>9.91</u> °			AL EQUIV \pm 0.1°F
Δ T HI-LO	<u>4.971</u> V	- V				5.000V \pm 0.200V	

MAC 2/14/08

Byron Meteorological Calibration

Date: 1-7-08

TOWER MEASUREMENTS

☒ Ambient
 ☐ Ice Bath

ASL 1-7-08

	30 ft. Amb.		250 ft. AT		30 ft. dew point	
	AF	AL	AF	AL	AF	AL
Measured	61.25 °F	— °F	-0.8 °F	— °F	58.0 °F	58.0 °F
Recorded	61.0 °F	— °F	-0.9 °F	— °F	51.0 °F	56.0 °F
Difference	0.25 °F	— °F	0.10 °F	— °F	7.0 °F	2.0 °F
Specification	±0.5°F		±0.18°F		±2.7°F	

Winds

	30 ft.		250 ft.		Specification
	AF	AL	AF	AL	
WS stall	0.4 mph	— mph	0.4 mph	0.4 mph	0.3mph ± 0.45mph
Forw. WD	27 °	— °	4 °	30 °	30°/390° ± 5°
Revr. WD	208 °	— °	184 °	212 °	210° ± 5°
Tracking/wear	OK		OK		

Comments: *250' WD was reading 26° low.

MT0171 installed @ 250' WD (MT0114 removed)

MT0096 installed @ 250' WS (MT0097 removed)

Dew Point adjusted up 5 degrees.

MAC 2/14/08

Byron Meteorological Calibration

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Date: 1-7-08

Dates of Last Wind Sensor Bearing Replacements:

		<u>30 ft.</u>	<u>250 ft.</u>
(6 mos.)	Wind Speed:	<u>9-20-07</u>	<u>1-7-08</u>
(12 mos.)	Wind Direction:	<u>3-16-07</u>	<u>1-7-08</u>

Aspirators: 30 ft. OK 250 ft. OK

Operation of De-Ice Heat Lamp System (Aug-Mar): OK

Operation of Rain Gauge: OK

Debris screen: In (Out) Installed Removed

	Good	Fair	Poor		Good	Fair	Poor
<u>Tower Lighting</u>				<u>Tower Condition</u>			
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guy wire tension	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
AL = As Left
— = no change (AF=AL)

Calibration Instruments:

Psychrometer - S/N - 1
Digital multimeter - S/N - 87930008
Digital multimeter - S/N -

FS = Full Scale

Technicians: Mike Max Andy Lotz

Comments:

Signature: Andrew J. SP

MAC 2/14/08

System Response Check

Date: 1-7-08

Site: Byron
System: Microtel

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	10.0 ±0.4	10.0 ±0.4	54 ±2	54 ±2	-7.6 ±0.5	-8.0 ±0.18	-7.6 ±0.5
As Found Response	9.9	9.9	53	54	-7.6	-8.0	-7.8
As Left Response	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	50.0 ±0.4	270 ±2	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	49.9	49.9	269	270	49.0	0.0	49.8
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	90.0 ±0.4	90.0 ±0.4	486 ±2	486 ±2	107.6 ±0.5	8.0 ±0.18	107.6 ±0.5
As Found Response	89.8	89.8	485	485	107.3	8.0	107.3
As Left Response	-	-	-	-	-	-	-

MTC 2/14/08

System Response Check

Date: 1-7-08

Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	54 ±2	10.0 ±0.4	-7.6 ±0.5	-8.0 ±0.18	-7.6 ±0.5	54 ±2	10.0 ±0.4
As Found Response	54.3	10.0	-7.5	-8.0	-7.7	54.1	10.0
As Left Response	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ±2	50 ±0.4	50 ±0.5	0.0 ±0.18	50 ±0.5	270 ±2	50 ±0.4
As Found Response	269.6	50.1	50.1	0.006	49.9	270.2	50.0
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	486 ±2	90.0 ±0.4	107.6 ±0.5	8.0 ±0.18	107.6 ±0.5	486 ±2	90.0 ±0.4
As Found Response	485.2	90.1	107.8	8.0	107.6	486	90.0
As Left Response	-	-	-	-	-	-	-

MIL 2/14/08

System Response Check

Date: 1-7-08

Site: Byron
System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	10.0 ±0.4	54 ±2	10.0 ±0.4	54 ±2	-7.6 ±0.5	-8.0 ±0.18	-7.6 ±0.5	.07 ±0.01
As Found Response	10.0	54	10.05	54.4	-7.8	-7.96	-8.1	.069
As Left Response	-	-	-	-	-	-	-	-

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50 ±0.4	270 ±2	50 ±0.4	270 ±2	50 ±0.5	0.0 ±0.18	50 ±0.5	.49 ±0.01
As Found Response	50.1	269.8	50.1	270.1	49.9	0.01	49.6	.49
As Left Response	-	-	-	-	-	-	-	-

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	90.0 ±0.4	486 ±2	90 ±0.4	486 ±2	107.6 ±0.5	8.0 ±0.18	107.6 ±0.5	.74 ±0.01
As Found Response	90.3	485.7	90.1	485.8	107.6	8.0	107.3	.744
As Left Response	-	-	-	-	-	-	-	-

MML 2/14/08

System Response Check

Date: 1-7-08

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	10.0 ±1.0	10.0 ±1.2	54 ±5	54 ±5	-7.6 ±0.5	-8.0 ±0.18	-7.6 ±0.5
As Found Response	9.5	10.0	55	53	-8.0	-8.0	-7.8
As Left Response	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50. ±1.0	50 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	50.	49.9	271	269	50.2	-1.02	50.0
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	90.0 ±1.0	90.0 ±1.2	486 ±5	486 ±5	107.6 ±0.5	8.0 ±0.18	107.6 ±0.5
As Found Response	89.6	89.9	486	483	108.0	7.96	107.5
As Left Response	—	—	—	—	—	—	—

MAC 2/14/08

Byron Meteorological Calibration

Page 1 of 8

Date: 4-9-08

POWER SUPPLIES

+12.000V \pm 2.000V

+ 13.180 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	0.30 mph	+/- 0.4 mph	30' WD	0°	0.3 °	+/- 2°
	11.71 mph	11.76 mph	+/- 0.4 mph		90°	90.3 °	+/- 2°
	23.12 mph	23.12 mph	+/- 0.4 mph		180°	179.9 °	+/- 2°
	45.93 mph	45.93 mph	+/- 0.4 mph		270°	269.8 °	+/- 2°
	91.57 mph	91.56 mph	+/- 0.4 mph		360°	359.6 °	+/- 2°
250' WS	0.3 mph	0.30 mph	+/- 0.4 mph	250' WD	0°	0.2 °	+/- 2°
	11.71 mph	11.76 mph	+/- 0.4 mph		90°	90.1 °	+/- 2°
	23.12 mph	23.12 mph	+/- 0.4 mph		180°	179.9 °	+/- 2°
	45.93 mph	45.93 mph	+/- 0.4 mph		270°	269.8 °	+/- 2°
	91.57 mph	91.56 mph	+/- 0.4 mph		360°	359.7 °	+/- 2°
	Ohms	Expected	Data Logger	Specifications			
T Lo 30' TEMP	40.670	23.0°F	22.95 °	+/- 0.1°			
250' TEMP	40.670	23.0°F	22.98 °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	0.03 °	+/- 0.1°			
T HI 30' TEMP	12.174	100.0°F	99.95 °	+/- 0.1°			
250' TEMP	12.174	100.0°F	99.96 °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	0.01 °	+/- 0.1°			
30' TEMP	34.890	32.0°F	31.98 °	+/- 0.1°			
250' TEMP	40.670	23.0°F	23.00 °	+/- 0.1°			
Δ TLo 250'-30'		-9.0°F	-8.98 °	+/- 0.1°			
30' TEMP	40.670	23.0°F	22.99 °	+/- 0.1°			
250' TEMP	34.890	32.0°F	31.98 °	+/- 0.1°			
Δ THI 250'-30'		9.0°F	8.99 °	+/- 0.1°			

ASL 5-30-08

Byron Meteorological Calibration

Page 2 of 8

Date: 4-9-08

TOWER MEASUREMENTS



Ambient



Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 32.02 °F	— °F
Recorded 31.82 °F	— °F
Difference 0.20 °F	— °F
Specification ±0.5°F	

250' Δ T	
AF	AL
0.20 °F	— °F
0.20 °F	— °F
0.00 °F	— °F
±0.18°F	

30' Dew Point	
AF	AL
33.0 °F	— °F
32.5 °F	— °F
0.5 °F	— °F
±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	— mph	0.3 mph	— mph
Forw. WD 391 °	— °	391 °	— °
Revr. WD 210 °	— °	209 °	— °
Tracking/wear OK		OK	

Specification

0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

Comments:

ASL 5-30-08

Date: 4-9-08

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>4/08</u>	<u>4/08</u>
(12 mos.)	Wind Direction:	<u>4/08</u>	<u>4/08</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Rain Gauge: OKDebris screen: In Out Installed Removed

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guy wire tension	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
AL = As Left
— = no change (AF=AL)

Calibration Instruments:

Psychrometer - S/N - 1
Digital multimeter - S/N - 86330011
Digital multimeter - S/N - _____

FS = Full Scale

Technicians: Mike Marx Andy Lotz Mick Mondin

Comments:

Signature: Andrew J. Szy

ASL 5-30-08

System Response Check

Date: 4-9-08Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	0.005 v	0.005 v	0.000 v	0.000 v	0.004 v	0.000 v	0.004 v	0.000 v
Expected Response	0.1 MPH	0.54 DEG	0.0 MPH	0 DEG	-21.88 DEG	-10 DEG	-21.88 DEG	0.00 IN
As Found Response	0.1	1	0.0	0	-21.86	-10.0	-21.87	0.00
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	2.507 v	2.507 v	2.496 v	2.496 v	2.507 v	2.498 v	2.507 v	2.497 v
Expected Response	50.14 MPH	270.8 DEG	49.9 MPH	269.6 DEG	50.2 DEG	-0.01 DEG	50.2 DEG	0.50 IN
As Found Response	50.1	271	49.9	269	50.16	-0.01	50.16	0.50
As Left Response	—	—	—	—	—	—	—	—

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	5.011 v	5.013 v	4.994 v	4.993 v	5.012 v	4.997 v	5.011 v	4.995 v
Expected Response	100.22 MPH	541.4 DEG	99.9 MPH	539.2 DEG	122.3 DEG	9.99 DEG	122.3 DEG	1.00 IN
As Found Response	100.2	541	99.9	539	122.3	9.98	122.31	1.00
As Left Response	—	—	—	—	—	—	—	—

ASL 5-30-08

System Response Check

Date: 4-9-08

Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	±0.01
As Found Response	0.0	0.0	0.0	0.0	-22.0	-10.0	-22.0	0.00
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	50.0	270	50.0	270	50.0	0.0	50.0
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	100.0	540	100.0	540	122.0	10.0	122.0
As Left Response	-	-	-	-	-	-	-

ASL 5-30-08

System Response Check

Date: 4-9-08

Site: Byron

System: Process Computer - Y4000 - Y4006

Low Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0.54 ± 2	0.1 ± 0.4	-21.88 ± 0.5	-10.0 ± 0.18	-21.88 ± 0.5	0 ± 2	0.0 ± 0.4
As Found Response	1.4	0.21	-21.7	-10.0	-22.2	-0.02	0.08
As Left Response	-	-	-	-	-	-	-

Mid Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270.8 ± 2	50.14 ± 0.4	50.2 ± 0.5	-0.01 ± 0.18	50.2 ± 0.5	269.6 ± 2	49.9 ± 0.4
As Found Response	270	50.1	50.3	-0.008	49.7	269.5	49.9
As Left Response	-	-	-	-	-	-	-

Full Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	541.4 ± 2	100.22 ± 0.4	122.3 ± 0.5	9.99 ± 0.18	122.3 ± 0.5	539.2 ± 2	99.8 ± 0.4
As Found Response	540	100.3	122.5	10.0	121.8	539.1	99.9
As Left Response	-	-	-	-	-	-	-

ASZ 5-30-08

System Response Check

Date: 4-9-08

Site: Byron
System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.1 ±0.4	0.54 ±2	0.0 ±0.4	0 ±2	-21.88 ±0.5	-16 ±0.18	-21.9 ±0.5	0.0 ±0.01
As Found Response	0.43	0.55	-0.09	0.28	-21.8	-10.0	-22.2	0.0
As Left Response	0.16	-	-	-	-	-	-	-

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.14 ±0.4	270.8 ±2	49.9 ±0.4	269.6 ±2	50.2 ±0.5	-0.01 ±0.18	50.2 ±0.5	0.50 ±0.01
As Found Response	50.8	270.9	49.7	269.6	50.1	-0.09	49.7	0.50
As Left Response	50.2	-	-	-	-	-	-	-

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.22 ±0.4	541.4 ±2	99.9 ±0.4	539.2 ±2	122.3 ±0.5	9.99 ±0.18	122.3 ±0.5	1.00 ±0.01
As Found Response	101.3	541	99.7	539	122.3	9.90	122.0	1.00
As Left Response	100.4	-	-	-	-	-	-	-

ASL 5-30-08

System Response Check

Date: 4-9-08

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.1 ±1.0	0.0 ±1.2	0.54 ±5	0 ±5	-21.88 ±0.5	-10 ±0.18	-21.9 ±0.5
As Found Response	0	0	2.3	-1	-21.6	-10	-22.3
As Left Response	-	-	-	-	-21.9	-	-

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.14 ±1.0	49.9 ±1.2	270.8 ±5	269.6 ±5	50.2 ±0.5	-0.01 ±0.18	50.2 ±0.5
As Found Response	50.0	49.9	274	267	50.4	-0.04	49.8
As Left Response	-	-	-	-	49.9	-	-

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.22 ±1.0	99.9 ±1.2	541.4 ±5	539.2 ±5	122.3 ±0.5	9.99 ±0.18	122.3 ±0.5
As Found Response	100.0	100	541	537	121.8	10.0	121.8
As Left Response	-	-	-	-	-	-	-

ASZ 5-30-08

Byron Meteorological Calibration

Page 1 of 8

Date: 5-4-08

POWER SUPPLIES

+12.000V \pm 2.000V

+ 13.170 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	0.30 mph	+/- 0.4 mph	30' WD	0°	0.36 °	+/- 2°
	11.71 mph	11.76 mph	+/- 0.4 mph		90°	90.25 °	+/- 2°
	23.12 mph	23.12 mph	+/- 0.4 mph		180°	179.96 °	+/- 2°
	45.93 mph	45.93 mph	+/- 0.4 mph		270°	269.79 °	+/- 2°
	91.57 mph	91.56 mph	+/- 0.4 mph		360°	359.62 °	+/- 2°
250' WS	0.3 mph	0.30 mph	+/- 0.4 mph	250' WD	0°	0.24 °	+/- 2°
	11.71 mph	11.76 mph	+/- 0.4 mph		90°	90.13 °	+/- 2°
	23.12 mph	23.12 mph	+/- 0.4 mph		180°	179.96 °	+/- 2°
	45.93 mph	45.93 mph	+/- 0.4 mph		270°	269.82 °	+/- 2°
	91.57 mph	91.56 mph	+/- 0.4 mph		360°	359.74 °	+/- 2°
	Ohms	Expected	Data Logger	Specifications			
T Lo 30' TEMP	40.670	23.0°F	22.93 °	+/- 0.1°			
250' TEMP	40.670	23.0°F	22.97 °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	0.04 °	+/- 0.1°			
			0.04				
T HI 30' TEMP	12.174	100.0°F	99.92 °	+/- 0.1°			
250' TEMP	12.174	100.0°F	99.94 °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	0.02 °	+/- 0.1°			
30' TEMP	34.890	32.0°F	31.96 °	+/- 0.1°			
250' TEMP	40.670	23.0°F	23.00 °	+/- 0.1°			
Δ TLo 250'-30'		-9.0°F	-8.94 °	+/- 0.1°			
30' TEMP	40.670	23.0°F	22.99 °	+/- 0.1°			
250' TEMP	34.890	32.0°F	31.98 °	+/- 0.1°			
Δ THI 250'-30'		9.0°F	8.99 °	+/- 0.1°			

MAC 6/12/08

Byron Meteorological Calibration

Page 2 of 8

Date: 5-9-08

TOWER MEASUREMENTS

☐ Ambient ☒ Ice Bath

Temperatures

	30' Ambient	
	AF	AL
Measured	32.00°F	— °F
Recorded	31.85°F	— °F
Difference	.15°F	— °F
Specification	±0.5°F	

	250' Δ T	
	AF	AL
Measured	.15 °F	— °F
Recorded	.15 °F	— °F
Difference	.00 °F	— °F
Specification	±0.18°F	

	30' Dew Point	
	AF	AL
Measured	37.0 °F	— °F
Recorded	36.1 °F	— °F
Difference	.9 °F	— °F
Specification	±2.7°F	

Winds

	30'		60'	
	AF	AL	AF	AL
WS stall	0.3 mph	— mph	0.3 mph	— mph
Forw. WD	31.54 °	— °	33.6 °	— °
Rev. WD	210.89 °	— °	208.5 °	— °
Tracking/wear	OK		OK	

Specification

0.3mph ± 0.45mph

30°/390° ± 5°

210° ± 5°

Comments:

MTC 6/12/08

Date: 5-9-08

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>4.08</u>	<u>4.08</u>
(12 mos.)	Wind Direction:	<u>4.08</u>	<u>4.08</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Rain Gauge: OKDebris screen: (In) Out Installed Removed

<u>Tower Lighting</u>	Good	Fair	Poor		<u>Tower Condition</u>	Good	Fair	Poor
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Guy wire tension	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Shelter condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MAC 6/12/08
Should be Fair

Note:

AF = As Found
 AL = As Left
 — = no change (AF=AL)

FS = Full Scale

Calibration Instruments:

Psychrometer - S/N - #1
 Digital multimeter - S/N - 8633001
 Digital multimeter - S/N - _____

Technicians: MIKE MONDIA MILU MARX

Comments:

Signature: [Signature]MAC 6/12/08

Date: 5-9-08

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale</u> Check	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	0.000 V	0.000 V	0.00 V	0.000 V	-0.000 V	0.000 V	0.000 V	0.000 V
Expected Response	0.00 MPH	0 DEG	0.0 MPH	0 DEG	-22.00 DEG	-10.00 DEG	-22.00 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.02	-10.00	-22.03	0.00
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale</u> Check	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	2.500 V	2.500 V	2.500 V	2.497 V	2.499 V	2.499 V	2.496 V	2.497 V
Expected Response	50 MPH	270 DEG	50 MPH	269.7 DEG	49.97 DEG	0.00 DEG	49.94 DEG	.499 IN
As Found Response	49.9	270	49.9	269	49.92	-0.01	49.93	.50
As Left Response	—	—	—	—	—	—	—	—

<u>Full Scale</u> Check	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	4.999 V	51000 V	4.997 V	4.996 V	11.998 V	11.998 V	4.993 V	4.997 V
Expected Response	99.98 MPH	540 DEG	99.94 MPH	539.56 DEG	121.94 DEG	9.99 DEG	121.94 DEG	.999 IN
As Found Response	99.9	540	99.9	539	121.91	9.99	121.92	1.00
As Left Response	—	—	—	—	—	—	—	—

MTC 6/12/08

System Response Check

Site: Byron
System: Data Logger

Date: _____

5-9-08

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	0.10
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	—	—	—	—	—	—	—

MTC 6/12/08

System Response Check

Date: 5-9-08

Site: Byron
 System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ±2	0 ±0.4	-22.00 ±0.5	-10.00 ±0.18	-22.00 ±0.5	0 ±2	0 ±0.4
As Found Response	.26	.046	-22.2	-10.0	-22.0	.16	.042
As Left Response	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ±2	50.0 ±0.4	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5	270 ±2	50.0 ±0.4
As Found Response	269.4	50.0	49.6	-0.01	49.9	269.6	49.9
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ±2	100.0 ±0.4	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	540 ±2	100.0 ±0.4
As Found Response	538.8	100.1	121.5	10.0	122.1	539.6	99.9
As Left Response	—	—	—	—	—	—	—

MAC 6/12/08

System Response Check

Date: 5-9-08

Site: Byron
System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0 ±0.4	0 ±2	0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	-0.17	0.04	-0.03	.48	-22.1	-9.97	-22.4	0.00
As Left Response	—	—	—	—	—	—	—	—

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5	.50 ±0.01
As Found Response	49.6	269.6	49.8	269.5	49.9	.003	49.5	.50
As Left Response	—	—	—	—	—	—	—	—

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.6	539.8	99.7	539.2	122.0	10.0	121.7	1.00
As Left Response	—	—	—	—	—	—	—	—

MTC 6/12/08

System Response Check

Date: 5-9-08

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0 ±1.0	0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5
As Found Response	0.2	0.0	2.0	-1.0	-21.6	-9.95	-22.0
As Left Response	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	49.7	50.0	272	268	49.6	0.0	49.9
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	100.0	99.9	539	538	121.8	10.05	121.6
As Left Response	—	—	—	—	—	—	—

MTC 6/12/08

Byron Meteorological Calibration

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Date: 9-5-08

POWER SUPPLIES

+12.000V \pm 2.000V
+ 13.579 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	30' WD	0°	<u>0.21</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.11</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.03</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.83</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
250' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.11</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.00</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.80</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
	Ohms	Expected	Data Logger	Specifications			
TLo 30' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.1°			
250' TEMP	40.670	23.0°F	<u>22.95</u> °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	<u>-0.03</u> °	+/- 0.1°			
THI 30' TEMP	12.174	100.0°F	<u>99.97</u> °	+/- 0.1°			
250' TEMP	12.174	100.0°F	<u>99.97</u> °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	<u>0.00</u> °	+/- 0.1°			
30' TEMP	34.890	32.0°F	<u>31.99</u> °	+/- 0.1°			
250' TEMP	40.670	23.0°F	<u>22.95</u> °	+/- 0.1°			
Δ TLo 250'-30'		-9.0°F	<u>-9.04</u> °	+/- 0.1°			
30' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.1°			
250' TEMP	34.890	32.0°F	<u>31.98</u> °	+/- 0.1°			
Δ THI 250'-30'		9.0°F	<u>9.03</u> °	+/- 0.1°			

ASL 10-10-08

F5
R-26
6/08

Byron Meteorological Calibration

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Date: 9-5-08

TOWER MEASUREMENTS

☐ Ambient ☒ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 32.00 °F	— °F
Recorded 31.83 °F	— °F
Difference .17 °F	— °F
Specification ±0.5°F	

250' Δ T	
AF	AL
.10 °F	— °F
.11 °F	— °F
.01 °F	— °F
±0.18°F	

30' Dew Point	
AF	AL
55.00 °F	— °F
55.11 °F	— °F
.11 °F	— °F
±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.47 mph	0.3 mph
Forw. WD 31.99 °	— °	388.91 °	— °
Revr. WD 22.81 °	— °	209.16 °	— °
Tracking/wear OK		OK	

Specification

0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

Comments:

30'

250'

WS IN MT 0187

WS IN MT 0188

WS OUT MT 0198

WS OUT MT 0186

ASZ 10-10-08

Byron Meteorological Calibration

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Date: 9-5-08

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>9-08</u>	<u>9-08</u>
(12 mos.)	Wind Direction:	<u>4-08</u>	<u>4-08</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Rain Gauge: OKDebris screen: In Out Installed Removed

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guy wire tension	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shelter condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MML 10/13/08

Note:

AF = As Found
 AL = As Left
 — = no change (AF=AL)

Calibration Instruments:

Psychrometer - S/N - #1
 Digital multimeter - S/N - 86330011
 Digital multimeter - S/N - _____

FS = Full Scale

Technicians: MIKE MONDIA MIKE MARX

Comments:

1 BAD HWT LAMP 250' - Replaced All OKSignature: [Signature]

ASL 10-10-08

System Response Check

Date: 9-5-08Site: Byron
System: Digital Recorder

Low Scale Check	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	0.000 V	0.000 V	0.001 V	0.001 V	0.000 V	0.000 V	0.001 V	0.000 V
Expected Response	0.0 MPH	0 DEG	-0.02 MPH	-0.1 DEG	-22.00 DEG	-10.00 DEG	-22.03 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.02	-10.00	-22.03	0.00
As Left Response	—	—	—	—	—	—	—	—

Mid Scale Check	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	2.499 V	2.500 V	2.498 V	2.498 V	2.499 V	2.500 V	2.499 V	2.498 V
Expected Response	49.98 MPH	270 DEG	49.96 MPH	49.78 DEG	49.97 DEG	0.00 DEG	49.97 DEG	.499 IN
As Found Response	49.9	270	49.9	270	49.92	-0.01	49.92	.50
As Left Response	—	—	—	—	—	—	—	—

Full Scale Check	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	5.00 V	5.00 V	5.00 V	5.00 V	5.00 V	5.00 V	5.00 V	5.00 V
Expected Response	100 MPH	540 DEG	100 MPH	540 DEG	122.0 DEG	10.0 DEG	122.0 DEG	1.00 IN
As Found Response	99.9	540	99.9	540	121.93	9.99	121.93	1.00
As Left Response	—	—	—	—	—	—	—	—

System Response Check

Date: 9.5.08

Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 \pm 0.4	0 \pm 2	0.0 \pm 0.4	0 \pm 2	-22.0 \pm 0.5	-10.0 \pm 0.18	-22.0 \pm 0.5	.05 \pm 0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	.05
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 \pm 0.4	270 \pm 2	50.0 \pm 0.4	270 \pm 2	50.0 \pm 0.5	0.0 \pm 0.18	50.0 \pm 0.5
As Found Response	50.00	270	50.00	270.00	50.00	0.00	50.00
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 \pm 0.4	540 \pm 2	100.0 \pm 0.4	540 \pm 2	122.0 \pm 0.5	10.0 \pm 0.18	122.0 \pm 0.5
As Found Response	100.00	540	100.00	540	122.00	10.00	122.00
As Left Response	—	—	—	—	—	—	—

ASL 10-10-08

System Response Check

Date: 9-5-08

Site: Byron

System: Process Computer - Y4000 - Y4006

Low Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ±2	0.0 ±0.4	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0 ±2	0.0 ±0.4
As Found Response	0.4	.06	-22.2	-10.01	-22.5	0.2	0.05
As Left Response	—	—	—	—	—	—	—

Mid Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ±2	50 ±0.4	50 ±0.5	0.0 ±0.18	50 ±0.5	270 ±2	50 ±0.4
As Found Response	269.6	50.0	49.6	.001	49.6	269.9	49.9
As Left Response	—	—	—	—	—	—	—

Full Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ±2	100 ±0.4	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	540 ±2	100.0 ±0.4
As Found Response	539.1	100.1	121.5	10.0	121.6	539.7	99.9
As Left Response	—	—	—	—	—	—	—

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System Response Check

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Date: 9.5.08

Site: Byron
System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	.00 ±0.01
As Found Response	-0.2	-0.4	-0.5	0.2	-22.0	-10.0	-22.4	.00
As Left Response	0.13	-	-	-	-	-	-	-

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50 ±0.5	.50 ±0.01
As Found Response	49.6	269.5	49.8	269.7	50.0	.03	49.5	.50
As Left Response	49.9	-	-	-	-	-	-	-

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.5	539.6	99.8	539.4	122.0	10.0	121.7	1.00
As Left Response	99.9	-	-	-	-	-	-	-

ASL 10-10-08

System Response Check

Page 8

Date: 9.5.08

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5
As Found Response	0	0.2	1	-0.5	-21.6	-9.98	-22.0
As Left Response	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	49.9	49.9	271	268	49.9	0.0	49.5
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5
As Found Response	99.6	99.9	538	537	121.8	9.97	121.7
As Left Response	—	—	—	—	—	—	—

ASZ 10-10-08

FILE:

2.12.1717

Annual Report
on the
Meteorological Monitoring Program
at the
Byron Nuclear Power Station
2009

prepared for

Exelon Nuclear
Warrenville, IL 60555

by

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For Exelon Use Only

Reviewed By:

Date:

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1. Introduction

The purpose of the meteorological program being conducted at the Byron Station site is to provide information sufficient to assess the local weather conditions and to determine the degree of atmospheric dispersion of airborne radioactive effluent from the station.

The meteorological tower is 250 ft. high and is instrumented at two levels. Wind speed and direction are measured at 30 ft. and 250 ft. Ambient temperature is measured at 30 ft. Differential temperature, referenced to 30 ft., is measured at 250 ft. Dew point temperature is measured at 30 ft. Precipitation is measured at approximately 3 ft.

Joint frequency stability wind rose tables of wind direction, wind speed, and stability are routinely tabulated from hourly measurements. The quarterly and annual tables are included in this report.

Descriptions of the instruments and digital recorder are given in Section 3 (Data Acquisition) of this report. Data reduction and processing are described in Section 4 (Data Analysis). The results given in Section 5 of this report include modeled maximum whole body doses, skin doses, organ doses based upon airborne releases, and site meteorology.

2. Summary

The Byron Station meteorological monitoring program produced 52,472 hours of valid data out of a possible 52,560 parameter hours during 2009 (365 days x 24 hours/day x 6 measured priority parameters), which represents an overall data recovery rate of 99.8%. Priority parameters are all parameters except dew point temperature and precipitation.

The stability wind rose tables included in this report have been generated using the 30 ft. wind data with the 250-30 ft. differential temperature data.

The maximum annual calculated cumulative doses resulting from airborne releases were as follows.

Unit 1:

gamma air dose	-	1.076×10^{-5} mrad
beta air dose	-	4.261×10^{-4} mrad
whole body dose	-	4.828×10^{-6} mrem
skin dose	-	2.375×10^{-4} mrem
organ (teenager thyroid)	-	8.097×10^{-4} mrem

Unit 2:

gamma air dose	-	8.559×10^{-8} mrad
beta air dose	-	2.564×10^{-5} mrad
whole body dose	-	4.892×10^{-6} mrem
skin dose	-	1.480×10^{-5} mrem
organ (teenager thyroid)	-	7.996×10^{-4} mrem

3. Data Acquisition

Wind speed and direction are measured with Climatronics F460 wind sensors. The wind speed sensors have a starting speed of 0.5 mph (0.22 mps), a range of 0 to 100 mph (0 to 44.7 mps), and a system accuracy of ± 1.0 mph at 100 mph (± 0.45 mps at 44.7 mps). The wind direction sensors have a threshold speed of 0.5 mph (0.22 mps), a range of 0 to 540°, and a system accuracy of $\pm 5^\circ$.

Ambient and differential temperatures are measured with the Climatronics 100093 system. Ambient temperature is measured within the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 0.5^\circ\text{F}$ ($\pm 0.3^\circ\text{C}$). Differential temperature is measured within the range of -10.0 to 10.0°F (-5.6 to 5.6°C) with an accuracy of $\pm 0.18^\circ\text{F}$ ($\pm 0.10^\circ\text{C}$). Dew point temperature is measured with the Climatronics 101197 system. Dew point temperature is measured with the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 2.7^\circ\text{F}$ (1.5°C).

Precipitation is measured with a Climatronics 100097-1 tipping bucket rain gauge and is measured in increments of one one-hundredth of an inch with a system accuracy of ± 0.01 " ($\pm 0.25\text{mm}$).

Instrument types and locations are summarized in Table 1.

The meteorological data are collected and stored by a Campbell Scientific CR1000 Data Logger. The Campbell Scientific CR1000 measures the analog voltages of the instruments and records the digital equivalent within the range of 0 to +5 volts. Data are obtained from the Campbell Scientific CR1000 by a direct dial telephone hookup to an in-house computer system.

As a backup to the CR1000, data are also recorded with a Johnson Yokogawa Corp. digital recorder (JYC DA100 data acquisition unit). Data are sampled every 10 seconds.

Data loggers are summarized in Table 2.

Table 1

Instrument Locations

<u>Measurement</u>	<u>Sensor Type</u>	<u>Location</u>	<u>Elevation</u>
Wind Speed	Climatronics 100075 F460	Tower	250 ft.
Wind Direction	Climatronics 100076 F460	Tower	250 ft.
Differential Temperature	Climatronics 100093	Tower	250 ft.
Wind Speed	Climatronics 100075 F460	Tower	30 ft.
Wind Direction	Climatronics 100076 F460	Tower	30 ft.
Ambient Temperature	Climatronics 100093	Tower	30 ft.
Dew Point Temperature	Climatronics 1001197	Tower	30 ft.
Precipitation	Climatronics 100097-1	Ground	3 ft.

Table 2

Data Loggers

<u>Measurement</u>	<u>Logger Type</u>	<u>Sampling Frequency</u>
Winds, Temperatures, and Precipitation	Campbell Scientific CR1000	1 sec.
Winds, Temperatures, and Precipitation	Johnson Yokogawa Corp. Digital Recorder (JYC DA100 and Contec IPC-PT/M300(PC)WOU) digital recorder	10 sec.

4. Data Analysis

The Byron data logger is routinely interrogated to obtain hourly average data. The data are then stored in the meteorological data base and listings of the data are generated. The data listings are examined by qualified personnel and any apparent problems are brought to the attention of the Project Manager or Meteorological Technician and the Instrument Maintenance staff.

Hourly values of wind speed, wind direction, ambient temperature, differential temperature, dew point temperature, and precipitation are obtained through measurements taken at the site. The standard deviation of wind direction (sigma) is derived. The wind direction variation is described in terms of the standard deviation of the direction about the mean direction. The CR1000 computes an hourly value of wind sigma by taking the Root-Mean-Square (RMS) of the four quarter-hour wind sigma values. The quarter-hour wind sigma values are calculated directly from the one second wind direction samples during the 15 minute period.

The data base files are edited approximately once a week. Missing data logger values are replaced with digital recorder values, when available. Invalid data are deleted from the data base.

When an hourly value is missing or invalid, the numeral 999 is entered into the computer data file in the appropriate location. When the wind direction changes substantially relative to its short term fluctuations, the numeral 888 can be entered into the wind sigma location to indicate shifting winds. When the wind blows with velocities near the sensing threshold of the instrument, the numeral 777 can be entered into the wind direction, wind speed, and wind sigma locations to indicate light and variable winds.

A professional meteorologist reviews the data, calibration findings, equipment maintenance reports, and other information and determines which data are valid. Only the valid data are retained in the data base.

As a quality control measure, a monthly comparison is made of Microtel and digital recorder data. An investigation is made into the reasons for any significant differences between the sets of values.

Joint frequency stability wind rose tables of hourly data measured at the site are generated. These tables indicate the prevailing wind direction, wind speed, and stability classes measured during the period of observation as well as the joint frequencies of occurrence of the wind direction, wind speed, and stability classes. The values are also used as input to the atmospheric transport and diffusion models. Wind direction, wind speed, and stability classes are given in Tables 3, 4, and 5.

Table 3

Wind Direction Classes

IF	348.75°	<	WD	<	11.25°	THEN	Class is	N
IF	11.25°	<	WD	<	33.75°	THEN	Class is	NNE
IF	33.75°	<	WD	<	56.25°	THEN	Class is	NE
IF	56.25°	<	WD	<	78.75°	THEN	Class is	ENE
IF	78.75°	<	WD	<	101.25°	THEN	Class is	E
IF	101.25°	<	WD	<	123.75°	THEN	Class is	ESE
IF	123.75°	<	WD	<	146.25°	THEN	Class is	SE
IF	146.25°	<	WD	<	168.75°	THEN	Class is	SSE
IF	168.75°	<	WD	<	191.25°	THEN	Class is	S
IF	191.25°	<	WD	<	213.75°	THEN	Class is	SSW
IF	213.75°	<	WD	<	236.25°	THEN	Class is	SW
IF	236.25°	<	WD	<	258.75°	THEN	Class is	WSW
IF	258.75°	<	WD	<	281.25°	THEN	Class is	W
IF	281.25°	<	WD	<	303.75°	THEN	Class is	WNW
IF	303.75°	<	WD	<	326.25°	THEN	Class is	NW
IF	326.25°	<	WD	<	348.75°	THEN	Class is	NNW

Table 4

Wind Speed Classes

IF	0.0 mph	<	WS	<	0.5 mph	THEN	Class is	1
IF	0.5 mph	<	WS	<	3.5 mph	THEN	Class is	2
IF	3.5 mph	<	WS	<	7.5 mph	THEN	Class is	3
IF	7.5 mph	<	WS	<	12.5 mph	THEN	Class is	4
IF	12.5 mph	<	WS	<	18.5 mph	THEN	Class is	5
IF	18.5 mph	<	WS	<	24.5 mph	THEN	Class is	6
IF	24.5 mph	<	WS	<		THEN	Class is	7

Table 5

Atmospheric Stability Classes

<u>Class</u>	<u>Differential Temperature Interval (in °C/100m) ⁽¹⁾</u>	<u>Differential Temperature Interval (in °F over the 250-30 ft. interval) ⁽²⁾</u>
Extremely Unstable	$\Delta T \leq -1.9$	$\Delta T \leq -2.3$
Moderately Unstable	$-1.9 < \Delta T \leq -1.7$	$-2.3 < \Delta T \leq -2.1$
Slightly Unstable	$-1.7 < \Delta T \leq -1.5$	$-2.1 < \Delta T \leq -1.9$
Neutral	$-1.5 < \Delta T \leq -0.5$	$-1.9 < \Delta T \leq -0.7$
Slightly Stable	$-0.5 < \Delta T \leq 1.5$	$-0.7 < \Delta T \leq 1.8$
Moderately Stable	$1.5 < \Delta T \leq 4.0$	$1.8 < \Delta T \leq 4.8$
Extremely Stable	$4.0 < \Delta T$	$4.8 < \Delta T$

⁽¹⁾ from ANSI/ANS 2.5

⁽²⁾ ANSI/ANS 2.5 intervals scaled for instrument heights on the Byron meteorological tower

A description of the procedures and computational techniques used to calculate the doses resulting from radioactive releases is found in the Murray and Trettel, Inc. "Offsite Dose Calculation Manual" (ODCM-Rev. 9), dated January 1996. The ODCM describes the atmospheric transport and diffusion models used to calculate the doses and concentrations resulting from airborne releases.

5. Results

5.1 Instrument Maintenance

The maintenance program followed during 2009 was composed of routinely scheduled visits and equipment repairs. Routine site visits were made to inspect the sensing and recording systems for proper operation. In addition, routine maintenance and calibration checks of all tower-mounted and ground level equipment were performed every four months. A description of the calibration and field procedures is found in the Murray and Trettel, Inc. "P1009 Procedures Manual" (July 2009).

In January, a heat pad at the 30 ft. level was replaced.

In March, there was some 250 ft. wind speed data loss due to icing.

In April, some wire shielding was damaged by mice. The wires were repaired and mouse traps were set.

In May, the annual tower inspection was performed. Also in May, the digital recorder was inaccessible by modem. The phone line was unhooked, then re-connected to restore accessibility.

In June, 3 blocks of surge protection for signals to the process computer were damaged. The surge protection was replaced. Surge protection for the phone lines was also replaced.

In July, a bad phone line was repaired by Verizon.

In October, a side light was replaced.

No other significant problems were encountered with the equipment, and at the end of the year, no problems were evident at the site.

5.2 Data Recovery

The record of data recovery for the year is summarized in Table 6.

Table 6

Byron Site
Data Recovery Summary
2009

<u>Measurement</u>	<u>Elevation</u>	<u>Recovered Hours</u>	<u>Recovered Percent</u>	<u>Lost Hours</u>	<u>Percent Changed</u>
Wind Speed	30 ft.	8751	99.9	9	0.7
Wind Speed	250 ft.	8718	99.5	42	0.5
Wind Direction	30 ft.	8751	99.9	9	1.3
Wind Direction	250 ft.	8750	99.9	10	0.5
Ambient Temperature	30 ft.	8751	99.9	9	0.1
Differential Temperature	250-30 ft.	8751	99.9	9	0.5
Dew Point Temperature	30 ft.	8748	99.9	12	21.4
Precipitation	3 ft.	8709	99.4	51	0.7
AVERAGE *			99.8		

* average of priority parameters (all except dew point temperature and precipitation)

	<u>Valid Hours</u>	<u>Recovered Percent</u>	<u>Lost Hours</u>
Lower Level Joint Frequency %	8751	99.9	9
Upper Level Joint Frequency %	8717	99.5	43

5.3 Summary of Billings for Equipment Repairs, Replacement Parts, and Other Work not Included in Fixed-Cost Maintenance Agreement - 2009

Description - Byron

	<u>Cost</u>
<u>January</u>	
Meteorological equipment maintenance	\$ 100.00
<u>February</u>	
Meteorological parts, materials, and contractor services	96.32
<u>March</u>	
Meteorological parts, materials, and contractor services	334.82
<u>April</u>	
Meteorological equipment maintenance	250.00
Meteorological parts, materials, and contractor services	263.23
<u>May</u>	
Meteorological equipment maintenance	379.06
Meteorological parts, materials, and contractor services	300.65
<u>June</u>	
Meteorological equipment maintenance	758.12
Meteorological parts, materials, and contractor services	159.68
<u>July</u>	
Meteorological equipment maintenance	346.80
Meteorological parts, materials, and contractor services	332.25
<u>August</u>	
-none-	0.00
<u>September</u>	
Meteorological equipment maintenance	100.00
<u>October</u>	
Meteorological equipment maintenance	346.80
<u>November</u>	
Meteorological parts, materials, and contractor services	158.10
<u>December</u>	
Meteorological parts, materials, and contractor services	93.60
Annual Total:	\$ 4,019.43

5.4 Stability Wind Rose Data

The quarterly and annual stability wind roses are given in Tables 7 through 11. Wind speed classes have been altered to reflect the sensor threshold.

For the year, winds measured at 30 ft. most frequently came from the west-northwest (9.33%) and fell into the 3.6-7.5 mph and 7.6-12.5 mph wind speed classes (36.72% and 32.95% respectively). Calms (wind speeds at or below the sensor threshold) were measured 0.20% of the time. Speeds greater than 24.5 mph were measured 0.11% of the time.

Stability based on the 250-30 ft. differential temperature most frequently fell into the neutral classification (48.53%).

Byron Generating Station
30 ft. Wind Speed and Direction

January-March, 2009
250Ft-30Ft Delta-T (F)

Number of Observations = 2161

Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23				0.23				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.28
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
- N	0.14	0.05	0.00	0.05	0.19	0.14	0.05	0.09	0.09	0.00	0.00	0.09	0.00	0.09	0.00	0.09	1.06				1.06				
3 SS	0.09	0.28	0.00	0.05	0.23	0.19	0.05	0.00	0.00	0.09	0.09	0.28	0.37	0.37	0.46	0.19	2.73					2.73			
MS	0.00	0.00	0.00	0.05	0.14	0.09	0.05	0.05	0.00	0.09	0.14	0.05	0.28	0.23	0.05	0.05	1.25						1.25		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.19	0.00	0.00	0.09	0.14	0.14	0.60							0.60	
																									5.65
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05							
4 SU	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05			0.05					
- N	0.93	0.74	0.46	0.09	0.74	0.42	0.28	0.74	0.69	0.60	0.60	0.69	0.79	1.62	1.57	0.79	11.75				11.75				
7 SS	1.11	0.19	0.14	0.14	0.60	0.51	0.79	0.69	0.42	0.65	1.02	0.60	1.76	1.30	1.71	1.62	13.23					13.23			
MS	0.09	0.05	0.05	0.05	0.23	0.28	0.42	0.60	0.65	0.42	0.09	0.14	0.32	0.14	0.23	0.37	4.12						4.12		
ES	0.00	0.00	0.00	0.00	0.00	0.42	0.51	0.51	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	1.53							1.53	
																									30.73
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.05							
MU	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.09	0.09							
8 SU	0.00	0.05	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.14	0.00	0.00	0.00	0.05	0.14	0.05	0.56			0.56					
- N	1.99	1.67	0.37	0.65	0.79	0.83	0.88	2.31	0.88	0.83	1.25	0.46	1.67	3.38	2.78	3.15	23.88				23.88				
1 SS	0.19	0.14	0.42	0.14	0.97	0.46	1.11	1.67	1.30	0.56	0.46	0.56	1.62	0.97	0.88	1.06	12.49					12.49			
2 MS	0.00	0.00	0.00	0.00	0.00	0.23	0.14	0.51	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48						1.48		
ES	0.00	0.00	0.00	0.00	0.00	0.14	0.05	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37							0.37	
																									38.92
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.14	0.14							
1 MU	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.09	0.23	0.00	0.69	0.69							
3 SU	0.00	0.05	0.00	0.00	0.00	0.09	0.09	0.09	0.00	0.05	0.00	0.00	0.09	0.23	0.09	0.05	0.83			0.83					
- N	1.30	0.46	0.42	0.42	0.05	0.51	0.51	1.20	1.30	0.60	0.74	0.83	1.62	1.71	1.48	1.71	14.85				14.85				
1 SS	0.00	0.00	0.05	0.05	0.05	0.28	0.74	0.60	0.69	0.23	0.28	0.14	0.46	0.00	0.00	0.00	3.56					3.56			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09						0.09		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									20.18

TABLE 7
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

January-March, 2009
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
9	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.09	0.00	0.00	0.00	0.14			0.14					
	N	0.00	0.00	0.05	0.00	0.00	0.37	0.09	0.05	0.28	0.32	0.32	0.09	0.51	0.14	0.05	0.00	2.27				2.27				
2	SS	0.00	0.00	0.00	0.00	0.00	0.19	0.51	0.00	0.09	0.37	0.05	0.00	0.00	0.00	0.00	0.00	1.20					1.20			
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																										3.61
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
T	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.05	0.00	0.00	0.32				0.32				
2	SS	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05			
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																										0.37
TOT		5.97	3.70	2.04	1.71	3.98	5.23	6.29	9.25	7.17	5.09	5.28	3.93	10.13	10.50	9.90	9.25	99.72	0.19	0.83	1.57	54.37	33.32	6.94	2.50	99.72

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.05	0.00	0.19	Extremely Unstable
0.14	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.09	0.28	0.00	0.83	Moderately Unstable
0.00	0.09	0.00	0.05	0.00	0.14	0.14	0.14	0.00	0.19	0.05	0.00	0.19	0.28	0.23	0.09	1.57	Slightly Unstable
4.35	2.92	1.30	1.20	1.76	2.27	1.80	4.40	3.24	2.36	2.92	2.17	4.86	6.99	5.88	5.74	54.37	Neutral
1.39	0.60	0.60	0.37	1.85	1.67	3.19	2.96	2.50	1.90	1.90	1.57	4.21	2.64	3.05	2.87	33.32	Slightly Stable
0.09	0.05	0.05	0.09	0.37	0.60	0.60	1.16	1.34	0.51	0.23	0.19	0.60	0.37	0.28	0.42	6.94	Moderately Stable
0.00	0.00	0.00	0.00	0.00	0.56	0.56	0.60	0.09	0.14	0.19	0.00	0.00	0.09	0.14	0.14	2.50	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	CALM
0.23	0.32	0.00	0.14	0.56	0.42	0.14	0.14	0.09	0.23	0.42	0.42	0.65	0.79	0.65	0.46	5.65	< 3.5 mph
2.13	0.97	0.69	0.32	1.57	1.62	1.99	2.55	1.76	1.76	1.71	1.43	2.87	3.05	3.52	2.78	30.73	3.6 - 7.5 mph
2.17	1.85	0.83	0.79	1.76	1.71	2.22	4.63	2.87	1.53	1.71	1.02	3.29	4.40	3.89	4.26	38.92	7.6 - 12.5 mph
1.43	0.56	0.46	0.46	0.09	0.88	1.34	1.90	2.08	0.88	1.02	0.97	2.45	2.08	1.80	1.76	20.18	12.6 - 18.5 mph
0.00	0.00	0.05	0.00	0.00	0.56	0.60	0.05	0.37	0.69	0.42	0.09	0.60	0.14	0.05	0.00	3.61	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.05	0.00	0.00	0.37	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

April-June, 2009
250Ft-30Ft Delta-T (F)

Number of Observations = 2173

Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05				0.05				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05							0.05	
																									0.14
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
- N	0.18	0.23	0.28	0.05	0.18	0.09	0.09	0.00	0.05	0.09	0.09	0.18	0.14	0.00	0.41	0.14	2.21				2.21				
3 SS	0.18	0.28	0.28	0.55	0.28	0.18	0.05	0.05	0.18	0.09	0.37	0.28	0.32	0.18	0.14	0.14	3.54					3.54			
MS	0.32	0.14	0.14	0.09	0.18	0.09	0.05	0.23	0.09	0.23	0.18	0.64	1.01	0.97	0.87	0.28	5.52						5.52		
ES	0.00	0.00	0.00	0.09	0.09	0.05	0.00	0.09	0.18	0.05	0.09	0.14	0.14	0.28	0.18	0.05	1.43							1.43	
																									12.70
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
4 SU	0.00	0.00	0.05	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.09	0.09	0.41			0.41					
- N	0.74	0.87	0.60	1.20	1.47	0.28	0.64	0.41	0.64	0.74	0.23	0.74	1.24	1.56	1.61	1.38	14.36				14.36				
7 SS	0.83	0.87	0.60	0.60	2.30	0.37	0.51	0.37	0.69	0.41	0.41	0.60	1.52	0.87	0.78	0.32	12.06					12.06			
MS	0.23	0.14	0.05	0.09	0.55	0.60	0.55	0.37	0.28	0.46	0.23	0.05	0.32	0.23	0.05	0.37	4.56						4.56		
ES	0.00	0.00	0.00	0.00	0.14	0.14	0.18	0.37	0.41	0.18	0.00	0.00	0.00	0.00	0.00	0.00	1.43							1.43	
																									32.86
EU	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.18	0.18							
MU	0.00	0.14	0.00	0.14	0.18	0.09	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.09	0.05	0.00	0.74	0.74							
8 SU	0.00	0.28	0.23	0.18	0.28	0.18	0.05	0.00	0.00	0.00	0.05	0.05	0.05	0.18	0.05	0.00	1.56			1.56					
- N	1.20	1.43	1.43	2.30	2.12	1.01	0.51	0.78	0.78	0.78	0.51	0.74	0.64	2.53	2.12	1.10	19.97				19.97				
1 SS	0.09	0.41	0.51	1.01	0.60	1.43	0.69	0.83	1.98	1.15	0.18	0.23	0.46	1.06	0.28	0.37	11.27					11.27			
2 MS	0.00	0.00	0.00	0.09	0.05	0.09	0.05	0.78	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38						1.38		
ES	0.00	0.00	0.00	0.09	0.00	0.05	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28							0.28	
																									35.39
EU	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.14	0.00	0.05	0.00	0.37	0.37							
1 MU	0.00	0.05	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.05	0.28	0.05	0.55	0.55							
3 SU	0.05	0.09	0.05	0.00	0.00	0.00	0.09	0.14	0.05	0.32	0.00	0.05	0.14	0.14	0.28	0.14	1.52			1.52					
- N	0.74	0.60	0.69	1.15	0.00	0.32	0.37	0.74	0.32	1.06	0.46	0.55	0.92	1.66	1.70	0.55	11.83				11.83				
1 SS	0.00	0.00	0.28	0.60	0.00	0.09	0.09	0.41	0.28	0.46	0.14	0.09	0.09	0.05	0.00	0.09	2.67					2.67			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05						0.05		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									16.98

TABLE 8
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

April-June, 2009
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL	
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
1	MU	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05								
9	SU	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	0.00	0.00	0.00	0.23		0.23							
-	N	0.00	0.09	0.23	0.05	0.00	0.00	0.05	0.18	0.00	0.00	0.28	0.18	0.09	0.05	0.00	1.20				1.20					
2	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.23					0.23				
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00			
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00		
																									1.70	
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
G	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
T	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00							
	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05				0.05					
2	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05				
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00			
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00		
																									0.09	
TOT		4.56	5.71	5.48	8.33	8.61	5.11	3.96	5.80	6.53	6.17	2.99	5.11	7.36	9.94	9.02	5.06	99.86	0.55	1.38	3.73	49.65	29.87	11.50	3.18	99.86

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.09	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.14	0.00	0.05	0.00	0.55	Extremely Unstable
0.00	0.18	0.05	0.14	0.23	0.09	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.14	0.37	0.05	1.38	Moderately Unstable
0.05	0.37	0.37	0.23	0.32	0.23	0.14	0.14	0.05	0.32	0.05	0.28	0.23	0.32	0.41	0.23	3.73	Slightly Unstable
2.85	3.22	3.22	4.74	3.77	1.70	1.61	1.98	1.98	2.67	1.29	2.53	3.13	5.84	5.89	3.18	49.65	Neutral
1.10	1.56	1.66	2.76	3.18	2.07	1.33	1.75	3.18	2.25	1.10	1.20	2.39	2.16	1.20	0.92	29.87	Slightly Stable
0.55	0.28	0.18	0.28	0.78	0.78	0.64	1.43	0.69	0.69	0.41	0.69	1.33	1.20	0.92	0.64	11.50	Moderately Stable
0.00	0.00	0.00	0.18	0.23	0.23	0.23	0.51	0.64	0.23	0.09	0.14	0.14	0.28	0.18	0.05	3.18	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	C A L M
0.69	0.64	0.69	0.78	0.74	0.41	0.18	0.37	0.51	0.46	0.74	1.24	1.61	1.43	1.61	0.60	12.70	< 3.5 mph
1.79	1.89	1.29	1.93	4.51	1.43	1.89	1.52	2.02	1.79	0.87	1.43	3.08	2.67	2.58	2.16	32.86	3.6 - 7.5 mph
1.29	2.25	2.16	3.82	3.31	2.85	1.33	2.44	3.13	1.93	0.78	1.10	1.15	3.87	2.49	1.47	35.39	7.6 - 12.5 mph
0.78	0.83	1.01	1.75	0.05	0.41	0.55	1.33	0.64	1.84	0.60	0.87	1.29	1.89	2.30	0.83	16.98	12.6 - 18.5 mph
0.00	0.09	0.32	0.05	0.00	0.00	0.00	0.09	0.23	0.14	0.00	0.41	0.23	0.09	0.05	0.00	1.70	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.09	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2009
250Ft-30Ft Delta-T (F)

Number of Observations = 2178
Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09				0.09				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14					0.14			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05						0.05		
																									0.32
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
- N	0.46	0.23	0.23	0.51	0.78	0.32	0.51	0.18	0.18	0.23	0.32	0.55	0.37	0.41	0.69	0.55	6.52				6.52				
3 SS	0.51	0.46	0.46	0.55	0.73	0.23	0.28	0.28	0.32	0.28	0.78	0.69	0.55	0.60	0.37	0.28	7.35					7.35			
MS	0.23	0.18	0.28	0.23	0.96	0.18	0.18	0.09	0.51	0.64	0.73	0.96	0.60	0.60	1.19	0.69	8.26					8.26			
ES	0.23	0.23	0.18	0.28	0.64	0.28	0.28	0.28	0.69	0.37	0.32	0.28	0.51	1.06	1.61	1.01	8.22						8.22		
																									30.35
EU	0.05	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.18	0.18							
	0.00	0.00	0.05	0.05	0.09	0.05	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32		0.32						
4 SU	0.05	0.18	0.09	0.46	0.32	0.23	0.09	0.00	0.09	0.09	0.00	0.05	0.05	0.09	0.05	0.14	1.97			1.97					
- N	1.56	1.01	0.32	0.60	1.93	0.78	0.92	0.69	0.37	0.60	0.73	0.78	0.78	2.07	2.16	1.79	17.08				17.08				
7 SS	0.64	0.60	0.83	1.33	1.65	0.64	0.96	1.29	1.47	0.60	0.55	1.10	1.56	0.96	1.29	1.15	16.62					16.62			
MS	0.28	0.51	0.09	0.78	1.79	0.46	0.64	1.24	0.78	0.28	0.05	0.09	0.18	0.14	0.00	0.28	7.58					7.58			
ES	0.05	0.00	0.00	0.00	0.55	0.64	0.23	0.28	0.32	0.09	0.00	0.00	0.00	0.00	0.00	0.00	2.16						2.16		
																									45.91
EU	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.32	0.32							
MU	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.14	0.05	0.00	0.00	0.00	0.05	0.14	0.41		0.41						
8 SU	0.09	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.14	0.23	0.23	0.18	0.37	0.05	0.09	0.14	1.61			1.61					
- N	0.69	0.05	0.28	0.69	0.37	0.18	0.78	0.51	0.87	1.38	1.06	0.83	0.87	1.42	1.52	1.01	12.49				12.49				
1 SS	0.00	0.05	0.32	0.28	0.14	0.14	0.69	0.41	0.69	1.01	0.64	0.14	0.09	0.28	0.18	0.05	5.10					5.10			
2 MS	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14					0.14			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
																									20.06
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05		0.05						
3 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.09			0.09					
- N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.28	0.05	0.41	0.28	0.78	0.05	0.00	1.93				1.93				
1 SS	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.37	0.00	0.00	0.09	0.14	0.00	0.00	0.73					0.73			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
																									2.80

TABLE 9
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2009
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00							
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00						
- N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.23				0.23					
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00				
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00		
																									0.23	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00							
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00						
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00					
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00				
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00		
																									0.00	
TOT	4.82	3.58	3.12	6.01	10.10	4.18	5.65	5.37	6.57	6.66	5.51	6.11	6.29	8.86	9.27	7.25	99.68	0.51	0.78	3.67	38.34	29.94	16.02	10.42	99.68	

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.05	0.00	0.00	0.23	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.51	Extremely Unstable
0.00	0.00	0.05	0.05	0.14	0.05	0.05	0.00	0.05	0.18	0.05	0.00	0.00	0.00	0.05	0.14	0.78	Moderately Unstable
0.14	0.23	0.09	0.51	0.32	0.23	0.09	0.00	0.23	0.37	0.23	0.28	0.41	0.14	0.14	0.28	3.67	Slightly Unstable
2.71	1.29	0.83	1.79	3.08	1.29	2.20	1.42	1.47	2.48	2.16	2.57	2.30	4.91	4.41	3.35	38.34	Neutral
1.15	1.10	1.61	2.16	2.53	1.06	1.97	2.02	2.48	2.25	1.97	1.93	2.30	1.97	1.84	1.47	29.94	Slightly Stable
0.51	0.73	0.37	1.01	2.75	0.64	0.83	1.38	1.33	0.92	0.78	1.06	0.78	0.73	1.19	0.96	16.02	Moderately Stable
0.28	0.23	0.18	0.28	1.19	0.92	0.51	0.55	1.01	0.46	0.32	0.28	0.51	1.06	1.61	1.01	10.42	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	C A L M
1.42	1.10	1.15	1.56	3.12	1.01	1.24	0.83	1.70	1.52	2.16	2.48	2.02	2.66	3.86	2.53	30.35	< 3.5 mph
2.62	2.30	1.38	3.21	6.43	2.80	2.89	3.49	3.08	1.65	1.33	2.02	2.57	3.31	3.49	3.35	45.91	3.6 - 7.5 mph
0.78	0.18	0.60	1.24	0.55	0.32	1.47	0.96	1.74	2.75	1.97	1.15	1.33	1.74	1.88	1.38	20.06	7.6 - 12.5 mph
0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.09	0.05	0.73	0.05	0.46	0.37	0.92	0.05	0.00	2.80	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.23	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

October-December, 2009
250Ft-30Ft Delta-T (F)

Number of Observations = 2201
Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05				0.05				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.05
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
- N	0.14	0.05	0.00	0.18	0.36	0.09	0.09	0.09	0.23	0.32	0.09	0.00	0.18	0.27	0.23	0.14	2.45				2.45				
3 SS	0.09	0.05	0.09	0.09	0.55	0.36	0.23	0.09	0.50	0.14	0.32	0.45	0.41	0.32	0.32	0.14	4.13					4.13			
MS	0.14	0.05	0.00	0.00	0.05	0.18	0.05	0.09	0.23	0.27	0.27	0.27	0.36	0.45	0.09	0.09	2.59						2.59		
ES	0.27	0.05	0.05	0.00	0.05	0.00	0.00	0.05	0.09	0.18	0.00	0.05	0.09	0.00	0.05	0.05	0.95							0.95	
																									10.13
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05							
4 SU	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.09	0.00	0.32			0.32					
- N	0.41	0.36	0.18	0.50	2.45	0.55	1.00	0.91	1.00	0.64	1.41	1.68	2.18	1.23	0.82	0.68	15.99				15.99				
7 SS	0.68	0.77	0.68	0.73	0.95	1.23	1.50	1.27	1.27	0.59	0.82	1.23	1.00	1.23	0.55	0.55	15.04					15.04			
MS	0.00	0.14	0.00	0.14	0.82	0.36	1.41	0.45	0.86	0.09	0.00	0.00	0.00	0.14	0.09	0.09	4.59						4.59		
ES	0.05	0.00	0.05	0.18	0.23	0.18	0.18	0.14	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32							1.32	
																									37.30
EU	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.23	0.09	0.00	0.05	0.00	0.55	0.55							
MU	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.09	0.14	0.00	0.09	0.05	0.68	0.68							
8 SU	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.09	0.05	0.27	0.14	0.09	0.18	0.05	0.18	0.00	1.14			1.14					
- N	2.36	0.45	0.50	0.77	2.00	1.00	0.82	1.23	1.50	1.54	0.82	1.23	1.86	3.04	1.77	1.68	22.58				22.58				
1 SS	0.36	0.14	0.73	0.55	0.55	0.68	1.41	2.00	1.50	1.14	0.50	0.36	0.23	0.36	0.09	0.09	10.68					10.68			
2 MS	0.00	0.00	0.05	0.23	0.00	0.09	0.32	0.18	0.36	0.14	0.00	0.00	0.00	0.00	0.00	0.00	1.36						1.36		
ES	0.00	0.00	0.00	0.00	0.00	0.36	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45							0.45	
																									37.44
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.05							
1 MU	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.18	0.18							
3 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00	0.00	0.00	0.18			0.18					
- N	0.41	0.00	1.36	0.73	0.32	0.45	0.27	0.50	0.55	0.50	0.18	1.23	2.04	0.86	0.55	0.27	10.22				10.22				
1 SS	0.00	0.00	0.14	0.32	0.32	0.05	0.36	0.59	0.36	0.86	0.36	0.23	0.09	0.00	0.00	0.00	3.68					3.68			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									14.31

TABLE 10
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

October-December, 2009
250Ft-30Ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.09	0.27	0.05	0.00	0.00	0.45			0.00					
2 SS	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.27					0.27			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.73
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.00
TOT	4.91	2.18	3.82	4.41	8.72	5.77	7.81	7.72	8.86	6.82	5.18	7.59	9.31	8.04	4.95	3.82	99.95	0.59	0.91	1.64	51.75	33.80	8.54	2.73	99.95

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.27	0.09	0.00	0.05	0.00	0.59	Extremely Unstable
0.00	0.09	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.09	0.18	0.14	0.18	0.05	0.09	0.05	0.91	Moderately Unstable
0.00	0.00	0.00	0.00	0.05	0.09	0.09	0.09	0.05	0.27	0.14	0.27	0.27	0.05	0.27	0.00	1.64	Slightly Unstable
3.32	0.86	2.04	2.18	5.13	2.09	2.18	2.73	3.32	3.00	2.50	4.23	6.54	5.45	3.36	2.77	51.75	Neutral
1.14	0.95	1.64	1.68	2.36	2.41	3.54	3.95	3.63	2.73	2.00	2.36	1.77	1.91	0.95	0.77	33.80	Slightly Stable
0.14	0.18	0.05	0.36	0.86	0.64	1.77	0.73	1.45	0.50	0.27	0.27	0.36	0.59	0.18	0.18	8.54	Moderately Stable
0.32	0.05	0.09	0.18	0.27	0.55	0.23	0.23	0.41	0.18	0.00	0.05	0.09	0.00	0.05	0.05	2.73	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	CALM
0.64	0.18	0.14	0.27	1.00	0.64	0.36	0.32	1.04	0.91	0.68	0.77	1.04	1.04	0.68	0.41	10.13	< 3.5 mph
1.14	1.27	0.91	1.54	4.50	2.41	4.13	2.77	3.45	1.32	2.23	3.00	3.18	2.59	1.54	1.32	37.30	3.6 - 7.5 mph
2.73	0.68	1.27	1.54	2.59	2.14	2.64	3.54	3.41	3.23	1.73	2.00	2.50	3.45	2.18	1.82	37.44	7.6 - 12.5 mph
0.41	0.05	1.50	1.04	0.64	0.50	0.64	1.09	0.91	1.36	0.55	1.64	2.27	0.91	0.55	0.27	14.31	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.05	0.00	0.00	0.18	0.32	0.05	0.00	0.00	0.73	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

January-December, 2009
250Ft-30Ft Delta-T (F)

Number of Observations = 8713

Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10				0.10				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06					0.06			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01						0.01		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02							0.02	
																									0.20
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
- N	0.23	0.14	0.13	0.20	0.38	0.16	0.18	0.09	0.14	0.16	0.13	0.21	0.17	0.20	0.33	0.23	3.06				3.06				
3 SS	0.22	0.26	0.21	0.31	0.45	0.24	0.15	0.10	0.25	0.15	0.39	0.42	0.41	0.37	0.32	0.18	4.44					4.44			
MS	0.17	0.09	0.10	0.09	0.33	0.14	0.08	0.11	0.21	0.31	0.33	0.48	0.56	0.56	0.55	0.28	4.41						4.41		
ES	0.13	0.07	0.06	0.09	0.20	0.08	0.07	0.10	0.24	0.16	0.15	0.11	0.18	0.36	0.49	0.31	2.80							2.80	
																									14.71
EU	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.05							
MU	0.00	0.00	0.02	0.01	0.03	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.11		0.11						
4 SU	0.01	0.05	0.03	0.14	0.09	0.09	0.03	0.00	0.02	0.02	0.00	0.05	0.01	0.02	0.06	0.06	0.69			0.69					
- N	0.91	0.75	0.39	0.60	1.65	0.50	0.71	0.69	0.68	0.64	0.75	0.98	1.25	1.62	1.54	1.16	14.81				14.81				
7 SS	0.81	0.61	0.56	0.70	1.38	0.69	0.94	0.91	0.96	0.56	0.70	0.88	1.46	1.09	1.08	0.91	14.24					14.24			
MS	0.15	0.21	0.05	0.26	0.85	0.42	0.76	0.67	0.64	0.31	0.09	0.07	0.21	0.16	0.09	0.28	5.21						5.21		
ES	0.02	0.00	0.01	0.05	0.23	0.34	0.28	0.32	0.26	0.09	0.00	0.00	0.00	0.00	0.00	0.00	1.61							1.61	
																									36.72
EU	0.00	0.01	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.08	0.02	0.00	0.03	0.01	0.28	0.28							
MU	0.00	0.05	0.01	0.03	0.06	0.02	0.00	0.00	0.00	0.06	0.07	0.02	0.03	0.02	0.06	0.05	0.48		0.48						
8 SU	0.02	0.09	0.06	0.06	0.08	0.06	0.03	0.03	0.05	0.16	0.10	0.08	0.15	0.08	0.11	0.05	1.22			1.22					
- N	1.56	0.90	0.64	1.10	1.32	0.76	0.75	1.21	1.01	1.14	0.91	0.81	1.26	2.59	2.04	1.73	19.73				19.73				
1 SS	0.16	0.18	0.49	0.49	0.56	0.68	0.98	1.23	1.37	0.96	0.45	0.32	0.60	0.67	0.36	0.39	9.88					9.88			
2 MS	0.00	0.01	0.01	0.08	0.01	0.10	0.13	0.38	0.33	0.03	0.00	0.00	0.00	0.00	0.00	0.00	1.09						1.09		
ES	0.00	0.00	0.00	0.02	0.00	0.14	0.03	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28							0.28	
																									32.95
EU	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.01	0.01	0.00	0.14	0.14							
1 MU	0.03	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.06	0.05	0.13	0.01	0.37		0.37						
3 SU	0.01	0.03	0.01	0.00	0.00	0.02	0.05	0.06	0.01	0.10	0.00	0.05	0.08	0.09	0.09	0.05	0.65			0.65					
- N	0.61	0.26	0.62	0.57	0.09	0.32	0.29	0.62	0.55	0.61	0.36	0.76	1.22	1.25	0.94	0.63	9.70				9.70				
1 SS	0.00	0.00	0.11	0.24	0.09	0.11	0.31	0.41	0.33	0.48	0.20	0.11	0.18	0.05	0.00	0.02	2.66					2.66			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03						0.03		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									13.55

TABLE 11
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

January-December, 2009
250Ft-30Ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 MU	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01							
9 SU	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.03	0.00	0.00	0.00	0.09		0.09						
N	0.00	0.02	0.07	0.01	0.00	0.09	0.02	0.02	0.13	0.08	0.08	0.11	0.24	0.13	0.02	0.00	1.03			1.03					
2 SS	0.00	0.00	0.00	0.00	0.00	0.07	0.14	0.01	0.03	0.13	0.01	0.02	0.01	0.00	0.00	0.00	0.42					0.42			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									1.56
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.01	0.00	0.00	0.09			0.09					
2 SS	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02					0.02			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.11
TOT	5.06	3.79	3.62	5.12	7.86	5.07	5.93	7.04	7.29	6.19	4.74	5.69	8.27	9.33	8.27	6.34	99.80	0.46	0.98	2.65	48.53	31.73	10.75	4.71	99.80

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.01	0.03	0.00	0.06	0.05	0.00	0.00	0.00	0.00	0.01	0.02	0.11	0.08	0.02	0.05	0.01	0.46	Extremely Unstable
0.03	0.08	0.05	0.05	0.10	0.03	0.01	0.00	0.01	0.07	0.07	0.06	0.09	0.07	0.20	0.06	0.98	Moderately Unstable
0.05	0.17	0.11	0.20	0.17	0.17	0.11	0.09	0.08	0.29	0.11	0.21	0.28	0.20	0.26	0.15	2.65	Slightly Unstable
3.31	2.07	1.85	2.48	3.44	1.84	1.95	2.63	2.50	2.63	2.22	2.88	4.21	5.80	4.88	3.75	48.53	Neutral
1.19	1.06	1.38	1.74	2.48	1.80	2.51	2.67	2.95	2.28	1.74	1.77	2.66	2.17	1.76	1.50	31.73	Slightly Stable
0.32	0.31	0.16	0.44	1.19	0.67	0.96	1.17	1.21	0.65	0.42	0.55	0.77	0.72	0.64	0.55	10.75	Moderately Stable
0.15	0.07	0.07	0.16	0.42	0.56	0.38	0.47	0.54	0.25	0.15	0.11	0.18	0.36	0.49	0.31	4.71	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	CALM
0.75	0.56	0.49	0.69	1.35	0.62	0.48	0.41	0.84	0.78	1.00	1.23	1.33	1.48	1.70	1.00	14.71	< 3.5 mph
1.92	1.61	1.07	1.76	4.26	2.07	2.73	2.58	2.58	1.63	1.54	1.97	2.93	2.90	2.78	2.40	36.72	3.6 - 7.5 mph
1.74	1.24	1.22	1.85	2.05	1.76	1.92	2.89	2.79	2.36	1.55	1.32	2.07	3.36	2.61	2.23	32.95	7.6 - 12.5 mph
0.65	0.36	0.75	0.81	0.20	0.46	0.64	1.10	0.92	1.21	0.55	0.99	1.60	1.45	1.17	0.71	13.55	12.6 - 18.5 mph
0.00	0.02	0.09	0.01	0.00	0.16	0.16	0.03	0.16	0.21	0.10	0.17	0.29	0.13	0.02	0.00	1.56	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.01	0.00	0.00	0.11	> 24.5 mph

5.5 Precipitation

Monthly totals and the maximum 24-hour and maximum 1-hour precipitation amounts are summarized below. The month with the most measured precipitation was June. The month with the least measured precipitation was January*. The maximum 24-hour total was 3.18" (June) and the maximum 1-hour total was 2.01" (June).

Table 12
Precipitation Totals (Inches) - 2009
Byron Site

<u>Month</u>	<u>Total</u>	<u>Maximum 24-hour</u>	<u>Maximum 1-hour</u>
January	0.65*	0.16*	0.13*
February	2.06	1.16	0.34
March	6.06	2.16	0.32
April	4.90	1.33	0.34
May	4.33	1.65	0.98
June	6.60	3.18	2.01
July	3.12	0.64	0.26
August	6.49	2.72	0.61
September	2.04	1.20	0.62
October	6.44*	2.04*	0.58*
November	1.10	0.48	0.13
December	3.63*	1.17*	0.19*
 TOTAL:	 47.42*		

* some data are missing - actual precipitation may be under-reported

5.6 Doses Resulting from Airborne Releases

The following are the maximum annual calculated cumulative offsite doses resulting from Byron airborne releases.

Unit 1:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	1.076×10^{-5} mrad	West
beta air ⁽²⁾	4.261×10^{-4} mrad	West
whole body ⁽³⁾	4.828×10^{-8} mrem	Southeast
skin ⁽⁴⁾	2.375×10^{-4} mrem	West-Northwest
organ ⁽⁵⁾ (teenager thyroid)	8.097×10^{-4} mrem	East-Southeast

Unit 2:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	8.559×10^{-6} mrad	East-Southeast
beta air ⁽²⁾	2.564×10^{-5} mrad	East-Southeast
whole body ⁽³⁾	4.892×10^{-8} mrem	Southeast
skin ⁽⁴⁾	1.480×10^{-5} mrem	Southeast
organ ⁽⁵⁾ (teenager thyroid)	7.996×10^{-4} mrem	Southeast

⁽¹⁾ Gamma Air Dose - Finite Cloud Model; M+T ODCM Rev. 9

⁽²⁾ Beta Air Dose - Finite Cloud Model; M+T ODCM Rev. 9

⁽³⁾ Whole Body Dose - Finite Cloud Model; M+T ODCM Rev. 9

⁽⁴⁾ Skin Dose - Finite Cloud Model; M+T ODCM Rev. 9

⁽⁵⁾ Inhalation and Food Pathways Dose - Finite Cloud Model; M+T ODCM Rev. 9

TABLE 13

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		10 CFR 50 APP. I	
	QUARTERLY OBJECTIVE	% OF 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

TABLE 13
continued

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		10 CFR 50 APP. I	
	QUARTERLY OBJECTIVE	% OF 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

APPENDIX

Byron Meteorological Calibration

Page 1 of 8

Date: 1-22-09

POWER SUPPLIES

+12.000V \pm 2.000V+ 13.750 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	30' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.11</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.00</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.83</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
250' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.11</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.03</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.83</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
	Ohms	Expected	Data Logger	Specifications			
T Lo 30' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.1°			
250' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	<u>0.00</u> °	+/- 0.1°			
T Hi 30' TEMP	12.174	100.0°F	<u>99.99</u> °	+/- 0.1°			
250' TEMP	12.174	100.0°F	<u>99.99</u> °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	<u>0.00</u> °	+/- 0.1°			
30' TEMP	34.890	32.0°F	<u>31.99</u> °	+/- 0.1°			
250' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.1°			
Δ TLo 250'-30'		-9.0°F	<u>-9.01</u> °	+/- 0.1°			
30' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.1°			
250' TEMP	34.890	32.0°F	<u>32.01</u> °	+/- 0.1°			
Δ THi 250'-30'		9.0°F	<u>9.03</u> °	+/- 0.1°			

A52

F5
R-26
6/08

Byron Meteorological Calibration

Page 2 of 8

Date: 1-22-09

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 27.0 °F	- °F
Recorded 27.23 °F	- °F
Difference .23 °F	- °F
Specification ±0.5°F	

250' ΔT	
AF	AL
-0.90 °F	- °F
- .84 °F	- °F
.06 °F	- °F
±0.18°F	

30' Dew Point	
AF	AL
19.0 °F	- °F
18.41 °F	- °F
.59 °F	- °F
±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 31.86 °	- °	29.74 °	- °
Revr. WD 212.94 °	- °	210.09 °	- °
Tracking/wear OK		OK	

Specification
 0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

Comments:

30 FT

250'

WS OUT MT 0187

WS OUT MT 0188

WS IN MT 0060

WS IN MT 0105

Replaced WS heat P10 30FT

ASZ 2-10-09

Byron Meteorological Calibration

Page 3 of 8

Date: 1-22-09

Dates of Last Wind Sensor Bearing Replacements:

	<u>30'</u>	<u>250'</u>
(6 mos.) Wind Speed:	<u>1-22-09</u>	<u>1-22-09</u>
(12 mos.) Wind Direction:	<u>4-08</u>	<u>4-08</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Rain Gauge: OKDebris screen: In Out Installed Removed

Tower Lighting	Good	Fair	Poor	Tower Condition	Good	Fair	Poor
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guy wire tension	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shelter condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

Note:

AF = As Found
AL = As Left
— = no change (AF=AL)

Calibration Instruments:

Psychrometer - S/N - MT104
Digital multimeter - S/N - 59880269
Digital multimeter - S/N - _____

FS = Full Scale

Technicians: MIKE MONDIA MIKE MARX

Comments:

Signature: 

ASJ 2-10-09

System Response Check

Date: 1-22-09

Site: Byron
System: Digital Recorder

Low Scale Check	CH1 ± 0.4 30' WS	CH2 ± 1 30' WD	CH3 ± 0.4 250' WS	CH4 ± 1 250' WD	CH5 ± 0.4 30' T	CH6 ± 0.18 250' ΔT	CH7 ± 0.4 30' DP	CH8 ± 0.01 Precip
Volts	0.000 V	0.000 V	0.001 V	0.001 V	-0.001 V	0.000 V	-0.001 V	0.000 V
Expected Response	0.00 MPH	0.00 DEG	0.02 MPH	0.10 DEG	-22.03 DEG	-10.00 DEG	-22.03 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.02	-10.00	-22.03	0.00
As Left Response	-	-	-	-	-	-	-	-

Mid Scale Check	CH1 ± 0.4 30' WS	CH2 ± 1 30' WD	CH3 ± 0.4 250' WS	CH4 ± 1 250' WD	CH5 ± 0.4 30' T	CH6 ± 0.18 250' ΔT	CH7 ± 0.4 30' DP	CH8 ± 0.01 Precip
Volts	2.497 V	2.498 V	2.496 V	2.496 V	2.497 V	2.497 V	2.498 V	2.496 V
Expected Response	49.94 MPH	269.78 DEG	49.92 MPH	269.56 DEG	49.91 DEG	-0.01 DEG	49.94 DEG	0.499 IN 49.80 21.91 - 22.09
As Found Response	49.9	270	49.9	269	49.87	-0.02	49.87	0.50
As Left Response	-	-	-	-	-	-	-	-

Full Scale Check	CH1 ± 0.4 30' WS	CH2 ± 1 30' WD	CH3 ± 0.4 250' WS	CH4 ± 1 250' WD	CH5 ± 0.4 30' T	CH6 ± 0.18 250' ΔT	CH7 ± 0.4 30' DP	CH8 ± 0.01 Precip
Volts	4.996 V	4.998 V	4.995 V	4.995 V	4.996 V	4.997 V	4.997 V	4.997 V
Expected Response	99.92 MPH	539.78 DEG	99.9 MPH	539.46 DEG	121.88 DEG	9.98 DEG	121.91 DEG	0.999 IN
As Found Response	99.9	539	99.9	539	121.82	9.98	121.84	1.00
As Left Response	-	-	-	-	-	-	-	-

ASZ 2-10-09

System Response Check

Date: 1-22-09Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	.10 ±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	.10
As Left Response	✓	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	—	—	—	—	—	—	—

A52 2-10-09

System Response Check

Date: 1-22-09

Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	* Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ±2	0.0 ±0.4	-22.03 ±0.5	-10.0 ±0.18	-22.0 ±0.5	0 ±2	0.0 ±0.4
As Found Response	0.3	.04	-22.2	-10.0	-21.0	0.3	.06
As Left Response	-	-	-22.0	-	-21.95	-	-

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	* Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ±2	50.0 ±0.4	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5	270 ±2	50.0 ±0.4
As Found Response	269.4	49.9	49.6	-0.0	50.9	269.7	49.9
As Left Response	-	-	49.9	-	49.8	-	-

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	* Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ±2	100.0 ±0.4	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	540 ±2	100.0 ±0.4
As Found Response	538.7	100.0	121.5	10.0	123	539.5	99.9
As Left Response	-	-	121.9	-	121.9	-	-

ADJUSTED current CARD TO fix Y4004
AND D.P ON Recorders 1 CARD feeds Both.

ADJ 2-10-09

System Response Check

Date: 1-22-09

Site: Byron
System: Process Computer - Y4011 - Y4019

<u>Low Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	- .02	- .02	.02	0.5	-22.1	-9.89	-22.4	0.0
As Left Response	0.2	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	* Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5	.50 ±0.01
As Found Response	49.2	269.3	49.9	269.7	49.8	.08	49.5	.50
As Left Response	* 50.2	-	-	-	-	-	-	-

<u>Full Scale Check</u>	* Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.1	539.0	99.9	538.8	121.9	10.07	121.6	1.00
As Left Response	* 100.3	-	-	-	-	-	-	-

* Y4011 ADJUSTED Current CARD

AJZ 2-10-09

System Response Check

Date: 1-22-09

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	* 30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5
As Found Response	0	0.1	3.0	-1	-21.6 -21.2 ¹⁻²²⁻⁰⁹	-9.9	-21.2
As Left Response	-	-	-	-	-	-	* -21.9

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	* 30' DP
Expected Response	49.50 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	49.8 50.1	49.9	273	268	49.8 ¹⁻²²⁻⁰⁹ 50.1	0.0	50.1 ¹⁻²²⁻⁰⁹
As Left Response	-	-	-	-	-	-	49.8

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	* 30' DP
Expected Response	100 ±1.0	100 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	99.6	100	543	537	122 ¹⁻²²⁻⁰⁹ 121.9	9.99	123.0
As Left Response	-	-	-	-	-	-	121.8

* Adjusted current card on D.P
current card reads Resistor +44004

452 2-10-09

Byron Meteorological Calibration

Page 1 of 8

Date: 5-8-09

POWER SUPPLIES

+12.000V \pm 2.000V+ 13.670 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	30' WD	0°	<u>.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.09</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.94</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.82</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.70</u> °	+/- 2°
250' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	250' WD	0°	<u>.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.15</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.97</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.81</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.75</u> °	+/- 2°
	Ohms	Expected	Data Logger	Specifications			
T Lo 30' TEMP	40.670	23.0°F	<u>22.95</u> °	+/- 0.1°			
250' TEMP	40.670	23.0°F	<u>23.01</u> °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	<u>0.04</u> °	+/- 0.1°			
T HI 30' TEMP	12.174	100.0°F	<u>99.95</u> °	+/- 0.1°			
250' TEMP	12.174	100.0°F	<u>99.97</u> °	+/- 0.1°			
Δ TMid 250'-30'		0.0°F	<u>0.02</u> °	+/- 0.1°			
30' TEMP	34.890	32.0°F	<u>31.96</u> °	+/- 0.1°			
250' TEMP	40.670	23.0°F	<u>23.01</u> °	+/- 0.1°			
Δ TLo 250'-30'		-9.0°F	<u>-8.94</u> °	+/- 0.1°			
30' TEMP	40.670	23.0°F	<u>22.99</u> °	+/- 0.1°			
250' TEMP	34.890	32.0°F	<u>31.96</u> °	+/- 0.1°			
Δ THI 250'-30'		9.0°F	<u>8.97</u> °	+/- 0.1°			

ASL 6-18-09

Byron Meteorological Calibration

Page 2 of 8

Date: 5-8-09

TOWER MEASUREMENTS

☐ Ambient ☒ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 32.0 °F	— °F
Recorded 31.79 °F	— °F
Difference .21 °F	— °F
Specification ±0.5°F	

250' AT	
AF	AL
+ .10 °F	— °F
+ .11 °F	— °F
.01 °F	— °F
±0.18°F	

30' Dew Point	
AF	AL
58.0 °F	— °F
58.04 °F	— °F
.04 °F	— °F
±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 388.76	— °	391.17 °	— °
Revr. WD 210.80 °	— °	211.3 °	— °

Specification

0.3mph ± 0.45mph

30°/390° ± 5°

210° ± 5°

Tracking/wear OKOK

30'

Comments: WS OUT MT 0060

WS ~~IN~~ IN MT 0012

MSM 5-8-09

250'

WS OUT MT 0105

WS IN MT 0189

ASZ 6-18-09

Byron Meteorological Calibration

Page 3 of 8

Date: 5-8-09

Dates of Last Wind Sensor Bearing Replacements:

	<u>30'</u>	<u>250'</u>
(6 mos.) Wind Speed:	<u>5-8-09</u>	<u>5-8-09</u>
(12 mos.) Wind Direction:	<u>4-10-09</u>	<u>4-10-09</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Rain Gauge: OKDebris screen: In Out Installed Removed

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guy wire tension	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shelter condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

Note:

AF = As Found
AL = As Left
— = no change (AF=AL)

FS = Full Scale

Calibration Instruments:

Psychrometer - S/N - #1
Digital multimeter - S/N - 89880269
Digital multimeter - S/N - _____

Technicians: Mike Mondia Mike Marx

Comments:

Signature: 

ASZ 6-18-09

System Response Check

Page

Date: 5-8-09

Site: Byron
System: Digital Recorder

Low Scale Check	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	.000 V	.000 V	.000 V	.000 V	.001 V	.000 V	-.001 V	.000 V
Expected Response	0.0 MPH	0 DEG	0.0 MPH	0 DEG	-22.03 DEG	-10.00 DEG	-22.03 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.02	-10.00	-22.03	0.00
As Left Response	-	-	-	-	-	-	-	-

Mid Scale Check	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	2.497 V	2.498 V	2.497 V	2.497 V	2.498 V	2.498 V	2.498 V	2.497 V
Expected Response	49.94 MPH	269.78 DEG	49.94 MPH	269.67 DEG	49.94 DEG	-0.08 DEG	49.94 DEG	.499 IN
As Found Response	49.9	270	49.9	270	49.99	-0.01	49.88	0.50
As Left Response	-	-	-	-	-	-	-	-

Full Scale Check	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.4 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.4 30' DP	CH8 ±0.01 Precip
Volts	4.998 V	4.999 V	4.998 V	4.997 V	4.998 V	4.999 V	4.998 V	4.998 V
Expected Response	99.96 MPH	539.89 DEG	99.96 MPH	539.67 DEG	121.94 DEG	9.99 DEG	121.94 DEG	.999 IN
As Found Response	99.9	540	99.9	539	121.86	9.98	121.86	1.00
As Left Response	-	-	-	-	-	-	-	-

System Response Check

Date: 5-8-09

Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	0.10 ±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	0.10
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	—	—	—	—	—	—	—

ASZ 6-18-09

System Response Check

Date: 5-8-09

Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ± 2	0.0 ± 0.4	-22.0 ± 0.5	-10.0 ± 0.18	-22.0 ± 0.5	0 ± 2	0.4 ± 0.4
As Found Response	0.36	.09	-21.9	-9.98	-23.2	0.46	.08
As Left Response	—	—	—	—	-21.8	—	—

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ± 2	50.0 ± 0.4	50.0 ± 0.5	0.0 ± 0.18	50.0 ± 0.5	270 ± 2	50.0 ± 0.4
As Found Response	269.5	50.0	49.9	.01	48.6	269.8	50.0
As Left Response	—	—	—	—	50.1	—	—

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ± 2	100.0 ± 0.4	122.0 ± 0.5	10.0 ± 0.18	122.0 ± 0.5	540 ± 2	100.0 ± 0.4
As Found Response	539	100.1	122.0	10.0	120.6	540.0	100.0
As Left Response	—	—	—	—	122.0	—	—

ADJUSTED CURRENT (zero) for Y4004 - THEN OK

ASZ 6-18-09

System Response Check

Date: 5-8-09

Site: Byron
 System: Process Computer - Y4011 - Y4019

<u>Low Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	.25	.04	-.002	.41	-21.9	-9.94	-22.4	0.0
As Left Response	.04	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5	.50 ±0.01
As Found Response	50.2	269.5	49.9	270.0	49.8	.04	49.5	.50
As Left Response	50.0	-	-	-	-	-	-	-

<u>Full Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	100.4	539.4	99.8	539.4	121.9	10.0	121.7	1.00
As Left Response	100.2	-	-	-	-	-	-	-

MTC 7/7/09

System Response Check

Page 1

Date: 5-8-09

Site: Byron
System: Control Room Indicators

Low Scale Check	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5
As Found Response	0	0.2	2.2	0.5	-21.8	-9.98	-23.4
As Left Response	-	-	-	-	-	-	-21.9

Mid Scale Check	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	220 ±5	270 ±5	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	49.6	49.8	273.5	269.5	50.3	0.02	49.0
As Left Response	-	-	-	-	-	-	50.1

Full Scale Check	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	99.7	100.0	542.0	540	122.2	9.99	120.7
As Left Response	-	-	-	-	-	-	122.2

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Byron Meteorological Calibration

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Date: 9-1-09

POWER SUPPLIES

+12.000V \pm 2.000V+ 13.740 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	30' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.71</u> mph	+/- 0.4 mph		90°	<u>90.13</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.95</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.80</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.71</u> °	+/- 2°
250' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.71</u> mph	+/- 0.4 mph		90°	<u>90.12</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.96</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.85</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.77</u> °	+/- 2°
						<u>5 mm</u> <u>9+9</u>	
	Ohms	Expected	Data Logger	Specifications			
T Lo 30' TEMP	40.670	23.0°F	<u>22.96</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	<u>0.04</u> °	+/- 0.18°			
T HI 30' TEMP	12.174	100.0°F	<u>99.94</u> °	+/- 0.5°			
250' TEMP	12.174	100.0°F	<u>100.00</u> °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	<u>0.05</u> °	+/- 0.18°			
30' TEMP	34.890	32.0°F	<u>31.94</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>23.01</u> °	+/- 0.5°			
Δ TLo 250'-30'		-9.0°F	<u>- 8.94</u> °	+/- 0.18°			
30' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.5°			
250' TEMP	34.890	32.0°F	<u>31.96</u> °	+/- 0.5°			
Δ THI 250'-30'		9.0°F	<u>8.98</u> °	+/- 0.18°			
			<u>8.99</u>				

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F5
R-27
7/09

Byron Meteorological Calibration

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Date: 9-1-09

TOWER MEASUREMENTS

☐ Ambient ☒ Ice Bath

Temperatures

	30' Ambient	
	AF	AL
Measured	32.00°F	- °F
Recorded	31.83°F	- °F
Difference	.17°F	- °F
Specification	±0.5°F	

	250' Δ T	
	AF	AL
Measured	0.00°F	- °F
Recorded	.07°F	- °F
Difference	.07°F	- °F
Specification	±0.18°F	

	30' Dew Point	
	AF	AL
Measured	45 °F	47 °F
Recorded	45.6 °F	46 °F
Difference	.6 °F	1.0 °F
Specification	±2.7°F	

Winds

	30'		250'	
	AF	AL	AF	AL
WS stall	0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD	29 °	- °	33 °	- °
Revr. WD	209 °	- °	212 °	- °
Tracking/wear	OK		OK	

Specification
 0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

Comments:

D.P. INSTALLED 137916
 30' WS INSTALLED MT0000 250' WS INSTALLED MT0087
 30' WS REMOVED MT0012 250' WS REMOVED MT0189

ADJ 9-25-09

Byron Meteorological Calibration

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Date: 9.1.09

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>9.1.09</u>	<u>9.1.09</u>
(12 mos.)	Wind Direction:	<u>4.09</u>	<u>4.09</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Rain Gauge: OK

Debris screen: (In) Out Installed Removed

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guy wire tension	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
AL = As Left
— = no change (AF=AL)

Calibration Instruments:

Psychrometer - S/N - 1
Digital multimeter - S/N - 89880269
Digital multimeter - S/N - _____

FS = Full Scale

Technicians: MIKE MONDIA MIKE MARY

Comments:

Signature: [Signature]

AD 9-25-09

System Response Check

Page 4

Date: 9-1-09

Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.00 MPH	0.00 DEG	0.00 MPH	0.00 DEG	-22.00 DEG	-10.00 DEG	-22.00 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.03	-10.00	-22.03	0.00
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.00 MPH	270.00 DEG	50.00 MPH	270.00 DEG	50.00 DEG	0.00 DEG	50.00 DEG	0.50 IN
As Found Response	49.9	270	49.9	270	49.89	0.01	49.89	.50
As Left Response	-	-	-	-	-	-	-	-

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.00 MPH	540.00 DEG	100.00 MPH	540.00 DEG	122.00 DEG	10.00 DEG	122.00 DEG	1.00 IN
As Found Response	99.9	540	99.9	539	121.88	9.99	121.88	1.00
As Left Response	-	-	-	-	-	-	-	-

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System Response Check

Date: 9-1-09

Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	.01
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	-	-	-	-	-	-	-

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System Response Check

Date: 9-1-09

Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ±2	0.0 ±0.4	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	0 ±2	0.0 ±0.4
As Found Response	0.53	0.07	-21.9	-9.99	-21.45	0.43	0.09
As Left Response	-	-	-	-	-22.0	-	-

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ±2	50.0 ±0.4	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5	270 ±2	50.0 ±0.4
As Found Response	269.4	50.0	49.9	0.01	50.0 50.4 9+9 50.10	269.8	50.0
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ±2	100.0 ±0.4	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	540 ±2	100.0 ±0.4
As Found Response	539.0	100.1	122.0	10.0	122.55	539.9	99.9
As Left Response	-	-	-	-	122.18	-	-

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System Response Check

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Date: 9-1-09

Site: Byron
System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22 ±0.5	-10.0 ±0.18	-22 ±0.5	0.0 ±0.01
As Found Response	- .06	- .32	- 0.03	0.5	-22.0	-9.92	-22.4	0.0
As Left Response	-	-	-	-	-	-	-22.2	-

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50 ±0.4	270 ±2	50 ±0.4	270 ±2	50 ±0.5	0.0 ±0.18	50.0 ±0.5	.50 ±0.01
As Found Response	49.9	269.4	49.8	269.7	49.9	.07	49.99	.50
As Left Response	-	-	-	-	-	-	49.7	-

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	100.1	539.1	99.7	539.5	122.0	10.08	121.65	1.00
As Left Response	-	-	-	-	-	-	121.8	-

ASZ 9-25-09

System Response Check

Date: 9-1-09

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0 ±1.0	0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5
As Found Response	-0.4	0.2	4.5	-1.0	-21.8	-9.98	-22.2
As Left Response	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50 ±1.0	50 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	49.9	49.8	272.2	269.5	49.8	.02	49.8
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	99.9	100.1	541	539	122.3	10.01	122.3
As Left Response	-	-	-	-	-	-	-

ASL 9-25-09

FILE:
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Annual Report
on the
Meteorological Monitoring Program
at the
Byron Nuclear Power Station
2010

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Date: 5-1-11

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1. Introduction

The purpose of the meteorological program being conducted at the Byron Station site is to provide information sufficient to assess the local weather conditions and to determine the degree of atmospheric dispersion of airborne radioactive effluent from the station.

The meteorological tower is 250 ft. high and is instrumented at two levels. Wind speed and direction are measured at 30 ft. and 250 ft. Ambient temperature is measured at 30 ft. Differential temperature, referenced to 30 ft., is measured at 250 ft. Dew point temperature is measured at 30 ft. Precipitation is measured at approximately 3 ft.

Joint frequency stability wind rose tables of wind direction, wind speed, and stability are routinely tabulated from hourly measurements. The quarterly and annual tables are included in this report.

Descriptions of the instruments and digital recorder are given in Section 3 (Data Acquisition) of this report. Data reduction and processing are described in Section 4 (Data Analysis). The results given in Section 5 of this report include modeled maximum whole body doses, skin doses, organ doses based upon airborne releases, and site meteorology.

2. Summary

The Byron Station meteorological monitoring program produced 52,482 hours of valid data out of a possible 52,560 parameter hours during 2010 (365 days x 24 hours/day x 6 measured priority parameters), which represents an overall data recovery rate of 99.9%. Priority parameters are all parameters except dew point temperature and precipitation.

The stability wind rose tables included in this report have been generated using the 30 ft. wind data with the 250-30 ft. differential temperature data.

The maximum annual calculated cumulative doses resulting from airborne releases were as follows.

Unit 1:

gamma air dose	-	4.080×10^{-6} mrad
beta air dose	-	5.300×10^{-6} mrad
whole body dose	-	7.675×10^{-2} mrem
skin dose	-	5.230×10^{-6} mrem
organ (child bone)	-	3.767×10^{-1} mrem

Unit 2:

gamma air dose	-	4.870×10^{-6} mrad
beta air dose	-	5.730×10^{-6} mrad
whole body dose	-	7.812×10^{-2} mrem
skin dose	-	6.090×10^{-6} mrem
organ (child bone)	-	3.762×10^{-1} mrem

3. Data Acquisition

Wind speed and direction are measured with Climatronics F460 wind sensors. The wind speed sensors have a starting speed of 0.5 mph (0.22 mps), a range of 0 to 100 mph (0 to 44.7 mps), and a system accuracy of ± 1.0 mph at 100 mph (± 0.45 mps at 44.7 mps). The wind direction sensors have a threshold speed of 0.5 mph (0.22 mps), a range of 0 to 540°, and a system accuracy of $\pm 5^\circ$.

Ambient and differential temperatures are measured with the Climatronics 100093 system. Ambient temperature is measured within the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 0.5^\circ\text{F}$ ($\pm 0.3^\circ\text{C}$). Differential temperature is measured within the range of -10.0 to 10.0°F (-5.6 to 5.6°C) with an accuracy of $\pm 0.18^\circ\text{F}$ ($\pm 0.10^\circ\text{C}$). Dew point temperature is measured with the Climatronics 101197 system. Dew point temperature is measured with the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 2.7^\circ\text{F}$ (1.5°C).

Precipitation is measured with a Climatronics 100097-1 tipping bucket rain gauge and is measured in increments of one one-hundredth of an inch with a system accuracy of ± 0.01 " ($\pm 0.25\text{mm}$).

Instrument types and locations are summarized in Table 1.

The meteorological data are collected and stored by a Campbell Scientific CR1000 Data Logger. The Campbell Scientific CR1000 measures the analog voltages of the instruments and records the digital equivalent within the range of 0 to +5 volts. Data are obtained from the Campbell Scientific CR1000 by a direct dial telephone hookup to an in-house computer system.

As a backup to the CR1000, data are also recorded with a Johnson Yokogawa Corp. digital recorder (JYC DA100 data acquisition unit). Data are sampled every 10 seconds.

Data loggers are summarized in Table 2.

Table 1

Instrument Locations

<u>Measurement</u>	<u>Sensor Type</u>	<u>Location</u>	<u>Elevation</u>
Wind Speed	Climatronics 100075 F460	Tower	250 ft.
Wind Direction	Climatronics 100076 F460	Tower	250 ft.
Differential Temperature	Climatronics 100093	Tower	250 ft.
Wind Speed	Climatronics 100075 F460	Tower	30 ft.
Wind Direction	Climatronics 100076 F460	Tower	30 ft.
Ambient Temperature	Climatronics 100093	Tower	30 ft.
Dew Point Temperature	Climatronics 1001197	Tower	30 ft.
Precipitation	Climatronics 100097-1	Ground	3 ft.

Table 2

Data Loggers

<u>Measurement</u>	<u>Logger Type</u>	<u>Sampling Frequency</u>
Winds, Temperatures, and Precipitation	Campbell Scientific CR1000	1 sec.
Winds, Temperatures, and Precipitation	Johnson Yokogawa Corp. Digital Recorder (JYC DA100 and Contec IPC-PT/M300(PC)WOU) digital recorder	10 sec.

4. Data Analysis

The Byron data logger is routinely interrogated to obtain hourly average data. The data are then stored in the meteorological data base and listings of the data are generated. The data listings are examined by qualified personnel and any apparent problems are brought to the attention of the Project Manager or Meteorological Technician and the Instrument Maintenance staff.

Hourly values of wind speed, wind direction, ambient temperature, differential temperature, dew point temperature, and precipitation are obtained through measurements taken at the site. The standard deviation of wind direction (sigma) is derived. The wind direction variation is described in terms of the standard deviation of the direction about the mean direction. The CR1000 computes an hourly value of wind sigma by taking the Root-Mean-Square (RMS) of the four quarter-hour wind sigma values. The quarter-hour wind sigma values are calculated directly from the one second wind direction samples during the 15 minute period.

The data base files are edited approximately once a week. Missing data logger values are replaced with digital recorder values, when available. Invalid data are deleted from the data base.

When an hourly value is missing or invalid, the numeral 999 is entered into the computer data file in the appropriate location. When the wind direction changes substantially relative to its short term fluctuations, the numeral 888 can be entered into the wind sigma location to indicate shifting winds. When the wind blows with velocities near the sensing threshold of the instrument, the numeral 777 can be entered into the wind direction, wind speed, and wind sigma locations to indicate light and variable winds.

A professional meteorologist reviews the data, calibration findings, equipment maintenance reports, and other information and determines which data are valid. Only the valid data are retained in the data base.

As a quality control measure, a monthly comparison is made of Microtel and digital recorder data. An investigation is made into the reasons for any significant differences between the sets of values.

Joint frequency stability wind rose tables of hourly data measured at the site are generated. These tables indicate the prevailing wind direction, wind speed, and stability classes measured during the period of observation as well as the joint frequencies of occurrence of the wind direction, wind speed, and stability classes. The values are also used as input to the atmospheric transport and diffusion models. Wind direction, wind speed, and stability classes are given in Tables 3, 4, and 5.

Table 3

Wind Direction Classes

IF	348.75°	<	WD	≤	11.25°	THEN	Class is	N
IF	11.25°	<	WD	≤	33.75°	THEN	Class is	NNE
IF	33.75°	<	WD	≤	56.25°	THEN	Class is	NE
IF	56.25°	<	WD	≤	78.75°	THEN	Class is	ENE
IF	78.75°	<	WD	≤	101.25°	THEN	Class is	E
IF	101.25°	<	WD	≤	123.75°	THEN	Class is	ESE
IF	123.75°	<	WD	≤	146.25°	THEN	Class is	SE
IF	146.25°	<	WD	≤	168.75°	THEN	Class is	SSE
IF	168.75°	<	WD	≤	191.25°	THEN	Class is	S
IF	191.25°	<	WD	≤	213.75°	THEN	Class is	SSW
IF	213.75°	<	WD	≤	236.25°	THEN	Class is	SW
IF	236.25°	<	WD	≤	258.75°	THEN	Class is	WSW
IF	258.75°	<	WD	≤	281.25°	THEN	Class is	W
IF	281.25°	<	WD	≤	303.75°	THEN	Class is	WNW
IF	303.75°	<	WD	≤	326.25°	THEN	Class is	NW
IF	326.25°	<	WD	≤	348.75°	THEN	Class is	NNW

Table 4

Wind Speed Classes

IF	0.0 mph	<	WS	≤	0.5 mph	THEN	Class is	1
IF	0.5 mph	<	WS	≤	3.5 mph	THEN	Class is	2
IF	3.5 mph	<	WS	≤	7.5 mph	THEN	Class is	3
IF	7.5 mph	<	WS	≤	12.5 mph	THEN	Class is	4
IF	12.5 mph	<	WS	≤	18.5 mph	THEN	Class is	5
IF	18.5 mph	<	WS	≤	24.5 mph	THEN	Class is	6
IF	24.5 mph	<	WS			THEN	Class is	7

Table 5

Atmospheric Stability Classes

Class	Differential Temperature Interval (in °C/100m) ⁽¹⁾	Differential Temperature Interval (in °F over the 250-30 ft. interval) ⁽²⁾
Extremely Unstable	$\Delta T \leq -1.9$	$\Delta T \leq -2.3$
Moderately Unstable	$-1.9 < \Delta T \leq -1.7$	$-2.3 < \Delta T \leq -2.1$
Slightly Unstable	$-1.7 < \Delta T \leq -1.5$	$-2.1 < \Delta T \leq -1.9$
Neutral	$-1.5 < \Delta T \leq -0.5$	$-1.9 < \Delta T \leq -0.7$
Slightly Stable	$-0.5 < \Delta T \leq 1.5$	$-0.7 < \Delta T \leq 1.8$
Moderately Stable	$1.5 < \Delta T \leq 4.0$	$1.8 < \Delta T \leq 4.8$
Extremely Stable	$4.0 < \Delta T$	$4.8 < \Delta T$

⁽¹⁾ from ANSI/ANS 2.5

⁽²⁾ ANSI/ANS 2.5 intervals scaled for instrument heights on the Byron meteorological tower

The following two programs were used to calculate doses resulting from radioactive releases:

1. **XOQDOQ: Computer Program for the Meteorological Evaluation of Routine Effluent Releases at Nuclear Power Stations (NUREG/CR-2919).**

The program is based on the theory that material released to the atmosphere will be normally distributed (Gaussian) about the plume centerline. A straight-line trajectory is assumed between the point of release and all receptors.

The program implements the assumptions outlined in Section C of NRC Regulatory Guide 1.111. In evaluating routine releases from nuclear power plants, it primarily is designed to calculate annual relative effluent concentrations, X/Q values and annual average relative deposition, D/Q values.

Output from the XOQDOQ program is used as input to the GASPAR program.

2. **GASPAR II: A Code System for Evaluation of Radiological Impacts Due to the Release of Radioactive Material to the Atmosphere During Normal Operation of Light Water Reactors (NUREG-0597).**

GASPAR is a program written for the evaluation of radiological impacts due to the release of radioactive material to the atmosphere during normal operation of reactors. The GASPAR code implements the radiological impact models of NRC Regulatory Guide 1.109, Revision 1, for atmospheric releases. The program is used to estimate the maximum individual doses at selected locations in the vicinity of the plant.

5. Results

5.1 Instrument Maintenance

The maintenance program followed during 2010 was composed of routinely scheduled visits and equipment repairs. Routine site visits were made to inspect the sensing and recording systems for proper operation. In addition, routine maintenance and calibration checks of all tower-mounted and ground level equipment were performed every four months. A description of the calibration and field procedures is found in the Murray and Trettel, Inc. "P1009 Procedures Manual" (July 2010).

During the January calibration, the heat pads were inspected and found to be not heating up properly. On the next day, the heat pads were re-inspected.. All connections were checked and the heat pads were operating normally.

In February, the digital recorder was unreachable by modem. The unit was rebooted.

In April, a stuck tipping bucket in the rain gauge was repaired.

In May, the annual tower inspection was performed. Also in May, a lightning strike damaged surge protection for some process computer points as well as surge protection for a shelter phone line. In addition, the tipping bucket in the rain gauge was cleaned and re-aligned.

In July, the data logger modem was damaged. A new modem was installed. Also in July, the surge protection for the digital recorder phone line was replaced due to damage.

In August, damage to phone lines in and around the met shelter was repaired.

No other significant problems were encountered with the equipment, and at the end of the year, no problems were evident at the site.

5.2 Data Recovery

The record of data recovery for the year is summarized in Table 6.

Table 6

Byron Site
Data Recovery Summary
2010

<u>Measurement</u>	<u>Elevation</u>	<u>Recovered Hours</u>	<u>Recovered Percent</u>	<u>Lost Hours</u>	<u>Percent Changed</u>
Wind Speed	30 ft.	8747	99.9	13	0.6
Wind Speed	250 ft.	8747	99.9	13	0.2
Wind Direction	30 ft.	8747	99.9	13	1.3
Wind Direction	250 ft.	8747	99.9	13	0.6
Ambient Temperature	30 ft.	8747	99.9	13	0.1
Differential Temperature	250-30 ft.	8747	99.9	13	0.3
Dew Point Temperature	30 ft.	8747	99.9	13	0.9
Precipitation	3 ft.	8680	99.1	80	1.1
AVERAGE *			99.9		

* average of priority parameters (all except dew point temperature and precipitation)

	<u>Valid Hours</u>	<u>Recovered Percent</u>	<u>Lost Hours</u>
Lower Level Joint Frequency %	8747	99.9	13
Upper Level Joint Frequency %	8747	99.9	13

5.3 Summary of Billings for Equipment Repairs, Replacement Parts, and Other Work not Included in Fixed-Cost Maintenance Agreement - 2010

Description - Byron

	<u>Cost</u>
<u>January</u>	
Meteorological equipment maintenance	\$ 687.40
Meteorological parts, materials, and contractor services	43.96
<u>February</u>	
Meteorological equipment maintenance	110.00
Meteorological parts, materials, and contractor services	248.30
<u>March</u>	
Meteorological parts, materials, and contractor services	276.46
Special Request	320.00
<u>April</u>	
Meteorological equipment maintenance	27.50
Meteorological parts, materials, and contractor services	447.92
<u>May</u>	
Meteorological equipment maintenance	1,151.40
Meteorological parts, materials, and contractor services	363.88
<u>June</u>	
Meteorological equipment maintenance	0.00
<u>July</u>	
Meteorological equipment maintenance	861.00
Meteorological parts, materials, and contractor services	46.68
<u>August</u>	
Meteorological equipment maintenance	1,174.00
Meteorological parts, materials, and contractor services	164.71
Special Request	240.00
<u>September</u>	
Meteorological equipment maintenance	137.50
Meteorological parts, materials, and contractor services	158.16
<u>October</u>	
Meteorological equipment maintenance	0.00
<u>November</u>	
Meteorological parts, materials, and contractor services	0.00
<u>December</u>	
Meteorological parts, materials, and contractor services	0.00
Annual Total:	\$ 6,458.87

5.4 Stability Wind Rose Data

The quarterly and annual stability wind roses are given in Tables 7 through 11. Wind speed classes have been altered to reflect the sensor threshold.

For the year, winds measured at 30 ft. most frequently came from the west-northwest (9.20%) and fell into the 3.6-7.5 mph and 7.6-12.5 mph wind speed classes (37.79% and 30.98% respectively). Calms (wind speeds at or below the sensor threshold) were measured 0.17% of the time. Speeds greater than 24.5 mph were measured 0.13% of the time.

Stability based on the 250-30 ft. differential temperature most frequently fell into the neutral classification (45.08%).

TABLE 7

-14-

Byron Generating Station
30 ft. Wind Speed and Direction

January-March, 2010
250Ft-30Ft Delta-T (F)

Number of Observations = 2149
Values are Percent Occurrence

SPEED		WIND DIRECTION CLASSES														STABILITY CLASSES									
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
A	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00			
L	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00		
M	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
E	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
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TABLE 7
continued

-15-

Byron Generating Station
30 ft. Wind Speed and Direction

January-March, 2010
250Ft-30Ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05			0.05					
- N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.56				0.56				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.60
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.00
TOT	8.98	7.35	4.61	3.96	5.17	5.58	5.17	3.58	2.47	3.58	3.30	4.84	10.56	10.98	11.26	8.61	100.00	0.09	0.33	1.44	57.24	27.50	9.87	3.54	100.00

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09	Extremely Unstable
0.00	0.00	0.05	0.05	0.00	0.05	0.05	0.00	0.09	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.33	Moderately Unstable
0.14	0.19	0.09	0.00	0.05	0.09	0.19	0.00	0.09	0.19	0.00	0.05	0.28	0.00	0.00	0.09	1.44	Slightly Unstable
6.65	5.58	3.30	2.05	2.84	2.33	2.56	1.16	1.44	1.77	1.63	2.93	6.14	5.72	5.91	5.21	57.24	Neutral
1.72	1.16	1.02	1.44	1.16	2.23	1.86	1.54	0.74	1.40	0.98	1.35	1.68	3.54	3.16	2.51	27.50	Slightly Stable
0.42	0.37	0.09	0.42	0.56	0.70	0.51	0.84	0.05	0.14	0.60	0.51	1.91	1.21	1.02	0.51	9.87	Moderately Stable
0.05	0.05	0.05	0.00	0.56	0.19	0.00	0.05	0.05	0.09	0.09	0.00	0.51	0.51	1.07	0.28	3.54	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C A L M
0.70	0.60	0.60	0.56	1.02	0.33	0.51	0.47	0.42	0.56	0.56	0.98	2.19	2.51	2.09	0.79	14.89	< 3.5 mph
2.65	1.35	1.49	1.12	2.42	1.58	1.95	1.21	0.70	0.84	1.40	1.44	3.63	5.77	5.07	2.98	35.60	3.6 - 7.5 mph
4.42	2.14	1.07	1.58	1.68	2.51	2.14	1.40	0.37	1.58	1.26	1.58	2.33	2.37	3.91	3.77	34.11	7.6 - 12.5 mph
1.21	3.26	1.44	0.70	0.05	1.16	0.56	0.51	0.93	0.60	0.09	0.84	1.86	0.33	0.19	1.07	14.80	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.60	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

April-June, 2010
250Ft-30Ft Delta-T (F)

Number of Observations = 2174
Values are Percent Occurrence

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES								
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05			0.05					
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09				0.09					
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00				
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00			
																									0.14	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
- N	0.23	0.05	0.14	0.14	0.46	0.28	0.00	0.00	0.14	0.00	0.00	0.14	0.14	0.23	0.05	0.23	2.21				2.21					
3 SS	0.14	0.28	0.32	0.18	0.37	0.18	0.09	0.18	0.14	0.05	0.14	0.46	0.23	0.51	0.41	0.28	3.96					3.96				
MS	0.37	0.23	0.05	0.14	0.32	0.32	0.18	0.37	0.37	0.28	0.14	0.09	0.18	0.41	0.37	0.32	4.14						4.14			
ES	0.09	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.14	0.23	0.14	0.05	0.09	0.32	0.55	0.28	1.98							1.98		
																									12.28	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.05								
4 SU	0.05	0.00	0.05	0.05	0.14	0.09	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.60	0.60			0.60					
- N	1.38	0.97	0.64	0.74	2.35	0.92	0.74	0.97	0.55	0.60	0.64	0.51	0.60	0.78	0.69	1.52	14.58				14.58					
7 SS	1.24	0.60	0.60	0.55	1.98	0.69	0.83	0.83	1.15	0.74	1.01	0.60	1.01	0.87	0.87	0.78	14.35					14.35				
MS	0.14	0.14	0.05	0.00	0.97	0.41	0.51	0.51	0.64	0.32	0.41	0.05	0.18	0.05	0.09	0.14	4.60						4.60			
ES	0.00	0.00	0.00	0.00	0.05	0.28	0.05	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51							0.51		
																									34.68	
EU	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09								
MU	0.28	0.14	0.09	0.05	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.97	0.97								
8 SU	0.23	0.18	0.09	0.05	0.09	0.09	0.00	0.05	0.05	0.23	0.18	0.05	0.09	0.18	0.05	0.00	1.61			1.61						
- N	0.87	1.29	0.87	1.15	1.89	0.92	0.32	1.33	1.47	1.61	1.38	0.55	0.64	1.56	1.15	0.87	17.89				17.89					
1 SS	0.69	0.37	0.51	0.92	1.10	1.38	1.06	1.61	1.01	1.33	0.64	0.46	0.64	0.69	0.32	0.14	12.88					12.88				
2 MS	0.00	0.00	0.05	0.05	0.00	0.23	0.09	0.69	0.51	0.09	0.00	0.00	0.00	0.05	0.00	0.00	1.75						1.75			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09							0.09		
																									35.28	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.14	0.00	0.09	0.14	0.41	0.41								
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.05	0.00	0.14	0.09	0.41	0.41			0.41					
3 SU	0.05	0.05	0.05	0.00	0.00	0.00	0.14	0.00	0.00	0.14	0.23	0.09	0.18	0.05	0.00	0.05	1.01			1.01						
- N	0.41	0.60	0.41	0.64	0.14	0.69	0.74	0.23	0.64	0.64	0.46	0.23	0.97	1.38	0.64	0.23	9.06				9.06					
1 SS	0.00	0.05	0.14	0.00	0.05	0.41	0.23	0.55	0.87	0.51	0.05	0.18	0.00	0.05	0.00	0.05	3.13					3.13				
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14						0.14			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00		
																									14.17	

TABLE 8
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

April-June, 2010
250ft-30ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.18	0.18							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05			0.05					
N	0.00	0.00	0.05	0.00	0.00	0.37	0.09	0.14	0.64	0.37	0.14	0.28	0.28	0.05	0.00	0.00	2.39				2.39				
2 SS	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.51					0.51			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									3.13
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05			0.05					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.14				0.14				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.18
TOT	6.21	4.92	4.09	4.65	10.35	7.73	5.11	7.64	8.74	7.18	5.61	3.86	5.75	7.18	5.47	5.24	99.86	0.69	1.43	3.31	46.32	34.91	10.63	2.58	99.86

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.32	0.00	0.09	0.14	0.69	Extremely Unstable
0.28	0.14	0.09	0.05	0.37	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.09	0.00	0.18	0.09	1.43	Moderately Unstable
0.32	0.23	0.18	0.09	0.23	0.18	0.14	0.05	0.18	0.37	0.41	0.14	0.32	0.23	0.05	0.18	3.31	Slightly Unstable
2.90	2.90	2.12	2.67	4.83	3.17	1.89	2.67	3.54	3.27	2.62	1.70	2.62	4.00	2.53	2.85	46.32	Neutral
2.07	1.29	1.56	1.66	3.50	3.08	2.21	3.17	3.22	2.62	1.84	1.70	1.93	2.12	1.61	1.24	34.91	Slightly Stable
0.51	0.37	0.14	0.18	1.29	0.97	0.78	1.66	1.56	0.69	0.55	0.14	0.37	0.51	0.46	0.46	10.63	Moderately Stable
0.09	0.00	0.00	0.00	0.09	0.32	0.09	0.09	0.23	0.23	0.14	0.05	0.09	0.32	0.55	0.28	2.58	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	C A L M
0.83	0.55	0.51	0.46	1.20	0.83	0.28	0.55	0.78	0.55	0.41	0.74	0.64	1.47	1.38	1.10	12.28	< 3.5 mph
2.81	1.70	1.33	1.33	5.47	2.39	2.12	2.35	2.53	1.66	2.07	1.15	1.79	1.70	1.70	2.58	34.68	3.6 - 7.5 mph
2.12	1.98	1.61	2.21	3.50	2.62	1.52	3.73	3.04	3.27	2.21	1.06	1.43	2.48	1.52	1.01	35.28	7.6 - 12.5 mph
0.46	0.69	0.60	0.64	0.18	1.10	1.10	0.87	1.56	1.29	0.78	0.64	1.33	1.47	0.87	0.55	14.17	12.6 - 18.5 mph
0.00	0.00	0.05	0.00	0.00	0.78	0.09	0.14	0.74	0.37	0.14	0.28	0.51	0.05	0.00	0.00	3.13	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.05	0.00	0.00	0.00	0.18	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2010
250Ft-30Ft Delta-T (F)

Number of Observations = 2202

Values are Percent Occurrence

SPEED		WIND DIRECTION CLASSES														TOTAL	STABILITY CLASSES							TOTAL
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.05					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.14				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.18			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.09		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																								0.50
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
- N	0.27	0.27	0.09	0.09	0.23	0.05	0.09	0.05	0.14	0.18	0.32	0.14	0.27	0.41	0.09	0.18				2.86				
3 SS	0.36	0.27	0.23	0.36	0.54	0.23	0.41	0.54	0.59	0.82	0.86	0.73	0.77	0.64	0.91	0.41					8.67			
MS	0.23	0.18	0.09	0.36	0.45	0.18	0.09	0.23	0.41	0.77	0.73	0.50	1.09	0.77	0.45	0.36						6.90		
ES	0.05	0.00	0.00	0.05	0.09	0.14	0.32	0.36	0.77	0.23	0.18	0.23	0.23	0.23	0.36	0.23							3.45	
																								21.89
EU	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.18	0.09	0.41	0.41						
MU	0.09	0.05	0.00	0.05	0.14	0.05	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.05		0.54						
4 SU	0.05	0.00	0.00	0.05	0.18	0.00	0.05	0.00	0.09	0.09	0.14	0.05	0.18	0.00	0.23	0.09			1.18					
- N	1.32	1.14	0.18	0.45	1.27	0.59	1.04	1.18	1.04	1.73	1.41	1.27	1.36	1.09	1.68	1.36				18.12				
7 SS	1.00	0.45	0.36	0.54	0.73	0.54	0.77	1.00	2.04	1.27	0.91	1.09	0.91	1.00	0.86	1.63					15.12			
MS	0.36	0.05	0.05	0.14	0.95	1.04	1.63	1.68	1.91	0.36	0.27	0.14	0.45	0.32	0.27	0.59						10.22		
ES	0.09	0.05	0.00	0.00	0.09	0.36	0.59	0.68	0.68	0.05	0.00	0.05	0.00	0.00	0.09	0.05							2.77	
																								48.37
EU	0.05	0.05	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.14	0.00	0.09	0.09	0.00	0.23	0.14	1.00	1.00						
MU	0.05	0.09	0.05	0.05	0.00	0.05	0.09	0.00	0.00	0.09	0.14	0.00	0.09	0.05	0.05	0.14		0.91						
8 SU	0.05	0.05	0.00	0.00	0.00	0.09	0.09	0.05	0.36	0.23	0.27	0.09	0.09	0.23	0.23	0.00			1.82					
- N	0.45	0.14	0.00	0.09	0.05	0.09	0.32	0.45	2.50	2.00	1.41	0.73	0.41	1.23	0.91	0.41				11.17				
1 SS	0.14	0.00	0.14	0.09	0.00	0.14	0.18	0.86	2.91	1.23	0.27	0.23	0.59	0.41	0.05	0.18					7.40			
2 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.18	0.09	0.00	0.00	0.05	0.00	0.00	0.00						0.86		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.14	
																								23.30
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.00	0.14	0.14						
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00		0.18						
3 SU	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.09	0.00	0.05			0.32					
- N	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.82	0.23	0.23	0.36	0.36	0.05	0.14				2.45				
1 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.73	0.14	0.05	0.09	0.00	0.00	0.00					1.50			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																								4.59

TABLE 9
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2010
250Ft-30Ft Delta-T (F)

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES							
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.32	0.32							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.05							
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.09	0.00	0.00	0.14			0.14					
- N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.18				0.18				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.18					0.18			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.86
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
6 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.00
																									0.00
TOT	4.68	2.82	1.18	2.32	4.72	3.77	5.68	7.72	14.40	11.04	7.36	5.86	7.54	7.08	6.77	6.09	99.50	1.86	1.73	3.50	34.92	33.06	18.07	6.36	99.50

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.09	0.09	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.18	0.00	0.18	0.36	0.09	0.41	0.23	1.86	Extremely Unstable
0.14	0.14	0.05	0.09	0.14	0.09	0.09	0.00	0.00	0.09	0.18	0.05	0.14	0.14	0.18	0.18	1.73	Moderately Unstable
0.14	0.05	0.00	0.05	0.18	0.09	0.14	0.05	0.45	0.32	0.45	0.27	0.27	0.41	0.45	0.14	3.50	Slightly Unstable
2.09	1.54	0.27	0.64	1.54	0.73	1.45	1.68	3.91	4.72	3.36	2.36	2.59	3.09	2.72	2.09	34.92	Neutral
1.50	0.73	0.73	1.00	1.27	0.91	1.36	2.41	6.04	4.22	2.18	2.09	2.36	2.04	1.82	2.23	33.06	Slightly Stable
0.59	0.23	0.14	0.50	1.41	1.23	1.73	2.45	2.50	1.23	1.00	0.64	1.59	1.09	0.73	0.95	18.07	Moderately Stable
0.14	0.05	0.00	0.05	0.18	0.50	0.91	1.14	1.50	0.27	0.18	0.27	0.23	0.23	0.45	0.27	6.36	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	C A L M
0.91	0.73	0.41	0.86	1.32	0.59	0.91	1.18	1.91	2.00	2.09	1.59	2.36	2.04	1.82	1.18	21.89	< 3.5 mph
2.95	1.77	0.59	1.23	3.36	2.59	4.09	4.54	5.77	3.54	2.77	2.63	2.91	2.41	3.36	3.86	48.37	3.6 - 7.5 mph
0.73	0.32	0.18	0.23	0.05	0.59	0.68	2.00	5.99	3.77	2.09	1.14	1.32	1.91	1.45	0.86	23.30	7.6 - 12.5 mph
0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	1.54	0.41	0.36	0.50	0.64	0.14	0.18	4.59	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.14	0.45	0.09	0.00	0.00	0.86	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	> 24.5 mph

TABLE 10

-20-

Byron Generating Station
30 ft. Wind Speed and Direction

October-December, 2010
250Ft-30Ft Delta-T (F)

Number of Observations = 2196
Values are Percent Occurrence

SPEED		WIND DIRECTION CLASSES															STABILITY CLASSES								
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
A	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00			
L	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00		
M	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
																									0.05
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
1	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
-	N	0.23	0.00	0.00	0.18	0.09	0.14	0.00	0.18	0.00	0.00	0.09	0.14	0.14	0.18	0.14	0.05	1.55				1.55			
3	SS	0.23	0.27	0.09	0.09	0.32	0.05	0.05	0.14	0.05	0.09	0.23	0.18	0.23	0.36	0.32	0.18	2.87					2.87		
	MS	0.23	0.09	0.14	0.09	0.41	0.09	0.09	0.14	0.00	0.18	0.27	0.14	0.27	0.82	0.68	0.09	3.73						3.73	
	ES	0.05	0.05	0.05	0.00	0.23	0.32	0.14	0.23	0.68	0.41	0.59	0.59	0.77	0.64	0.96	0.41	6.10							6.10
																									14.25
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.09	0.00	0.00	0.14	0.14							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.09	0.14	0.14	0.05	0.05	0.59		0.59						
4	SU	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.09	0.05	0.09	0.59			0.59					
-	N	0.50	0.41	0.32	0.18	0.46	0.55	0.32	0.14	0.41	0.05	0.32	0.55	0.77	1.41	1.55	0.91	8.83				8.83			
7	SS	1.05	0.27	0.55	0.18	1.09	0.36	0.05	0.59	0.73	0.82	1.64	0.59	1.68	1.23	1.59	1.37	13.80					13.80		
	MS	0.41	0.00	0.14	0.00	0.27	0.18	0.18	0.82	0.87	0.68	0.41	0.14	0.14	0.41	0.59	0.82	6.06						6.06	
	ES	0.00	0.00	0.00	0.09	0.14	0.05	0.09	0.50	0.73	0.32	0.09	0.00	0.09	0.05	0.18	0.09	2.41							2.41
																									32.42
	EU	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.32	0.18	0.05	0.05	0.05	0.77	0.77						
	MU	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.05	0.05	0.05	0.05	0.41		0.41					
8	SU	0.14	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.09	0.00	0.09	0.05	0.14	0.64			0.64				
-	N	2.14	0.27	0.23	0.59	0.27	0.64	0.46	1.05	0.82	0.96	0.77	0.87	1.73	2.96	1.59	1.50	16.85				16.85			
1	SS	0.68	0.23	0.27	0.23	0.27	0.18	0.50	2.09	1.41	0.68	0.18	0.41	0.68	0.77	0.73	0.87	10.20					10.20		
2	MS	0.14	0.00	0.00	0.05	0.00	0.14	0.18	0.55	0.32	0.09	0.00	0.00	0.00	0.00	0.00	0.00	1.46						1.46	
	ES	0.00	0.00	0.00	0.00	0.00	0.09	0.50	0.32	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05							1.05
																									31.38
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.05	0.18	0.18							
1	MU	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.00	0.00	0.23		0.23						
3	SU	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.23	0.14	0.18	0.05	0.14	0.91			0.91				
-	N	0.64	0.00	0.00	0.27	0.00	0.50	0.36	1.00	0.82	0.87	0.77	1.96	2.28	1.96	0.14	0.77	12.34				12.34			
1	SS	0.00	0.05	0.00	0.36	0.00	0.05	0.50	1.78	0.64	0.64	0.46	0.14	0.36	0.05	0.05	0.00	5.05					5.05		
8	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09						0.09	
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
																									18.81

TABLE 10
continued

-21-

Byron Generating Station
30 ft. Wind Speed and Direction

October-December, 2010
250Ft-30Ft Delta-T (F)

SPEED	WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05		0.05						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05			0.05					
- N	0.36	0.00	0.00	0.00	0.00	0.27	0.05	0.00	0.00	0.14	0.41	0.27	0.36	0.05	0.00	0.32	2.23				2.23				
2 SS	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.23	0.05	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.41					0.41			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									2.73
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
6 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.18	0.00	0.00	0.00	0.32				0.32				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.32
TOT	7.29	1.78	1.78	2.32	3.55	3.64	3.46	9.74	7.74	6.06	6.60	7.15	10.52	11.57	8.79	7.92	99.95	1.09	1.28	2.19	42.12	32.33	11.38	9.56	99.95

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.36	0.32	0.14	0.05	0.09	1.09	Extremely Unstable
0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.23	0.32	0.18	0.09	0.09	1.28	Moderately Unstable
0.41	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.50	0.18	0.36	0.14	0.36	2.19	Slightly Unstable
3.87	0.68	0.55	1.23	0.82	2.09	1.18	2.37	2.05	2.00	2.41	3.87	5.46	6.56	3.42	3.55	42.12	Neutral
1.96	0.82	0.91	0.87	1.68	0.68	1.09	4.83	2.87	2.23	2.60	1.32	2.96	2.41	2.69	2.41	32.33	Slightly Stable
0.77	0.09	0.27	0.14	0.68	0.41	0.46	1.50	1.28	0.96	0.68	0.27	0.41	1.23	1.28	0.91	11.38	Moderately Stable
0.05	0.05	0.05	0.09	0.36	0.46	0.73	1.05	1.55	0.73	0.68	0.59	0.87	0.68	1.14	0.50	9.56	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	C A L M
0.73	0.41	0.27	0.36	1.05	0.59	0.27	0.68	0.73	0.68	1.18	1.05	1.41	2.00	2.09	0.73	14.25	< 3.5 mph
2.14	0.68	1.00	0.46	1.96	1.14	0.64	2.05	2.73	1.87	2.60	1.59	2.82	3.42	4.01	3.32	32.42	3.6 - 7.5 mph
3.23	0.64	0.50	0.87	0.55	1.05	1.64	4.01	2.69	1.78	1.05	1.78	2.64	3.92	2.46	2.60	31.38	7.6 - 12.5 mph
0.82	0.05	0.00	0.64	0.00	0.55	0.87	2.78	1.55	1.59	1.23	2.37	3.01	2.19	0.23	0.96	18.81	12.6 - 18.5 mph
0.36	0.00	0.00	0.00	0.00	0.32	0.05	0.23	0.05	0.14	0.50	0.27	0.46	0.05	0.00	0.32	2.73	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.18	0.00	0.00	0.00	0.32	> 24.5 mph

TABLE 11

-22-

Byron Generating Station
30 ft. Wind Speed and Direction

January-December, 2010
250Ft-30Ft Delta-T (F)

Number of Observations = 8721
Values are Percent Occurrence

SPEED	WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01						
C	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01			0.01					
A	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05				0.05				
L	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07					0.07			
M	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03						0.03		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00		0.17
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
-	N	0.26	0.14	0.13	0.16	0.28	0.14	0.10	0.11	0.13	0.09	0.14	0.16	0.26	0.30	0.14	0.16	2.69			2.69				
3	SS	0.22	0.26	0.21	0.19	0.38	0.16	0.17	0.25	0.23	0.29	0.34	0.44	0.39	0.56	0.50	0.26	4.86			4.86				
	MS	0.25	0.15	0.09	0.19	0.36	0.16	0.10	0.19	0.19	0.34	0.34	0.28	0.62	0.72	0.49	0.25	4.75				4.75			
	ES	0.06	0.02	0.02	0.01	0.14	0.13	0.11	0.16	0.41	0.23	0.24	0.22	0.38	0.42	0.70	0.28	3.53					3.53		15.85
	EU	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.02	0.06	0.02	0.15	0.15							
	MU	0.02	0.01	0.00	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.05	0.03	0.03	0.03	0.02	0.30	0.30							
4	SU	0.07	0.00	0.01	0.02	0.08	0.03	0.01	0.00	0.05	0.02	0.03	0.06	0.05	0.02	0.07	0.09	0.62			0.62				
-	N	1.20	0.80	0.52	0.47	1.32	0.68	0.78	0.69	0.60	0.77	0.72	0.75	1.00	1.51	1.53	1.23	14.55			14.55				
7	SS	1.03	0.48	0.52	0.45	1.11	0.56	0.57	0.70	1.05	0.73	1.01	0.73	1.23	1.43	1.36	1.31	14.29				14.29			
	MS	0.28	0.06	0.06	0.06	0.61	0.45	0.65	0.85	0.87	0.34	0.37	0.11	0.44	0.28	0.38	0.46	6.25				6.25			
	ES	0.02	0.01	0.00	0.02	0.15	0.19	0.18	0.31	0.38	0.10	0.03	0.01	0.05	0.01	0.10	0.06	1.64					1.64		37.79
	EU	0.05	0.01	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.03	0.01	0.10	0.07	0.01	0.07	0.05	0.47	0.47						
	MU	0.09	0.07	0.05	0.03	0.09	0.02	0.03	0.00	0.01	0.02	0.05	0.02	0.05	0.02	0.02	0.05	0.63	0.63						
8	SU	0.10	0.10	0.02	0.01	0.03	0.06	0.06	0.02	0.10	0.13	0.11	0.06	0.08	0.13	0.08	0.05	1.15			1.15				
-	N	1.80	0.79	0.46	0.62	0.86	0.71	0.56	0.83	1.26	1.28	1.11	0.85	1.23	2.00	1.72	1.40	17.48			17.48				
1	SS	0.53	0.23	0.30	0.49	0.40	0.60	0.60	1.27	1.36	1.07	0.37	0.36	0.49	0.50	0.44	0.52	9.52				9.52			
2	MS	0.05	0.06	0.01	0.06	0.02	0.19	0.10	0.55	0.25	0.07	0.00	0.00	0.01	0.01	0.00	0.00	1.39					1.39		
	ES	0.00	0.00	0.00	0.00	0.01	0.05	0.14	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36					0.36		30.98
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.02	0.02	0.05	0.18	0.18							
1	MU	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.03	0.05	0.02	0.06	0.02	0.23	0.23			0.23				
3	SU	0.08	0.03	0.03	0.00	0.00	0.00	0.05	0.00	0.02	0.10	0.07	0.11	0.10	0.08	0.01	0.06	0.76			0.76				
-	N	0.50	0.93	0.44	0.39	0.05	0.39	0.29	0.31	0.56	0.67	0.39	0.80	1.33	1.01	0.25	0.55	8.85				8.85			
1	SS	0.03	0.02	0.03	0.10	0.01	0.29	0.29	0.71	0.56	0.49	0.16	0.09	0.11	0.02	0.01	0.01	2.96					2.96		
8	MS	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09					0.09		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		13.07

TABLE 11
continued

-23-

Byron Generating Station
30 ft. Wind Speed and Direction

January-December, 2010
250Ft-30Ft Delta-T (F)

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES							
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.00	0.00	0.00	0.13	0.13							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02		0.02						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.02	0.00	0.00	0.07			0.07					
- N	0.09	0.00	0.01	0.00	0.00	0.16	0.03	0.03	0.17	0.13	0.14	0.14	0.33	0.02	0.00	0.08	1.34				1.34				
2 SS	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.06	0.02	0.05	0.02	0.00	0.01	0.00	0.00	0.00	0.28					0.28			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									1.83
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01			0.01					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.02	0.05	0.00	0.00	0.00	0.11				0.11				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.13
TOT	6.78	4.20	2.90	3.30	5.94	5.17	4.85	7.19	8.37	6.98	5.73	5.44	8.59	9.20	8.06	6.96	99.83	0.94	1.19	2.61	45.08	31.97	12.51	5.53	99.83

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.06	0.02	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.05	0.01	0.15	0.25	0.06	0.16	0.11	0.94	Extremely Unstable
0.14	0.08	0.05	0.05	0.13	0.03	0.03	0.00	0.02	0.02	0.10	0.09	0.15	0.08	0.11	0.09	1.19	Moderately Unstable
0.25	0.14	0.07	0.03	0.11	0.09	0.11	0.02	0.18	0.25	0.22	0.24	0.26	0.25	0.16	0.19	2.61	Slightly Unstable
3.86	2.66	1.55	1.64	2.50	2.08	1.77	1.97	2.74	2.95	2.51	2.72	4.20	4.84	3.63	3.42	45.08	Neutral
1.81	1.00	1.05	1.24	1.90	1.72	1.63	2.99	3.23	2.63	1.90	1.62	2.24	2.52	2.32	2.10	31.97	Slightly Stable
0.57	0.26	0.16	0.31	0.99	0.83	0.87	1.62	1.35	0.76	0.71	0.39	1.07	1.01	0.87	0.71	12.51	Moderately Stable
0.08	0.03	0.02	0.03	0.30	0.37	0.44	0.58	0.84	0.33	0.28	0.23	0.42	0.44	0.80	0.33	5.53	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	C A L M
0.79	0.57	0.45	0.56	1.15	0.58	0.49	0.72	0.96	0.95	1.07	1.09	1.65	2.01	1.85	0.95	15.85	< 3.5 mph
2.64	1.38	1.10	1.03	3.30	1.93	2.20	2.55	2.95	1.98	2.21	1.71	2.79	3.31	3.53	3.19	37.79	3.6 - 7.5 mph
2.61	1.26	0.84	1.22	1.43	1.69	1.49	2.79	3.04	2.60	1.65	1.39	1.93	2.67	2.33	2.05	30.98	7.6 - 12.5 mph
0.64	0.99	0.50	0.49	0.06	0.70	0.63	1.04	1.19	1.26	0.63	1.05	1.67	1.16	0.36	0.69	13.07	12.6 - 18.5 mph
0.09	0.00	0.01	0.00	0.00	0.28	0.03	0.09	0.21	0.17	0.16	0.17	0.49	0.05	0.00	0.08	1.83	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.02	0.06	0.00	0.00	0.00	0.13	> 24.5 mph

5.5 Precipitation

Monthly totals and the maximum 24-hour and maximum 1-hour precipitation amounts are summarized below. The month with the most measured precipitation was July. The month with the least measured precipitation was February*. The maximum 24-hour total was 5.37" (July) and the maximum 1-hour total was 1.24" (July).

Table 12
Precipitation Totals (Inches) - 2010
Byron Site

<u>Month</u>	<u>Total</u>	<u>Maximum 24-hour</u>	<u>Maximum 1-hour</u>
January	0.89*	0.60*	0.14*
February	0.64*	0.23*	0.06
March	1.62	0.44	0.16
April	2.65	0.72	0.24
May	5.38*	2.36*	0.85*
June	7.04	1.44	0.57
July	9.91	5.37	1.24
August	4.08	1.79	0.76
September	2.39*	0.46*	0.35*
October	3.23	1.44	0.71
November	1.42	0.85	0.21
December	1.38*	0.31*	0.12*
 TOTAL:	 40.63*		

* some data are missing - actual precipitation may be under-reported

5.6 Doses Resulting from Airborne Releases

The following are the maximum annual calculated cumulative offsite doses resulting from Byron airborne releases.

Unit 1:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	4.080 x 10 ⁻⁸ mrad	South-Southeast
beta air ⁽²⁾	5.300 x 10 ⁻⁸ mrad	South-Southeast
whole body ⁽³⁾	7.675 x 10 ⁻² mrem	South-Southeast
skin ⁽⁴⁾	5.230 x 10 ⁻⁸ mrem	South-Southeast
organ ⁽⁵⁾ (child-bone)	3.767 x 10 ⁻¹ mrem	South-Southeast

Unit 1 Compliance Status

10 CFR 50 Appendix I	Yearly Objective		% of Appendix I
gamma air	10.0	mrad	0.00
beta air	20.0	mrad	0.00
whole body	5.0	mrem	1.54
skin	15.0	mrem	0.00
organ	15.0	mrem	2.51

Unit 2:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	4.870 x 10 ⁻⁸ mrad	South-Southeast
beta air ⁽²⁾	5.730 x 10 ⁻⁸ mrad	South-Southeast
whole body ⁽³⁾	7.812 x 10 ⁻² mrem	South-Southeast
skin ⁽⁴⁾	6.090 x 10 ⁻⁸ mrem	South-Southeast
organ ⁽⁵⁾ (child-bone)	3.762 x 10 ⁻¹ mrem	South-Southeast

Unit 2 Compliance Status

10 CFR 50 Appendix I	Yearly Objective		% of Appendix I
gamma air	10.0	mrad	0.00
beta air	20.0	mrad	0.00
whole body	5.0	mrem	1.56
skin	15.0	mrem	0.00
organ	15.0	mrem	2.51

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

APPENDIX

Byron Meteorological Calibration

Page 1 of 8

Date: 1-12-10

POWER SUPPLIES

+12.000V \pm 2.000V+ 13.86 V

Data Logger System Check:

	<u>Expected</u>	<u>Data Logger</u>	<u>Specifications</u>		<u>Expected</u>	<u>Data Logger</u>	<u>Specifications</u>
30' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	30' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.11</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.03</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.83</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
250' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.11</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.03</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.83</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
	<u>Ohms</u>	<u>Expected</u>	<u>Data Logger</u>	<u>Specifications</u>			
T Lo 30' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>22.95</u> °	+/- 0.5°			
ΔTMid 250'-30'		0.0°F	<u>- 0.02</u> °	+/- 0.18°			
T HI 30' TEMP	12.174	100.0°F	<u>99.97</u> °	+/- 0.5°			
250' TEMP	12.174	100.0°F	<u>99.97</u> °	+/- 0.5°			
ΔTMid 250'-30'		0.0°F	<u>0.00</u> °	+/- 0.18°			
30' TEMP	34.890	32.0°F	<u>31.96</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>23.00</u> °	+/- 0.5°			
ΔTLo 250'-30'		-9.0°F	<u>- 8.96</u> °	+/- 0.18°			
30' TEMP	40.670	23.0°F	<u>23.00</u> °	+/- 0.5°			
250' TEMP	34.890	32.0°F	<u>31.96</u> °	+/- 0.5°			
ΔTHI 250'-30'		9.0°F	<u>8.96</u> °	+/- 0.18°			

ASL 2-23-10

Byron Meteorological Calibration

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Date: 1-12-10

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

	30' Ambient	
	AF	AL
Measured	21.75 °F	- °F
Recorded	21.69 °F	- °F
Difference	.06 °F	- °F
Specification	±0.5°F	

	250' Δ T	
	AF	AL
Measured	- .90 °F	- °F
Recorded	- .84 °F	- °F
Difference	.06 °F	- °F
Specification	±0.18°F	

	30' Dew Point	
	AF	AL
Measured	13.00 °F	- °F
Recorded	11.09 °F	- °F
Difference	1.91 °F	- °F
Specification	±2.7°F	

Winds

	30'		250'	
	AF	AL	AF	AL
WS stall	0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD	389 °	392 °	392 °	391 °
Revr. WD	210 °	212 °	212 °	211 °
Tracking/wear	OK		OK	

Specification
 0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

Comments:

30'
 WS MT 0000 REMOVED
 WS MT 0028 INSTALLED
 WD MT 0182 REMOVED
 WD MT 0121 INSTALLED

250'
 WS MT 0087 REMOVED
 WS MT 0187 INSTALLED
 WD MT 0180 REMOVED
 ND MT 0160 INSTALLED

ASL 2-23-10

Byron Meteorological Calibration

Page 3 of 8

Date: 1-12-10

Dates of Last Wind Sensor Bearing Replacements:

	<u>30'</u>	<u>250'</u>
(6 mos.) Wind Speed:	<u>1-12-10</u>	<u>1-12-10</u>
(12 mos.) Wind Direction:	<u>1-12-10</u>	<u>1-12-10</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Rain Gauge: OKDebris screen: In Out Installed Removed

	<u>Good</u>	<u>Fair</u>	<u>Poor</u>		<u>Good</u>	<u>Fair</u>	<u>Poor</u>
<u>Tower Lighting</u>				<u>Tower Condition</u>			
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guy wire tension	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shelter condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

Note:

AF = As Found
AL = As Left
— = no change (AF=AL)

Calibration Instruments:

Psychrometer - S/N - MT104 DNE 4-10
Digital multimeter - S/N - 93120208 DNE 4-10
Digital multimeter - S/N - _____

FS = Full Scale

Technicians: MIKE MINDIA MIKE MARX

Comments:

- HEAT PADS NOT WORKING WILL REPAIR ASAP
- 2 HEAT LAMPS OUT - REPLACED
- HAD TO ADJUST CURRENT CARD FOR 30' DP RECORDER + Y4004
30 DP. CURRENT CARD FEEDS BOTH.

Signature: 

ASL 2-23-10

Date: 1-12-9

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.00 MPH	0.00 DEG	0.00 MPH	0.00 DEG	-22.00 DEG	-10.00 DEG	-22.00 DEG	0.00 IN
As Found Response	0.0	0.	0.0	0.	-22.88	-10.00	-22.08	0.00
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.00 MPH	270.00 DEG	50.00 MPH	270.00 DEG	50.00 DEG	0.00 DEG	50.00 DEG	0.50 IN
As Found Response	49.9	270	49.9	269	49.86	-0.02	49.86	0.50
As Left Response	—	—	—	—	—	—	—	—

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.00 MPH	540.00 DEG	100.00 MPH	540.00 DEG	122.00 DEG	10.00 DEG	122.00 DEG	1.00 IN
As Found Response	99.9	539	99.8	539	121.81	9.97	121.81	1.00
As Left Response	—	—	—	—	—	—	—	—

A-12 2-23-11

System Response Check

Date: 1-12-10Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	.10 ±0.01
As Found Response	0.0	0	0.0	0	-22.00	-10.00	-22.00	.10
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	-	-	-	-	-	-	-

ADL 2-23-10

System Response Check

Date: 12-10Site: Byron
System: Process Computer - Y4000 - Y4006

Low Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ± 2	0.00 ± 0.4	22.00 ± 0.5	-10.00 ± 0.18	-22.00 ± 0.5	0 ± 2	0.00 ± 0.4
As Found Response	0.31	.029	22.00	-9.99	-20.94	0.33	0.01
As Left Response	—	—	—	—	-21.9	—	—

Mid Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ± 2	50.00 ± 0.4	50.00 ± 0.5	0.00 ± 0.18	50.00 ± 0.5	270 ± 2	50.00 ± 0.4
As Found Response	269.3	49.9	49.84	0.00	50.94	269.6	49.9
As Left Response	—	—	—	—	—	—	—

Full Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ± 2	100.0 ± 0.4	122.00 ± 0.5	10.00 ± 0.18	122.00 ± 0.5	540 ± 2	100.00 ± 0.4
As Found Response	538.4	99.9	121.80	10.00	123.20	539.1	99.80
As Left Response	—	—	—	—	122.00	—	—

ADJUSTED CURRENT ON CURRENT CARD Y4004
Also fixed 300P "Resistor"

AD 2-23-10

System Response Check

Date: 1-12-10

Site: Byron
System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	22.00 ±0.5	-10.00 ±0.18	-22.00 ±0.5	0.00 ±0.01
As Found Response	0.02	0.0	0.0	0.45 0.04 2/2/10	22.00	-9.96	-22.10	0.00 0.00
As Left Response	-	-	-	-	-	-	-	-

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	50.0	269.4	49.8	269.6	49.9	.005	49.7	0.50
As Left Response	-	-	-	-	-	-	-	-

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.00 ±0.5	10.00 ±0.18	122.00 ±0.5	1.00 ±0.01
As Found Response	100.2	539.1	99.8	538.4	121.80	10.00	121.7	1.00
As Left Response	-	-	-	-	-	-	-	-

AD 2-23-10

System Response Check

Date: 1-12-10

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.00 ±0.5	-10.00 ±0.18	-22.00 ±0.5
As Found Response	-0.1	0.0	2.25	0.2	-21.7	-9.99	-21.2
As Left Response	-	-	-	-	-	-	-21.8

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5
As Found Response	49.8	49.9	272.5	269.0	49.9	0.01	51.0
As Left Response	-	-	-	-	-	-	50.1

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100 ±1.2	540 ±5	540 ±5	122.00 ±0.5	10.00 ±0.18	122.00 ±0.5
As Found Response	99.8	99.9	541	539	122.2	9.97	122.2
As Left Response	-	-	-	-	-	-	122.1

ASL 2.23-10

Byron Meteorological Calibration

Page 1 of 8

Date: 5.19.10

POWER SUPPLIES

+12.000V \pm 2.000V+ 13.526 V

Data Logger System Check:

	<u>Expected</u>	<u>Data Logger</u>	<u>Specifications</u>		<u>Expected</u>	<u>Data Logger</u>	<u>Specifications</u>
30' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	30' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.10</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.96</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.85</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.74</u> °	+/- 2°
250' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.09</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.98</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.83</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.77</u> °	+/- 2°
	<u>Ohms</u>	<u>Expected</u>	<u>Data Logger</u>	<u>Specifications</u>			
T Lo 30' TEMP	40.670	23.0°F	<u>22.99</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>22.92</u> °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	<u>- 0.07</u> °	+/- 0.18°			
T HI 30' TEMP	12.174	100.0°F	<u>99.99</u> °	+/- 0.5°			
250' TEMP	12.174	100.0°F	<u>99.93</u> °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	<u>- 0.05</u> °	+/- 0.18°			
30' TEMP	34.890	32.0°F	<u>32.00</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>22.95</u> °	+/- 0.5°			
Δ TLo 250'-30'		-9.0°F	<u>- 9.04</u> °	+/- 0.18°			
30' TEMP	40.670	23.0°F	<u>22.95</u> °	+/- 0.5°			
250' TEMP	34.890	32.0°F	<u>32.00</u> °	+/- 0.5°			
Δ THI 250'-30'		9.0°F	<u>9.03</u> °	+/- 0.18°			

F5
R-27
7/09

Byron Meteorological Calibration

Page 2 of 8

Date: 5-19-10

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 71.0 °F	— °F
Recorded 70.85 °F	— °F
Difference 0.15 °F	— °F
Specification ±0.5°F	

250' Δ T	
AF	AL
-1.9 °F	— °F
-2.0 °F	— °F
0.1 °F	— °F
±0.18°F	

30' Dew Point	
AF	AL
36.0 °F	— °F
36.29 °F	— °F
0.29 °F	— °F
±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 391 °	— °	391 °	— °
Revr. WD 210 °	— °	211 °	— °
Tracking/wear OK		OK	

Specification

0.3mph ± 0.45mph

30°/390° ± 5°

210° ± 5°

Comments: 30' WS MT0028 Removed 250' WS MT0187 Removed
 MT0165 Installed MT0038 Installed

AD 6-21-10

Byron Meteorological Calibration

Page 3 of 8

Date: 5-19-10

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>5-19-10</u>	<u>5-19-10</u>
(12 mos.)	Wind Direction:	<u>1-11-10</u>	<u>1-11-10</u>

Aspirators: 30' OK 250' OK

Operation of Rain Gauge: OK

Debris screen: (In) Out Installed Removed

<u>Tower Lighting</u>	Good	Fair	Poor	<u>Tower Condition</u>	Good	Fair	Poor
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guy wire tension	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
AL = As Left
— = no change (AF=AL)

FS = Full Scale

Calibration Instruments:

Psychrometer - S/N - #1 DUE OCT 2010
Digital multimeter - S/N - 87430008 DUE DEC 2010
Digital multimeter - S/N - _____

Technicians: MIKE MARX ANDREW LOTZ

Comments:

ADJUSTED CURRENT ON Y4014

Signature: [Signature]

ADL 6-21-10

Date: 5-19-10

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.00 MPH	0.00 DEG	0.00 MPH	0.00 DEG	-22.00 DEG	-10.00 DEG	-22.00 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.03	-10.00	-22.03	0.00
As Left Response	-	✓	-	-	-		-	-

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.00 MPH	270.00 DEG	50.00 MPH	270.00 DEG	50.00 DEG	0.00 DEG	50.00 DEG	0.50 IN
As Found Response	49.9	270	49.9	269	49.88	-0.02	49.88	0.50
As Left Response	-	-	-	-	-	-	-	-

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.00 MPH	540.00 DEG	100.00 MPH	540.00 DEG	122.00 DEG	10.00 DEG	122.00 DEG	1.00 IN
As Found Response	99.9	539	99.9	539	121.84	9.98	121.84	1.00
As Left Response	-	-	-	-	-	-	-	-

AD 6-21-10

System Response Check

Date: 5-19-10Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	.05 ±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	.05
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	-	-	-	-	-	-	-

System Response Check

Date: 5.19.10Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ±2	0.0 ±0.4	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	0 ±2	0.0 ±0.4
As Found Response	0.5	0.04	-21.9	-9.99	-21.7	0.1	0.06
As Left Response	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ±2	50.0 ±0.4	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5	270 ±2	50.0 ±0.4
As Found Response	269.5	50.0	50.0	0.01	50.2	269.8	50.0
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ±2	100.0 ±0.4	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	540 ±2	100.0 ±0.4
As Found Response	538.9	99.9	121.9	10.0	122.3	539.5	99.9
As Left Response	—	—	—	—	—	—	—

ADL 6-21-10

System Response Check

Date: 5-19-10Site: Byron
System: Process Computer - Y4011 - Y4019

<u>Low Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	-0.2	0.04	0.003	-0.7	-22.0	-10.0	-22.1	0.00
As Left Response	-	-	-	0.4	-	-	-	-

<u>Mid Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.0 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	49.7	269.5	49.8	267.6	49.9	-0.02	49.7	0.50
As Left Response	-	-	-	269.7	-	-	-	-

<u>Full Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.8	539.2	99.8	537.3	121.9	10.0	121.8	1.00
As Left Response	-	-	-	540.2	-	-	-	-

A22 6-21-10

System Response Check

Date: 5-19-10

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.0 ±0.18	-22.0 ±0.5
As Found Response	-0.2	MSM 5-19-10 +0.1	3.5	0.0	-21.8	-9.98	-21.8
As Left Response	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	10.0 ±0.18	50.0 ±0.5
As Found Response	49.8	49.9	272.8	269.0	50.1	0.0	50.3
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.0 ±0.18	122.0 ±0.5
As Found Response	99.7	100.1	539.5	539.1	122.3	10.0	122.1
As Left Response	—	—	—	—	—	—	—

Byron Meteorological Calibration

Page 1 of 8

Date: 9-1-10

POWER SUPPLIES

+12.000V \pm 2.000V

+ 13.680 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	30' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.66</u> mph	+/- 0.4 mph		90°	<u>90.11</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.94</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.77</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.67</u> °	+/- 2°
250' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.66</u> mph	+/- 0.4 mph		90°	<u>90.08</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.00</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.80</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
	Ohms	Expected			Data Logger	Specifications	
T Lo 30' TEMP	40.670	23.0°F			<u>22.95</u> °	+/- 0.5°	
250' TEMP	40.670	23.0°F			<u>22.99</u> °	+/- 0.5°	
Δ TMid 250'-30'		0.0°F			<u>0.04</u> °	+/- 0.18°	
T HI 30' TEMP	12.174	100.0°F			<u>99.94</u> °	+/- 0.5°	
250' TEMP	12.174	100.0°F			<u>99.94</u> °	+/- 0.5°	
Δ TMid 250'-30'		0.0°F			<u>0.00</u> °	+/- 0.18°	
30' TEMP	34.890	32.0°F			<u>31.95</u> °	+/- 0.5°	
250' TEMP	40.670	23.0°F			<u>22.99</u> °	+/- 0.5°	
Δ TLo 250'-30'		-9.0°F			<u>-8.95</u> °	+/- 0.18°	
30' TEMP	40.670	23.0°F			<u>22.99</u> °	+/- 0.5°	
250' TEMP	34.890	32.0°F			<u>31.95</u> °	+/- 0.5°	
Δ THi 250'-30'		9.0°F			<u>8.97</u> °	+/- 0.18°	

ASZ 10-18-10

F5
R-28
7/10

Byron Meteorological Calibration

Page 2 of 8

Date: 9-1-10

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 72.00°F	- °F
Recorded 71.88°F	- °F
Difference .12 °F	- °F
Specification ±0.5°F	

250' ΔT	
AF	AL
-1.80 °F	- °F
-1.89 °F	- °F
.09 °F	- °F
±0.18°F	

30' Dew Point	
AF	AL
68.00°F	- °F
68.37 °F	- °F
.37 °F	- °F
±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 391 °	- °	30.27 °	- °
Rev. WD 213 °	- °	211.89 °	- °
Tracking/wear OK		OK	

Specification

0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

30'

250'

Comments:

WS MT 0165 REMOVED

WS MT 0038

REMOVED

WS MT 0087 INSTALLED

WS MT 0101

INSTALLED

ASL 10-18-10

Byron Meteorological Calibration

Page 3 of 8

Date: 9-1-10

Dates of Last Wind Sensor Bearing Replacements:

	<u>30'</u>	<u>250'</u>
(6 mos.) Wind Speed:	<u>9-1-10</u>	<u>9-1-10</u>
(12 mos.) Wind Direction:	<u>1-11-10</u>	<u>1-11-10</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Heat Lamps: OKOperation of Rain Gauge: OK Tips Poured .05" Tips Recorded .05"Debris screen: In Out Installed RemovedUPS Check: OK

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
AL = As Left
— = no change (AF=AL)
FS = Full Scale

Calibration Instruments:

	<u>Next Cal Due</u>
Psychrometer - S/N - <u>M1104</u>	<u>OCT 2010</u>
Digital multimeter - S/N - <u>94850269</u>	<u>NOV 2010</u>
Digital multimeter - S/N - _____	_____

Technicians: MIKE MARX, MIKE MONDIA

Comments:

Signature: ASL 10-18-10

Date: 9-1-10

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.0 MPH	0 DEG	0.0 MPH	0 DEG	-22.0 DEG	-10.00 DEG	-22.0 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.02	-10.00	-22.03	0.00
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.0 MPH	270 DEG	50.0 MPH	270 DEG	50.0 DEG	0.00 DEG	50.0 DEG	0.50 IN
As Found Response	49.9	270	49.9	270	49.89	-0.01	49.89	0.50
As Left Response	-	-	-	-	-	-	-	-

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.0 MPH	540 DEG	100.0 MPH	540 DEG	122.0 DEG	10.00 DEG	122.0 DEG	1.00 IN
As Found Response	99.9	540	99.9	540	121.87	9.98	121.87	1.00
As Left Response	-	-	-	-	-	-	-	-

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System Response Check

Date: 9-1-10Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.00±0.5	-10.00±0.18	-22.00 ±0.5	.05 ±0.01
As Found Response	0.00	0	0.00	0	-22.00	-10.00	-22.00	.05
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.00 ±0.5	0.00 ±0.18	50.00 ±0.5
As Found Response	50.00	270	50.00	270	50.00	0.00	50.00
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.00 ±0.5	10.00 ±0.18	122.00 ±0.5
As Found Response	100.00	540	100.00	540	122.00	10.00	122.00
As Left Response	-	-	-	-	-	-	-

System Response Check

Date: 9-1-10

Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 \pm 2	0.0 \pm 0.4	-22.0 \pm 0.5	-10.00 \pm 0.18	-22.0 \pm 0.5	0 \pm 2	0.0 \pm 0.4
As Found Response	0.38	.05	-21.9	-9.99	-22.1	.50	.05
As Left Response	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 \pm 2	50.0 \pm 0.4	50.0 \pm 0.5	0.00 \pm 0.18	50.0 \pm 0.5	270 \pm 2	50.0 \pm 0.4
As Found Response	269.6	50.05	49.95	.007	49.8	270.0	49.97
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 \pm 2	100.0 \pm 0.4	122.0 \pm 0.5	10.00 \pm 0.18	122.0 \pm 0.5	540 \pm 2	100.0 \pm 0.4
As Found Response	539.2	100.1	122.0	10.02	122.0	540.17	99.9
As Left Response	—	—	—	—	—	—	—

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System Response Check

Date: 9-1-10Site: Byron
System: Process Computer - Y4011 - Y4019

<u>Low Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	-0.20	-0.08	-0.02	-0.2	-22.0	-9.99	-22.17	0.00
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	49.72	269.3	49.86	269.0	49.9	0.019	49.7	0.50
As Left Response	—	—	—	—	—	—	—	—

<u>Full Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.9	539.0	99.8	539.4	121.9	10.05	121.8	1.00
As Left Response	—	—	—	—	—	—	—	—

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System Response Check

Date: 9-1-10Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5
As Found Response	-0.1	0.1	3.5	0.8	-21.8	-9.98	-22.1
As Left Response	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5
As Found Response	50.0	50.0	273.3	270.1	50.0	.01	49.8
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5
As Found Response	99.9	99.8	540	539.0	122.2	9.99	122.0
As Left Response	—	—	—	—	—	—	—

ASL 10-18-10

FILE:
2.12.1717

Annual Report
on the
Meteorological Monitoring Program
at the
Byron Nuclear Power Station
2011

prepared for

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For Exelon Use Only

Reviewed By: TF

Date: 4-3-12

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1. Introduction

The purpose of the meteorological program being conducted at the Byron Station site is to provide information sufficient to assess the local weather conditions and to determine the degree of atmospheric dispersion of airborne radioactive effluent from the station.

The meteorological tower is 250 ft. high and is instrumented at two levels. Wind speed and direction are measured at 30 ft. and 250 ft. Ambient temperature is measured at 30 ft. Differential temperature, referenced to 30 ft., is measured at 250 ft. Dew point temperature is measured at 30 ft. Precipitation is measured at approximately 3 ft.

Joint frequency stability wind rose tables of wind direction, wind speed, and stability are routinely tabulated from hourly measurements. The quarterly and annual tables are included in this report.

Descriptions of the instruments and digital recorder are given in Section 3 (Data Acquisition) of this report. Data reduction and processing are described in Section 4 (Data Analysis). The results given in Section 5 of this report include modeled maximum whole body doses, skin doses, organ doses based upon airborne releases, and site meteorology.

2. Summary

The Byron Station meteorological monitoring program produced 52,444 hours of valid data out of a possible 52,560 parameter hours during 2011 (365 days x 24 hours/day x 6 measured priority parameters), which represents an overall data recovery rate of 99.8%. Priority parameters are all parameters except dew point temperature and precipitation.

The stability wind rose tables included in this report have been generated using the 30 ft. wind data with the 250-30 ft. differential temperature data.

The maximum annual calculated cumulative doses resulting from airborne releases were as follows.

Unit 1:

gamma air dose	-	3.610×10^{-6} mrad
beta air dose	-	3.690×10^{-6} mrad
whole body dose	-	6.222×10^{-2} mrem
skin dose	-	4.440×10^{-6} mrem
organ (child bone)	-	3.065×10^{-1} mrem

Unit 2:

gamma air dose	-	5.070×10^{-6} mrad
beta air dose	-	1.230×10^{-5} mrad
whole body dose	-	6.351×10^{-2} mrem
skin dose	-	7.820×10^{-6} mrem
organ (child bone)	-	3.043×10^{-1} mrem

3. Data Acquisition

Wind speed and direction are measured with Climatronics F460 wind sensors. The wind speed sensors have a starting speed of 0.5 mph (0.22 mps), a range of 0 to 100 mph (0 to 44.7 mps), and a system accuracy of ± 1.0 mph (± 0.45 mps at 44.7 mps). The wind direction sensors have a threshold speed of 0.5 mph (0.22 mps), a range of 0 to 540°, and a system accuracy of $\pm 5^\circ$.

Ambient and differential temperatures are measured with the Climatronics 100093 system. Ambient temperature is measured within the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 0.5^\circ\text{F}$ ($\pm 0.3^\circ\text{C}$). Differential temperature is measured within the range of -10.0 to 10.0°F (-5.6 to 5.6°C) with an accuracy of $\pm 0.18^\circ\text{F}$ ($\pm 0.10^\circ\text{C}$). Dew point temperature is measured with the Climatronics 101197 system. Dew point temperature is measured with the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 2.7^\circ\text{F}$ (1.5°C).

Precipitation is measured with a Climatronics 100097-1 tipping bucket rain gauge and is measured in increments of one one-hundredth of an inch with a system accuracy of $\pm 0.01"$ ($\pm 0.25\text{mm}$).

Instrument types and locations are summarized in Table 1.

The meteorological data are collected and stored by a Campbell Scientific CR1000 Data Logger. The Campbell Scientific CR1000 measures the analog voltages of the instruments and records the digital equivalent within the range of 0 to +5 volts. Data are obtained from the Campbell Scientific CR1000 by a direct dial telephone hookup to an in-house computer system.

As a backup to the CR1000, data are also recorded with a Johnson Yokogawa Corp. digital recorder (JYC DA100 data acquisition unit). Data are sampled every 10 seconds.

Data loggers are summarized in Table 2.

Table 1

Instrument Locations

<u>Measurement</u>	<u>Sensor Type</u>	<u>Location</u>	<u>Elevation</u>
Wind Speed	Climatronics 100075 F460	Tower	250 ft.
Wind Direction	Climatronics 100076 F460	Tower	250 ft.
Differential Temperature	Climatronics 100093	Tower	250 ft.
Wind Speed	Climatronics 100075 F460	Tower	30 ft.
Wind Direction	Climatronics 100076 F460	Tower	30 ft.
Ambient Temperature	Climatronics 100093	Tower	30 ft.
Dew Point Temperature	Climatronics 1001197	Tower	30 ft.
Precipitation	Climatronics 100097-1	Ground	3 ft.

Table 2

Data Loggers

<u>Measurement</u>	<u>Logger Type</u>	<u>Sampling Frequency</u>
Winds, Temperatures, and Precipitation	Campbell Scientific CR1000	1 sec.
Winds, Temperatures, and Precipitation	Johnson Yokogawa Corp. Digital Recorder (JYC DA100 and Contec IPC-PT/M300(PC)WOU) digital recorder	10 sec.

4. Data Analysis

The Byron data logger is routinely interrogated to obtain hourly average data. The data are then stored in the meteorological data base and listings of the data are generated. The data listings are examined by qualified personnel and any apparent problems are brought to the attention of the Project Manager or Meteorological Technician and the Instrument Maintenance staff.

Hourly values of wind speed, wind direction, ambient temperature, differential temperature, dew point temperature, and precipitation are obtained through measurements taken at the site. The standard deviation of wind direction (sigma) is derived. The wind direction variation is described in terms of the standard deviation of the direction about the mean direction. The CR1000 computes an hourly value of wind sigma by taking the Root-Mean-Square (RMS) of the four quarter-hour wind sigma values. The quarter-hour wind sigma values are calculated directly from the one second wind direction samples during the 15 minute period.

The data base files are edited approximately once a week. Missing data logger values are replaced with digital recorder values, when available. Invalid data are deleted from the data base.

When an hourly value is missing or invalid, the numeral 999 is entered into the computer data file in the appropriate location. When the wind direction changes substantially relative to its short term fluctuations, the numeral 888 can be entered into the wind sigma location to indicate shifting winds. When the wind blows with velocities near the sensing threshold of the instrument, the numeral 777 can be entered into the wind direction, wind speed, and wind sigma locations to indicate light and variable winds.

A professional meteorologist reviews the data, calibration findings, equipment maintenance reports, and other information and determines which data are valid. Only the valid data are retained in the data base.

As a quality control measure, a monthly comparison is made of Microtel and digital recorder data. An investigation is made into the reasons for any significant differences between the sets of values.

Joint frequency stability wind rose tables of hourly data measured at the site are generated. These tables indicate the prevailing wind direction, wind speed, and stability classes measured during the period of observation as well as the joint frequencies of occurrence of the wind direction, wind speed, and stability classes. The values are also used as input to the atmospheric transport and diffusion models. Wind direction, wind speed, and stability classes are given in Tables 3, 4, and 5.

Table 3

Wind Direction Classes

IF	348.75°	<	WD	≤	11.25°	THEN	Class is	N
IF	11.25°	<	WD	≤	33.75°	THEN	Class is	NNE
IF	33.75°	<	WD	≤	56.25°	THEN	Class is	NE
IF	56.25°	<	WD	≤	78.75°	THEN	Class is	ENE
IF	78.75°	<	WD	≤	101.25°	THEN	Class is	E
IF	101.25°	<	WD	≤	123.75°	THEN	Class is	ESE
IF	123.75°	<	WD	≤	146.25°	THEN	Class is	SE
IF	146.25°	<	WD	≤	168.75°	THEN	Class is	SSE
IF	168.75°	<	WD	≤	191.25°	THEN	Class is	S
IF	191.25°	<	WD	≤	213.75°	THEN	Class is	SSW
IF	213.75°	<	WD	≤	236.25°	THEN	Class is	SW
IF	236.25°	<	WD	≤	258.75°	THEN	Class is	WSW
IF	258.75°	<	WD	≤	281.25°	THEN	Class is	W
IF	281.25°	<	WD	≤	303.75°	THEN	Class is	WNW
IF	303.75°	<	WD	≤	326.25°	THEN	Class is	NW
IF	326.25°	<	WD	≤	348.75°	THEN	Class is	NNW

Table 4

Wind Speed Classes

IF	0.0 mph	<	WS	≤	0.5 mph	THEN	Class is	1
IF	0.5 mph	<	WS	≤	3.5 mph	THEN	Class is	2
IF	3.5 mph	<	WS	≤	7.5 mph	THEN	Class is	3
IF	7.5 mph	<	WS	≤	12.5 mph	THEN	Class is	4
IF	12.5 mph	<	WS	≤	18.5 mph	THEN	Class is	5
IF	18.5 mph	<	WS	≤	24.5 mph	THEN	Class is	6
IF	24.5 mph	<	WS			THEN	Class is	7

Table 5

Atmospheric Stability Classes

Class	Differential Temperature Interval (in °C/100m) ⁽¹⁾	Differential Temperature Interval (in °F over the 250-30 ft. interval) ⁽²⁾
Extremely Unstable	$\Delta T \leq -1.9$	$\Delta T \leq -2.3$
Moderately Unstable	$-1.9 < \Delta T \leq -1.7$	$-2.3 < \Delta T \leq -2.1$
Slightly Unstable	$-1.7 < \Delta T \leq -1.5$	$-2.1 < \Delta T \leq -1.9$
Neutral	$-1.5 < \Delta T \leq -0.5$	$-1.9 < \Delta T \leq -0.7$
Slightly Stable	$-0.5 < \Delta T \leq 1.5$	$-0.7 < \Delta T \leq 1.8$
Moderately Stable	$1.5 < \Delta T \leq 4.0$	$1.8 < \Delta T \leq 4.8$
Extremely Stable	$4.0 < \Delta T$	$4.8 < \Delta T$

⁽¹⁾ from ANSI/ANS 2.5

⁽²⁾ ANSI/ANS 2.5 intervals scaled for instrument heights on the Byron meteorological tower

The following two programs were used to calculate doses resulting from radioactive releases:

1. XOQDOQ: Computer Program for the Meteorological Evaluation of Routine Effluent Releases at Nuclear Power Stations (NUREG/CR-2919).

The program is based on the theory that material released to the atmosphere will be normally distributed (Gaussian) about the plume centerline. A straight-line trajectory is assumed between the point of release and all receptors.

The program implements the assumptions outlined in Section C of NRC Regulatory Guide 1.111. In evaluating routine releases from nuclear power plants, it primarily is designed to calculate annual relative effluent concentrations, X/Q values and annual average relative deposition, D/Q values.

Output from the XOQDOQ program is used as input to the GASPAR program.

2. GASPAR II: A Code System for Evaluation of Radiological Impacts Due to the Release of Radioactive Material to the Atmosphere During Normal Operation of Light Water Reactors (NUREG-0597).

GASPAR is a program written for the evaluation of radiological impacts due to the release of radioactive material to the atmosphere during normal operation of reactors. The GASPAR code implements the radiological impact models of NRC Regulatory Guide 1.109, Revision 1, for atmospheric releases. The program is used to estimate the maximum individual doses at selected locations in the vicinity of the plant.

5. Results

5.1 Instrument Maintenance

The maintenance program followed during 2011 was composed of routinely scheduled visits and equipment repairs. Routine site visits were made to inspect the sensing and recording systems for proper operation. In addition, routine maintenance and calibration checks of all tower-mounted and ground level equipment were performed every four months. A description of the calibration and field procedures is found in the Murray and Trettel, Inc. "P1009 Procedures Manual" (July 2010).

In February, dew point data was lost due to a faulty sensor. The sensor was replaced in March.

In March, the dew point sensor was replaced. Also in March, the annual tower inspection was performed. On that same day, a damaged 250 ft. wind vane was replaced. Later in the month, a bad fan inside of the digital recorder was replaced.

In April, the 30 ft. wind direction sensor was replaced due to failure.

In July, a noisy phone line caused communications problems with the data logger. The line was repaired by Frontier Communications in August.

During the September calibration, repairs were made to the current cards for Y4005 and Y4016

No other significant problems were encountered with the equipment, and at the end of the year, no problems were evident at the site.

5.2 Data Recovery

The record of data recovery for the year is summarized in Table 6.

Table 6

Byron Site
Data Recovery Summary
2011

<u>Measurement</u>	<u>Elevation</u>	<u>Recovered Hours</u>	<u>Recovered Percent</u>	<u>Lost Hours</u>	<u>Percent Changed</u>
Wind Speed	30 ft.	8751	99.9	9	0.5
Wind Speed	250 ft.	8751	99.9	9	0.2
Wind Direction	30 ft.	8745	99.8	15	1.1
Wind Direction	250 ft.	8707	99.4	53	0.9
Ambient Temperature	30 ft.	8745	99.8	15	0.2
Differential Temperature	250-30 ft.	8745	99.8	15	0.5
Dew Point Temperature	30 ft.	8435	96.3	325	4.4
Precipitation	3 ft.	8691	99.2	69	1.0
AVERAGE *			99.8		

* average of priority parameters (all except dew point temperature and precipitation)

	<u>Valid Hours</u>	<u>Recovered Percent</u>	<u>Lost Hours</u>
Lower Level Joint Frequency %	8745	99.8	15
Upper Level Joint Frequency %	8707	99.4	53

5.3 Summary of Billings for Equipment Repairs, Replacement Parts, and Other Work not Included in Fixed-Cost Maintenance Agreement - 2011

Description - Byron

Cost

January

Meteorological equipment maintenance	\$ 1,424.34
Meteorological parts, materials, and contractor services	0.00

February

Meteorological parts, materials, and contractor services	146.40
--	--------

March

Meteorological parts, materials, and contractor services	1,236.96
Special Request	188.89

April

Meteorological equipment maintenance	1,156.05
Meteorological parts, materials, and contractor services	614.90

May

Meteorological equipment maintenance	240.00
Meteorological parts, materials, and contractor services	34.24

June

Meteorological equipment maintenance	150.00
Meteorological parts, materials, and contractor services	639.10

July

Meteorological equipment maintenance	384.00
--------------------------------------	--------

August

Meteorological equipment maintenance	368.34
--------------------------------------	--------

September

Meteorological equipment maintenance	240.00
Meteorological parts, materials, and contractor services	196.28

October

Meteorological parts, materials, and contractor services	491.69
--	--------

November

Meteorological parts, materials, and contractor services	848.97
--	--------

December

Meteorological parts, materials, and contractor services	0.00
--	------

Annual Total: \$ 8,360.16

5.4 Stability Wind Rose Data

The quarterly and annual stability wind roses are given in Tables 7 through 11. Wind speed classes have been altered to reflect the sensor threshold.

For the year, winds measured at 30 ft. most frequently came from the south (8.64%) and fell into the 3.6-7.5 mph and 7.6-12.5 mph wind speed classes (36.51% and 34.60% respectively). Calms (wind speeds at or below the sensor threshold) were measured 0.14% of the time. Speeds greater than 24.5 mph were measured 0.06% of the time.

Stability based on the 250-30 ft. differential temperature most frequently fell into the neutral classification (49.64%).

TABLE 7

-14-

Byron Generating Station
30 ft. Wind Speed and Direction

January-March, 2011
250Ft-30Ft Delta-T (F)

Number of Observations = 2163
Values are Percent Occurrence

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
A	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18				0.18				
L	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09					0.09			
M	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05							0.05	
																										0.32
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1	SU	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05				0.05				
-	N	0.14	0.14	0.09	0.32	0.23	0.23	0.14	0.09	0.09	0.09	0.14	0.23	0.28	0.18	0.18	0.14	2.73					2.73			
3	SS	0.09	0.09	0.18	0.09	0.28	0.14	0.05	0.05	0.09	0.14	0.32	0.23	0.32	0.14	0.23	0.18	2.64						2.64		
	MS	0.00	0.00	0.00	0.00	0.32	0.09	0.05	0.05	0.09	0.28	0.14	0.18	0.32	0.05	0.14	0.14	1.85						1.85		
	ES	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.14	0.14	0.00	0.09	0.09	0.00	0.00	0.51							0.51	
																										7.77
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
	MU	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05				0.05				
4	SU	0.00	0.00	0.05	0.00	0.09	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23				0.23				
-	N	0.69	0.92	0.83	1.66	2.54	0.79	0.65	0.55	0.60	0.46	1.11	0.97	1.48	1.53	2.31	1.71	18.82					18.82			
7	SS	0.55	0.65	0.79	1.57	1.25	0.65	0.23	0.28	0.14	0.51	0.74	0.65	0.46	1.34	1.90	0.60	12.30						12.30		
	MS	0.09	0.09	0.05	0.09	0.14	0.23	0.23	0.23	0.28	0.14	0.18	0.14	0.09	0.05	0.09	0.09	2.22						2.22		
	ES	0.00	0.05	0.00	0.00	0.09	0.09	0.05	0.00	0.14	0.09	0.09	0.09	0.05	0.00	0.00	0.00	0.74							0.74	
																										34.35
	EU	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.09	0.09							
	MU	0.00	0.09	0.09	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.05	0.00	0.05	0.00	0.55				0.55				
8	SU	0.05	0.05	0.14	0.23	0.09	0.05	0.00	0.00	0.00	0.00	0.05	0.09	0.09	0.09	0.14	0.00	1.06				1.06				
-	N	3.28	1.25	1.85	2.59	2.13	0.55	1.02	1.43	1.20	1.02	1.66	1.11	1.11	2.17	4.11	2.40	28.90					28.90			
1	SS	0.05	0.28	0.18	0.28	0.23	0.28	0.28	0.88	1.06	0.92	0.97	0.42	1.16	0.88	0.46	0.05	8.37						8.37		
2	MS	0.05	0.00	0.00	0.00	0.05	0.00	0.18	0.37	0.09	0.05	0.00	0.00	0.05	0.00	0.00	0.00	0.83						0.83		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																										39.81
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.18				0.18				
3	SU	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.14	0.09	0.09	0.46				0.46				
-	N	1.39	0.51	0.42	0.92	0.37	0.37	0.42	0.79	0.42	0.74	0.51	0.69	1.16	0.60	0.46	0.65	10.40					10.40			
1	SS	0.00	0.00	0.18	0.23	0.09	0.42	0.28	0.23	0.65	0.37	0.09	0.28	0.32	0.18	0.00	0.00	3.33						3.33		
8	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09						0.09		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																										14.47

TABLE 7
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

January-March, 2011
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	EU	MU	SU	N	SS	MS	ES	TOTAL	
1	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.36	0.51	0.00	0.00	
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00								
	N	0.23	0.23	0.28	0.00	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.28	1.06	0.05	0.00	0.09	2.36								
	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.14	0.18	0.09	0.00	0.00	0.51								
2	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
	TOTAL	6.61	4.35	5.18	8.18	8.00	4.07	3.61	5.04	4.90	5.04	6.24	5.73	8.37	7.67	10.17	6.24	99.68							0.09	0.79

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.09	Extremely Unstable
0.00	0.09	0.09	0.14	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.09	0.05	0.09	0.05	0.09	0.79	Moderately Unstable
0.05	0.05	0.18	0.28	0.18	0.14	0.05	0.00	0.00	0.00	0.05	0.18	0.14	0.23	0.23	0.09	1.85	Slightly Unstable
5.73	3.05	3.51	5.50	5.27	1.99	2.22	2.91	2.31	2.36	3.42	3.28	5.09	4.53	7.07	4.99	63.43	Neutral
0.69	1.02	1.34	2.17	1.85	1.48	0.83	1.43	1.94	1.99	2.17	1.71	2.45	2.64	2.59	0.83	27.23	Slightly Stable
0.14	0.09	0.05	0.09	0.51	0.32	0.46	0.69	0.51	0.46	0.32	0.32	0.46	0.09	0.23	0.23	4.99	Moderately Stable
0.00	0.05	0.00	0.00	0.14	0.09	0.05	0.00	0.14	0.23	0.23	0.09	0.18	0.09	0.00	0.00	1.29	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	C A L M
0.23	0.23	0.28	0.42	0.88	0.51	0.23	0.18	0.28	0.65	0.74	0.65	1.02	0.46	0.55	0.46	7.77	< 3.5 mph
1.34	1.71	1.71	3.33	4.11	1.85	1.20	1.06	1.16	1.20	2.13	1.85	2.08	2.91	4.30	2.40	34.35	3.6 - 7.5 mph
3.42	1.66	2.27	3.24	2.54	0.88	1.48	2.68	2.36	1.99	2.73	1.76	2.45	3.14	4.76	2.45	39.81	7.6 - 12.5 mph
1.39	0.51	0.60	1.20	0.46	0.79	0.69	1.06	1.11	1.11	0.60	1.02	1.53	1.02	0.55	0.83	14.47	12.6 - 18.5 mph
0.23	0.23	0.28	0.00	0.00	0.05	0.00	0.05	0.00	0.09	0.05	0.46	1.25	0.14	0.00	0.09	2.91	18.6 - 24.5 mph
0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

April-June, 2011
250Ft-30Ft Delta-T (F)

Number of Observations = 2174
Values are Percent Occurrence

SPEED																		WIND DIRECTION CLASSES										STABILITY CLASSES							
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL										
C	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00										
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																	
	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																	
	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																	
	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																	
	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								0.00									
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05											
1	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	3.08	2.30	1.43										
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																	
	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																	
	N	0.00	0.00	0.09	0.00	0.05	0.05	0.00	0.00	0.14	0.05	0.05	0.00	0.05	0.09	0.00	0.09	0.64																	
	SS	0.32	0.18	0.28	0.18	0.28	0.05	0.18	0.14	0.09	0.18	0.18	0.14	0.32	0.23	0.23	0.09	3.08																	
	MS	0.14	0.05	0.09	0.00	0.09	0.00	0.05	0.18	0.05	0.32	0.14	0.14	0.41	0.23	0.32	0.09	2.30																	
ES	0.18	0.05	0.05	0.00	0.05	0.14	0.09	0.00	0.09	0.14	0.05	0.14	0.09	0.05	0.18	0.14	1.43	0.00	0.00	0.00	0.00	0.00	0.00	7.45											
7	EU	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.05	0.28	11.09	13.29	3.91	0.74											
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05																	
	SU	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.00	0.09	0.00	0.00	0.00	0.05	0.00	0.05	0.28																	
	N	1.10	1.01	0.51	0.69	1.75	0.78	0.37	0.46	0.78	0.60	0.69	0.28	0.14	0.46	0.74	0.74	11.09																	
	SS	0.74	0.69	0.60	0.78	1.98	0.83	0.83	0.97	0.60	0.87	0.55	0.78	1.10	1.10	0.46	0.41	13.29																	
	MS	0.37	0.09	0.00	0.23	0.78	0.41	0.74	0.64	0.18	0.18	0.00	0.00	0.00	0.18	0.05	0.05	3.91																	
ES	0.05	0.00	0.00	0.00	0.05	0.18	0.18	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.74	0.00	0.00	0.00	0.00	0.00	0.00	29.44											
1	EU	0.05	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.23	0.23	0.64	1.66	24.52	11.78	1.38	0.14											
	MU	0.00	0.05	0.05	0.05	0.09	0.18	0.00	0.00	0.09	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.64																	
	SU	0.09	0.05	0.05	0.05	0.23	0.05	0.14	0.05	0.28	0.09	0.09	0.14	0.00	0.00	0.37	0.00	1.66																	
	N	1.24	1.33	1.10	2.67	2.58	1.56	1.06	1.38	1.98	0.87	1.66	1.33	1.29	1.89	1.70	0.87	24.52																	
	SS	0.32	0.51	0.41	0.87	0.37	1.24	0.83	1.47	1.15	1.52	0.69	0.74	0.64	0.69	0.28	0.05	11.78																	
	MS	0.05	0.00	0.00	0.00	0.09	0.14	0.18	0.74	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38																	
ES	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	40.34											
3	EU	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.23	0.00	0.00	0.41	0.41	1.52	1.33	12.24	2.99	0.14	0.00											
	MU	0.05	0.09	0.09	0.18	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.41	0.46	0.09	0.00	1.52																	
	SU	0.00	0.23	0.05	0.09	0.00	0.00	0.00	0.00	0.28	0.18	0.00	0.00	0.14	0.23	0.14	0.00	1.33																	
	N	0.46	1.66	0.83	1.43	0.05	0.55	0.51	0.28	1.15	0.92	0.55	0.60	1.20	1.61	0.46	0.00	12.24																	
	SS	0.00	0.18	0.00	0.09	0.00	0.69	0.37	0.28	0.46	0.46	0.09	0.05	0.14	0.09	0.05	0.05	2.99																	
	MS	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14																	
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.63											

TABLE 8
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

April-June, 2011
250Ft-30Ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																	STABILITY CLASSES							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TO
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.09	0.09							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05		0.05						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.14	0.00	0.00	0.23	0.00	0.00	0.00	0.51			0.51					
- N	0.00	0.00	0.37	0.83	0.00	0.05	0.37	0.14	0.28	0.18	0.00	0.05	0.51	0.14	0.00	0.00	2.90				2.90				
2 SS	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00	0.00	0.14	0.00	0.00	0.05	0.00	0.00	0.00	0.37					0.37			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									3.91
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
N	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09				0.09				
2 SS	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.14
TOT	5.24	6.26	4.55	8.23	8.42	7.31	5.98	7.04	8.10	7.18	4.74	4.37	6.95	7.77	5.11	2.67	99.95	0.83	2.25	3.77	51.47	31.60	7.73	2.30	99.95

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.14	0.09	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.28	0.00	0.00	0.83	Extremely Unstable
0.05	0.14	0.14	0.23	0.09	0.18	0.00	0.00	0.18	0.23	0.00	0.00	0.46	0.46	0.09	0.00	2.25	Moderately Unstable
0.09	0.28	0.09	0.18	0.23	0.05	0.14	0.23	0.55	0.51	0.09	0.14	0.37	0.28	0.51	0.05	3.77	Slightly Unstable
2.81	4.00	2.90	5.66	4.42	2.99	2.30	2.25	4.37	2.62	2.94	2.25	3.17	4.19	2.90	1.70	51.47	Neutral
1.38	1.56	1.29	1.93	2.62	2.94	2.30	2.85	2.30	3.17	1.52	1.70	2.25	2.12	1.01	0.60	31.60	Slightly Stable
0.55	0.14	0.09	0.23	0.97	0.60	0.97	1.61	0.46	0.51	0.14	0.14	0.41	0.41	0.37	0.14	7.73	Moderately Stable
0.23	0.05	0.05	0.00	0.09	0.41	0.28	0.09	0.23	0.14	0.05	0.14	0.09	0.05	0.23	0.18	2.30	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	C A L M
0.64	0.28	0.51	0.18	0.46	0.23	0.32	0.32	0.37	0.69	0.41	0.41	0.87	0.60	0.74	0.41	7.45	< 3.5 mph
2.35	1.79	1.10	1.75	4.55	2.21	2.12	2.21	1.66	1.79	1.24	1.06	1.24	1.79	1.29	1.29	29.44	3.6 - 7.5 mph
1.75	1.93	1.61	3.63	3.36	3.40	2.21	3.63	3.73	2.62	2.44	2.21	1.93	2.62	2.35	0.92	40.34	7.6 - 12.5 mph
0.51	2.25	0.97	1.79	0.05	1.29	0.87	0.60	2.02	1.61	0.64	0.64	1.98	2.62	0.74	0.05	18.63	12.6 - 18.5 mph
0.00	0.00	0.37	0.83	0.00	0.14	0.46	0.28	0.28	0.46	0.00	0.05	0.92	0.14	0.00	0.00	3.91	18.6 - 24.5 mph
0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	> 24.5 mph

TABLE 9

-18-

Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2011
250Ft-30Ft Delta-T (F)

Number of Observations = 2186
Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09				0.09				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05					0.05			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05							0.05	
																									0.18
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1 SU	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05			0.05					
- N	0.27	0.18	0.14	0.18	0.46	0.14	0.27	0.27	0.14	0.09	0.18	0.23	0.69	0.27	0.18	0.23	3.93				3.93				
3 SS	0.32	0.69	0.27	0.18	0.64	0.41	0.32	0.18	0.32	0.41	0.27	0.64	0.23	0.73	1.01	0.64	7.27					7.27			
MS	0.37	0.14	0.23	0.32	0.32	0.41	0.18	0.23	0.41	0.82	0.82	0.64	0.59	0.82	0.73	1.10	8.14						8.14		
ES	0.09	0.00	0.05	0.05	0.00	0.27	0.23	0.46	0.23	0.41	0.32	0.18	0.41	0.87	0.82	0.37	4.76							4.76	
																									24.15
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
0.05	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.23		0.23						
4 SU	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.05	0.05	0.00	0.05	0.32			0.32					
- N	2.33	1.05	0.37	0.27	0.82	0.78	0.78	0.69	0.96	1.10	1.10	1.69	1.60	0.78	1.65	2.15	18.12				18.12				
7 SS	2.42	1.19	0.69	1.28	1.10	0.91	0.55	0.91	1.14	0.91	1.28	1.10	0.69	0.78	1.33	2.38	18.66					18.66			
MS	1.01	0.41	0.00	0.32	0.59	1.28	0.78	1.46	1.37	0.59	0.18	0.09	0.14	0.14	0.23	0.91	9.52						9.52		
ES	0.05	0.00	0.00	0.00	0.27	0.37	0.41	0.59	0.59	0.32	0.00	0.00	0.00	0.00	0.09	0.23	2.93							2.93	
																									49.77
EU	0.00	0.05	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.05	0.09	0.41	0.41							
MU	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.09	0.09	0.05	0.09	0.05	0.05	0.05	0.18	0.73		0.73						
8 SU	0.18	0.14	0.00	0.00	0.00	0.05	0.09	0.00	0.05	0.00	0.18	0.32	0.09	0.14	0.05	0.18	1.46			1.46					
- N	2.10	1.05	0.46	0.14	0.18	0.23	1.01	0.55	1.42	1.01	0.64	0.50	1.10	0.46	0.69	0.82	12.35				12.35				
1 SS	0.23	0.14	0.18	0.05	0.09	0.69	0.50	0.37	0.69	0.59	0.87	0.50	0.23	0.37	0.18	0.27	5.95					5.95			
2 MS	0.09	0.00	0.00	0.00	0.00	0.14	0.00	0.05	0.09	0.09	0.00	0.00	0.05	0.00	0.00	0.00	0.50						0.50		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14							0.14	
																									21.55
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.00	0.00	0.14	0.14							
1 MU	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.05	0.00	0.00	0.00	0.18		0.18						
3 SU	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.18	0.00	0.00	0.18	0.59			0.59					
- N	0.05	0.09	0.00	0.00	0.00	0.00	0.09	0.23	0.64	0.23	0.23	0.05	0.05	0.32	0.14	0.23	2.33				2.33				
1 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	0.00	0.05	0.00	0.00	0.05	0.14	0.41					0.41			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05						0.05		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									3.71

TABLE 9
continued

-19-

Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2011
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES								
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TO
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
9	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00					
-	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00	0.00	0.00	0.23	0.05	0.00	0.46				0.46				
2	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00			
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
																										0.46
	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
G	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
T	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00				
	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		
2	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	
																										0.00
TOT		9.56	5.40	2.38	2.84	4.48	5.81	5.31	6.13	8.51	6.91	6.22	6.31	6.27	6.04	7.32	10.16	99.82	0.55	1.14	2.42	37.28	32.34	18.21	7.87	99.82

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.05	0.00	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.14	0.09	0.00	0.05	0.09	0.55	Extremely Unstable
0.05	0.14	0.00	0.00	0.00	0.05	0.05	0.00	0.09	0.14	0.09	0.09	0.09	0.09	0.09	0.18	1.14	Moderately Unstable
0.18	0.27	0.00	0.05	0.00	0.05	0.09	0.00	0.14	0.05	0.23	0.41	0.32	0.18	0.05	0.41	2.42	Slightly Unstable
4.76	2.38	0.96	0.59	1.46	1.14	2.15	1.74	3.25	2.52	2.15	2.47	3.43	2.06	2.70	3.43	37.28	Neutral
2.97	2.01	1.14	1.51	1.83	2.01	1.37	1.46	2.29	1.97	2.42	2.29	1.14	1.88	2.56	3.43	32.34	Slightly Stable
1.46	0.55	0.23	0.64	0.91	1.83	0.96	1.78	1.88	1.51	1.01	0.73	0.78	0.96	0.96	2.01	18.21	Moderately Stable
0.14	0.00	0.05	0.05	0.27	0.64	0.64	1.14	0.87	0.73	0.32	0.18	0.41	0.87	0.91	0.59	7.87	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	C A L M
1.05	1.01	0.69	0.78	1.42	1.24	1.01	1.14	1.10	1.74	1.60	1.69	1.92	2.70	2.74	2.33	24.15	< 3.5 mph
5.86	2.74	1.05	1.88	2.79	3.39	2.52	3.66	4.07	2.93	2.61	2.97	2.47	1.78	3.34	5.72	49.77	3.6 - 7.5 mph
2.61	1.42	0.64	0.18	0.27	1.19	1.69	1.05	2.38	1.78	1.74	1.51	1.51	1.01	1.01	1.56	21.55	7.6 - 12.5 mph
0.05	0.23	0.00	0.00	0.00	0.00	0.09	0.27	0.87	0.37	0.27	0.14	0.37	0.32	0.18	0.55	3.71	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00	0.00	0.00	0.23	0.05	0.00	0.46	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

October-December, 2011
250Ft-30Ft Delta-T (F)

Number of Observations = 2205
Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					0.00
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				0.00
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			0.00
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		0.00
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	0.00
																									0.00
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					0.00
- N	0.05	0.09	0.14	0.18	0.23	0.00	0.09	0.05	0.05	0.32	0.05	0.18	0.18	0.09	0.09	0.09	1.86				1.86				1.86
3 SS	0.09	0.09	0.05	0.09	0.18	0.09	0.09	0.14	0.32	0.23	0.32	0.09	0.54	0.59	0.41	0.27	3.58					3.58			3.58
MS	0.14	0.00	0.05	0.09	0.05	0.05	0.14	0.05	0.14	0.05	0.14	0.23	0.36	0.50	0.32	0.14	2.40						2.40		2.40
ES	0.00	0.00	0.05	0.00	0.18	0.14	0.14	0.36	0.36	0.14	0.05	0.00	0.14	0.45	0.63	0.50	3.13							3.13	10.98
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.05	0.00	0.14	0.14							0.14
4 SU	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.23	0.09	0.00	0.09	0.18	0.14	0.00	0.86			0.86					0.86
- N	0.50	0.45	0.50	0.32	0.54	0.23	0.18	0.59	0.73	0.68	1.13	0.59	1.54	1.32	1.13	1.22	11.66				11.66				11.66
7 SS	0.63	0.32	0.18	0.27	0.23	0.36	0.50	0.77	1.32	1.09	1.04	0.54	1.63	1.04	0.95	1.04	11.93					11.93			11.93
MS	0.09	0.00	0.05	0.09	0.27	0.54	0.59	0.91	0.68	0.36	0.14	0.09	0.68	0.18	0.14	0.05	4.85						4.85		4.85
ES	0.00	0.00	0.00	0.00	0.32	0.36	0.82	0.73	0.41	0.36	0.00	0.00	0.00	0.00	0.05	0.00	3.04							3.04	32.47
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
MU	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.00	0.00	0.09	0.05	0.00	0.00	0.54	0.54							0.54
8 SU	0.18	0.05	0.00	0.00	0.00	0.00	0.05	0.05	0.09	0.05	0.23	0.09	0.09	0.00	0.05	0.00	0.91			0.91					0.91
- N	3.58	1.32	0.54	0.50	0.32	0.09	0.23	1.00	1.77	1.72	1.36	1.13	0.86	1.50	1.22	1.72	18.87				18.87				18.87
1 SS	0.63	0.36	0.36	0.41	0.18	0.09	0.41	2.13	2.13	1.32	0.82	1.00	2.31	0.50	0.36	0.41	13.42					13.42			13.42
2 MS	0.00	0.00	0.00	0.00	0.00	0.18	0.05	1.68	0.50	0.00	0.00	0.00	0.05	0.00	0.00	0.00	2.45						2.45		2.45
ES	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.41	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59							0.59	36.78
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.09	0.00	0.00	0.23	0.23							0.23
3 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.14	0.00	0.00	0.09	0.09	0.00	0.00	0.41			0.41					0.41
- N	1.32	0.95	0.36	0.14	0.00	0.00	0.00	0.77	1.95	1.50	0.32	0.36	1.36	1.36	0.59	1.22	12.20				12.20				12.20
1 SS	0.05	0.00	0.05	0.05	0.00	0.00	0.00	0.63	1.90	0.95	0.00	0.18	0.32	0.05	0.00	0.18	4.35					4.35			4.35
3 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		0.00
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	17.19

TABLE 10
continued

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Byron Generating Station
30 ft. Wind Speed and Direction

October-December, 2011
250ft-30ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																TOTAL	STABILITY CLASSES							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		EU	MU	SU	N	SS	MS	ES	TO
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05		0.05						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
- N	0.23	0.05	0.14	0.00	0.00	0.00	0.00	0.23	0.23	0.41	0.05	0.09	0.18	0.18	0.14	0.05	1.95				1.95				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.23	0.00	0.09	0.05	0.00	0.00	0.00	0.54					0.54			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									2.54
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05					0.05				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.05
TOT	7.66	3.67	2.45	2.13	2.49	2.18	3.36	10.70	12.97	9.84	5.76	4.67	10.75	8.21	6.26	6.89	100.00	0.00	0.95	2.18	46.58	33.83	9.71	6.76	100.00

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Extremely Unstable
0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.14	0.09	0.05	0.00	0.27	0.14	0.05	0.00	0.95	Moderately Unstable
0.23	0.05	0.00	0.00	0.00	0.00	0.05	0.09	0.23	0.41	0.32	0.09	0.27	0.27	0.18	0.00	2.18	Slightly Unstable
5.67	2.86	1.68	1.13	1.09	0.32	0.50	2.63	4.72	4.63	2.90	2.36	4.13	4.49	3.17	4.31	46.58	Neutral
1.41	0.77	0.63	0.82	0.59	0.54	1.00	3.76	5.76	3.81	2.18	1.90	4.85	2.18	1.72	1.90	33.83	Slightly Stable
0.23	0.00	0.09	0.18	0.32	0.77	0.77	2.63	1.32	0.41	0.27	0.32	1.09	0.68	0.45	0.18	9.71	Moderately Stable
0.00	0.00	0.05	0.00	0.50	0.54	1.04	1.50	0.82	0.50	0.05	0.00	0.14	0.45	0.68	0.50	6.76	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C A L M
0.27	0.18	0.27	0.36	0.63	0.27	0.45	0.59	0.86	0.73	0.54	0.50	1.22	1.63	1.45	1.00	10.98	< 3.5 mph
1.27	0.77	0.73	0.68	1.36	1.50	2.09	3.04	3.22	2.72	2.45	1.22	3.95	2.72	2.45	2.31	32.47	3.6 - 7.5 mph
4.54	1.72	0.91	0.91	0.50	0.41	0.82	5.35	4.63	3.17	2.40	2.22	3.40	2.04	1.63	2.13	36.78	7.6 - 12.5 mph
1.36	0.95	0.41	0.18	0.00	0.00	0.00	1.41	3.95	2.59	0.32	0.54	1.90	1.59	0.59	1.41	17.19	12.6 - 18.5 mph
0.23	0.05	0.14	0.00	0.00	0.00	0.00	0.32	0.32	0.63	0.05	0.18	0.27	0.18	0.14	0.05	2.54	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05	> 24.5 mph

Byron Generating Station
30 ft. Wind Speed and Direction

January-December, 2011
250Ft-30Ft Delta-T (F)

Number of Observations = 8728

Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES																TOTAL	STABILITY CLASSES							TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.07				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.05			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02							0.02	
																									0.14
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
1 SU	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02			0.02					
N	0.11	0.10	0.11	0.17	0.24	0.10	0.13	0.10	0.10	0.14	0.10	0.16	0.30	0.16	0.11	0.14	2.29				2.29				
3 SS	0.21	0.26	0.19	0.14	0.34	0.17	0.16	0.13	0.21	0.24	0.27	0.27	0.36	0.42	0.47	0.30	4.15					4.15			
MS	0.16	0.05	0.09	0.10	0.19	0.14	0.10	0.13	0.17	0.37	0.31	0.30	0.42	0.40	0.38	0.37	3.68						3.68		
ES	0.07	0.01	0.03	0.01	0.07	0.14	0.11	0.21	0.17	0.21	0.14	0.08	0.18	0.37	0.41	0.25	2.46							2.46	
																									12.60
EU	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02							
MU	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.02	0.00	0.11		0.11						
4 SU	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.08	0.03	0.02	0.03	0.07	0.03	0.02	0.42			0.42					
N	1.16	0.86	0.55	0.73	1.41	0.64	0.49	0.57	0.77	0.71	1.01	0.88	1.19	1.02	1.46	1.46	14.91				14.91				
7 SS	1.09	0.71	0.56	0.97	1.13	0.69	0.53	0.73	0.80	0.85	0.91	0.77	0.97	1.07	1.16	1.11	14.05					14.05			
MS	0.39	0.15	0.02	0.18	0.45	0.62	0.58	0.81	0.63	0.32	0.13	0.08	0.23	0.14	0.13	0.27	5.13						5.13		
ES	0.02	0.01	0.00	0.00	0.18	0.25	0.37	0.36	0.31	0.19	0.02	0.02	0.01	0.00	0.05	0.07	1.87							1.87	
																									36.51
EU	0.01	0.01	0.00	0.00	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.01	0.02	0.18	0.18							
MU	0.03	0.05	0.03	0.05	0.02	0.05	0.01	0.02	0.07	0.08	0.02	0.05	0.05	0.02	0.02	0.05	0.62		0.62						
8 SU	0.13	0.07	0.05	0.07	0.08	0.03	0.07	0.02	0.10	0.03	0.14	0.16	0.07	0.06	0.15	0.05	1.27			1.27					
N	2.55	1.24	0.99	1.47	1.29	0.61	0.82	1.09	1.59	1.16	1.33	1.02	1.09	1.50	1.92	1.46	21.13				21.13				
1 SS	0.31	0.32	0.29	0.40	0.22	0.57	0.50	1.21	1.26	1.09	0.84	0.66	1.09	0.61	0.32	0.19	9.89					9.89			
2 MS	0.05	0.00	0.00	0.00	0.03	0.11	0.10	0.71	0.22	0.03	0.00	0.00	0.03	0.00	0.00	0.00	1.29						1.29		
ES	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22							0.22	
																									34.60
EU	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.06	0.00	0.00	0.14	0.14							
1 MU	0.01	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.00	0.15	0.16	0.02	0.02	0.53		0.53						
3 SU	0.00	0.08	0.01	0.03	0.00	0.00	0.00	0.00	0.11	0.09	0.00	0.01	0.11	0.11	0.06	0.07	0.70			0.70					
N	0.80	0.80	0.40	0.62	0.10	0.23	0.25	0.52	1.04	0.85	0.40	0.42	0.94	0.97	0.41	0.53	9.29				9.29				
1 SS	0.01	0.05	0.06	0.09	0.02	0.27	0.16	0.29	0.79	0.46	0.05	0.14	0.19	0.08	0.02	0.09	2.77					2.77			
8 MS	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07						0.07		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									13.50

Byron Generating Station
30 ft. Wind Speed and DirectionJanuary-December, 2011
250ft-30ft Delta-T (F)

SPEED			WIND DIRECTION CLASSES														STABILITY CLASSES								TOTAL	EU	MU	SU	N	SS	MS	ES	TO
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW																	
1	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.02															
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.02															
	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.00	-0.01	0.06	0.00	0.00	0.00	0.14			0.14												
	N	0.11	0.07	0.19	0.21	0.00	0.02	0.09	0.10	0.15	0.18	0.01	0.10	0.44	0.15	0.05	0.03	1.91				1.91											
	SS	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.10	0.01	0.06	0.07	0.02	0.00	0.00	0.36					0.36										
2	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00									
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00								
	TOTAL																									2.45							
G	EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00														
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00											
	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00												
	N	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.05				0.05											
	SS	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01					0.01										
4	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00									
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00								
	TOTAL																									0.06							
TOT	7.28	4.92	3.63	5.33	5.83	4.84	4.56	7.24	8.64	7.25	5.74	5.27	8.09	7.42	7.21	6.50	99.86	0.37	1.28	2.55	49.64	31.27	10.17	4.57	99.86								

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.03	0.03	0.00	0.00	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.05	0.07	0.07	0.01	0.02	0.37	Extremely Unstable
0.06	0.09	0.06	0.09	0.02	0.07	0.01	0.02	0.10	0.11	0.05	0.05	0.22	0.19	0.07	0.07	1.28	Moderately Unstable
0.14	0.16	0.07	0.13	0.10	0.06	0.08	0.08	0.23	0.24	0.17	0.21	0.27	0.24	0.24	0.14	2.55	Slightly Unstable
4.74	3.07	2.26	3.21	3.05	1.60	1.79	2.38	3.67	3.04	2.85	2.59	3.95	3.82	3.95	3.61	49.64	Neutral
1.62	1.34	1.10	1.60	1.72	1.74	1.37	2.38	3.08	2.74	2.07	1.90	2.68	2.20	1.97	1.70	31.27	Slightly Stable
0.60	0.19	0.11	0.29	0.68	0.88	0.79	1.68	1.04	0.72	0.44	0.38	0.69	0.54	0.50	0.64	10.17	Moderately Stable
0.09	0.02	0.03	0.01	0.25	0.42	0.50	0.69	0.52	0.40	0.16	0.10	0.21	0.37	0.46	0.32	4.57	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	C A L M
0.55	0.42	0.44	0.44	0.85	0.56	0.50	0.56	0.65	0.95	0.82	0.81	1.26	1.35	1.37	1.05	12.60	< 3.5 mph
2.70	1.75	1.15	1.90	3.20	2.23	1.98	2.50	2.53	2.17	2.11	1.78	2.44	2.30	2.84	2.93	36.51	3.6 - 7.5 mph
3.08	1.68	1.35	1.98	1.66	1.47	1.55	3.19	3.28	2.39	2.33	1.92	2.33	2.20	2.43	1.76	34.60	7.6 - 12.5 mph
0.82	0.99	0.49	0.79	0.13	0.52	0.41	0.84	1.99	1.42	0.46	0.58	1.44	1.39	0.52	0.71	13.50	12.6 - 18.5 mph
0.11	0.07	0.19	0.21	0.00	0.05	0.11	0.16	0.17	0.32	0.02	0.17	0.61	0.17	0.05	0.03	2.45	18.6 - 24.5 mph
0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.06	> 24.5 mph

5.5 Precipitation

Monthly totals and the maximum 24-hour and maximum 1-hour precipitation amounts are summarized below. The month with the most measured precipitation was July. The month with the least measured precipitation was January*. The maximum 24-hour total was 2.85" (September*) and the maximum 1-hour total was 1.01" (May).

Table 12
Precipitation Totals (Inches) - 2011
Byron Site

<u>Month</u>	<u>Total</u>	<u>Maximum 24-hour</u>	<u>Maximum 1-hour</u>
January	0.77*	0.49*	0.07*
February	1.90*	0.77*	0.22
March	2.24	0.73	0.25
April	3.64*	0.66*	0.21*
May	4.86	2.49	1.01
June	2.64	1.03	0.51
July	5.84	1.34	0.67
August	4.35	1.30	0.82
September	4.48*	2.85*	0.46*
October	1.60	0.73	0.34
November	4.09	1.28	0.30
December	2.05*	0.87*	0.11*
 TOTAL:	 38.46*		

* some data are missing - actual precipitation may be under-reported

5.6 Doses Resulting from Airborne Releases

The following are the maximum annual calculated cumulative offsite doses resulting from Byron airborne releases.

Unit 1:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	3.610 x 10 ⁻⁶ mrad	North-Northwest
beta air ⁽²⁾	3.690 x 10 ⁻⁶ mrad	North-Northwest
whole body ⁽³⁾	6.222 x 10 ⁻² mrem	North-Northwest
skin ⁽⁴⁾	4.440 x 10 ⁻⁶ mrem	North-Northwest
organ ⁽⁵⁾ (child-bone)	3.065 x 10 ⁻¹ mrem	North-Northwest

Unit 1 Compliance Status

10 CFR 50 Appendix I	Yearly Objective		% of Appendix I
gamma air	10.0	mrads	0.00
beta air	20.0	mrads	0.00
whole body	5.0	mrem	1.24
skin	15.0	mrem	0.00
organ	15.0	mrem	2.04

Unit 2:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	5.070 x 10 ⁻⁶ mrad	North-Northwest
beta air ⁽²⁾	1.230 x 10 ⁻⁵ mrad	North-Northwest
whole body ⁽³⁾	6.351 x 10 ⁻² mrem	North-Northwest
skin ⁽⁴⁾	7.820 x 10 ⁻⁶ mrem	North-Northwest
organ ⁽⁵⁾ (child-bone)	3.043 x 10 ⁻¹ mrem	North-Northwest

Unit 2 Compliance Status

10 CFR 50 Appendix I	Yearly Objective		% of Appendix I
gamma air	10.0	mrads	0.00
beta air	20.0	mrads	0.00
whole body	5.0	mrem	1.27
skin	15.0	mrem	0.00
organ	15.0	mrem	2.03

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

APPENDIX

Byron Meteorological Calibration

Page 1 of 8

Date: 1-10-11

POWER SUPPLIES

+12.000V \pm 2.000V+ 13.73 V

Data Logger System Check:

	<u>Expected</u>	<u>Data Logger</u>	<u>Specifications</u>		<u>Expected</u>	<u>Data Logger</u>	<u>Specifications</u>
30' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	30' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.10</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.01</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.81</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.72</u> °	+/- 2°
250' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.10</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.02</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.81</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
	<u>Ohms</u>	<u>Expected</u>			<u>Data Logger</u>	<u>Specifications</u>	
T Lo 30' TEMP	40.670	23.0°F			<u>22.92</u> °	+/- 0.5°	
250' TEMP	40.670	23.0°F			<u>22.97</u> °	+/- 0.5°	
ΔTMid 250'-30'		0.0°F			<u>0.04</u> °	+/- 0.18°	
T HI 30' TEMP	12.174	100.0°F			<u>99.96</u> °	+/- 0.5°	
250' TEMP	12.174	100.0°F			<u>99.99</u> °	+/- 0.5°	
ΔTMid 250'-30'		0.0°F			<u>0.04</u> °	+/- 0.18°	
30' TEMP	34.890	32.0°F			<u>31.93</u> °	+/- 0.5°	
250' TEMP	40.670	23.0°F			<u>22.99</u> °	+/- 0.5°	
ΔTLo 250'-30'		-9.0°F			<u>-8.94</u> °	+/- 0.18°	
30' TEMP	40.670	23.0°F			<u>22.94</u> °	+/- 0.5°	
250' TEMP	34.890	32.0°F			<u>32.00</u> °	+/- 0.5°	
ΔTHI 250'-30'		9.0°F			<u>9.06</u> °	+/- 0.18°	

ADL 2-22-11

F5
R-28
7/10

Byron Meteorological Calibration

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Date: 1-10-11

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 28.25°F	— °F
Recorded 28.00°F	— °F
Difference 0.25°F	— °F
Specification ±0.5°F	

250' Δ T	
AF	AL
-2.25°F	— °F
-2.20°F	— °F
0.05°F	— °F
±0.18°F	

30' Dew Point	
AF	AL
8.00°F	— °F
6.65°F	— °F
1.35°F	— °F
±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 390°	27°	390°	34°
Revr. WD 212°	208°	211°	210°
Tracking/wear OK		OK	

Specification

0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

Comments:

30' WD	30' WS	250' WD	250' WS
MT0184 installed	MT0060 installed	MT0132 installed	MT0053 installed
MT0121 removed	MT0087 removed Heat lamp replaced	MT0160 removed	MT0101 removed

AQ 2-22-11

Byron Meteorological Calibration

Page 3 of 8

Date: 1-10-11

Dates of Last Wind Sensor Bearing Replacements:

(6 mos.) Wind Speed: 30' 1-10-11 250' 1-10-11
 (12 mos.) Wind Direction: 1-10-11 1-10-11

Aspirators: 30' OK 250' OK

Operation of Heat Lamps: OKOperation of Rain Gauge: OK Tips Poured 5 Tips Recorded 5Debris screen: In Out Installed RemovedUPS Check: OK

Tower Lighting	Good	Fair	Poor
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tower Condition	Good	Fair	Poor
Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shelter condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
 AL = As Left
 — = no change (AF=AL)
 FS = Full Scale

Calibration Instruments:

Psychrometer - S/N - #1 APRIL 2011
 Digital multimeter - S/N - 89880269 OCT 2011
 Digital multimeter - S/N - _____

Next Cal Due

Technicians: AIL MSM

Comments:

Signature: [Signature]

A02 2-22-11

Date: 5-10-11

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.0 MPH	0 DEG	0.0 MPH	0 DEG	-22.0 DEG	-10.00 DEG	-22.0 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.03	-10.00	-22.03	0.00
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.0 MPH	270 DEG	50.0 MPH	270 DEG	50.0 DEG	0.00 DEG	50.0 DEG	0.50 IN
As Found Response	49.9	269	49.9	269	49.81	-0.02	49.81	0.50
As Left Response	-	-	-	-	-	-	-	-

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.0 MPH	540 DEG	100.0 MPH	540 DEG	122.0 DEG	10.00 DEG	122.0 DEG	1.00 IN
As Found Response	99.8	539	99.8	539	121.75	9.97	121.75	1.00
As Left Response	-	-	-	-	-	-	-	-

ADL 5-22-11

System Response Check

Date: 6-10-11

Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.00±0.5	-10.00±0.18	-22.00 ±0.5	0.05 ±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	0.05
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.00 ±0.5	0.00 ±0.18	50.00 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.00 ±0.5	10.00 ±0.18	122.00 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	—	—	—	—	—	—	—

ASL 2-22-11

System Response Check

Date: 1-10-11

Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ±2	0.0 ±0.4	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0 ±2	0.0 ±0.4
As Found Response	0.3	.04	-21.9	-9.99	-20.9	0.16	.05
As Left Response	—	—	—	—	-21.6	—	—

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ±2	50.0 ±0.4	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	270 ±2	50.0 ±0.4
As Found Response	269.2	49.9	49.9	0.00	51.0	269.6	49.9
As Left Response	—	—	—	—	50.3	—	—

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ±2	100.0 ±0.4	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	540 ±2	100.0 ±0.4
As Found Response	538.4	100.0	107.2	10.01	123.0	539.4	99.9
As Left Response	—	—	121.8	—	122.2	—	—

**

* HAD TO REPLACE CURRENT CARD Y4002

** Y4004 HAD TO RESET CURRENT CARD THEN READINGS IN SPEC.

ADL 2-22-11

System Response Check

Date: 1-10-11

Site: Byron
System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	-0.2	-0.1	0.0	-0.4	-22.0	-9.95	-22.2	0.0
As Left Response	—	—	—	—	—	—	—	—

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	49.6	269.3	49.9	268.2	49.8	0.0	49.7	0.50
As Left Response	—	—	—	—	—	—	—	—

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.7	538.5	99.9	538.5	121.9	10.04	121.7	1.00
As Left Response	—	—	—	5 —	—	—	—	—

1-10-11

ASL 2-22-11

System Response Check

Date: 1-10-11

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5
As Found Response	-0.1	-0.2	2.3	-1.0	-21.7	-9.97	-21.9
As Left Response	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5
As Found Response	49.7	49.9	272.3	269.0	49.95	0.0	50.0
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5
As Found Response	99.8	99.8	539	540	110.0	9.99	122.3
As Left Response	—	—	—	—	*122.1	—	—

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Byron Meteorological Calibration

Page 1 of 8

Date: 5-6-11

POWER SUPPLIES

+12.000V \pm 2.000V+ 13.997 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	30' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.10</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.99</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.81</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.73</u> °	+/- 2°
250' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.13</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>180.02</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.91</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.73</u> °	+/- 2°
	Ohms	Expected	Data Logger	Specifications			
T Lo 30' TEMP	40.670	23.0°F	<u>22.94</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>23.02</u> °	+/- 0.5°			
ΔTMid 250'-30'		0.0°F	<u>0.07</u> °	+/- 0.18°			
T Hi 30' TEMP	12.174	100.0°F	<u>99.95</u> °	+/- 0.5°			
250' TEMP	12.174	100.0°F	<u>99.99</u> °	+/- 0.5°			
ΔTMid 250'-30'		0.0°F	<u>0.02</u> °	+/- 0.18°			
30' TEMP	34.890	32.0°F	<u>31.96</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>23.02</u> °	+/- 0.5°			
ΔTLo 250'-30'		-9.0°F	<u>-8.94</u> °	+/- 0.18°			
30' TEMP	40.670	23.0°F	<u>22.96</u> °	+/- 0.5°			
250' TEMP	34.890	32.0°F	<u>32.03</u> °	+/- 0.5°			
ΔTHI 250'-30'		9.0°F	<u>9.06</u> °	+/- 0.18°			

Byron Meteorological Calibration

Page 2 of 8

Date: 5-6-11

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 60.00°F	— °F
Recorded 59.75°F	— °F
Difference 0.25 °F	— °F
Specification ±0.5°F	

250' ΔT	
AF	AL
Measured -1.40 °F	— °F
Recorded -1.91 °F	— °F
Difference 0.01 °F	— °F
Specification ±0.18°F	

30' Dew Point	
AF	AL
Measured 38.00°F	— °F
Recorded 37.75 °F	— °F
Difference 0.25 °F	— °F
Specification ±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 03 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 391 °	— °	392 °	— °
Rev. WD 209 °	— °	211 °	— °
Tracking/wear OK		OK	

Specification

0.3mph ± 0.45mph

30°/390° ± 5°

210° ± 5°

Comments:

30'

WS INSTALLED MT 0190

WS REMOVE MT 0060

250'

WS INSTALLED MT 0000

WS REMOVE MT 0053

Byron Meteorological Calibration

Page 3 of 8

Date: 5-6-11

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>5-6-11</u>	<u>5-6-11</u>
(12 mos.)	Wind Direction:	<u>4-26-11</u>	<u>1-10-11</u>

		<u>30'</u>	<u>250'</u>
Aspirators:		<u>OK</u>	<u>OK</u>

Operation of Heat Lamps: NAOperation of Rain Gauge: OK Tips Poured 5 Tips Recorded 5Debris screen: In Out Installed RemovedUPS Check: OK

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
 AL = As Left
 — = no change (AF=AL)
 FS = Full Scale

Calibration Instruments:

	<u>Psychrometer - S/N - #1</u>	<u>Next Cal Due OCT 2011</u>
	<u>Digital multimeter - S/N - 89886269</u>	<u>OCT 2011</u>
	<u>Digital multimeter - S/N -</u>	<u></u>

Technicians: HEATHER CRAMON MIKE MARX

Comments:

Signature: Mike Marx

ADL 7-6-11

Date: 5-6-11

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.0 MPH	0 DEG	0.0 MPH	0 DEG	-22.0 DEG	-10.00 DEG	-22.0 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.03	-10.00	-22.03	0.00
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.0 MPH	270 DEG	50.0 MPH	270 DEG	50.0 DEG	0.00 DEG	50.0 DEG	0.50 IN
As Found Response	49.9	269	49.9	269	49.83	0.02	49.83	0.50
As Left Response	—	—	—	—	—	—	—	—

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.0 MPH	540 DEG	100.0 MPH	540 DEG	122.0 DEG	10.00 DEG	122.0 DEG	1.00 IN
As Found Response	99.8	539	99.8	539	121.75	9.97	121.78	1.00
As Left Response	—	—	—	—	—	—	—	—

ADL 7-6-11

System Response Check

Date: 5-6-11Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.00±0.5	-10.00±0.18	-22.00 ±0.5	.05 ±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	.05
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.00 ±0.5	0.00 ±0.18	50.00 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.00 ±0.5	10.00 ±0.18	122.00 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	—	—	—	—	—	—	—

ASL 7-611

System Response Check

Date: 5-6-11

Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ±2	0.0 ±0.4	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0 ±2	0.0 ±0.4
As Found Response	.35	.10	-21.9	-9.99	-21.55	0.27	.09
As Left Response	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ±2	50.0 ±0.4	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	270 ±2	50.0 ±0.4
As Found Response	269.3	50.0	49.9	.005	50.3	269.6	49.9
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ±2	100.0 ±0.4	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	540 ±2	100.0 ±0.4
As Found Response	538.6	MSK 540.9 100.0	121.8	10.02	122.4	539.2	99.9
As Left Response	-	-	-	-	-	-	-

ASL 7-6-11

System Response Check

Date: 5-6-11

Site: Byron
System: Process Computer - Y4011 - Y4019

<u>Low Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	- 0.2	0.0	0.0	- 0.2	- 22.0	- 9.97	- 22.1	0.00
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	49.7	269.1	49.9	268.8	49.8	0.02	49.7	0.50
As Left Response	—	—	—	—	—	—	—	—

<u>Full Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.8	538.7	99.9	539.1	121.8	10.04	121.7	1.00
As Left Response	—	—	—	—	—	—	—	—

ASL 7-6-11

System Response Check

Date: 5-6-11

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5
As Found Response	-0.2	0.0	3.0	0.0	-21.8	-9.99	-21.6
As Left Response	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5
As Found Response	49.7	49.9	272	269	49.9	0.01	50.3
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5
As Found Response	99.6	100.0	537	538	122.3	10.00	122.3
As Left Response	-	-	-	-	-	-	-

ADL 7-6-11

Byron Meteorological Calibration

Page 1 of 8

Date: 9-7-11

POWER SUPPLIES

+12.000V \pm 2.000V+ 13.647 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.30</u> mph	+/- 0.4 mph	30' WD	0°	<u>.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>40.13</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.99</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.81</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
250' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>40.12</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.97</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.82</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.70</u> °	+/- 2°
	Ohms	Expected			Data Logger	Specifications	
TLo 30' TEMP	40.670	23.0°F			<u>22.98</u> °	+/- 0.5°	
250' TEMP	40.670	23.0°F			<u>22.98</u> °	+/- 0.5°	
Δ TMid 250'-30'		0.0°F			<u>0.00</u> °	+/- 0.18°	
THI 30' TEMP	12.174	100.0°F			<u>99.96</u> °	+/- 0.5°	
250' TEMP	12.174	100.0°F			<u>99.96</u> °	+/- 0.5°	
Δ TMid 250'-30'		0.0°F			<u>0.00</u> °	+/- 0.18°	
30' TEMP	34.890	32.0°F			<u>31.93</u> °	+/- 0.5°	
250' TEMP	40.670	23.0°F			<u>22.98</u> °	+/- 0.5°	
Δ TLo 250'-30'		-9.0°F			<u>~ 8.95</u> °	+/- 0.18°	
30' TEMP	40.670	23.0°F			<u>22.98</u> °	+/- 0.5°	
250' TEMP	34.890	32.0°F			<u>31.95</u> °	+/- 0.5°	
Δ THI 250'-30'		9.0°F			<u>8.97</u> °	+/- 0.18°	

ASL 10-26-11

Byron Meteorological Calibration

Page 2 of 8

Date: 9-2-11

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

	30' Ambient	
	AF	AL
Measured	78.0 °F	— °F
Recorded	77.74 °F	— °F
Difference	.26 °F	— °F
Specification	±0.5°F	

	250' Δ T	
	AF	AL
Measured	-0.25 °F	— °F
Recorded	-0.21 °F	— °F
Difference	.04 °F	— °F
Specification	±0.18°F	

	30' Dew Point	
	AF	AL
Measured	68 °F	— °F
Recorded	67.67 °F	— °F
Difference	.33 °F	— °F
Specification	±2.7°F	

Winds

	30'		250'	
	AF	AL	AF	AL
WS stall	0.4 mph	0.4 mph	0.3 mph	0.3 mph
Forw. WD	394 °	389 °	391 °	— °
Revr. WD	215 °	211 °	210 °	— °
Tracking/wear	OK		OK	

Specification
 0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

30FT

250FT

Comments:

WS INSTALLED MT0204
 REMOVED MT0190

WS INSTALLED MT0101
 WS REMOVED MT0000

Byron Meteorological Calibration

Page 3 of 8

Date: 9-2-11

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>9-2-11</u>	<u>9-2-11</u>
(12 mos.)	Wind Direction:	<u>4-26-11</u>	<u>1-10-11</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Heat Lamps: OKOperation of Rain Gauge: * In Tips Poured 5 Tips Recorded 5Debris screen: In Out Installed RemovedUPS Check: OK

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
 AL = As Left
 — = no change (AF=AL)
 FS = Full Scale

Calibration Instruments:

	<u>Next Cal Due</u>
Psychrometer - S/N - <u>#1</u>	<u>OCT 2011</u>
Digital multimeter - S/N - <u>8988026A</u>	<u>OCT 2011</u>
Digital multimeter - S/N - _____	

Technicians: MIKE MODULA MIKE MARX

Comments:

* TIP Bucket STUCK AT first - REPEAT TEST ALL OK

Signature: [Signature]

Date: 9-2-11

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	* CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.0 MPH	0 DEG	0.0 MPH	0 DEG	-22.0 DEG	-10.00 DEG	-22.0 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.03	-10.01	-22.03	0.00
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.0 MPH	270 DEG	50.0 MPH	270 DEG	50.0 DEG	* 0.00 DEG	50.0 DEG	0.50 IN
As Found Response	49.9	269	49.9	270	49.81	- .10	49.81	0.50
As Left Response	-	-	-	-	-	- 0.02	-	-

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	* CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.0 MPH	540 DEG	100.0 MPH	540 DEG	122.0 DEG	10.00 DEG	122.0 DEG	1.00 IN
As Found Response	99.8	539	99.9	539	121.72	9.8	121.75	1.00
As Left Response	-	-	-	-	-	9.98	-	-

* See PAGE 7 of 8

System Response Check

Date: 9-2-11Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.00±0.5	-10.00±0.18	-22.00 ±0.5	.05 ±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	.05
As Left Response	—	—	—	—	—	—	—	—

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.00 ±0.5	0.00 ±0.18	50.00 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	—	—	—	—	—	—	—

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.00 ±0.5	10.00 ±0.18	122.00 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	—	—	—	—	—	—	—

System Response Check

Date: 9-2-11

Site: Byron

System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	** Y4005 250' WD	Y4006 250' WS
Expected Response	0 \pm 2	0.0 \pm 0.4	-22.0 \pm 0.5	-10.00 \pm 0.18	-22.0 \pm 0.5	0 \pm 2	0.0 \pm 0.4
As Found Response	0.3	0.1	-22.1	-10.0	-22.3	-0.01	0.01
As Left Response	—	—	—	—	—	0.00	—

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	** Y4005 250' WD	Y4006 250' WS
Expected Response	270 \pm 2	50.0 \pm 0.4	50.0 \pm 0.5	0.00 \pm 0.18	50.0 \pm 0.5	270 \pm 2	50.0 \pm 0.4
As Found Response	269.2	49.9	49.8	0.00	49.6	269.5	49.9
As Left Response	—	—	—	—	—	269.7	—

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	** Y4005 250' WD	Y4006 250' WS
Expected Response	540 \pm 2	100.0 \pm 0.4	122.0 \pm 0.5	10.00 \pm 0.18	122.0 \pm 0.5	540 \pm 2	100.0 \pm 0.4
As Found Response	538.5	99.9	121.8	10.03	121.6	502	99.9
As Left Response	—	—	—	—	—	539.6	—

** See page 3 of 8

System Response Check

Date: 9-2-11

Site: Byron

System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	** Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	* 0 ±2	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	.08	-0.3	-0.03	1.0	-22.0	BAD INPUT	-22.2	-0.00
As Left Response	-	-	-	0.3		-10.00	-	-

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	* Y4014 250' WD	Y4015 30' T	** Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	50.1	269.2	49.9	271.2	49.8	BAD INPUT	49.7	0.50
As Left Response	-	-	-	270.6	-	0.00	-	-

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	* Y4014 250' WD	Y4015 30' T	** Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	100.3	538.7	99.9	541.8	121.9	BAD INPUT	121.7	1.00
As Left Response	-	-	-	541.3	-	10.00	-	-

* ADJUSTED THE ZERO ON Y4014 CURRENT CARD

** REPLACED THE CURRENT CARD FOR Y4016 THIS BAD CURRENT CARD WAS ALSO
LOADING DOWN THE VOLTAGE TO THE DIGI'S ΔT AFTER CARD WAS REPLACED
DIGI'S ΔT OK.

System Response Check

Date: 9-2-11

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	** 0 ±5	0 ±5	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5
As Found Response	-0.2	0.1	10	-1.0	-21.9	-9.99	-22.3
As Left Response	-	-	-	-1.0	-	-	-

<u>Mid Scale Check</u>	30' WS	250' WS	** 30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5
As Found Response	49.4	49.9	290	269	50.2	-0.0	49.8
As Left Response	-	-	-	269	-	-	-

<u>Full Scale Check</u>	30' WS	250' WS	** 30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5
As Found Response	99.4	99.8	OFFSCALE	500	122.2	9.99	122.0
As Left Response	-	-	-	540	-	-	-

* Replaced The CURRENT CARD For The 250' WD IT ALSO FEELS Y4005 250' WD
 ** The Recorder IS BAD For The 30FT WD Jeff Golich IS WRITING A WORK
 TICKET TO GET IT REPAIRED & CALIBRATED



FILE:
2.12.1767

Annual Report
on the
Meteorological Monitoring Program
at the
Byron Nuclear Power Station
2012

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For Exelon Use Only

Reviewed By: AK

Date: 3-13-13

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1. Introduction

The purpose of the meteorological program being conducted at Byron Generating Station is to provide information sufficient to assess the local weather conditions and to determine the degree of atmospheric dispersion of airborne radioactive effluent from the station.

The meteorological tower is 250 ft. high and is instrumented at two levels. Wind speed and direction are measured at 30 ft. and 250 ft. Ambient temperature is measured at 30 ft. Differential temperature, referenced to 30 ft., is measured at 250 ft. Dew point temperature is measured at 30 ft. Precipitation is measured at approximately 3 ft.

Joint frequency stability wind rose tables of wind direction, wind speed, and stability are routinely tabulated from hourly measurements. The quarterly and annual tables are included in this report.

Descriptions of the instruments and digital recorder are given in Section 3 (Data Acquisition) of this report. Data reduction and processing are described in Section 4 (Data Analysis). The results given in Section 5 of this report include modeled maximum whole body doses, skin doses, organ doses based upon airborne releases, and site meteorology.

2. Summary

The Byron Station meteorological monitoring program produced 52,554 hours of valid data out of a possible 52,704 parameter hours during 2012 (366 days x 24 hours/day x 6 measured priority parameters), which represents an overall data recovery rate of 99.7%. Priority parameters are all parameters except dew point temperature and precipitation.

The stability wind rose tables included in this report have been generated using the 30 ft. wind data with the 250-30 ft. differential temperature data.

The maximum annual calculated cumulative doses resulting from airborne releases were as follows.

Unit 1:

gamma air dose	-	4.360×10^{-4} mrad
beta air dose	-	3.070×10^{-3} mrad
whole body dose	-	8.261×10^{-2} mrem
skin dose	-	1.650×10^{-3} mrem
organ (child bone)	-	4.057×10^{-1} mrem

Unit 2:

gamma air dose	-	5.870×10^{-6} mrad
beta air dose	-	1.190×10^{-5} mrad
whole body dose	-	9.440×10^{-2} mrem
skin dose	-	8.470×10^{-6} mrem
organ (child bone)	-	4.565×10^{-1} mrem

3. Data Acquisition

Wind speed and direction are measured with Climatronics F460 wind sensors. The wind speed sensors have a starting speed of 0.5 mph (0.22 mps), a range of 0 to 100 mph (0 to 44.7 mps), and a system accuracy of ± 1.0 mph at 100 mph (± 0.45 mps at 44.7 mps). The wind direction sensors have a threshold speed of 0.5 mph (0.22 mps), a range of 0 to 540°, and a system accuracy of $\pm 5^\circ$.

Ambient and differential temperatures are measured with the Climatronics 100093 system. Ambient temperature is measured within the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 0.5^\circ\text{F}$ ($\pm 0.3^\circ\text{C}$). Differential temperature is measured within the range of -10.0 to 10.0°F (-5.6 to 5.6°C) with an accuracy of $\pm 0.18^\circ\text{F}$ ($\pm 0.10^\circ\text{C}$). Dew point temperature is measured with the Climatronics 101197 system. Dew point temperature is measured with the range of -22 to 122°F (-30.0 to 45.0°C) with an accuracy of $\pm 2.7^\circ\text{F}$ (1.5°C).

Precipitation is measured with a Climatronics 100097-1 tipping bucket rain gauge and is measured in increments of one one-hundredth of an inch with a system accuracy of $\pm 0.01"$ ($\pm 0.25\text{mm}$).

Instrument types and locations are summarized in Table 1.

The meteorological data are collected and stored by a Campbell Scientific CR1000 Data Logger. The Campbell Scientific CR1000 measures the analog voltages of the instruments and records the digital equivalent within the range of 0 to +5 volts. Data are obtained from the Campbell Scientific CR1000 by a direct dial telephone hookup to an in-house computer system.

As a backup to the CR1000, data are also recorded with a Johnson Yokogawa Corp. digital recorder (JYC DA100 data acquisition unit). Data are sampled every 10 seconds.

Data loggers are summarized in Table 2.

Table 1

Instrument Locations

<u>Measurement</u>	<u>Sensor Type</u>	<u>Location</u>	<u>Elevation</u>
Wind Speed	Climatronics 100075 F460	Tower	250 ft.
Wind Direction	Climatronics 100076 F460	Tower	250 ft.
Differential Temperature	Climatronics 100093	Tower	250 ft.
Wind Speed	Climatronics 100075 F460	Tower	30 ft.
Wind Direction	Climatronics 100076 F460	Tower	30 ft.
Ambient Temperature	Climatronics 100093	Tower	30 ft.
Dew Point Temperature	Climatronics 1001197	Tower	30 ft.
Precipitation	Climatronics 100097-1	Ground	3 ft.

Table 2

Data Loggers

<u>Measurement</u>	<u>Logger Type</u>	<u>Sampling Frequency</u>
Winds, Temperatures, and Precipitation	Campbell Scientific CR1000	1 sec.
Winds, Temperatures, and Precipitation	Johnson Yokogawa Corp. Digital Recorder (JYC DA100 and Contec IPC-PT/M300(PC)WOU) digital recorder	10 sec.

4. Data Analysis

The Byron data logger is routinely interrogated to obtain hourly average data. The data are then stored in the meteorological data base and listings of the data are generated. The data listings are examined by qualified personnel and any apparent problems are brought to the attention of the Project Manager or Meteorological Technician and the Instrument Maintenance staff.

Hourly values of wind speed, wind direction, ambient temperature, differential temperature, dew point temperature, and precipitation are obtained through measurements taken at the site. The standard deviation of wind direction (sigma) is derived. The wind direction variation is described in terms of the standard deviation of the direction about the mean direction. The CR1000 computes an hourly value of wind sigma by taking the Root-Mean-Square (RMS) of the four quarter-hour wind sigma values. The quarter-hour wind sigma values are calculated directly from the one second wind direction samples during the 15 minute period.

The data base files are edited approximately once a week. Missing data logger values are replaced with digital recorder values, when available. Invalid data are deleted from the data base.

When an hourly value is missing or invalid, the numeral 999 is entered into the computer data file in the appropriate location. When the wind direction changes substantially relative to its short term fluctuations, the numeral 888 can be entered into the wind sigma location to indicate shifting winds. When the wind blows with velocities near the sensing threshold of the instrument, the numeral 777 can be entered into the wind direction, wind speed, and wind sigma locations to indicate light and variable winds.

A professional meteorologist reviews the data, calibration findings, equipment maintenance reports, and other information and determines which data are valid. Only the valid data are retained in the data base.

As a quality control measure, a monthly comparison is made of CR1000 and digital recorder data. An investigation is made into the reasons for any significant differences between the sets of values.

Joint frequency stability wind rose tables of hourly data measured at the site are generated. These tables indicate the prevailing wind direction, wind speed, and stability classes measured during the period of observation as well as the joint frequencies of occurrence of the wind direction, wind speed, and stability classes. The values are also used as input to the atmospheric transport and diffusion models. Wind direction, wind speed, and stability classes are given in Tables 3, 4, and 5.

Table 3

Wind Direction Classes

IF	348.75°	<	WD	11.25°	THEN	Class is	N
IF	11.25°	<	WD	33.75°	THEN	Class is	NNE
IF	33.75°	<	WD	56.25°	THEN	Class is	NE
IF	56.25°	<	WD	78.75°	THEN	Class is	ENE
IF	78.75°	<	WD	101.25°	THEN	Class is	E
IF	101.25°	<	WD	123.75°	THEN	Class is	ESE
IF	123.75°	<	WD	146.25°	THEN	Class is	SE
IF	146.25°	<	WD	168.75°	THEN	Class is	SSE
IF	168.75°	<	WD	191.25°	THEN	Class is	S
IF	191.25°	<	WD	213.75°	THEN	Class is	SSW
IF	213.75°	<	WD	236.25°	THEN	Class is	SW
IF	236.25°	<	WD	258.75°	THEN	Class is	WSW
IF	258.75°	<	WD	281.25°	THEN	Class is	W
IF	281.25°	<	WD	303.75°	THEN	Class is	WNW
IF	303.75°	<	WD	326.25°	THEN	Class is	NW
IF	326.25°	<	WD	348.75°	THEN	Class is	NNW

Table 4

Wind Speed Classes

IF	0.0 mph	<	WS	0.5 mph	THEN	Class is	1
IF	0.5 mph	<	WS	3.5 mph	THEN	Class is	2
IF	3.5 mph	<	WS	7.5 mph	THEN	Class is	3
IF	7.5 mph	<	WS	12.5 mph	THEN	Class is	4
IF	12.5 mph	<	WS	18.5 mph	THEN	Class is	5
IF	18.5 mph	<	WS	24.5 mph	THEN	Class is	6
IF	24.5 mph	<	WS		THEN	Class is	7

Table 5

Atmospheric Stability Classes

Class	Differential Temperature Interval (in °C/100m) ⁽¹⁾	Differential Temperature Interval (in °F over the 250-30 ft. interval) ⁽²⁾
Extremely Unstable	$\Delta T \leq -1.9$	$\Delta T \leq -2.3$
Moderately Unstable	$-1.9 < \Delta T \leq -1.7$	$-2.3 < \Delta T \leq -2.1$
Slightly Unstable	$-1.7 < \Delta T \leq -1.5$	$-2.1 < \Delta T \leq -1.9$
Neutral	$-1.5 < \Delta T \leq -0.5$	$-1.9 < \Delta T \leq -0.7$
Slightly Stable	$-0.5 < \Delta T \leq 1.5$	$-0.7 < \Delta T \leq 1.8$
Moderately Stable	$1.5 < \Delta T \leq 4.0$	$1.8 < \Delta T \leq 4.8$
Extremely Stable	$4.0 < \Delta T$	$4.8 < \Delta T$

⁽¹⁾ from ANSI/ANS 2.5

⁽²⁾ ANSI/ANS 2.5 intervals scaled for instrument heights on the Byron meteorological tower

The following two programs were used to calculate doses resulting from radioactive releases:

1. XOQDOQ: Computer Program for the Meteorological Evaluation of Routine Effluent Releases at Nuclear Power Stations (NUREG/CR-2919).

The program is based on the theory that material released to the atmosphere will be normally distributed (Gaussian) about the plume centerline. A straight-line trajectory is assumed between the point of release and all receptors.

The program implements the assumptions outlined in Section C of NRC Regulatory Guide 1.111. In evaluating routine releases from nuclear power plants, it primarily is designed to calculate annual relative effluent concentrations, X/Q values and annual average relative deposition, D/Q values.

Output from the XOQDOQ program is used as input to the GASPAR program.

2. GASPAR II: A Code System for Evaluation of Radiological Impacts Due to the Release of Radioactive Material to the Atmosphere During Normal Operation of Light Water Reactors (NUREG-0597).

GASPAR is a program written for the evaluation of radiological impacts due to the release of radioactive material to the atmosphere during normal operation of reactors. The GASPAR code implements the radiological impact models of NRC Regulatory Guide 1.109, Revision 1, for atmospheric releases. The program is used to estimate the maximum individual doses at selected locations in the vicinity of the plant.

5. Results

5.1 Instrument Maintenance

The maintenance program followed during 2012 was composed of routinely scheduled visits and equipment repairs. Routine site visits were made to inspect the sensing and recording systems for proper operation. In addition, routine maintenance and calibration checks of all tower-mounted and ground level equipment were performed every four months. A description of the calibration and field procedures is found in the Murray and Trettel, Inc. "P1009 Procedures Manual" (July 2010).

In February, the RH sensor was replaced due to high readings.

In March, computer channels Y4000-Y4006 were out in the control room. The problem was traced to the transient eliminator on the east wall of the shelter.

In April, surge protection in the shelter was damaged, affecting control room signals and phone line communication. The damage was repaired to restore proper operation.

In May, the annual tower inspection was performed. Also in May, a spare digital recorder was installed due to a display failure.

In August, the pivots on the tipping bucket in the rain gauge were lubricated.

In September, at the request of the site, system response checks were performed on process computer channels Y4000-4006 and Y4011-4019.

In October, the 250 ft. wind direction was replaced due to bad readings.

In December, the 250 ft. wind speed was frozen for four hours.

No other significant problems were encountered with the equipment, and at the end of the year, no problems were evident at the site.

5.2 Data Recovery

The record of data recovery for the year is summarized in Table 6.

Table 6

Byron Site
Data Recovery Summary
2012

<u>Measurement</u>	<u>Elevation</u>	<u>Recovered Hours</u>	<u>Recovered Percent</u>	<u>Lost Hours</u>	<u>Percent Changed</u>
Wind Speed	30 ft.	8771	99.9	13	0.7
Wind Speed	250 ft.	8767	99.8	17	0.3
Wind Direction	30 ft.	8771	99.9	13	1.1
Wind Direction	250 ft.	8726	99.3	58	1.0
Ambient Temperature	30 ft.	8771	99.9	13	0.2
Differential Temperature	250-30 ft.	8748	99.6	36	0.6
Dew Point Temperature	30 ft.	8770	99.8	14	6.5
Precipitation	3 ft.	8764	99.8	20	0.5
AVERAGE *			99.7		

* average of priority parameters (all except dew point temperature and precipitation)

	<u>Valid Hours</u>	<u>Recovered Percent</u>	<u>Lost Hours</u>
Lower Level Joint Frequency %	8748	99.6	36
Upper Level Joint Frequency %	8699	99.0	85

5.3 Summary of Billings for Equipment Repairs, Replacement Parts, and Other Work not Included in Fixed-Cost Maintenance Agreement - 2012

Description - Byron

	<u>Cost</u>
<u>January</u>	
Meteorological equipment maintenance	\$ 180.00
Meteorological parts, materials, and contractor services	793.01
Special Request	85.00
<u>February</u>	
Meteorological equipment maintenance	347.80
Meteorological parts, materials, and contractor services	667.23
<u>March</u>	
Meteorological parts, materials, and contractor services	35.59
<u>April</u>	
Meteorological equipment maintenance	1,182.20
Meteorological parts, materials, and contractor services	467.00
<u>May</u>	
Meteorological equipment maintenance	559.60
Meteorological parts, materials, and contractor services	2,966.56
Special Request	382.50
<u>June</u>	
Meteorological parts, materials, and contractor services	194.66
Special Request	85.00
<u>July</u>	
Meteorological parts, materials, and contractor services	166.96
<u>August</u>	
Meteorological equipment maintenance	0.00
<u>September</u>	
Meteorological equipment maintenance	497.80
<u>October</u>	
Meteorological equipment maintenance	770.30
Meteorological parts, materials, and contractor services	52.82
<u>November</u>	
Meteorological equipment maintenance	90.00
Meteorological parts, materials, and contractor services	703.02
<u>December</u>	
Meteorological equipment maintenance	120.00

Annual Total: \$ 10,347.05

5.4 Stability Wind Rose Data

The quarterly and annual stability wind roses are given in Tables 7 through 11. Wind speed classes have been altered to reflect the sensor threshold.

For the year, winds measured at 30 ft. most frequently came from the south (10.52%) and fell into the 3.6-7.5 mph and 7.6-12.5 mph wind speed classes (36.99% and 34.44% respectively). Calms (wind speeds at or below the sensor threshold) were measured 0.10% of the time. Speeds greater than 24.5 mph were measured 0.24% of the time.

Stability based on the 250-30 ft. differential temperature most frequently fell into the neutral classification (44.56%).

TABLE 7

-14-

Byron Generating Station
30 Ft. Wind Speed and Direction

January-March, 2012
250Ft-30Ft Delta-T (F)

Number of Observations = 2159
Values are Percent Occurrence.

SPEED				WIND DIRECTION CLASSES														STABILITY CLASSES									
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL		
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00						
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00					
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00					
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00				
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14							0.14			
																									0.14		
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00						
N	0.00	0.09	0.00	0.05	0.23	0.14	0.09	0.05	0.00	0.05	0.19	0.19	0.28	0.05	0.05	0.05	1.48				1.48						
3 SS	0.00	0.14	0.09	0.05	0.19	0.14	0.19	0.05	0.23	0.28	0.42	0.09	0.42	0.23	0.46	0.19	3.15					3.15					
MS	0.05	0.00	0.05	0.09	0.09	0.14	0.19	0.05	0.14	0.09	0.14	0.09	0.09	0.05	0.37	0.05	1.67					1.67					
ES	0.05	0.00	0.00	0.00	0.09	0.09	0.09	0.05	0.05	0.14	0.05	0.05	0.00	0.00	0.09	0.19	0.93							0.93			
																									7.23		
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05									
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05			0.05							
4 SU	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14				0.14						
N	0.79	0.79	0.56	0.88	0.97	0.28	0.46	0.37	0.42	0.65	0.69	0.79	0.93	1.34	0.97	1.02	11.90				11.90						
7 SS	0.32	0.19	0.09	0.32	0.56	0.56	0.69	0.51	0.79	0.65	1.30	0.46	1.02	1.39	0.88	0.88	10.61					10.61					
MS	0.14	0.09	0.05	0.00	0.14	0.37	0.65	0.60	0.74	0.51	0.19	0.09	0.00	0.00	0.19	0.05	3.80					3.80					
ES	0.00	0.00	0.05	0.05	0.05	0.09	0.19	0.14	0.32	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.93							0.93			
																									27.47		
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
MU	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05			0.05							
8 SU	0.00	0.00	0.05	0.09	0.14	0.09	0.00	0.00	0.09	0.05	0.05	0.00	0.00	0.00	0.05	0.14	0.74				0.74						
N	1.67	0.65	0.97	0.93	1.11	0.56	0.74	1.71	2.27	1.25	1.34	1.76	1.99	3.15	2.22	1.07	23.39				23.39						
1 SS	0.05	0.00	0.14	0.28	0.23	0.28	0.74	2.73	1.95	0.69	0.93	1.20	1.95	1.02	0.37	0.23	12.78					12.78					
2 MS	0.00	0.00	0.00	0.00	0.00	0.19	0.37	0.32	0.23	0.19	0.00	0.00	0.00	0.00	0.00	0.00	1.30					1.30					
ES	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37							0.37			
																									38.63		
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05			0.05							
3 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.14	0.14	0.05	0.00	0.00	0.23	0.37	0.00	0.97				0.97						
N	0.23	0.05	0.65	0.19	0.00	0.09	0.93	1.07	1.71	0.88	0.51	1.11	2.22	2.13	2.18	0.60	14.54					14.54					
1 SS	0.00	0.00	0.14	0.00	0.05	0.42	0.60	1.34	1.30	0.69	0.23	0.23	0.42	0.09	0.00	0.00	5.51					5.51					
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00				
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00			
																									21.07		

TABLE 7
continued

-15-

Byron Generating Station
30 ft. Wind Speed and Direction

January-March, 2012
250ft-30ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES															STABILITY CLASSES								
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.05	0.00	0.37		0.37						
N	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.37	0.69	0.28	0.32	0.97	0.83	0.19	0.00	4.08			4.08					
2 SS	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.14	0.09	0.14	0.00	0.00	0.05	0.00	0.00	0.00	0.46				0.46				
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		4.91
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.14	0.05	0.09	0.00	0.00	0.42			0.42					
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		0.42
TOT	3.38	2.13	2.83	2.96	3.84	3.57	6.07	9.59	11.02	7.18	6.44	6.53	10.51	10.70	8.48	4.49	99.86	0.05	0.14	2.22	55.81	32.52	6.76	2.36	99.86

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	STABILITY CLASSES
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	Extremely Unstable
0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.14	Moderately Unstable
0.00	0.14	0.05	0.09	0.14	0.09	0.05	0.00	0.32	0.19	0.19	0.00	0.14	0.23	0.46	0.14	2.22	Slightly Unstable
2.78	1.57	2.18	2.04	2.32	1.07	2.22	3.52	4.82	3.61	3.01	4.31	6.44	7.60	5.60	2.73	55.81	Neutral
0.37	0.32	0.46	0.65	1.02	1.44	2.22	4.77	4.35	2.45	2.87	1.99	3.84	2.73	1.71	1.30	32.52	Slightly Stable
0.19	0.09	0.09	0.09	0.23	0.69	1.20	0.97	1.11	0.79	0.32	0.19	0.09	0.05	0.56	0.09	6.76	Moderately Stable
0.05	0.00	0.05	0.05	0.14	0.28	0.37	0.32	0.42	0.14	0.05	0.05	0.00	0.00	0.14	0.19	2.36	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	WIND SPEED CLASSES
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	CALM
0.09	0.23	0.14	0.19	0.60	0.51	0.56	0.19	0.42	0.56	0.79	0.42	0.79	0.32	0.97	0.46	7.23	< 3.5 mph
1.25	1.20	0.74	1.25	1.71	1.30	1.99	1.62	2.27	1.81	2.18	1.34	1.95	2.78	2.08	1.99	27.47	3.6 - 7.5 mph
1.71	0.65	1.16	1.34	1.48	1.20	1.95	4.91	4.59	2.18	2.32	2.96	3.94	4.17	2.64	1.44	38.63	7.6 - 12.5 mph
0.23	0.05	0.79	0.19	0.05	0.51	1.57	2.41	3.15	1.71	0.79	1.34	2.64	2.50	2.55	0.60	21.07	12.6 - 18.5 mph
0.09	0.00	0.00	0.00	0.00	0.05	0.00	0.46	0.56	0.83	0.37	0.32	1.16	0.83	0.23	0.00	4.91	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.14	0.05	0.09	0.00	0.00	0.42	> 24.5 mph

TABLE 8

-16-

Byron Generating Station
30 ft. Wind Speed and Direction

April-June, 2012
250ft-30ft Delta-T (F)

Number of Observations = 2179
Values are Percent Occurrence

SPEED			WIND DIRECTION CLASSES														STABILITY CLASSES										
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL		
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00						
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09				0.09						
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00					
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00				
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09							0.09			
																									0.18		
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00							
N	0.09	0.05	0.18	0.28	0.05	0.05	0.05	0.00	0.09	0.09	0.09	0.14	0.14	0.09	0.09	0.05	1.51				1.51						
3 SS	0.14	0.18	0.14	0.14	0.73	0.00	0.09	0.09	0.18	0.05	0.37	0.28	0.46	0.14	0.28	0.18	3.44					3.44					
MS	0.18	0.14	0.14	0.05	0.14	0.00	0.05	0.18	0.18	0.14	0.37	0.55	0.55	0.37	0.23	0.28	3.53						3.53				
ES	0.09	0.00	0.09	0.05	0.00	0.14	0.00	0.09	0.23	0.18	0.14	0.28	0.18	0.18	0.55	0.09	2.29							2.29			
																									10.78		
EU	0.00	0.05	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14									
MU	0.00	0.05	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14			0.14							
4 SU	0.18	0.09	0.00	0.14	0.28	0.00	0.00	0.05	0.00	0.05	0.05	0.28	0.09	0.00	0.09	0.14	1.42				1.42						
N	0.92	0.50	0.46	0.83	1.42	0.46	0.64	0.50	0.41	0.83	1.01	0.64	0.87	0.55	0.78	0.92	11.75				11.75						
7 SS	0.60	0.73	0.28	0.46	1.93	0.32	0.60	0.73	0.41	0.23	0.69	0.32	0.96	0.96	1.56	0.64	11.43					11.43					
MS	0.09	0.09	0.09	0.14	1.06	0.69	1.01	0.87	1.01	0.78	0.09	0.14	0.37	0.09	0.23	0.18	6.93						6.93				
ES	0.05	0.00	0.00	0.00	0.05	0.18	0.23	0.14	0.09	0.09	0.00	0.00	0.00	0.00	0.05	0.05	0.92							0.92			
																									32.72		
EU	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.05	0.09	0.32	0.09	0.00	0.05	0.00	0.28	0.09	1.06	1.06									
MU	0.00	0.18	0.18	0.09	0.00	0.00	0.14	0.00	0.18	0.14	0.28	0.14	0.05	0.09	0.09	0.00	1.56			1.56							
8 SU	0.23	0.37	0.18	0.28	0.28	0.00	0.09	0.32	0.46	0.32	0.14	0.05	0.28	0.28	0.14	0.23	3.63				3.63						
N	1.65	0.69	1.56	2.39	2.94	0.87	0.46	0.87	0.96	1.33	1.38	0.60	0.69	1.15	0.64	1.51	19.69				19.69						
1 SS	0.32	0.50	0.55	0.73	0.50	0.78	1.06	2.11	1.38	0.96	0.09	0.14	0.32	0.46	0.37	0.28	10.56					10.56					
2 MS	0.05	0.00	0.00	0.00	0.00	0.64	0.41	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80						2.80				
ES	0.00	0.00	0.00	0.05	0.00	0.09	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23							0.23			
																									39.51		
EU	0.05	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.32	0.00	0.09	0.14	0.00	0.09	0.00	1.06	1.06									
1 MU	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.23	0.32	0.41	0.05	0.18	0.05	0.05	0.18	0.00	1.65			1.65							
3 SU	0.09	0.05	0.32	0.05	0.00	0.05	0.05	0.09	0.18	0.55	0.05	0.09	0.09	0.18	0.23	0.00	2.07				2.07						
N	0.78	0.18	0.69	0.23	0.09	0.73	0.09	0.64	1.06	1.06	0.55	0.32	0.37	0.41	0.23	0.14	7.57				7.57						
1 SS	0.00	0.00	0.14	0.05	0.00	0.14	0.00	0.18	0.32	0.83	0.00	0.09	0.00	0.00	0.00	0.00	1.74					1.74					
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00				
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00			
																									14.09		

TABLE 8 continued

-17-

Byron Generating Station
30 ft. Wind Speed and Direction

April-June, 2012
250Ft-30Ft Delta-T (F)

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES							
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.18	0.18							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.05	0.00	0.00	0.14	0.00	0.00	0.28		0.28						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.18	0.00	0.00	0.00	0.05	0.00	0.00	0.28			0.28					
N	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.18	0.28	0.09	0.09	0.14	0.09	0.00	0.00	0.92				0.92				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.32					0.32			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									1.97
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05							
6 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05		0.05						
1 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.09			0.09					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.05	0.18	0.00	0.00	0.00	0.37				0.37				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.55
TOT	5.51	4.04	5.19	6.15	9.45	5.19	5.00	8.95	8.44	9.36	5.55	4.45	6.20	5.28	6.10	4.77	99.82	2.48	3.67	7.48	41.90	27.49	13.26	3.53	99.82

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.05	0.23	0.00	0.14	0.00	0.00	0.00	0.05	0.37	0.64	0.09	0.09	0.37	0.00	0.37	0.09	2.48	Extremely Unstable
0.00	0.23	0.37	0.18	0.00	0.00	0.14	0.23	0.64	0.55	0.37	0.32	0.09	0.28	0.28	0.00	3.67	Moderately Unstable
0.50	0.50	0.50	0.46	0.55	0.05	0.14	0.46	0.73	1.10	0.23	0.41	0.50	0.50	0.46	0.37	7.48	Slightly Unstable
3.44	1.42	2.89	3.72	4.50	2.16	1.24	2.02	2.85	3.58	3.12	1.84	2.39	2.29	1.74	2.62	41.90	Neutral
1.06	1.42	1.10	1.38	3.17	1.24	1.74	3.17	2.34	2.29	1.15	0.83	1.74	1.56	2.20	1.10	27.49	Slightly Stable
0.32	0.23	0.23	0.18	1.19	1.33	1.47	2.75	1.19	0.92	0.46	0.69	0.92	0.46	0.46	0.46	13.26	Moderately Stable
0.14	0.00	0.09	0.09	0.05	0.41	0.28	0.28	0.32	0.28	0.14	0.28	0.18	0.18	0.60	0.14	3.53	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	< 3.5 mph
0.50	0.37	0.55	0.50	0.92	0.18	0.18	0.37	0.69	0.46	0.96	1.24	1.33	0.78	1.15	0.60	10.78	3.6 - 7.5 mph
1.84	1.51	0.83	1.74	4.73	1.65	2.48	2.29	1.93	1.97	1.84	1.38	2.29	1.61	2.71	1.93	32.72	7.6 - 12.5 mph
2.25	1.79	2.48	3.58	3.72	2.39	2.20	5.09	3.07	3.07	1.97	0.92	1.38	1.97	1.51	2.11	39.51	12.6 - 18.5 mph
0.92	0.37	1.33	0.32	0.09	0.92	0.14	1.15	2.11	3.17	0.64	0.78	0.64	0.64	0.73	0.14	14.09	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.37	0.69	0.14	0.09	0.32	0.28	0.00	0.00	1.97	> 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.05	0.23	0.00	0.00	0.00	0.55	

TABLE 9

-18-

Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2012
250ft-30ft Delta-T (F)

Number of Observations = 2176
Values are Percent Occurrence

SPEED																		WIND DIRECTION CLASSES										STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL									
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00															
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00														
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09			0.09													
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00												
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00											
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00										
																									0.09									
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00															
I SU	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09			0.09														
N	0.09	0.14	0.14	0.32	0.28	0.14	0.23	0.28	0.00	0.09	0.05	0.18	0.37	0.37	0.18	0.05	2.90				2.90													
3 SS	0.23	0.32	0.18	0.14	0.28	0.28	0.32	0.23	0.23	0.41	0.37	0.60	0.41	0.51	0.55	0.18	5.24					5.24												
MS	0.41	0.14	0.09	0.09	0.51	0.23	0.14	0.41	0.92	1.15	1.10	0.74	0.97	0.87	0.83	0.55	9.15					9.15												
ES	0.18	0.09	0.05	0.09	0.37	0.14	0.18	0.46	1.33	0.78	0.46	0.46	0.55	0.74	1.70	0.37	7.95						7.95											
																									25.32									
EU	0.05	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.14	0.09	0.05	0.00	0.74	0.74																
MU	0.09	0.28	0.05	0.00	0.00	0.09	0.00	0.00	0.00	0.05	0.05	0.18	0.23	0.18	0.18	0.05	1.42		1.42															
4 SU	0.05	0.14	0.05	0.00	0.05	0.09	0.00	0.09	0.28	0.32	0.18	0.41	0.37	0.28	0.28	0.14	2.71			2.71														
N	1.01	1.24	0.51	0.60	1.10	0.28	0.64	1.06	0.92	1.10	1.75	2.21	1.65	1.01	0.92	1.19	17.19				17.19													
7 SS	0.92	0.74	0.55	0.78	0.92	0.37	0.51	1.06	0.83	0.83	1.38	1.01	0.60	0.64	1.29	0.78	13.19					13.19												
MS	0.23	0.23	0.14	0.32	0.87	0.60	1.01	2.21	2.25	0.87	0.46	0.09	0.18	0.05	0.18	0.18	9.88					9.88												
ES	0.09	0.00	0.00	0.05	0.69	0.60	0.55	0.92	0.74	0.09	0.05	0.00	0.00	0.00	0.00	0.23	4.00						4.00											
																									49.13									
EU	0.18	0.00	0.09	0.23	0.09	0.00	0.00	0.00	0.09	0.64	0.37	0.41	0.18	0.23	0.51	0.14	3.17	3.17																
MU	0.14	0.18	0.05	0.00	0.05	0.00	0.05	0.05	0.18	0.23	0.41	0.37	0.28	0.14	0.18	0.05	2.34		2.34															
8 SU	0.28	0.05	0.00	0.05	0.00	0.00	0.05	0.23	0.18	0.28	0.23	0.64	0.09	0.23	0.18	0.18	2.67			2.67														
N	1.65	0.74	0.83	0.69	0.00	0.00	0.00	0.23	0.74	0.51	0.55	0.69	0.64	0.28	1.15	0.78	9.47				9.47													
1 SS	0.23	0.14	0.18	0.69	0.09	0.09	0.14	0.09	0.37	0.92	0.14	0.09	0.23	0.00	0.09	0.28	3.77					3.77												
2 MS	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.78	0.41	0.00	0.00	0.05	0.00	0.00	0.00	0.00	1.33					1.33												
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09						0.09											
																									22.84									
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.05	0.00	0.18	0.05	0.00	0.00	0.55	0.55																
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.23		0.23															
3 SU	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.18			0.18														
N	0.46	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.14	0.00	0.00	0.00	0.18	0.00	0.92				0.92													
1 SS	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	0.00	0.05	0.00	0.05	0.00	0.37					0.37												
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00											
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00											
																									2.25									

TABLE 9
continued

-19-

Byron Generating Station
30 ft. Wind Speed and Direction

July-September, 2012
250ft-30ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09							
SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14			0.14					
SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
																								0.00	
																									0.28
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
																									0.00
TOT	6.39	4.60	3.03	4.09	5.38	2.94	3.86	8.13	9.65	8.96	7.90	8.36	7.17	5.65	8.55	5.15	99.91	4.50	4.09	5.65	30.70	22.56	20.36	12.04	99.91

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	STABILITY CLASSES
0.23	0.09	0.18	0.23	0.09	0.00	0.00	0.00	0.14	0.92	0.41	0.64	0.51	0.37	0.55	0.14	4.50	Extremely Unstable
0.23	0.46	0.09	0.00	0.05	0.09	0.05	0.05	0.28	0.41	0.55	0.55	0.51	0.32	0.37	0.09	4.09	Moderately Unstable
0.37	0.18	0.05	0.09	0.05	0.14	0.05	0.32	0.46	0.60	0.46	1.06	0.51	0.51	0.51	0.32	5.65	Slightly Unstable
3.22	2.16	1.52	1.61	1.38	0.41	0.87	1.56	1.70	1.84	2.48	3.08	2.67	1.65	2.44	2.02	30.70	Neutral
1.42	1.24	0.92	1.61	1.29	0.74	0.97	1.38	1.42	2.30	1.93	1.70	1.29	1.15	1.98	1.24	22.56	Slightly Stable
0.64	0.37	0.23	0.41	1.47	0.83	1.15	3.40	3.58	2.02	1.56	0.87	1.15	0.92	1.01	0.74	20.36	Moderately Stable
0.28	0.09	0.05	0.14	1.06	0.74	0.78	1.42	2.07	0.87	0.51	0.46	0.55	0.74	1.70	0.60	12.04	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	WIND SPEED CLASSES
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	CALM
0.92	0.69	0.46	0.69	1.42	0.83	0.87	1.38	2.48	2.44	1.98	1.98	2.30	2.48	3.26	1.15	25.32	< 3.5 mph
2.44	2.71	1.38	1.75	3.63	2.02	2.71	5.33	5.01	3.26	3.86	4.14	3.17	2.25	2.90	2.57	49.13	3.6 - 7.5 mph
2.48	1.10	1.15	1.65	0.32	0.09	0.28	1.42	1.98	2.57	1.70	2.25	1.42	0.87	2.11	1.42	22.84	7.6 - 12.5 mph
0.55	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.14	0.46	0.37	0.00	0.28	0.05	0.28	0.00	2.25	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.28	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	> 24.5 mph

TABLE 10

-20-

Byron Generating Station
33 ft. Wind Speed and Direction

October-December, 2012
250Ft-30Ft Delta-T (F)

Number of Observations = 2200
Values are Percent Occurrence

SPEED																	WIND DIRECTION CLASSES										STABILITY CLASSES							
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL									
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00															
C-SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00														
A-N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00													
L-SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00												
M-MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00											
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00										
																									0.00									
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00															
1-SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09			0.09														
-N	0.14	0.14	0.18	0.09	0.09	0.14	0.09	0.09	0.05	0.09	0.18	0.14	0.23	0.32	0.36	0.09	2.41				2.41													
3-SS	0.18	0.09	0.27	0.14	0.09	0.05	0.05	0.09	0.32	0.45	0.41	0.23	0.36	0.41	0.36	0.36	3.86					3.86												
MS	0.05	0.00	0.00	0.23	0.18	0.00	0.05	0.00	0.05	0.05	0.05	0.27	0.23	0.14	0.23	0.27	1.77						1.77											
ES	0.05	0.05	0.00	0.05	0.09	0.00	0.05	0.00	0.05	0.00	0.00	0.05	0.00	0.05	0.59	0.18	1.18							1.18										
																									9.32									
0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14																
0.00	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14																
4-SU	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.09	0.05	0.27			0.27														
-N	1.23	0.77	0.55	0.73	1.18	0.45	0.68	0.82	1.00	0.55	1.00	0.68	0.91	1.23	2.41	1.09	15.27				15.27													
7-SS	0.91	0.09	0.14	0.73	0.86	0.32	1.14	1.00	1.14	0.64	0.95	0.50	1.32	1.77	1.27	1.55	14.32					14.32												
MS	0.41	0.09	0.00	0.09	0.59	0.32	1.00	1.41	1.32	0.41	0.05	0.00	0.27	0.05	0.27	0.55	6.82						6.82											
ES	0.00	0.00	0.00	0.00	0.05	0.18	0.50	0.36	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.59							1.59										
																									38.55									
EU	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.09	0.00	0.27	0.27																
MU	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.05	0.05	0.05	0.05	0.23	0.05	0.59	0.59																
8-SU	0.14	0.05	0.00	0.00	0.00	0.09	0.05	0.14	0.05	0.00	0.00	0.00	0.00	0.27	0.05	0.00	0.82			0.82														
-N	2.91	1.00	0.14	0.86	0.36	0.45	0.68	1.64	2.95	1.59	1.27	1.00	1.27	1.73	2.23	1.55	21.64				21.64													
1-SS	0.55	0.14	0.14	0.41	0.00	0.23	1.14	2.41	2.64	0.86	0.18	0.32	0.36	0.45	0.36	1.05	11.23					11.23												
2-MS	0.00	0.00	0.00	0.05	0.00	0.32	0.36	0.82	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91						1.91											
ES	0.00	0.00	0.00	0.00	0.00	0.14	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32							0.32										
																									36.77									
EU	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.18	0.00	0.00	0.05	0.09	0.00	0.00	0.41	0.41																
1-MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.09	0.09	0.00	0.00	0.00	0.00	0.27	0.27																
3-SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00	0.18	0.00	0.05	0.09	0.05	0.00	0.50			0.50														
-N	0.68	0.00	0.05	0.32	0.05	0.05	0.05	0.41	1.05	1.36	0.41	0.27	1.77	0.86	1.23	0.23	8.77					8.77												
1-SS	0.00	0.00	0.00	0.09	0.00	0.00	0.18	0.41	0.95	0.91	0.23	0.00	0.14	0.00	0.00	0.09	3.00						3.00											
8-MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00										
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00										
																									12.95									

TABLE 10

continued

-21-

Byron Generating Station
30 ft. Wind Speed and Direction

October-December, 2012
250ft-30ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																TOTAL	STABILITY CLASSES							TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		EU	MU	SU	N	SS	MS	ES	
EU	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.27	0.27							
1 MU	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.18		0.18						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05			0.05					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.36	0.23	0.00	0.09	0.27	0.45	0.18	0.14	1.77				1.77				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.14					0.14			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									2.41
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.00

TOT 7.59 2.64 1.50 3.82 3.55 2.73 6.09 10.00 12.95 7.45 5.05 3.68 7.41 8.00 10.09 7.45 100.00 1.09 1.18 1.73 49.86 32.55 10.50 3.09 100.00

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	STABILITY CLASSES
0.32	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.18	0.00	0.00	0.09	0.14	0.09	0.14	1.09	Extremely Unstable
0.05	0.14	0.00	0.05	0.00	0.00	0.00	0.14	0.05	0.09	0.14	0.14	0.05	0.05	0.23	0.09	1.18	Moderately Unstable
0.14	0.09	0.00	0.00	0.00	0.09	0.05	0.23	0.14	0.05	0.18	0.00	0.09	0.36	0.27	0.05	1.73	Slightly Unstable
4.95	1.91	0.91	2.00	1.68	1.09	1.50	3.00	5.41	3.82	2.86	2.18	4.45	4.59	6.41	3.09	49.86	Neutral
1.64	0.32	0.55	1.36	0.95	0.59	2.50	3.95	5.09	2.86	1.77	1.05	2.23	2.64	2.00	3.05	32.55	Slightly Stable
0.45	0.09	0.00	0.36	0.77	0.64	1.41	2.23	1.73	0.45	0.09	0.27	0.50	0.18	0.50	0.82	10.50	Moderately Stable
0.05	0.05	0.00	0.05	0.14	0.32	0.64	0.45	0.50	0.00	0.00	0.05	0.00	0.05	0.59	0.23	3.09	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	WIND SPEED CLASSES
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CALM
0.41	0.27	0.45	0.50	0.45	0.18	0.23	0.18	0.45	0.59	0.64	0.68	0.82	0.91	1.64	0.91	9.32	< 3.5 mph
2.64	1.09	0.73	1.59	2.68	1.27	3.32	3.59	3.95	1.64	2.00	1.18	2.50	3.05	4.05	3.27	38.55	3.5 - 7.5 mph
3.68	1.23	0.27	1.32	0.36	1.23	2.32	5.14	6.00	2.50	1.50	1.36	1.73	2.55	2.95	2.64	36.77	7.5 - 12.5 mph
0.68	0.05	0.05	0.41	0.05	0.05	0.23	0.91	2.14	2.50	0.91	0.36	2.00	1.05	1.27	0.32	12.95	12.5 - 18.5 mph
0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.41	0.23	0.00	0.09	0.36	0.45	0.18	0.32	2.41	18.5 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	> 24.5 mph

TABLE 11

-22-

Byron Generating Station
30 ft. Wind Speed and Direction

January-December, 2012
250Ft-30Ft Delta-T (F)

Number of Observations = 8714
Values are Percent Occurrence

SPEED		WIND DIRECTION CLASSES																STABILITY CLASSES							
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
C SU	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.05				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.06	
																									0.10
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 SU	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.05			0.05					
N	0.08	0.10	0.13	0.18	0.16	0.11	0.11	0.10	0.03	0.08	0.13	0.16	0.25	0.21	0.17	0.06	2.08				2.08				
3 SS	0.14	0.18	0.17	0.11	0.32	0.11	0.16	0.11	0.24	0.30	0.39	0.30	0.41	0.32	0.41	0.23	3.92					3.92			
MS	0.17	0.07	0.07	0.11	0.23	0.09	0.10	0.16	0.32	0.36	0.41	0.41	0.46	0.36	0.41	0.29	4.03						4.03		
ES	0.09	0.03	0.03	0.05	0.14	0.09	0.08	0.15	0.41	0.28	0.16	0.21	0.18	0.24	0.73	0.21	3.09							3.09	
																									13.16
0.03	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.02	0.01	0.01	0.26	0.26							
0.02	0.10	0.01	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.01	0.05	0.06	0.06	0.05	0.01	0.44		0.44						
4 SU	0.06	0.10	0.01	0.03	0.08	0.02	0.00	0.03	0.08	0.10	0.06	0.17	0.11	0.07	0.11	0.08	1.14			1.14					
N	0.99	0.83	0.52	0.76	1.17	0.37	0.61	0.69	0.69	0.78	1.11	1.08	1.09	1.03	1.27	1.06	14.03				14.03				
7 SS	0.69	0.44	0.26	0.57	1.07	0.39	0.73	0.83	0.79	0.59	1.08	0.57	0.98	1.19	1.25	0.96	12.39					12.39			
MS	0.22	0.13	0.07	0.14	0.67	0.49	0.92	1.27	1.33	0.64	0.20	0.08	0.21	0.05	0.22	0.24	6.86						6.86		
ES	0.03	0.00	0.01	0.02	0.21	0.26	0.37	0.39	0.40	0.05	0.01	0.00	0.00	0.00	0.02	0.08	1.86							1.86	
																									36.99
EU	0.07	0.01	0.02	0.07	0.02	0.00	0.00	0.01	0.05	0.24	0.11	0.10	0.07	0.07	0.22	0.06	1.12	1.12							
MU	0.03	0.10	0.06	0.03	0.01	0.00	0.05	0.02	0.09	0.10	0.18	0.14	0.09	0.07	0.13	0.02	1.14		1.14						
8 SU	0.16	0.11	0.06	0.10	0.10	0.05	0.05	0.17	0.20	0.16	0.10	0.17	0.09	0.20	0.10	0.14	1.96			1.96					
N	1.97	0.77	0.87	1.22	1.10	0.47	0.47	1.11	1.73	1.17	1.14	1.01	1.15	1.57	1.56	1.23	18.54				18.54				
1 SS	0.29	0.20	0.25	0.53	0.21	0.34	0.77	1.84	1.58	0.86	0.33	0.44	0.71	0.48	0.30	0.46	9.58					9.58			
2 MS	0.01	0.00	0.00	0.01	0.02	0.29	0.29	0.91	0.25	0.05	0.00	0.01	0.00	0.00	0.00	0.00	1.84						1.84		
ES	0.00	0.00	0.00	0.01	0.00	0.08	0.07	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25							0.25	
																									34.44
EU	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.20	0.01	0.02	0.09	0.03	0.02	0.00	0.50	0.50							
1 MU	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.06	0.11	0.13	0.06	0.07	0.01	0.02	0.05	0.00	0.55		0.55						
3 SU	0.03	0.01	0.08	0.01	0.00	0.01	0.02	0.05	0.09	0.17	0.08	0.02	0.05	0.13	0.17	0.00	0.93			0.93					
N	0.54	0.07	0.36	0.18	0.03	0.22	0.26	0.53	0.96	0.83	0.40	0.42	1.09	0.85	0.95	0.24	7.94				7.94				
1 SS	0.01	0.01	0.07	0.03	0.01	0.14	0.20	0.48	0.64	0.64	0.13	0.08	0.15	0.02	0.01	0.02	2.65					2.65			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									12.58

TABLE 11
continued

-23-

Byron Generating Station
30 ft. Wind Speed and Direction

January-December: 2012
250Ft-30Ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																STABILITY CLASSES								TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	
EU	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.03	0.13	0.13							
1 MU	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.01	0.00	0.00	0.03	0.00	0.01	0.14		0.14						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.02	0.00	0.05	0.01	0.01	0.00	0.17			0.17					
N	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.23	0.33	0.09	0.13	0.34	0.34	0.09	0.03	1.72				1.72				
2 SS	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.06	0.05	0.09	0.00	0.00	0.02	0.00	0.00	0.00	0.23					0.23			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									2.39
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01		0.01						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02			0.02					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.05	0.06	0.02	0.00	0.00	0.20				0.20				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.24
TOT	5.73	3.35	3.13	4.26	5.55	3.60	5.26	9.17	10.52	8.24	6.23	5.75	7.82	7.40	8.31	5.47	99.90	2.03	2.27	4.27	44.56	28.78	12.73	5.26	99.90

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	STABILITY CLASSES
0.15	0.09	0.06	0.09	0.02	0.00	0.00	0.01	0.14	0.44	0.13	0.18	0.24	0.13	0.25	0.10	2.03	Extremely Unstable
0.07	0.21	0.11	0.07	0.01	0.02	0.05	0.10	0.24	0.26	0.26	0.25	0.16	0.18	0.22	0.05	2.27	Moderately Unstable
0.25	0.23	0.15	0.16	0.18	0.09	0.07	0.25	0.41	0.48	0.26	0.37	0.31	0.40	0.42	0.22	4.27	Slightly Unstable
3.60	1.77	1.87	2.34	2.47	1.18	1.46	2.52	3.70	3.21	2.87	2.85	3.98	4.03	4.05	2.62	44.56	Neutral
1.12	0.83	0.76	1.25	1.61	1.00	1.86	3.32	3.31	2.48	1.93	1.39	2.27	2.02	1.97	1.68	28.78	Slightly Stable
0.40	0.20	0.14	0.26	0.92	0.87	1.31	2.34	1.90	1.04	0.61	0.50	0.67	0.40	0.63	0.53	12.73	Moderately Stable
0.13	0.03	0.05	0.08	0.34	0.44	0.52	0.62	0.83	0.32	0.17	0.21	0.18	0.24	0.76	0.29	5.26	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	WIND SPEED CLASSES
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	CALM
0.48	0.39	0.40	0.47	0.85	0.42	0.46	0.53	1.01	1.01	1.09	1.08	1.31	1.12	1.76	0.78	13.16	< 3.5 mph
2.04	1.63	0.92	1.58	3.19	1.56	2.63	3.21	3.29	2.17	2.47	2.01	2.48	2.42	2.94	2.44	36.99	3.6 - 7.5 mph
2.54	1.19	1.26	1.97	1.47	1.23	1.69	4.14	3.91	2.58	1.87	1.87	2.11	2.39	2.31	1.90	34.44	7.6 - 12.5 mph
0.60	0.14	0.55	0.23	0.05	0.37	0.48	1.11	1.88	1.96	0.68	0.62	1.39	1.06	1.20	0.26	12.58	12.6 - 18.5 mph
0.07	0.00	0.00	0.00	0.00	0.02	0.00	0.17	0.34	0.49	0.13	0.13	0.46	0.39	0.10	0.08	2.39	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.02	0.00	0.05	0.07	0.02	0.00	0.00	0.24	> 24.5 mph

5.5 Precipitation

Monthly totals and the maximum 24-hour and maximum 1-hour precipitation amounts are summarized below. The month with the most measured precipitation was October. The month with the least measured precipitation was November. The maximum 24-hour total was 1.53" (July*) and the maximum 1-hour total was 1.20" (July*).

Table 12
Precipitation Totals (Inches) - 2012
Byron

<u>Month</u>	<u>Total</u>	<u>Maximum 24-hour</u>	<u>Maximum 1-hour</u>
January	0.97	0.42	0.08
February	1.71*	0.65*	0.14*
March	2.21	0.65	0.37
April	2.93	1.32	0.87
May	2.44	1.18	0.70
June	0.84	0.43	0.11
July	3.29*	1.53*	1.20*
August	2.73	0.76	0.42
September	1.41	0.35	0.21
October	3.45	0.93	0.45
November	0.68	0.51	0.13
December	2.42*	1.25*	0.21*
TOTAL:	25.08*		

* some data are missing - actual precipitation may be under-reported

5.6 Doses Resulting from Airborne Releases

The following are the maximum annual calculated cumulative offsite doses resulting from Byron airborne releases.

Unit 1:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	4.360×10^{-4} mrad	North-Northwest
beta air ⁽²⁾	3.070×10^{-3} mrad	North-Northwest
whole body ⁽³⁾	8.261×10^{-2} mrem	North-Northwest
skin ⁽⁴⁾	1.650×10^{-3} mrem	North-Northwest
organ ⁽⁵⁾ (child-bone)	4.057×10^{-1} mrem	North-Northwest

Unit 1 Compliance Status

10 CFR 50 Appendix I	Yearly Objective		% of Appendix I
gamma air	10.0	mrad	0.00
beta air	20.0	mrad	0.02
whole body	5.0	mrem	1.65
skin	15.0	mrem	0.01
organ	15.0	mrem	2.70

Unit 2:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	5.870×10^{-6} mrad	North-Northwest
beta air ⁽²⁾	1.190×10^{-5} mrad	North-Northwest
whole body ⁽³⁾	9.440×10^{-2} mrem	North-Northwest
skin ⁽⁴⁾	8.470×10^{-6} mrem	North-Northwest
organ ⁽⁵⁾ (child-bone)	4.565×10^{-1} mrem	North-Northwest

Unit 2 Compliance Status

10 CFR 50 Appendix I	Yearly Objective		% of Appendix I
gamma air	10.0	mrad	0.00
beta air	20.0	mrad	0.00
whole body	5.0	mrem	1.89
skin	15.0	mrem	0.00
organ	15.0	mrem	3.04

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

APPENDIX

Byron Meteorological Calibration

Page 1 of 8

Date: 1.5.12

POWER SUPPLIES

+12.000V \pm 2.000V

+ 13.710 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	30' WD	0°	<u>36</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>96.23</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.97</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>268.71</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.64</u> °	+/- 2°
250' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.08</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.97</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.8</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
	Ohms	Expected	Data Logger	Specifications			
T Lo 30' TEMP	40.670	23.0°F	<u>22.94</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>22.94</u> °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	<u>0.00</u> °	+/- 0.18°			
T HI 30' TEMP	12.174	100.0°F	<u>99.96</u> °	+/- 0.5°			
250' TEMP	12.174	100.0°F	<u>99.96</u> °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	<u>0.00</u> °	+/- 0.18°			
30' TEMP	34.890	32.0°F	<u>31.95</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>22.94</u> °	+/- 0.5°			
Δ TLo 250'-30'		-9.0°F	<u>-9.01</u> °	+/- 0.18°			
30' TEMP	40.670	23.0°F	<u>22.94</u> °	+/- 0.5°			
250' TEMP	34.890	32.0°F	<u>31.95</u> °	+/- 0.5°			
Δ THI 250'-30'		9.0°F	<u>9.01</u> °	+/- 0.18°			

ASL 3-5-12

F5
R-28
7/10

Byron Meteorological Calibration

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Date: 1-5-12

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 38.14 °F	- °F
Recorded 38.07 °F	- °F
Difference .07 °F	- °F
Specification ±0.5°F	

250' ΔT	
AF	AL
-1.25 °F	- °F
-1.20 °F	- °F
.05 °F	- °F
±0.18°F	

30' Dew Point	
AF	AL
28.5 °F	- °F
28.0 °F	- °F
.5 °F	- °F
±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 28.26 °	38.97 °	26.16 °	30.17 °
Rev. WD 28.66 °	210.03 °	208.11 °	210.05 °
Tracking/wear	OK	OK	

Specification

0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

Comments:

30' WS INSTALLED MT 0101

WS REMOVED MT 0104

WD INSTALLED MT 0182

WD REMOVED MT 0156

REPLACED HEAT PAD ON WD 30'

250' WS INSTALLED MT 0106

WS REMOVED MT 0101

WD INSTALLED MT 0184

WD REMOVED MT 0132

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Byron Meteorological Calibration

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Date: 1-5-12

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>1-5-12</u>	<u>1-5-12</u>
(12 mos.)	Wind Direction:	<u>1-5-12</u>	<u>1-5-12</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Heat Lamps: 1 LAMP OUT 250FT REPAIREDOperation of Rain Gauge: 5K Tips Poured 5 Tips Recorded 5Debris screen: In (Out) Installed RemovedUPS Check: OK

Tower Lighting	Good	Fair	Poor	Tower Condition	Good	Fair	Poor
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shelter condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
 AL = As Left
 — = no change (AF=AL)
 FS = Full Scale

Calibration Instruments:

	<u>#1</u>	<u>Next Cal Due</u>
Psychrometer - S/N -		<u>APRIL 2012</u>
Digital multimeter - S/N -	<u>89880269</u>	<u>OCT 2012</u>
Digital multimeter - S/N -		

Technicians: MIKE MONDIA MIKE MARX

Comments:

ADJUSTED THE CURRENT CALIB FOR 44004 + RECOVER D.P. (ZERO)ADJUSTED THE CURRENT CALIB FOR 44014 250FT WD (ZERO)ADJUSTED THE CURRENT CALIB FOR 44011 30FT WS (ZERO)ADJUSTED THE CURRENT CALIB (SPAN) FOR 44012 30FT WSSignature: [Signature]AD 3-5-12

Date: 1-5-12

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.0 MPH	0 DEG	0.0 MPH	0 DEG	-22.0 DEG	-10.00 DEG	-22.0 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.04	-10.00	-22.02	0.00
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.0 MPH	270 DEG	50.0 MPH	270 DEG	50.0 DEG	0.00 DEG	50.0 DEG	0.50 IN
As Found Response	50.0	269	49.9	269	49.78	-0.02	49.80	0.50
As Left Response	-	-	-	-	-	-	-	-

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.0 MPH	540 DEG	100.0 MPH	540 DEG	122.0 DEG	10.00 DEG	122.0 DEG	1.00 IN
As Found Response	99.8	539	99.8	539	121.67	9.97	121.71	1.00
As Left Response	-	-	-	-	-	-	-	-

AS 3-5-12

System Response Check

Date: 1-5-12

Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.00±0.5	-10.00±0.18	-22.00 ±0.5	.05 ±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	.05
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.00 ±0.5	0.00 ±0.18	50.00 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.00 ±0.5	10.00 ±0.18	122.00 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	-	-	-	-	-	-	-

AS2 3-5-12

System Response Check

Date: 3-5-12

Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 \pm 2	0.0 \pm 0.4	-22.0 \pm 0.5	-10.00 \pm 0.18	-22.0 \pm 0.5	0 \pm 2	0.0 \pm 0.4
As Found Response	0.4	.05	-22.1	-9.99	-20.9	0.2	.05
As Left Response	—	—	—	—	-21.8	—	—

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 \pm 2	50.0 \pm 0.4	50.0 \pm 0.5	0.00 \pm 0.18	50.0 \pm 0.5	270 \pm 2	50.0 \pm 0.4
As Found Response	269.2	49.9	49.8	.00	50.9	269.5	49.9
As Left Response	—	—	—	—	50.1	—	—

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 \pm 2	100.0 \pm 0.4	122.0 \pm 0.5	10.00 \pm 0.18	122.0 \pm 0.5	540 \pm 2	100.0 \pm 0.4
As Found Response	538.3	99.9	121.7	10.01	122.9	539.3	99.9
As Left Response	—	—	—	—	122.2	—	—

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System Response Check

Date: 1-5-12

Site: Byron
System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	-0.3	.02	.04	-1.9	-22.0	-9.98	-22.1	0.00
As Left Response	-0.05	—	—	0.8	—	—	—	—

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	49.4	268.9	49.9	266.7	49.7	.01	49.6	0.50
As Left Response	49.7	—	—	269.2	—	—	—	—

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.5	538.1	100.0	537.2	121.7	10.02	121.7	1.00
As Left Response	99.8	539.4	—	539.2	—	—	—	—

AD 3-5-12

System Response Check

Date: 1-5-12

Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5
As Found Response	-0.1	0.1	0.6	0.2	-22.2	-9.95	-21.2
As Left Response	—	—	—	—	—	—	-21.9

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5
As Found Response	49.7	49.9	272.0	269.2	50.2	0.01	50.9
As Left Response	—	—	—	—	—	—	49.9

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5
As Found Response	99.8	100.0	542.6	539.2	122.2	10.02	122.9
As Left Response	—	—	—	—	—	—	122.2

ADJ 3-5-12

Byron Meteorological Calibration

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Date: 5-9-12

POWER SUPPLIES

+12.000V \pm 2.000V

+13.445 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	30' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.11</u> °	+/- 2°
	23.12 mph	<u>23.11</u> mph	+/- 0.4 mph		180°	<u>179.98</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.8</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.75</u> °	+/- 2°
250' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.11</u> °	+/- 2°
	23.12 mph	<u>23.11</u> mph	+/- 0.4 mph		180°	<u>179.99</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.8</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.77</u> °	+/- 2°
	Ohms	Expected	Data Logger	Specifications			
T Lo 30' TEMP	40.670	23.0°F	<u>22.96</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>22.96</u> °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	<u>.01</u> °	+/- 0.18°			
T Hi 30' TEMP	12.174	100.0°F	<u>99.98</u> °	+/- 0.5°			
250' TEMP	12.174	100.0°F	<u>99.96</u> °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	<u>0.03</u> °	+/- 0.18°			
30' TEMP	34.890	32.0°F	<u>32.00</u> °	+/- 0.5°			
250' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.5°			
Δ TLo 250'-30'		-9.0°F	<u>-9.01</u> °	+/- 0.18°			
30' TEMP	40.670	23.0°F	<u>22.98</u> °	+/- 0.5°			
250' TEMP	34.890	32.0°F	<u>31.98</u> °	+/- 0.5°			
Δ THI 250'-30'		9.0°F	<u>9.01</u> °	+/- 0.18°			

ASL 6-7-12

Byron Meteorological Calibration

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Date: 5-9-12

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 57.0 °F	— °F
Recorded 56.7 °F	— °F
Difference 0.3 °F	— °F
Specification ±0.5°F	

250' Δ T	
AF	AL
Measured -2.10 °F	— °F
Recorded -2.20 °F	— °F
Difference 0.10 °F	— °F
Specification ±0.18°F	

30' Dew Point	
AF	AL
Measured 43 °F	— °F
Recorded 41.4 °F	— °F
Difference 1.6 °F	— °F
Specification ±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 30 °	— °	390 °	— °
Rev. WD 209 °	— °	210 °	— °
Tracking/wear OK		OK	

Specification

0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

Comments: 30' WS

250' WS

MT0011 removed

MT0166 removed

MT0164 installed

MT0190 installed

* Need new set of heat pads @ 250' before winter

ASL 6-7-12

Byron Meteorological Calibration

Page 3 of 8

Date: 5-9-12

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>5-9-12</u>	<u>5-9-12</u>
(12 mos.)	Wind Direction:	<u>1-5-12</u>	<u>1-5-12</u>

		<u>30'</u>	<u>250'</u>
Aspirators:		<u>OK</u>	<u>OK</u>

Operation of Heat Lamps: OKOperation of Rain Gauge: OK Tips Poured 5 Tips Recorded 5Debris screen: In Out Installed RemovedUPS Check: OK

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
 AL = As Left
 — = no change (AF=AL)
 FS = Full Scale

Calibration Instruments:

Psychrometer - S/N - <u>#1</u>	<u>Next Cal Due</u>
Digital multimeter - S/N - <u>85880269</u>	<u>OCT 2012</u>
Digital multimeter - S/N - _____	<u>OCT 2012</u>

Technicians: Mike Marx Andy Lotz

Comments:

Signature: [Signature]

ASL 6-7-12

Date: 5-9-12

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale</u> <u>Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.0 MPH	0 DEG	0.0 MPH	0 DEG	-22.0 DEG	-10.00 DEG	-22.0 DEG	0.00 IN
As Found Response	0.0	0	0 0	0	-22.03	-10.00	-22.04	0.00
As Left Response								

<u>Mid Scale</u> <u>Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.0 MPH	270 DEG	50.0 MPH	270 DEG	50.0 DEG	0.00 DEG	50.0 DEG	0.50 IN
As Found Response	49.9	269	49.9	269	49.82	-0.02	49.81	0.50
As Left Response								

<u>Full Scale</u> <u>Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.0 MPH	540 DEG	100.0 MPH	540 DEG	122.0 DEG	10.00 DEG	122.0 DEG	1.00 IN
As Found Response	100.0 99.9 5-9-12	540	100.0 99.8 5-9-12	540	122.0 121.73 5-9-12	10.00 9.97 5-9-12	122.0 121.74 5-9-12	1.00
As Left Response					-	-	-	-

ASL 6-7-12

System Response Check

Date: 5-9-12Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' Δ T	30' DP	Precip
Expected Response	0.0 \pm 0.4	0 \pm 2	0.0 \pm 0.4	0 \pm 2	-22.00 \pm 0.5	-10.00 \pm 0.18	-22.00 \pm 0.5	0.03 \pm 0.01
As Found Response	0.0	0	0.0	0	-22.00	-10.00	-22.00	0.03
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' Δ T	30' DP
Expected Response	50.0 \pm 0.4	270 \pm 2	50.0 \pm 0.4	270 \pm 2	50.00 \pm 0.5	0.00 \pm 0.18	50.00 \pm 0.5
As Found Response	50.0	270	50.0	270	50.00	0.00	50.00
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m Δ T	10m DP
Expected Response	100.0 \pm 0.4	540 \pm 2	100.0 \pm 0.4	540 \pm 2	122.00 \pm 0.5	10.00 \pm 0.18	122.00 \pm 0.5
As Found Response	100.0	540	100.0	540	122.00	10.00	122.00
As Left Response	-	-	-	-	-	-	-

ASL 6-7-12

System Response Check

Date: 5-9-12

Site: Byron

System: Process Computer - Y4000 - Y4006

Low Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 ±2	0.0 ±0.4	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0 ±2	0.0 ±0.4
As Found Response	0.3	0.2	-22.8	-9.99	-23.0	0.1	0.1
As Left Response	-	-	* -	-	-21.9	-	-

Mid Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 ±2	50.0 ±0.4	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	270 ±2	50.0 ±0.4
As Found Response	269.2	50.0	47.3	0.0	49.1	269.6	49.9
As Left Response	-	-	* -	-	50.0	-	-

Full Scale Check	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' ΔT	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 ±2	100.0 ±0.4	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	540 ±2	100.0 ±0.4
As Found Response	538.3	99.8	117.4	10.01	121.1	539.2	99.8
As Left Response	-	-	* -	-	122.1	-	-

* Y4002 Current from Current Card is OK. 30T Problem is DOWN STREAM of The MET TOWER. 30T Receiver is ALSO AFFECTED.

AD 6-7-12

System Response Check

Date: 5-12
5-9-12Site: Byron
System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	0.3	-0.3	0.00	2.3	-22.0	-10.00	-22.1	0.00
As Left Response	0.02	-	-	0.2	-	-	-	-

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	50.3	269.7	49.9	272.7	49.8	0.00	49.7	0.50
As Left Response	50.1	-	-	270.0	-	-	-	-

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	100.6	539.9	100.0	543.7	121.8	10.00	121.7	1.00
As Left Response	100.27	-	-	540.6	-	-	-	-

ASJ 6-7-12

System Response Check

Date: 5-9-12

Site: Byron
System: Control Room Indicators

Low Scale Check	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5
As Found Response	-0.2	-0.1	0.8	-0.3	-22.5	-9.99	-23.0
As Left Response	-	-	-	-	* -22.1	-	-22.3

Mid Scale Check	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5
As Found Response	49.7	49.9	271.5	269.0	47.3	0.0	49.0
As Left Response	-	-	-	-	* 48.3	-	49.5

Full Scale Check	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5
As Found Response	99.8	99.9	542	538	117.6	9.98	121
As Left Response	-	-	-	-	* 119.2	-	122

* See comment next page 6
ADL
2-26-13

Byron Meteorological Calibration

Page 1 of 8

Date: 9-4-12

POWER SUPPLIES

+12.000V \pm 2.000V

+ 13.294 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	0.3 mph	+/- 0.4 mph	30' WD	0°	0.24 °	+/- 2°
	11.71 mph	11.66 mph	+/- 0.4 mph		90°	90.12 °	+/- 2°
	23.12 mph	23.12 mph	+/- 0.4 mph		180°	179.99 °	+/- 2°
	45.93 mph	45.93 mph	+/- 0.4 mph		270°	269.81 °	+/- 2°
	91.57 mph	91.56 mph	+/- 0.4 mph		360°	359.75 °	+/- 2°
250' WS	0.3 mph	0.3 mph	+/- 0.4 mph	250' WD	0°	0.21 °	+/- 2°
	11.71 mph	11.66 mph	+/- 0.4 mph		90°	90.15 °	+/- 2°
	23.12 mph	23.12 mph	+/- 0.4 mph		180°	180.03 °	+/- 2°
	45.93 mph	45.93 mph	+/- 0.4 mph		270°	269.81 °	+/- 2°
	91.57 mph	91.56 mph	+/- 0.4 mph		360°	359.75 °	+/- 2°
	Ohms	Expected	Data Logger	Specifications			
T Lo 30' TEMP	40.670	23.0°F	22.96 °	+/- 0.5°			
250' TEMP	40.670	23.0°F	22.96 °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	0.00 °	+/- 0.18°			
T Hi 30' TEMP	12.174	100.0°F	99.93 °	+/- 0.5°			
250' TEMP	12.174	100.0°F	99.93 °	+/- 0.5°			
Δ TMid 250'-30'		0.0°F	0.00 °	+/- 0.18°			
30' TEMP	34.890	32.0°F	31.97 °	+/- 0.5°			
250' TEMP	40.670	23.0°F	22.96 °	+/- 0.5°			
Δ TLo 250'-30'		-9.0°F	-9.01 °	+/- 0.18°			
30' TEMP	40.670	23.0°F	22.96 °	+/- 0.5°			
250' TEMP	34.890	32.0°F	31.97 °	+/- 0.5°			
Δ THI 250'-30'		9.0°F	9.01 °	+/- 0.18°			

ASL 10-3-12

F5
R-28
7/10

Byron Meteorological Calibration

Page 2 of 8

Date: 9-4-12

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 79.25 °F	- °F
Recorded 79.00 °F	- °F
Difference .25 °F	- °F
Specification ±0.5 °F	

250' ΔT	
AF	AL
-1.16 °F	- °F
-1.21 °F	- °F
.05 °F	- °F
±0.18 °F	

30' Dew Point	
AF	AL
69.0 °F	- °F
68.17 °F	- °F
.83 °F	- °F
±2.7 °F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 28.57 °	- °	29.31 °	- °
Revr. WD 210.26 °	- °	210.03 °	- °
Tracking/wear OK		OK	

Specification

0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

30'

250'

Comments: WS Removed MTO169
 WS INSTALLED MTO105

WS Removed MTO190
 WS INSTALLED MTO009

ASZ 10-24-12

Byron Meteorological Calibration

Page 3 of 8

Date: 9.4.12

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>9.4.12</u>	<u>9.4.12</u>
(12 mos.)	Wind Direction:	<u>1.5.12</u>	<u>1.5.12</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Heat Lamps: OKOperation of Rain Gauge: OK Tips Poured 5 Tips Recorded 5Debris screen: In Out Installed RemovedUPS Check: OK * INSTALLED 2 NEW ONES

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
 AL = As Left
 — = no change (AF=AL)
 FS = Full Scale

Calibration Instruments:

Psychrometer - S/N - <u>11</u>	<u>Next Cal Due</u>
Digital multimeter - S/N - <u>93120208</u>	<u>OCT 2012</u>
Digital multimeter - S/N - <u></u>	<u>APRIL 2013</u>

Technicians: MIKE MOUNIA MIKE MARX

Comments:

Signature: 

ASL 10-24-12

Date: 9-4-12

System Response Check

Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.0 MPH	0 DEG	0.0 MPH	0 DEG	-22.0 DEG	-10.00 DEG	-22.0 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.04	-10.00	-22.04	0.00
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.0 MPH	270 DEG	50.0 MPH	270 DEG	50.0 DEG	0.00 DEG	50.0 DEG	0.50 IN
As Found Response	49.9	269	49.9	270	49.80	-0.02	49.81	0.50
As Left Response	-	-	-	-	-	-	-	-

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.0 MPH	540 DEG	100.0 MPH	540 DEG	122.0 DEG	10.00 DEG	122.0 DEG	1.00 IN
As Found Response	99.9	539	99.9	539	121.75	9.98	121.75	1.00
As Left Response	-	-	-	-	-	-	-	-

ASL 10-24-12

System Response Check

Date: 9-4-12

Site: Byron

System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.00±0.5	-10.00±0.18	-22.00 ±0.5	.05 ±0.01
As Found Response	0.0	0	0.0	0	-22.00	-10.00	-22.00	.05
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.00 ±0.5	0.00 ±0.18	50.00 ±0.5
As Found Response	50.0	270	50.0	270	50.00	0.00	50.00
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.00 ±0.5	10.00 ±0.18	122.00 ±0.5
As Found Response	100.0	540	100.0	540	122.00	10.00	122.00
As Left Response	-	-	-	-	-	-	-

APL 10-24-12

System Response Check

Date: 9-4-12

Site: Byron

System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 \pm 2	0.0 \pm 0.4	-22.0 \pm 0.5	-10.00 \pm 0.18	-22.0 \pm 0.5	0 \pm 2	0.0 \pm 0.4
As Found Response	0.37	0.5	-22.8	-9.99	-21.9	0.20	0.4
As Left Response	-	-	*	-	-	-	-

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 \pm 2	50.0 \pm 0.4	50.0 \pm 0.5	0.00 \pm 0.18	50.0 \pm 0.5	270 \pm 2	50.0 \pm 0.4
As Found Response	269.1	50.0	48.2	0.00	50.1	269.7	49.9
As Left Response	-	-	*	-	-	-	-

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 \pm 2	100.0 \pm 0.4	122.0 \pm 0.5	10.00 \pm 0.18	122.0 \pm 0.5	540 \pm 2	100.0 \pm 0.4
As Found Response	538.4	99.8	* 102.8	10.02	122.2	539.8	99.8
As Left Response	-	-	*	-	-	-	-

* IR WAS WRITTEN FOR Y4002 IR # 1364539 MAY 2012

System Response Check

Date: 9-4-12

Site: Byron

System: Process Computer - Y4011 - Y4019

Low Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	-0.2	-0.3	.03	-0.3	-22.0	-9.99	-22.2	.00
As Left Response	-.06	-	-	+0.8	-	-	-	-

Mid Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	49.7	269.3	50.0	268.0	49.7	-.01	49.6	.50
As Left Response	49.9	-	-	269.6	-	-	-	-

Full Scale Check	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.69	539.2	100.0	538.2	121.8	10.01	121.7	1.00
As Left Response	99.9	-	-	539.0	-	-	-	-

ADJUSTED ZERO ON Y4011 + Y4014 CURRENT CARDS

ASZ 10-04-12

System Response Check

Date: 9-4-12

Site: Byron
System: Control Room Indicators

Low Scale Check	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5
As Found Response	0	0	1.0 ^{MM} 9-4-12	0	-22	-10.0	-22
As Left Response	-	-	-	-	-	-	-

Mid Scale Check	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5
As Found Response	50	50	272	270	50	0.0	50
As Left Response	-	-	-	-	-	-	-

Full Scale Check	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5
As Found Response	100	100	543	539	122	10.0	122
As Left Response	-	-	-	-	-	-	-

NEW RECORDERS - ALL BUT ΔT IS READING IN WHOLE NUMBERS. Jeff Golick is
 WRITING A LR. TO HAVE THIS CHANGED.

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-7

Category: Meteorology, Air Quality and Noise

Statement of Question:

Provide general aspects of meteorological data acquisition and management:

- Type of instruments and instrument heights along with schematic diagrams of primary and backup monitoring system from towers to computer display.
- Provide a description of procedures for calibration and maintenance of meteorological instruments.
- Provide a description of procedures for collection, evaluation, validation, and management of meteorological data, including quality assurance/quality control (QA/QC).

Response:

- The meteorological tower is 250 ft high and is instrumented at two levels. Wind speed and direction are measured at 30 ft and 250 ft. Ambient temperature is measured at 30 ft. Differential temperature, referenced to 30 ft, is measured at 250 ft. Dew point temperature is measured at 30 ft. Precipitation is measured at approximately 3 ft.

Instrument types and locations are described in each Byron Station Annual Report on the Meteorological Monitoring Program, Section 3, copies of which are provided for 2008 through 2012 in response to Request for Additional Information Question # Met-6. The table below summarizes this information for 2012.

Measurement	Sensor Type	Location	Elevation
Wind Speed	Climatronics 100075 F460	Tower	250 ft
Wind Direction	Climatronics 100076 F460	Tower	250 ft
Differential Temperature	Climatronics 100093	Tower	250 ft
Wind Speed	Climatronics 100075 F460	Tower	30 ft
Wind Direction	Climatronics 100076 F460	Tower	30 ft
Ambient Temperature	Climatronics 100093	Tower	30 ft
Dew Point Temperature	Climatronics 1001197	Tower	30 ft
Precipitation	Climatronics 100097-1	Ground	3 ft

A schematic diagram of the meteorological monitoring instruments from the tower to the control room is attached to this response [Drwg. 6E-0-4031EM01, Rev. E].

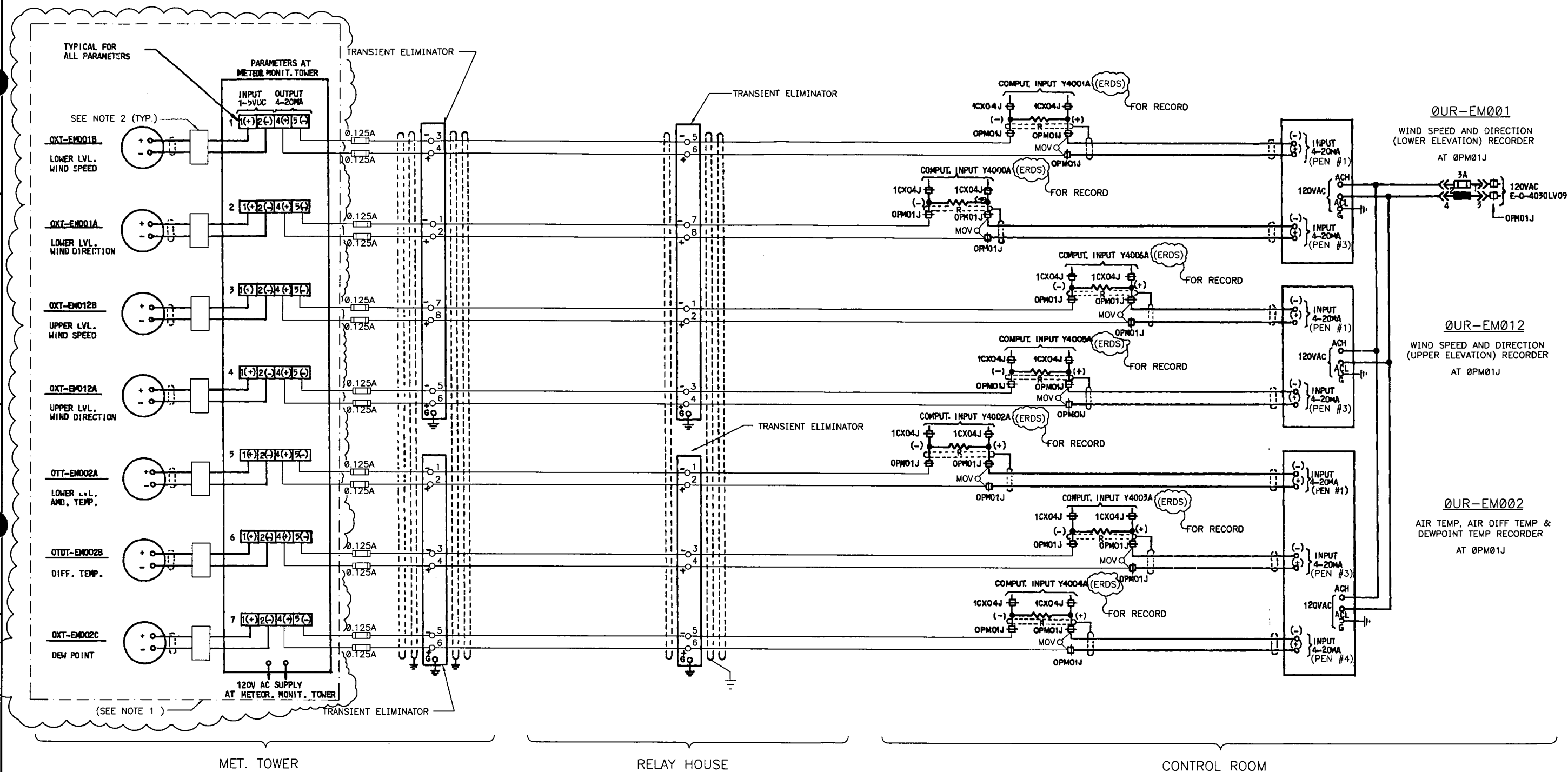
- Records of calibration and maintenance of meteorological instruments, which is conducted by a contractor, are provided in each Byron Station Monthly Report on the Meteorological Monitoring Program. As an example, the monthly report for January 2012 is attached to this response.
- Collection, evaluation, validation, and management of meteorological data are performed by a contractor. Exelon Generation procedure CY-AA-170-1000 provides

a standard means of review by Exelon personnel to verify that the requirements of the Offsite Dose Calculation Manual (ODCM) with respect to these activities are met. The procedural provisions related to meteorological data are briefly described below.

- Exelon personnel perform the following oversight tasks regarding routine meteorology tower inspections and repairs:
 - Ensure that an annual inspection of the meteorology tower is conducted in accordance with the applicable ANSI Standard.
 - Track issues identified during the inspection.
 - Document tower repairs other than routine preventative maintenance.
 - Verify that current structural integrity has been demonstrated for tower configuration, taking into account current aggregate loading from changes to tower instrumentation and structures.
 - Conduct housekeeping tours of the meteorology tower at least annually.
 - Document and track correction of deficiencies and significant material condition issues.
 - Initiate an inspection of the meteorology tower within 60 days after the following weather events:
 - Wind speed gust greater than 90 mph.
 - Ice of greater than 0.75 inches.
- Exelon personnel perform oversight reviews of the data and information contained in routine monthly and annual meteorological reports prepared by the contractor as follows:
 - Verify that instruments are working properly and that documented instrument calibrations have been performed using approved maintenance and testing equipment.
 - Verify that instrument maintenance and repairs are being performed in a timely manner.
 - Review reported data for accuracy and to ensure that required data recovery levels have been met.
 - Review data trends to verify continued consistency with ODCM default values, and initiate corrective actions, if necessary.
- Exelon personnel periodically assess the business practices of the meteorological contractor to assure that technical and quality requirements are applied to the work and that records are stored and retained in accordance with contractual requirements.

List Attachments Provided:

1. Loop Schematic Diagram Meteorological Monitoring Tower Instruments – “EM” System (Computer & Analog Inputs). Drawing 6E-0-4031EM01.
2. Monthly Report on the Meteorological Monitoring Program at the Byron Nuclear Generating Station, January 2012. Prepared for Exelon Nuclear by Murray and Trettel, Inc. March 9, 2012.



NOTES: 1: VENDOR SUPPLIED EQUIPMENT
2: DATA ACQUISITION INTERFACE BY VENDOR

REFERENCE DRAWINGS		REV	DATE	DESCRIPTION	PREP	REVR	APPR
DWG. NO.	DESCRIPTION	E	EDSF	FOR RECORD-INCORP. OF EC #367689	EDSF	EDSF	EDSF
E-0-4410	INT/EXT W/D - METEOR. MONIT. TOWER INSTRUMENTS	--	--		--	--	--
E-0-4044 SERIES	INT/EXT W/D - GEN. SERVICE MCB 0PM01J	--	--		--	--	--

Exelon Nuclear Byron Station 6 Unit: 1&2		SCALE : NONE DATE : 09/01/98 DRAWN BY : S848 ORG. BY : S848	6E-0-4031EM01 SHEET NUMBER: SIZE: D
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FILE:
2.12.1714

Monthly Report
on the
Meteorological Monitoring Program
at the
Byron Nuclear Generating Station

January 2012

prepared for

Exelon Nuclear
Warrenville, Illinois 60555

by

Murray and Trettel, Incorporated
600 First Bank Drive, Suite A
Palatine, Illinois 60067
(847) 963-9000

e-mail: mt@weathercommand.com
web: <http://www.weathercommand.com>

For Exelon Use Only

Reviewed By: MF

Date: 3-9-12

Table of Contents

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1. Byron Station Action Items

<u>Pending Action Items</u>	<u>Problem</u>	<u>Recommended Solution</u>	<u>Date*</u>
-none-			

*date Exelon was notified of problem or date of Monthly Report where problem was first reported

2. Equipment Maintenance at Byron

A regular scheduled visit to inspect the equipment was made on the 5th of January. The Routine Site Visitation Log, a record of existing onsite conditions, was completed during the scheduled visit. A copy of this log is included in this report.

On the 5th, a calibration of the meteorological tower was performed. A copy of the log is included in this report.

On the 9th, Joe Odom from ERIN Engineering requested data related to the operating license renewal. The data was processed and sent to Mr. Odom

On the 12th, 2 wind speed sensors and 2 wind directions sensors were calibrated and given new bearings.

No problems were encountered with the equipment during January and at the end of the month, no problems were evident at the site.

3. Data Recovery

The record of data recovery year-to-date is summarized in Table 1.

Table 1

**Byron Nuclear Station
Data Recovery Summary
January 2012**

Hours in Month = 744

Hours to date = 744

Hours in year = 8784

Measurement	This Month				Year to Date			
	Valid	Lost	Edits		Valid	Lost	Edits	
	Hrs	%	Hrs	%	Hrs	%	Hrs	%
30Ft Wind Speed	740	99.5	4	0.5	740	99.5	4	0.5
250Ft Wind Speed	740	99.5	4	0.4	740	99.5	4	0.4
30Ft Wind Direction	740	99.5	4	1.1	740	99.5	4	1.1
250Ft Wind Direction	740	99.5	4	0.4	740	99.5	4	0.4
30Ft Temperature	740	99.5	4	0.4	740	99.5	4	0.4
250Ft-30Ft Delta-T	740	99.5	4	0.4	740	99.5	4	0.4
30Ft Dew Point	740	99.5	4	30.1	740	99.5	4	30.1
3Ft Precipitation	744	100.0	0	0.3	744	100.0	0	0.3
AVERAGE *		99.5				99.5		

* average of priority parameters (all except dew point and precipitation)

Joint Recovery of Speed, Direction and Stability

Level	This Month			Year to Date		
	Valid hrs	Lost hrs	Recovery %	Valid hrs	Lost hrs	Recovery %
Lower	740	4	99.5	740	4	99.5
Upper	740	4	99.5	740	4	99.5

Data Recovery Scores Summary

	January	Year to Date
Byron Nuclear Station	0	0
All Exelon Sites	16	16

4. Summary of Billings for Equipment Repairs, Replacement Parts, and Other

Work not Included in Fixed-Cost Maintenance Agreement – January 2012

Byron

<u>Description</u>	<u>Cost</u>
Meteorological equipment maintenance	\$ 180.00
Meteorological parts, materials & contractors services	\$ 793.01
Special Request	\$ 85.00
Total for Month:	\$ 1,058.01
Year to Date Total:	\$ 1,058.01

5. Data Analysis (Data Reduction and Processing)

The Campbell Scientific CR1000 data logger was routinely interrogated to obtain hourly average data of wind speed, wind direction, ambient temperature, differential temperature, and dew point temperature. Wind sigma (standard deviation of wind direction) and precipitation data were also obtained. Missing data logger values were replaced with recorder data, when available. A professional meteorologist then reviewed the data, calibration findings, maintenance reports, computerized quality control checks, and other information and determined which data were valid. Only valid data were retained in the data base.

6. Computer Processing

Computer programs were run to generate summary tables of the hourly averages of the meteorological data as well as other statistics based on the monthly data record.

A table of means and extremes of the measurements recorded during the month is included in this report. Wind direction shears (variance of wind direction between levels) are also included in the table. Relative humidity was calculated using ambient and dew point temperature measurements.

7. Annual Report Preparation

Joint frequency stability wind rose tables of hourly data are generated quarterly and will be included in the annual report. These tables indicate the prevailing wind direction, wind speed, and stability classes measured during the period of observation as well as the joint frequencies of occurrence of the wind direction, wind speed, and stability classes.

Byron Generating Station

January

2012

Parameter	Mean	Max	Min	Miss Hrs	Valid Hrs
30Ft Temperature (F)	27.5	54.0	-1.6	4	740
30Ft Dew Point (F)	20.1	47.9	-15.0	4	740
Relative Humidity (calc)	74.7	100.0	34.8	4	740
30Ft Wind Speed (MPH)	9.6	26.4	Calm	4	740
250Ft Wind Speed (MPH)	15.6	36.8	1.4	4	740
250Ft-30Ft Delta-T (F)	-0.1	9.8	-1.9	4	740
250 - 30 FT Direction Shear (deg)	6.9	159.0	-179.0	8	736
30Ft Sigma Theta (deg)	11.9	48.0	4.0	4	740
250Ft Sigma Theta (deg)	7.1	47.0	1.0	4	740
3 FT Precipitation IN				0	744
Monthly Total	0.97				
Max 24 Hour Total	0.42				
Max 1 Hour Total	0.08				

There were 744 hours in January

Table prepared on 3/ 5/2012 at 12:49

Byron Station

Differential Temperature Distribution (degC/100m)

1/2012

250-30 ft

	DT	LT	-7.5	0
-7.5	GE	DT	LT	-7.0
-7.0	GE	DT	LT	-6.5
-6.5	GE	DT	LT	-6.0
-6.0	GE	DT	LT	-5.5
-5.5	GE	DT	LT	-5.0
-5.0	GE	DT	LT	-4.5
-4.5	GE	DT	LT	-4.0
-4.0	GE	DT	LT	-3.5
-3.5	GE	DT	LT	-3.0
-3.0	GE	DT	LT	-2.5
-2.5	GE	DT	LT	-2.0
-2.0	GE	DT	LT	-1.5
-1.5	GE	DT	LT	-1.0
-1.0	GE	DT	LT	-0.5
-0.5	GE	DT	LT	0.0
0.0	GE	DT	LT	0.5
0.5	GE	DT	LT	1.0
1.0	GE	DT	LT	1.5
1.5	GE	DT	LT	2.0
2.0	GE	DT	LT	2.5
2.5	GE	DT	LT	3.0
3.0	GE	DT	LT	3.5
3.5	GE	DT	LT	4.0
4.0	GE	DT	LT	4.5
4.5	GE	DT	LT	5.0
5.0	GE	DT	LT	5.5
5.5	GE	DT	LT	6.0
6.0	GE	DT	LT	6.5
6.5	GE	DT	LT	7.0
7.0	GE	DT	LT	7.5
7.5	GE	DT		

NRC Stability Classes

Unstable	3
Neutral	412
Stable	325

TOTAL NO. HOURS	740
-----------------	-----

F2
R-28
7/10Byron Site
Routine Site Visitation LogDate: 1-5-12
Begin: 0730 CST
End: 1230 CSTOperation of digital recorder ☒ OK ☐ _____
Operation of data logger ☒ OK ☐ _____Digital Recorder Readings (Taken at 1118 CST)

	SPEED	DIRECTION	TEMP	ΔT	DP
30 ft.	<u>8.5</u> mph	<u>234</u> °	<u>39.55</u> °F		<u>29.44</u> °F
250 ft.	<u>10.8</u> mph	<u>243</u> °		<u>-1.18</u> °F	

Do Speed and Direction values agree with visual indications? ☒ Yes ☐ UTD ☐ _____☒ Rain gauge check made at CAL CST ☐ No rain gauge check made due to precipitationTips Poured 5 Tips Recorded 5Psychrometer Measurement Reading (Taken at CAL CST)Dry bulb: — °F Wet bulb: — °F Dew Point — °FCOMMENTS:

_____Technician: *[Signature]*ASL 3-5-12

Byron Meteorological Calibration

Page 1 of 8

Date: 1.5.12

POWER SUPPLIES

+12.000V \pm 2.000V

+ 13.710 V

Data Logger System Check:

	Expected	Data Logger	Specifications		Expected	Data Logger	Specifications
30' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	30' WD	0°	<u>-36</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.23</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.97</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>268.71</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.64</u> °	+/- 2°
250' WS	0.3 mph	<u>0.3</u> mph	+/- 0.4 mph	250' WD	0°	<u>0.24</u> °	+/- 2°
	11.71 mph	<u>11.76</u> mph	+/- 0.4 mph		90°	<u>90.08</u> °	+/- 2°
	23.12 mph	<u>23.12</u> mph	+/- 0.4 mph		180°	<u>179.97</u> °	+/- 2°
	45.93 mph	<u>45.93</u> mph	+/- 0.4 mph		270°	<u>269.8</u> °	+/- 2°
	91.57 mph	<u>91.56</u> mph	+/- 0.4 mph		360°	<u>359.76</u> °	+/- 2°
	Ohms	Expected		Data Logger	Specifications		
T Lo 30' TEMP	40.670	23.0°F		<u>22.94</u> °	+/- 0.5°		
250' TEMP	40.670	23.0°F		<u>22.94</u> °	+/- 0.5°		
Δ TMid 250'-30'		0.0°F		<u>0.00</u> °	+/- 0.18°		
T HI 30' TEMP	12.174	100.0°F		<u>99.96</u> °	+/- 0.5°		
250' TEMP	12.174	100.0°F		<u>99.96</u> °	+/- 0.5°		
Δ TMid 250'-30'		0.0°F		<u>0.00</u> °	+/- 0.18°		
30' TEMP	34.890	32.0°F		<u>31.95</u> °	+/- 0.5°		
250' TEMP	40.670	23.0°F		<u>22.94</u> °	+/- 0.5°		
Δ TLo 250'-30'		-9.0°F		<u>-9.01</u> °	+/- 0.18°		
30' TEMP	40.670	23.0°F		<u>22.94</u> °	+/- 0.5°		
250' TEMP	34.890	32.0°F		<u>31.95</u> °	+/- 0.5°		
Δ THI 250'-30'		9.0°F		<u>9.01</u> °	+/- 0.18°		

ASL 3-5-12

F5
R-28
7/10

Byron Meteorological Calibration

Page 2 of 8

Date: 3-5-12

TOWER MEASUREMENTS

☒ Ambient ☐ Ice Bath

Temperatures

30' Ambient	
AF	AL
Measured 38.14 °F	— °F
Recorded 38.07 °F	— °F
Difference .07 °F	— °F
Specification ±0.5°F	

250' ΔT	
AF	AL
-1.25 °F	— °F
-1.20 °F	— °F
.05 °F	— °F
±0.18°F	

30' Dew Point	
AF	AL
28.5 °F	— °F
28.0 °F	— °F
.5 °F	— °F
±2.7°F	

Winds

30'		250'	
AF	AL	AF	AL
WS stall 0.3 mph	0.3 mph	0.3 mph	0.3 mph
Forw. WD 28.26 °	38.97 °	28.16 °	30.17 °
Revr. WD 28.66 °	210.03 °	208.11 °	210.05 °
Tracking/wear	OK		OK

Specification

0.3mph ± 0.45mph
 30°/390° ± 5°
 210° ± 5°

Comments:

30'	250'
WS INSTALLED MT 0011	WS INSTALLED MT 0166
WS REMOVED MT 0204	WS REMOVED MT 0101
WD INSTALLED MT 0182	WD INSTALLED MT 0184
WD REMOVED MT 0156	WD REMOVED MT 0132

Replaced Heat PAD on WD 30'

ASL 3-5-12

Byron Meteorological Calibration

Page 3 of 8

Date: 1-5-12

Dates of Last Wind Sensor Bearing Replacements:

		<u>30'</u>	<u>250'</u>
(6 mos.)	Wind Speed:	<u>1-5-12</u>	<u>1-5-12</u>
(12 mos.)	Wind Direction:	<u>1-5-12</u>	<u>1-5-12</u>

	<u>30'</u>	<u>250'</u>
Aspirators:	<u>OK</u>	<u>OK</u>

Operation of Heat Lamps: 1 LAMP AT 250FT REPAIREDOperation of Rain Gauge: OK Tips Poured 5 Tips Recorded 5Debris screen: In (Out) Installed RemovedUPS Check: OK

<u>Tower Lighting</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Tower Condition</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Beacon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Wiring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Flasher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Shelter condition</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

AF = As Found
 AL = As Left
 — = no change (AF=AL)
 FS = Full Scale

Calibration Instruments:

Psychrometer - S/N -	<u>#1</u>	<u>Next Cal Due</u>
Digital multimeter - S/N -	<u>89880269</u>	<u>APRIL 2012</u>
Digital multimeter - S/N -		<u>OCT 2012</u>

Technicians: MIKE MONDIA MIKE MARX

Comments:

ADJUSTED THE CURRENT CARD FOR 44004 + RECORDED D.P. (ZERO)ADJUSTED THE CURRENT CARD FOR 44014 250FT WD (ZERO)ADJUSTED THE CURRENT CARD FOR 44011 30FT WS (ZERO)ADJUSTED THE CURRENT CARD (SPAN) FOR 44012 30FT WSSignature: [Signature]ADL 3-5-12

Date: 1-5-12**System Response Check**Site: Byron
System: Digital Recorder

<u>Low Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	0.0 MPH	0 DEG	0.0 MPH	0 DEG	-22.0 DEG	-10.00 DEG	-22.0 DEG	0.00 IN
As Found Response	0.0	0	0.0	0	-22.04	-10.00	-22.02	0.00
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	50.0 MPH	270 DEG	50.0 MPH	270 DEG	50.0 DEG	0.00 DEG	50.0 DEG	0.50 IN
As Found Response	50.0	269	49.9	269	49.78	-0.02	49.80	0.50
As Left Response	-	-	-	-	-	-	-	-

<u>Full Scale Check</u>	CH 1±0.4 30' WS	CH2 ±1 30' WD	CH3 ±0.4 250' WS	CH4 ±1 250' WD	CH5 ±0.5 30' T	CH6 ±0.18 250' ΔT	CH7 ±0.5 30' DP	CH8 ±0.01 Precip
Expected Response	100.0 MPH	540 DEG	100.0 MPH	540 DEG	122.0 DEG	10.00 DEG	122.0 DEG	1.00 IN
As Found Response	99.8	539	99.8	539	121.67	9.97	121.71	1.00
As Left Response	-	-	-	-	-	-	-	-

A2 3-5-12

System Response Check

Date: 1-5-12Site: Byron
System: Data Logger

<u>Low Scale Check</u>	30' WS	30' WD	250' WS	250' WD	30' T	250' ΔT	30' DP	Precip
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.00±0.5	-10.00±0.18	-22.00 ±0.5	.05 ±0.01
As Found Response	0.00	0.00	0.00	0.00	-22.00	-10.00	-22.00	.05
As Left Response	-	-	-	-	-	-	-	-

<u>Mid Scale Check</u>	30' WS	30' WD	250' WS	250' WD	250' T	250' ΔT	30' DP
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.00 ±0.5	0.00 ±0.18	50.00 ±0.5
As Found Response	50.00	270.00	50.00	270.00	50.00	0.00	50.00
As Left Response	-	-	-	-	-	-	-

<u>Full Scale Check</u>	10m WS	10m WD	60m WS	60m WD	10m T	60m ΔT	10m DP
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.00 ±0.5	10.00 ±0.18	122.00 ±0.5
As Found Response	100.00	540.00	100.00	540.00	122.00	10.00	122.00
As Left Response	-	-	-	-	-	-	-

AS2 3-5-12

System Response Check

Date: 1-5-12

Site: Byron
System: Process Computer - Y4000 - Y4006

<u>Low Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	0 \pm 2	0.0 \pm 0.4	-22.0 \pm 0.5	-10.00 \pm 0.18	-22.0 \pm 0.5	0 \pm 2	0.0 \pm 0.4
As Found Response	0.4	.05	-22.1	-9.99	-20.9	0.2	.05
As Left Response	-	-	-	-	-21.8	-	-

<u>Mid Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	270 \pm 2	50.0 \pm 0.4	50.0 \pm 0.5	0.00 \pm 0.18	50.0 \pm 0.5	270 \pm 2	50.0 \pm 0.4
As Found Response	269.2	49.9	49.8	.00	50.9	269.5	49.9
As Left Response	-	-	-	-	50.1	-	-

<u>Full Scale Check</u>	Y4000 30' WD	Y4001 30' WS	Y4002 30' T	Y4003 250' Δ T	Y4004 30' DP	Y4005 250' WD	Y4006 250' WS
Expected Response	540 \pm 2	100.0 \pm 0.4	122.0 \pm 0.5	10.00 \pm 0.18	122.0 \pm 0.5	540 \pm 2	100.0 \pm 0.4
As Found Response	538.3	99.9	121.7	10.01	122.9	539.3	99.9
As Left Response	-	-	-	-	122.2	-	-

ASL 3-5-12

System Response Check

Date: 3-5-12

Site: Byron
System: Process Computer - Y4011 - Y4019

<u>Low Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	0.0 ±0.4	0 ±2	0.0 ±0.4	0 ±2	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5	0.00 ±0.01
As Found Response	-0.3	.01	.04	-1.9	-22.0	-9.98	-22.1	0.00
As Left Response	-.05	—	—	0.8	—	—	—	—

<u>Mid Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	50.0 ±0.4	270 ±2	50.0 ±0.4	270 ±2	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5	0.50 ±0.01
As Found Response	49.4	268.9	49.9	266.7	49.7	.01	49.6	0.50
As Left Response	49.7	—	—	269.2	—	—	—	—

<u>Full Scale Check</u>	Y4011 30' WS	Y4012 30' WD	Y4013 250' WS	Y4014 250' WD	Y4015 30' T	Y4016 250' ΔT	Y4017 30' DP	Y4019 Precipitation
Expected Response	100.0 ±0.4	540 ±2	100.0 ±0.4	540 ±2	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5	1.00 ±0.01
As Found Response	99.5	538.1	100.0	537.2	121.7	10.02	121.7	1.00
As Left Response	99.8	539.4	—	539.2	—	—	—	—

AD 3-5-12

System Response Check

Date: 1-5-12Site: Byron
System: Control Room Indicators

<u>Low Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	0.0 ±1.0	0.0 ±1.2	0 ±5	0 ±5	-22.0 ±0.5	-10.00 ±0.18	-22.0 ±0.5
As Found Response	-0.1	0.1	0.6	0.2	-22.2	-9.95	-21.2
As Left Response	—	—	—	—	—	—	-21.9

<u>Mid Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	50.0 ±1.0	50.0 ±1.2	270 ±5	270 ±5	50.0 ±0.5	0.00 ±0.18	50.0 ±0.5
As Found Response	49.7	49.9	272.0	269.2	50.2	0.01	50.9
As Left Response	—	—	—	—	—	—	49.9

<u>Full Scale Check</u>	30' WS	250' WS	30' WD	250' WD	30' T	250' ΔT	30' DP
Expected Response	100.0 ±1.0	100.0 ±1.2	540 ±5	540 ±5	122.0 ±0.5	10.00 ±0.18	122.0 ±0.5
As Found Response	99.8	100.0	542.6	539.2	122.2	10.02	122.9
As Left Response	—	—	—	—	—	—	122.2

ASZ 3-5-12

Equipment Maintenance Log

Date(s): 1-9-12

- ☒ In-house work
☐ Field work

Site: Byron

- ☒ Weekday
☐ Weekend / Holiday
 Page 1 of 1

Reason for work / Nature of Problem: Joe Odom from ERIN Engineering requested data from 2008-2010 for licensing renewal purposes.

Work Performed / Action taken: The data was processed and sent to Mr. Odom.

Measuring Test Equipment Used

Unit

S/N

Work Completed? ☒ Yes ☐ No Calibrated? ☐ Yes ☐ No ☒ NA

☐ Meteorological☐ Microtel☐ Visibility monitor/fog warning signs☒ Other Special Request

Billable

Labor: 1 reg - ot

Travel: - mi \$ - tolls

Misc: -

Date	Technician	Reg Hours	OT Hours
1-9-12	AJZ	1	

AJZ 1-9-12

Equipment Maintenance Log

A1
7/10
R-28Site: Byron☒ In-house work
☐ Field workDate(s): 1-12-12☒ Weekday
☐ Weekend / Holiday
Page 1 of 1

Reason for work / Nature of Problem:

Calibration and bearing Replacement

Work Performed / Action taken:

REMOVED Sensors From Byron on 01-05-12
Replaced all bearings in sensors Calibrated all
Sensors. all tested Good.WS # 01204
WS # 0101
WD # 0156
WD # 0132

Measuring Test Equipment Used

Unit

S/N

Work Completed? ☒ Yes ☐ NoCalibrated? ☒ Yes ☐ No ☐ NA☒ Meteorological☐ Microtel☐ Visibility monitor/fog warning signs☐ Other _____BillableLabor: 3 reg - otTravel: - mi \$ - tolls

Misc: _____

Date	Technician	Reg Hours	OT Hours
<u>1-13-12</u>	<u>M/M</u>	<u>3</u>	

ASL 2-7-12

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-8

Category: Meteorology, Air Quality and Noise

Statement of Question:

Provide noise emissions studies conducted at Byron, if any.

Response:

No noise emissions studies have been conducted at the Byron Station site since 1988, when a confirmatory sound level survey was conducted to address a concern described in section 2.2(2) of the initial Byron Environmental Protection Plan (EPP). A copy of the 1988 confirmatory sound level survey could not be located.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-9

Category: Meteorology, Air Quality and Noise

Statement of Question:

Provide ambient noise survey in and around the site, if any.

Response:

Measurements of ambient noise levels taken in communities located within 5 miles of Byron Station were reported in the Byron Environmental Report-Operating License Stage (ER-OLS) (ComEd 1981a), section 2.7, a copy of which is attached to this response. No reports that ambient noise level measurements have been taken since that time were found.

List Attachments Provided:

Byron ER-OLS, Section 2.7

2.7 NOISE

This section summarizes the ambient noise levels in the vicinity of the communities located within 5 miles of the Byron Nuclear Generating Station - Units 1 & 2 (Byron Station). Particular attention was also directed toward obtaining acoustic noise levels where high voltage transmission lines are located close to communities. All measurements were made keeping in mind applicable guidelines; i.e., of the Illinois Environmental Protection Agency (Illinois EPA), the U.S. Environmental Protection Agency (U.S. EPA), and the Department for Housing and Urban Development (HUD). Noise effects in relation to adjacent occupancy are considered in Chapter 5.

2.7.1 Approach

Ambient noise measurements were made at the village limits on the side towards the direction of the station. Where a transmission line right-of-way (ROW) passes close to a community, the ambient noise measurements were taken at the village limits on the side towards the direction of the ROW.

Two communities (Byron and Oregon) lie within a 5-mile radius of the Byron Station. They are identified in Figure 2.7-1. Both of the communities, however, are more than 1 mile from the transmission line ROW's.

2.7.2 Procedures

In order to be compatible with federal and state noise standards, sound measurements were made with a Type 1 sound level meter while continuous samples of the ambient noise were being tape recorded during the day and night for periods of at least 20 minutes. Care was taken during the recording period to ensure that the recorded sample would be representative of the existing ambient noise levels.

The tape-recorded data were analyzed to yield both the cumulative distribution of the A-weighted ambient noise levels (see Figures 2.7-2 and 2.7-3) and the L_{eq} , which is the A-weighted Equivalent Sound Level as defined by the U.S. Environmental Protection Agency (U.S. EPA 1974). L_{eq} represents the sound energy averaged over a 24-hour period; the day-night sound level (L_{dn}) represents the L_{eq} with a 10 dB nighttime penalty. L_{dn} may be calculated from daytime (a 15-hour period from 7:00 a.m. to 10:00 p.m.) and nighttime (a 9-hour period from 10:00 p.m. to 7:00 a.m.) L_{eq} levels using the following relationship:

$$L_{dn} = 10 \log \frac{1}{24} \left[15 \left(10^{\frac{L_d}{10}} \right) + 9 \left(10^{\frac{L_n + 10}{10}} \right) \right] \quad [dB]$$

where:

$L_d = L_{eq}$ for daytime and

$L_n = L_{eq}$ for nighttime.

2.7.3 Applicable Guidelines

2.7.3.1 Illinois Environmental Protection Agency

Maximum allowable levels of environmental noise due to the Byron Station are established by "State of Illinois Noise Pollution Control Regulations," Effective August 9, 1973, published by the Illinois EPA. This document identifies allowable levels based on the land use category of the emitter and the receiver. Noise emitted by the Byron Station (land use Class C) to residential areas (land use Class A) is limited by Rule 202 (Sound Emitted to Class A Land During Daytime Hours, 7:00 a.m. to 10:00 p.m.) and Rule 203 (Sound Emitted to Class A Land During Nighttime Hours, 10:00 p.m. to 7:00 a.m.). Maximum allowable octave band sound pressure levels of the more stringent Rule 203 are shown in Table 2.7-1. This table also includes noise data measured at the village limits of Byron and Oregon.

2.7.3.2 U.S. Environmental Protection Agency

The U.S. EPA has also identified a 24-hour $L_{eq} \leq 70$ dB as the level of environmental noise that will prevent any measurable hearing loss over a lifetime for all areas (U.S. EPA 1974). Similarly, undue interference with activity and annoyance will not occur if outdoor levels in residential areas are maintained at $L_{dn} \leq 55$ dB. Table 2.7-2 tabulates the L_d , L_n , and L_{dn} dB levels at the two village limits on the side towards the Byron Station.

2.7.3.3 Department of Housing and Urban Development

On August 4, 1974, HUD published "Noise Abatement and Control Standards," HUD Circular 1390.2 (1971) to encourage land utilization patterns for housing and other municipal needs. HUD criteria state that noise levels for residential developments are normally acceptable if they do not exceed 65 dBA more than 8 hours per 24 hours; i.e., $L_{33.3} \leq 65$ is normally acceptable. Cumulative distributions of measured A-weighted ambient noise levels are shown in Figures 2.7-2 and 2.7-3. $L_{33.3}$ values may be obtained from these figures and are shown on Table 2.7-3.

TABLE 2.7-1

ILLINOIS EPA MAXIMUMS AND MEASURED OCTAVE BAND NOISE LEVELS

	<u>OCTAVE BAND CENTER FREQUENCIES - SOUND PRESSURE LEVELS IN dB</u>								
	<u>31.5</u>	<u>63</u>	<u>125</u>	<u>250</u>	<u>500</u>	<u>1k</u>	<u>2k</u>	<u>4k</u>	<u>8k</u>
EPA Maximums (Rule 203)	69	67	62	54	47	41	36	32	32
Community Ambient Noise Levels									
Byron	42	40	37	27	30	24	20	21	13
Oregon	46	47	50	36	34	33	22	19	12

TABLE 2.7-2

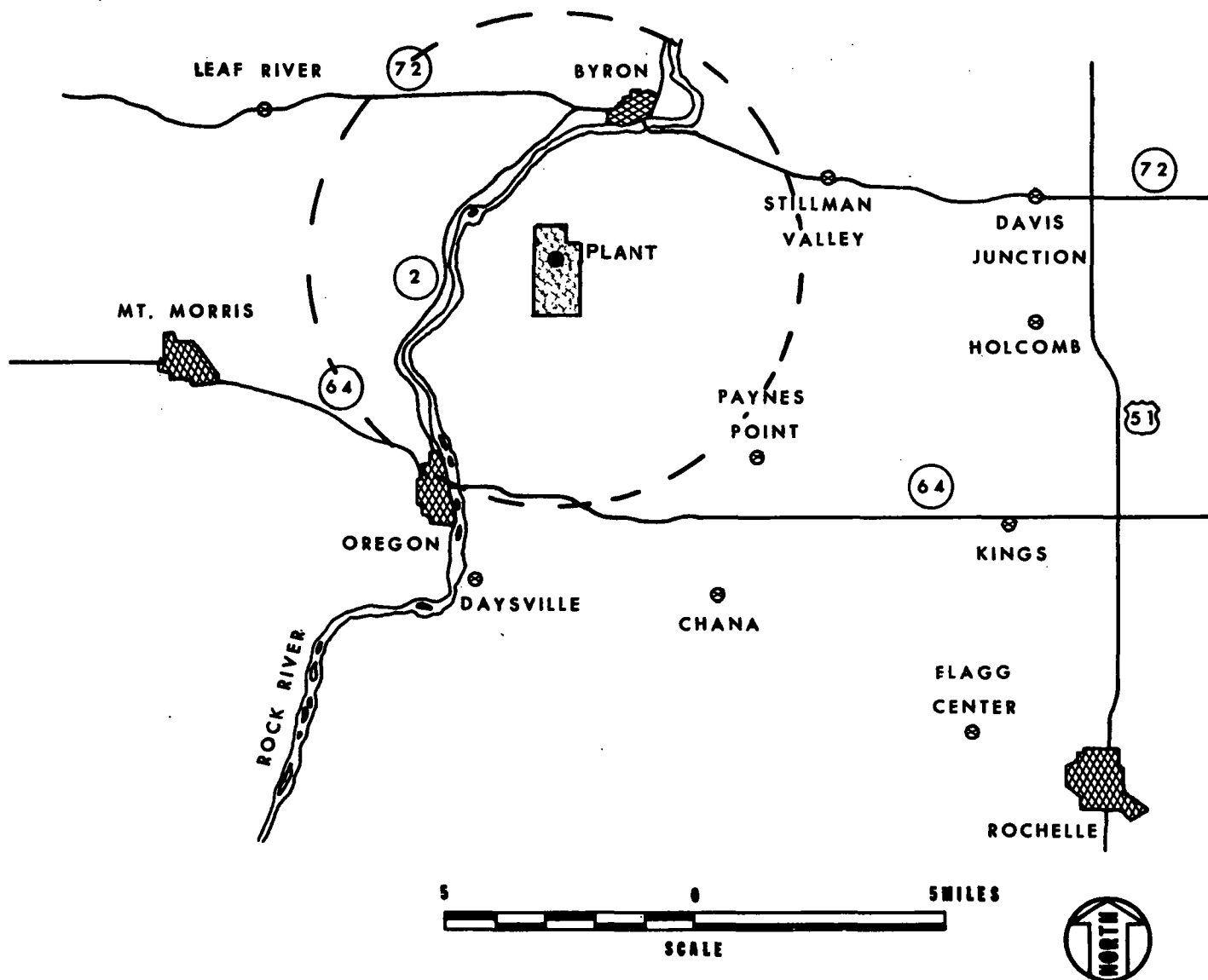
U.S. EPA MAXIMUMS AND MEASURED L_{eq} LEVELS

COMMUNITY AMBIENT NOISE LEVELS (locations)	<u>Leg</u> LEVELS (dBA)			
	U.S. EPA GUIDELINE (maximum <u>L_{dn}</u>)	MEASURED LEVELS		
		<u>L_{dn}</u>	<u>L_d</u>	<u>L_n</u>
Byron	55	44	43	36
Oregon	55	52	50	43

TABLE 2.7-3

HUD MAXIMUMS AND MEASURED L_{33.3} LEVELS

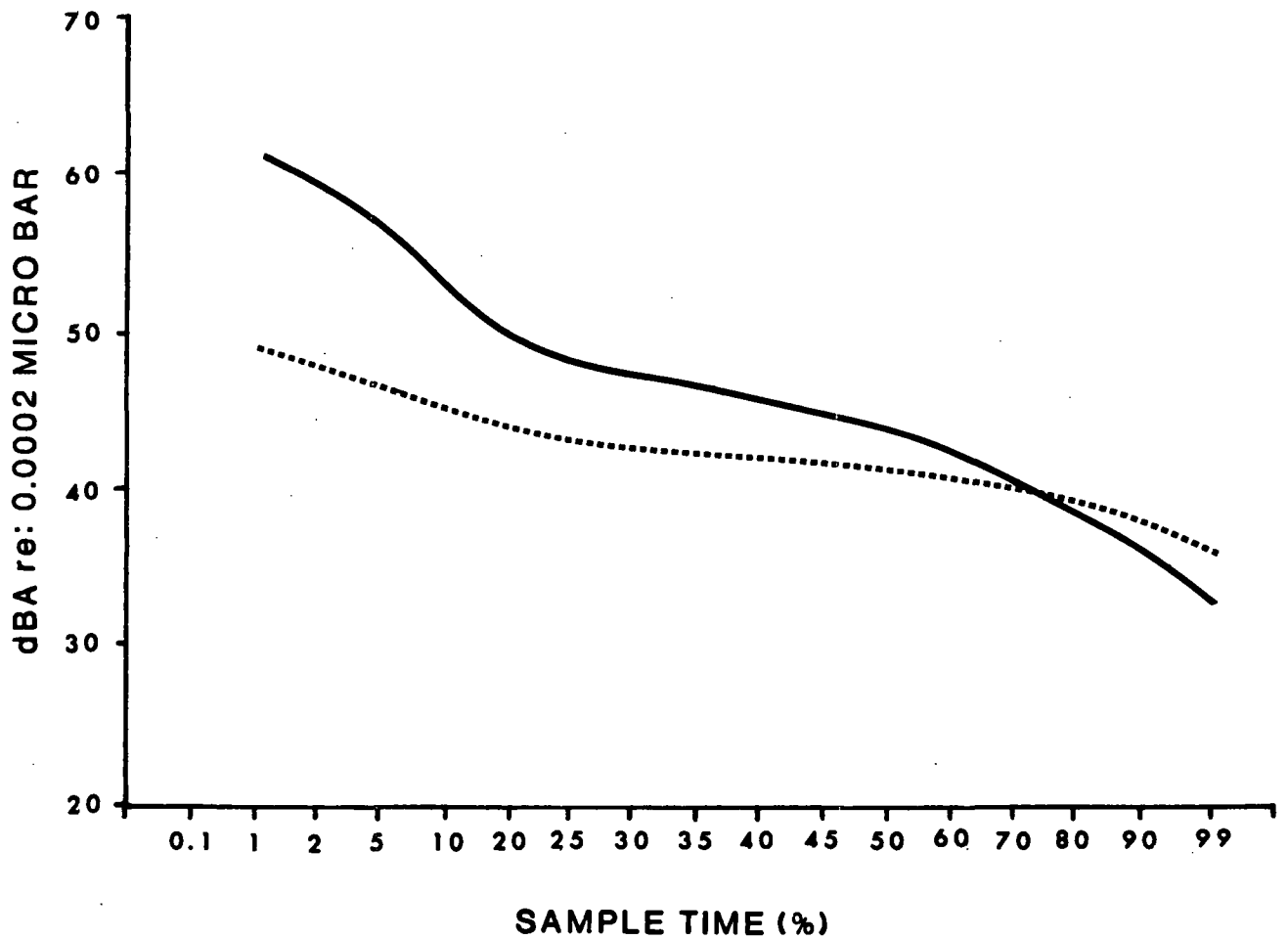
COMMUNITY AMBIENT NOISE LEVELS (locations)	L _{33.3} LEVELS (dBA)		
	HUD GUIDELINE (maximum)	MEASURED AMBIENT NOISE LEVELS	
		DAY	NIGHT
Byron	65	43	36
Oregon	65	47	40



BYRON NUCLEAR GENERATING STATION
UNITS 1 & 2
ENVIRONMENTAL REPORT - OPERATING LICENSE STAGE

FIGURE 2.7-1

LOCATIONS OF COMMUNITIES WITHIN
5 MILES OF THE STATION USED IN
AMBIENT NOISE MEASUREMENTS

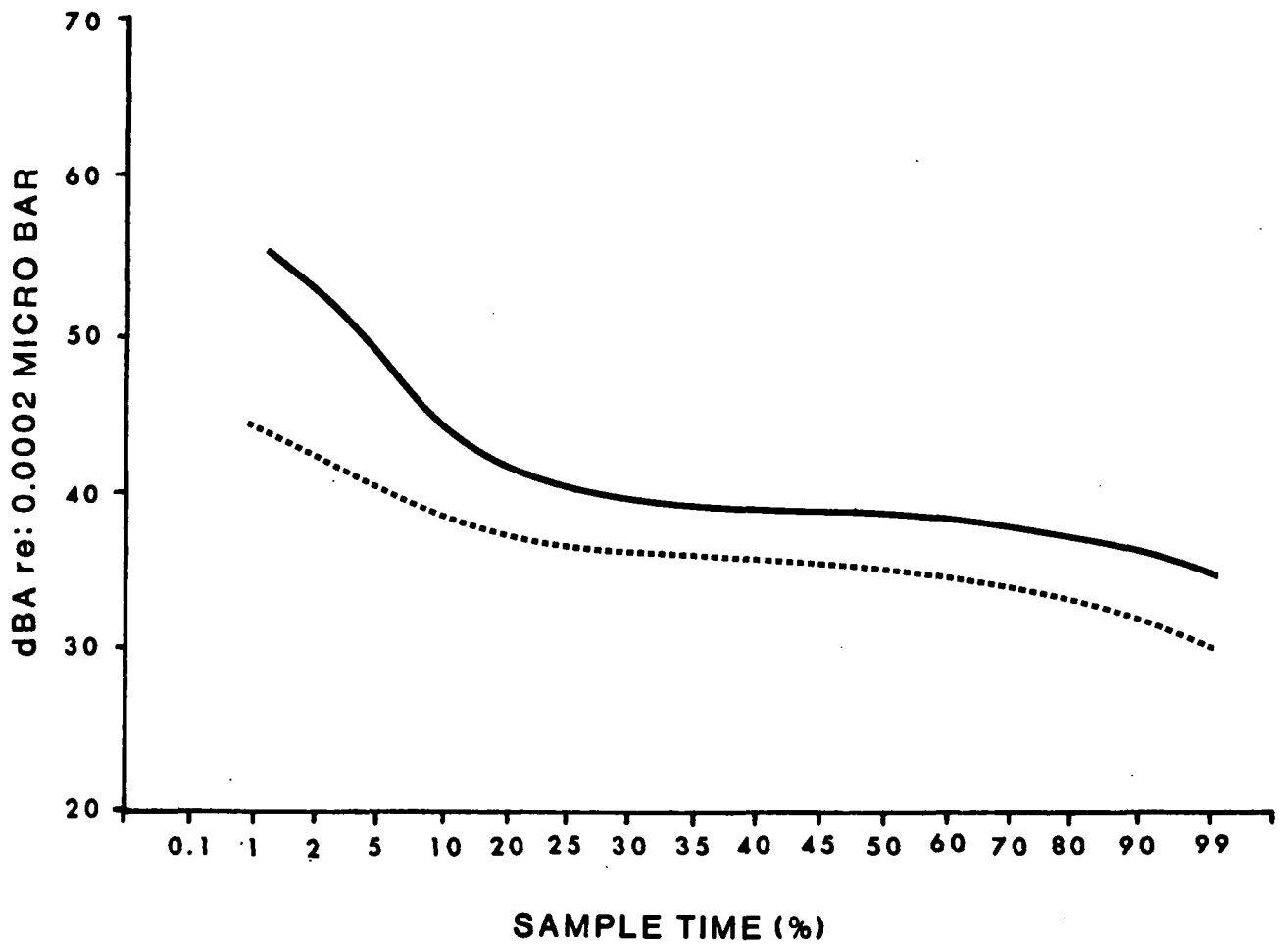


..... Byron
—— Oregon

BYRON NUCLEAR GENERATING STATION
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FIGURE 2.7-2

CUMULATIVE A-WEIGHTED DAYTIME
AMBIENT NOISE LEVELS



..... Byron

—— Oregon

BYRON NUCLEAR GENERATING STATION
UNITS 1 & 2
ENVIRONMENTAL REPORT - OPERATING LICENSE STAGE

FIGURE 2.7-3

CUMULATIVE A-WEIGHTED NIGHTTIME
AMBIENT NOISE LEVELS

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-10 **Category:** Meteorology, Air Quality and Noise

Statement of Question:

Provide information about any noise complaints for the most recent five years resulting from plant operation.

Response:

No records or anecdotal reports of noise complaints caused by plant operation during the most recent five years were found.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-11

Category: Meteorology, Air Quality and Noise

Statement of Question:

Identify primary noise sources at Byron and in the vicinity of Byron. Please identify if the noise sources are located outdoors or in enclosures.

Response:

Section 5.6 in the Byron ER-OLS (ComEd 1981b) describes predicted noise effects from operation of the Byron Station. Based on experience, the noise sources (equipment) attributed to continuous plant operation in section 5.6 were the following:

- Natural-draft cooling towers
- Essential-service-water mechanical-draft cooling towers
- Main power transformers
- System auxiliary transformers
- Unit auxiliary transformers
- Screen-house transformers
- Auxiliary building ventilation supply and exhaust fans
- Screen-house ventilation supply fans

Operation of unsilenced main-steam power-operated relief valves was identified as an intermittent noise source. A copy of section 5.6 in the Byron ER-OLS is attached.

Other noise sources not addressed in the Byron ER-OLS include the circulating water system pumps and the Security Firing Range. The circulating water system pumps contribute noise to continuous plant operation while the Security Firing Range has been identified as a possible intermittent noise source. Noise levels from neither of these sources have been assessed.

The noise sources mentioned above are located outdoors with no enclosures, except the circulating water system pumps, the auxiliary building ventilation supply and exhaust fans, and the screen-house ventilation supply fans, which are all located in buildings.

List Attachments Provided:

Byron ER-OLS, Section 5.6

5.6 OTHER EFFECTS

5.6.1 Introduction

This section describes the predicted noise effects of the Byron Nuclear Generating Station - Units 1 & 2 (Byron Station) during plant operation. All other effects of operation are discussed in other sections of Chapter 5.

5.6.2 Approach

Noise due to the operation of Byron Station was predicted at four locations identified in Figure 5.6-1 as Points 1 through 4. Points 1 through 3 were selected because plant operation noise at these points will be relative maximums for offsite residential areas. Point 4 was selected to assess maximum offsite noise due to operation of the river screen house.

The noise sources (equipment) considered in predicting continuous plant operation noise were the natural-draft cooling towers, essential-service-water mechanical-draft cooling towers, main power transformers, system auxiliary transformers, unit auxiliary transformers, screen-house transformers, auxiliary building ventilation supply and exhaust fans, and screen-house ventilation supply fans. Experience shows that these are the major sources of continuous exterior noise for this type of station. Intermittent noise due to the operation of unsilenced main-steam power-operated relief valves was also predicted.

5.6.3 Procedures

Maximum expected noise level data for the major exterior sources identified in Subsection 5.6.2 were established based on published prediction schemes and manufacturers' information. Natural-draft cooling tower noise levels were based on a prediction technique by G. A. Capano and W. E. Bradley (1974). Noise data for essential-service-water mechanical-draft cooling towers and for transformers were obtained from the manufacturers. The National Electrical Manufacturers Association's Standards for Transformers, TR1-1972, Section 0.06 (1972) was also used to establish transformer noise levels. Ventilation-fan noise level predictions were based on a prediction technique by J. B. Graham (1975), and used fan operation parameters obtained from station design requirements. Power-operated relief valve noise was predicted using a technique developed by Riley-Beaird (no date).

The noise levels for each source were extrapolated to the various prediction points using standard prediction techniques that account for wave divergence and excess attenuation due to atmospheric absorption, directivity, shielding, and ground effects. The resulting octave-band sound pressure levels from each continuous source were then combined to give the resultant overall plant operation noise level at each location. Table 5.6-1 summarizes these predicted levels. Table 5.6-2 summarizes

the predicted A-weighted noise levels at each prediction point that result from relief valve operation.

5.6.4 Noise Effects

5.6.4.1 Illinois Environmental Protection Agency

To assess the possible effects of noise due to normal continuous operation of Byron Station, the predicted levels were compared to applicable state of Illinois noise pollution control regulations. Since the prediction points are located near existing residences, station noise at these points is regulated by Rule 203 (Sound Emitted to Class-A Land During Nighttime Hours). The comparisons of predicted levels with Rule 203, as shown in Figures 5.6-2 through 5.6-5, indicate that the calculated station operation noise levels at all prediction points meet the Illinois regulations.

5.6.4.2 U.S. Environmental Protection Agency

A second method used to assess the possible effects of normal operation of Byron Station was to determine how the predicted plant operation noise levels compared with the levels of environmental noise identified by the U.S. Environmental Protection Agency (USEPA) as requisite to protect public health with an adequate margin of safety. This comparison, summarized in Table 5.6-3, shows that predicted levels at all points meet the requisite level, $L_{dn} \leq 55$, applicable to outdoor levels in residential areas.

5.6.4.3 Department of Housing and Urban Development

A comparison of predicted noise due to normal plant operation with the Department of Housing and Urban Development (HUD) criteria described in Subsection 2.7.3.3 ($L_{33,3} \leq 65$ dBA) is shown in Table 5.6-4. This comparison shows that predicted levels at all points met the HUD criteria.

5.6.4.4 Preoperational Ambient Levels

To permit comparison of predicted plant operation noise with preoperational ambient noise at the plant site, levels measured at nearby locations were used to estimate preoperational ambient noise at prediction points 1, 2, and 3. These estimated levels and the measured levels at Point 4 are shown on Tables 5.6-3 and 5.6-4. These tables indicate that although levels at points near the Byron Station property line will be increased due to station operation, the predicted levels are below all applicable regulations and guidelines. Ambient noise levels measured in the nearest communities, Byron and Oregon (see Subsection 2.7.1), however, are not expected to be significantly affected by plant operation.

5.6.5 Conclusion

The predicted station operation noise levels at property line points near existing residences meet state of Illinois regulations and federal guidelines for noise emitted to residential receivers. The actual station operation noise levels are expected to be lower than those presented in this Environmental Report because all predictions were based on the maximum expected equipment noise. The noise impact due to normal operation of the Byron Station is therefore expected to be small.

Byron ER-OLS

TABLE 5.6-1
PREDICTED NOISE LEVELS DUE TO
NORMAL CONTINUOUS OPERATION

<u>LOCATION</u>	<u>OCTAVE BAND CENTER FREQUENCIES (Hz)</u>								
	<u>dBA</u>	<u>63</u>	<u>125</u>	<u>250</u>	<u>500</u>	<u>1K</u>	<u>2K</u>	<u>4K</u>	<u>8K</u>
1	42	49	53	45	40	35	19	2	--
2	47	51	56	49	44	41	30	20	3
3	48	53	59	52	46	39	28	10	--
4	29	29	37	32	29	16	14	8	--

TABLE 5.6-2
PREDICTED NOISE LEVELS DUE TO
RELIEF VALVES OPERATION

<u>LOCATION</u>	<u>SOUND LEVEL (dBA)</u>
1	77
2	83
3	86
4	53

TABLE 5.6-3

COMPARISON OF PREOPERATIONAL AND PLANT-OPERATIONAL
CONTINUOUS NOISE LEVELS WITH U.S. EPA GUIDELINES

<u>LOCATION</u>	<u>PREOPERATIONAL NOISE LEVEL</u>	<u>NOISE DUE TO PLANT OPERATION (Predicted Level)</u>	<u>U.S. EPA GUIDELINE</u>
1	$L_{dn}^a = 45$	$L_{dn} = 48$	$L_{dn} \leq 55$
2	$L_{dn} = 45$	$L_{dn} = 53$	$L_{dn} \leq 55$
3	$L_{dn} = 54$	$L_{dn} = 54$	$L_{dn} \leq 55$ 3
4	$L_{dn} = 56$	$L_{dn} = 35$	$L_{dn} \leq 55$

Source: U.S. Environmental Protection Agency (U.S. EPA 1974).

^aThe L_{dn} or day-night sound level represents the L_{eq} with a 10 dB nighttime penalty (see Subsection 2.7.2).

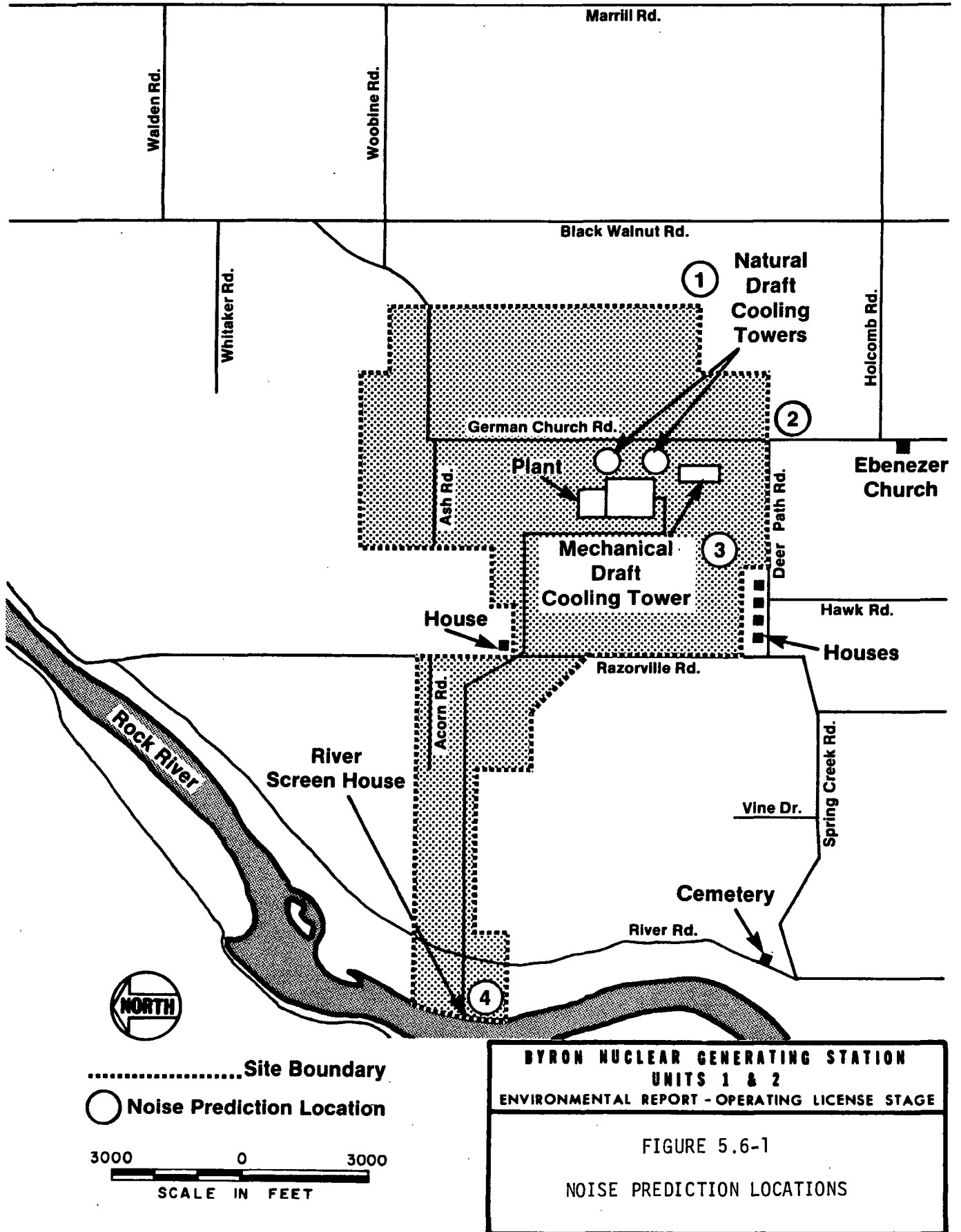
TABLE 5.6-4

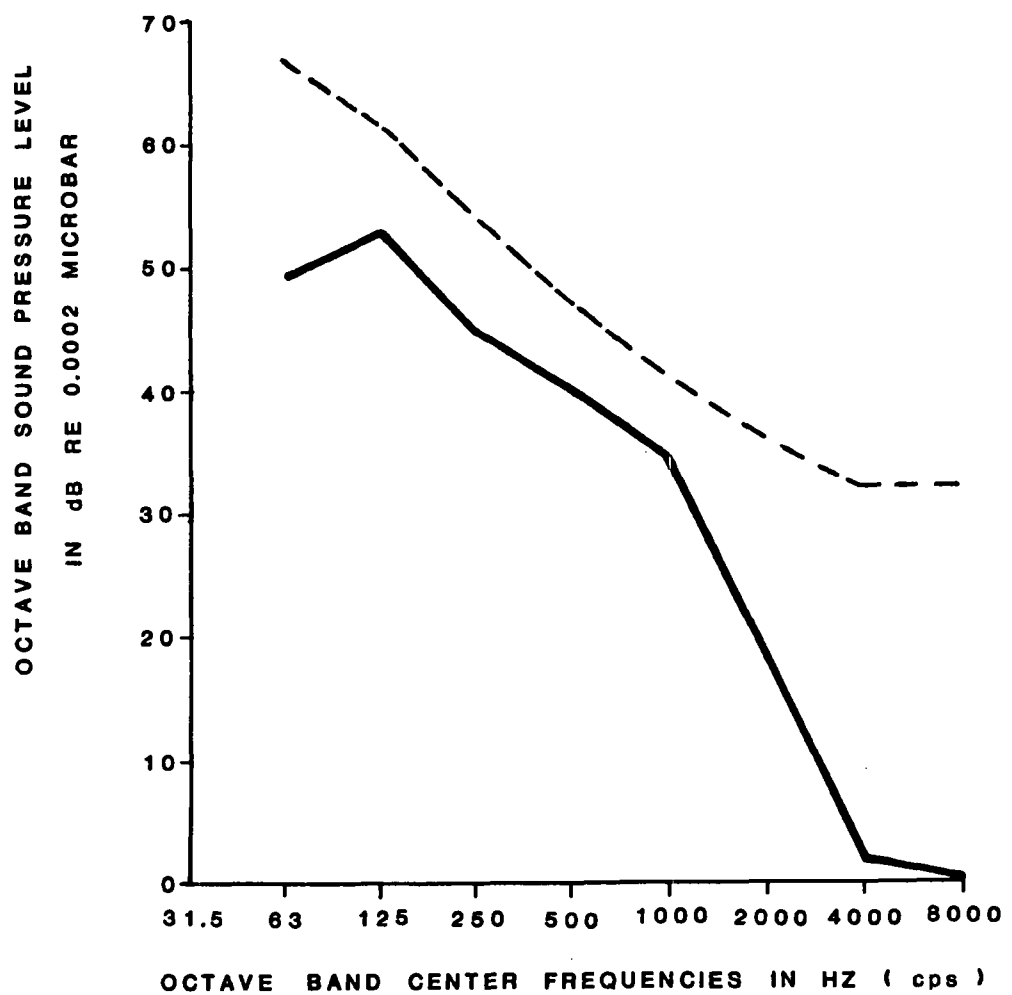
COMPARISON OF PREOPERATIONAL AND PLANT-OPERATIONAL
CONTINUOUS NOISE LEVELS WITH HUD GUIDELINES

<u>LOCATION</u>	<u>PREOPERATIONAL NOISE LEVEL (L_{33.3}^a)</u>		<u>NOISE DUE TO PLANT OPERATION (Predicted Level)</u>	<u>HUD GUIDELINE</u>
	<u>DAY</u>	<u>NIGHT</u>		
1	38.2	35.5	L _{33.3} = 42	L _{33.3} ≤ 65
2	38.2	35.5	L _{33.3} = 47	L _{33.3} ≤ 65
3	46.5	47.8	L _{33.3} = 48	L _{33.3} ≤ 65 3
4	47.5	41.7	L _{33.3} = 29	L _{33.3} ≤ 65

Source: Department of Housing and Urban Development (HUD 1971).

^aThe L_{33.3} is the maximum noise level for 8 hours per 24 hours
(see Subsection 2.7.3.3).



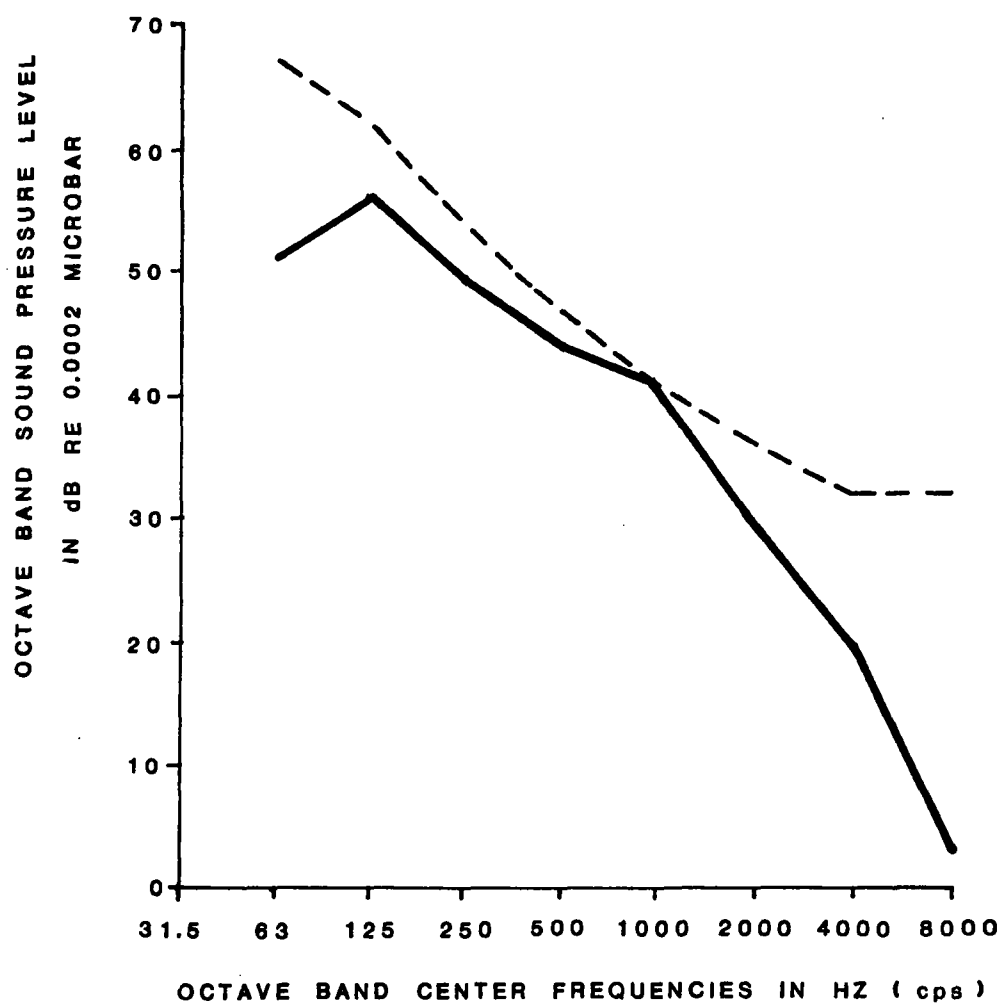


— PREDICTED NOISE LEVELS

- - - ILLINOIS RULE 203

BYRON NUCLEAR GENERATING STATION
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FIGURE 5.6-2
NOISE LEVELS AT POINT 1

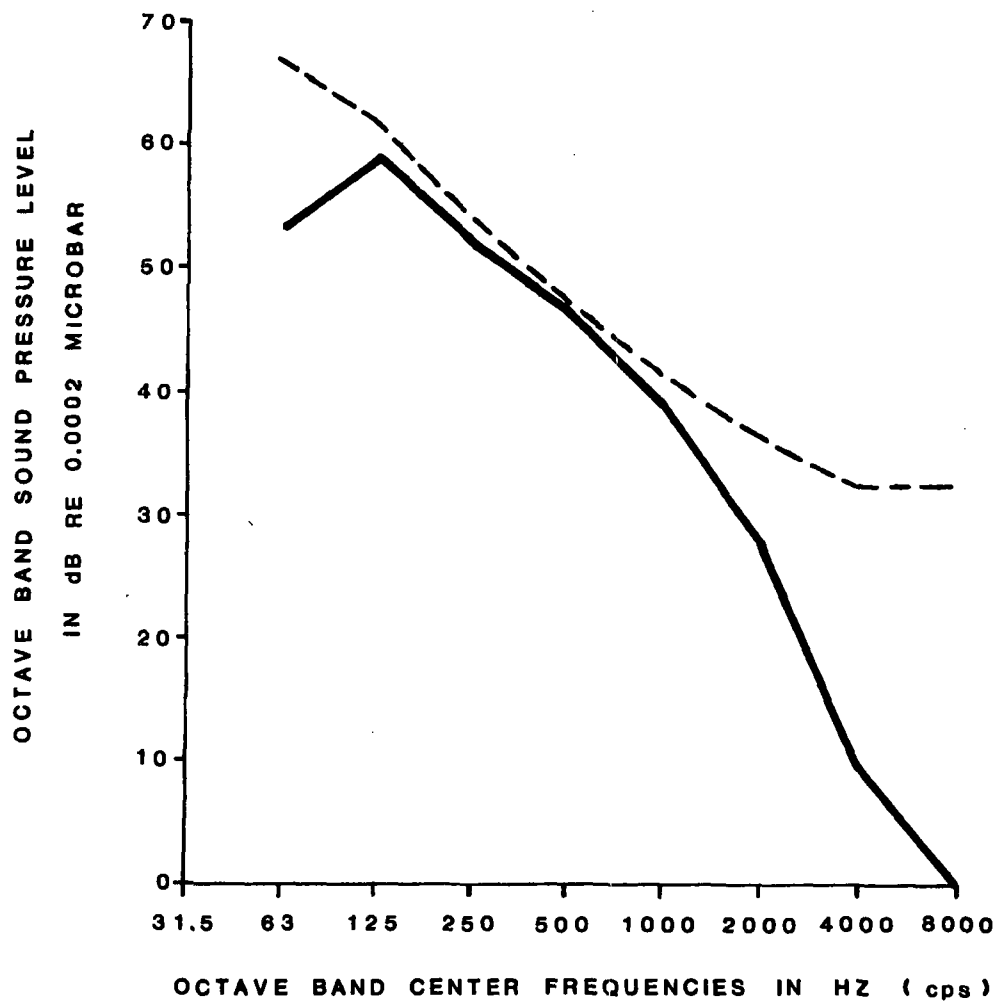


— PREDICTED NOISE LEVELS

- - - ILLINOIS RULE 203

BYRON NUCLEAR GENERATING STATION
UNITS 1 & 2
ENVIRONMENTAL REPORT - OPERATING LICENSE STAGE

FIGURE 5.6-3
NOISE LEVELS AT POINT 2

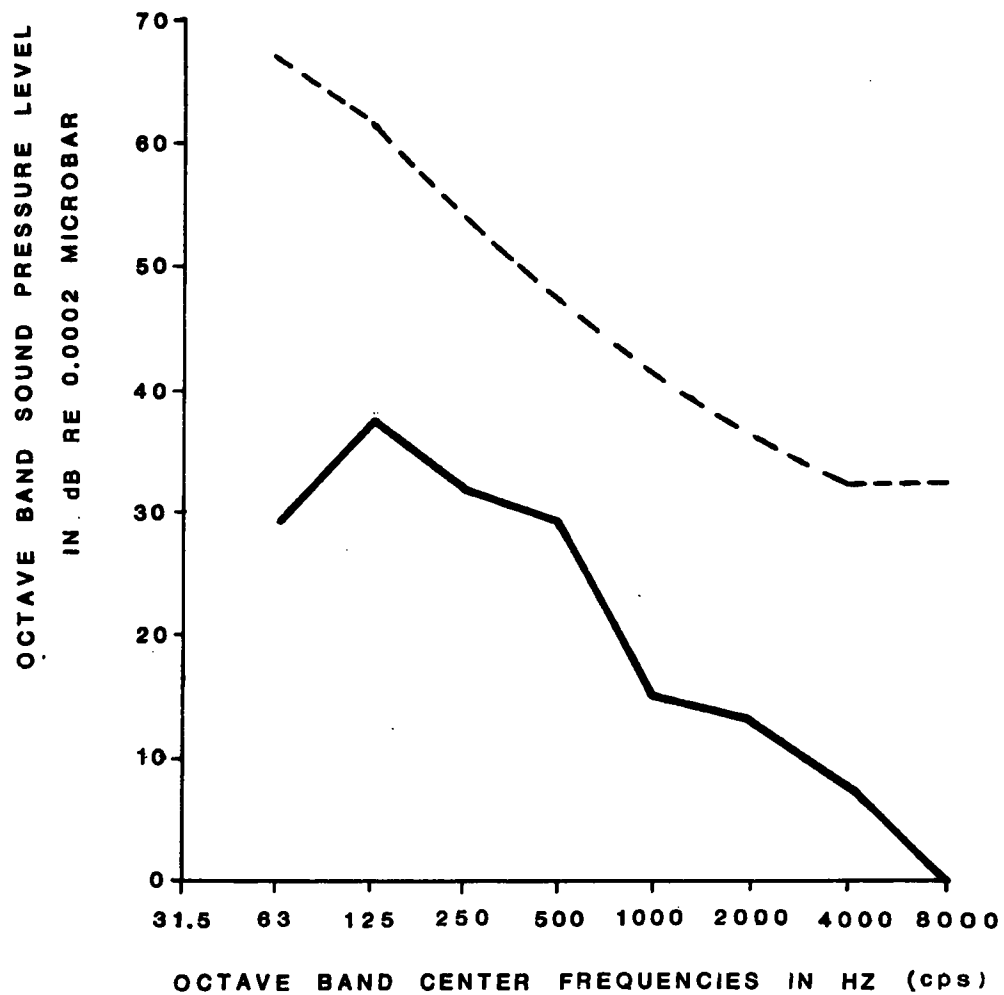


———— PREDICTED NOISE LEVELS

----- ILLINOIS RULE 203

BYRON NUCLEAR GENERATING STATION
UNITS 1 & 2
ENVIRONMENTAL REPORT - OPERATING LICENSE STAGE

FIGURE 5.6-4
NOISE LEVELS AT POINT 3



— PREDICTED NOISE LEVELS
 - - - - ILLINOIS RULE 203

BYRON NUCLEAR GENERATING STATION
 UNITS 1 & 2
 ENVIRONMENTAL REPORT - OPERATING LICENSE STAGE

FIGURE 5.6-5
 NOISE LEVELS AT POINT 4

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-12

Category: Meteorology, Air Quality and Noise

Statement of Question:

Identify nearby noise-sensitive receptors (e.g., residences, school, nursing home, childcare facility).

Response:

Land use surveys are conducted annually in the vicinity of Byron Station and reported in the Annual Radiological Environmental Operating Report, in accordance with the Byron Station Offsite Dose Calculation Manual. Among other things, the surveys document the nearest residence in each of the sixteen 22.5-degree sectors around the site. In 2012, residences were reported at the distances from Byron Station listed below.

Distance in Miles from Byron Station Vent Stacks

Sector	Distance to Nearest Residence	Sector	Distance to Nearest Residence
N	1.2	S	0.6
NNE	1.6	SSW	0.7
NE	1.1	SW	0.8
ENE	1.0	WSW	1.6
E	1.2	W	1.8
ESE	1.5	WNW	1.6
SE	1.7	NW	0.9
SSE	0.7	NNW	0.9

No other noise-sensitive receptors are known to be located within 2 miles of Byron Station.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-13

Category: Meteorology, Air Quality and Noise

Statement of Question:

Provide the staff interview Form New and Significant Information Identification Process (issue and discussion: 58. "Noise," page 81 of 149) reviewed during the environmental audit conducted in September 2013. Clarify the timeline/dates the noise complaints that are mentioned in the Interview Form were raised and measures taken as a result of the complaints.

Response:

Copies of the three staff interview forms concerning issue #58, "Noise," that were created during Exelon Generation's New and Significant Information Identification Process are attached to this response. Two of the three interviewees recalled hearing that complaints had been received about noise at the river screen house and noise due to night shooting at the on-site Security Firing Range.

In follow-up discussions with the interviewees, it has been determined that the recollected complaints all occurred more than 10 years ago, and no more recent noise complaints have been received. The interviewees could not clarify the timing of river screen house complaints, and do not recall implementation of any noise abatement measures resulting from those complaints. The noise complaints about night shooting at the on-site Security Firing Range occurred during the first year of Firing Range use (circa 2002). Those complaints were addressed upon receipt by rearranging the Security Force training schedule to conduct night shooting exercises, which are necessary to comply with the company's NRC-approved training and qualification plan for security personnel, at less objectionable times.

List Attachments Provided:

- Byron Station Units 1 and 2 Application for Renewed Operating Licenses Environmental Supplemental Report, Volume II, New and Significant Information Report, Staff Interview Form, New and Significant Information Identification Process, Issue and Discussion: 58. Noise (pages 80 of 150 to 82 of 150)

Staff Interview Form
New and Significant Information Identification Process

Issue and Discussion: 58. Noise

Category: 1

A. Interviewee Identification:

Name: Zoe Cox

Telephone: (815) 406-3035

Organization: Byron Generating Station - Supervisor
Environmental/Radwaste

Education: Bachelor of Science in
Chemistry

Responsibilities: NPDES; Air ; Drinking Water; Sewage
Treatment/Wastewater

Years Experience: Here: 16
Other: 5

B. Issue-Specific Questions

- i. Has this particular issue been of concern at this plant (if "yes" please explain?) Yes
- ii. How would you characterize the environmental impact associated with this issue at this plant?
SMALL
- iii. NRC characterized the environmental impact associated with this issue as SMALL
Do you agree with the NRC findings for this issue (if "no," please explain)? Yes
- iv. Basis for response:
Neighbors complained about security personnel using shooting range at night. As a result, shooting at night was discontinued. There have also been a few complaints about the noise made by ventilation fans at the river screenhouse, but nothing major.
- v. Additional comments:
Never been any complaints about the PA system, which they try to use sparingly.

C. General Questions

- i. Are you aware of any activities or planned activities in the plant area that might have environmental impacts that are similar to, and so cumulative with, plant environmental impacts (if "yes" please explain)? No
- ii. Are you familiar with the 92 environmental issues that NRC identified as associated with license renewal? Yes
If so, are you aware of any issues that NRC overlooked or findings that are incorrect as applied to this plant (if "yes" please explain)? No
- iii. Have any regulatory agencies or members of the public or public interest groups that you are aware of expressed concern about current or renewed plant operations (if "yes" please explain)? No

D. Interview Identification

Interviewer: Phil Moore

Interview Date: 10/18/11

Other Attendees: Krista Dearing
Nancy Ranek
Kristi Hagood
Rob Tarr

Interview Location: Byron NGS

Staff Interview Form
New and Significant Information Identification Process

Issue and Discussion: 58. Noise

Category: 1

A. Interviewee Identification:

Name: Paul Dempsey

Telephone: (815) 406-3554

Organization: Communications Manager - Byron

Education: BA Journalism, Eastern Illinois University

Responsibilities: internal and external communications

Years Experience: Here: 2
Other: 8

B. Issue-Specific Questions

- i. Has this particular issue been of concern at this plant (if "yes" please explain?) No
- ii. How would you characterize the environmental impact associated with this issue at this plant?
SMALL
- iii. NRC characterized the environmental impact associated with this issue as SMALL
Do you agree with the NRC findings for this issue (if "no," please explain)? Yes
- iv. Basis for response:
Not aware of any issues with the plant.
- v. Additional comments:

C. General Questions

- i. Are you aware of any activities or planned activities in the plant area that might have environmental impacts that are similar to, and so cumulative with, plant environmental impacts (if "yes" please explain)? No
- ii. Are you familiar with the 92 environmental issues that NRC identified as associated with license renewal? Yes
If so, are you aware of any issues that NRC overlooked or findings that are incorrect as applied to this plant (if "yes" please explain)? No
- iii. Have any regulatory agencies or members of the public or public interest groups that you are aware of expressed concern about current or renewed plant operations (if "yes" please explain)? No

D. Interview Identification

Interviewer: Kristi Hagood

Interview Date: 10/19/11

Other Attendees: Krista Dearing
Nancy Ranek
Phil Moore
Rob Tarr

Interview Location: Byron NGS

Staff Interview Form
New and Significant Information Identification Process

Issue and Discussion: 58. Noise

Category: 1

A. Interviewee Identification:

Name: John Petro

Telephone: (630) 657-3209

Organization: Exelon Generation - Principal Environmental Specialist

Education: Bachelor of Science, Biology from Illinois Benedictine College

Responsibilities: NPDES and other water permits, wildlife

Years Experience: Here: 37
Other: 2

B. Issue-Specific Questions

- i. Has this particular issue been of concern at this plant (if "yes" please explain?) No
- ii. How would you characterize the environmental impact associated with this issue at this plant?
SMALL
- iii. NRC characterized the environmental impact associated with this issue as SMALL
Do you agree with the NRC findings for this issue (if "no," please explain)? Yes
- iv. Basis for response:
There have been a few noise issues at the river screenhouse but nothing significant. There were also some issues at the gun range due to night shooting but the hours were changed.
- v. Additional comments:

C. General Questions

- i. Are you aware of any activities or planned activities in the plant area that might have environmental impacts that are similar to, and so cumulative with, plant environmental impacts (if "yes" please explain)? No
- ii. Are you familiar with the 92 environmental issues that NRC identified as associated with license renewal? Yes
If so, are you aware of any issues that NRC overlooked or findings that are incorrect as applied to this plant (if "yes" please explain)? No
- iii. Have any regulatory agencies or members of the public or public interest groups that you are aware of expressed concern about current or renewed plant operations (if "yes" please explain)? No

D. Interview Identification

Interviewer: Phil Moore

Interview Date: 10/18/11

Other Attendees: Rob Tarr
Krista Dearing
Kristi Hagood
Nancy Ranek

Interview Location: Byron NGS

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-14a

Category: Meteorology, Air Quality and Noise

Statement of Question:

In support of NRC's greenhouse gas, climate change, and cumulative impacts analysis, address the following:

- a. Has an atmospheric warming trend been observed in Rock River Hill County [sic] during the period of plant operations? Provide available data to support the conclusions reached (e.g., mean daily maximum annual temperatures, mean daily minimum annual temperatures, or mean annual temperature for the available period of record from Byron's meteorological station).

Response:

A table listing average monthly temperatures measured at the Byron Station Meteorological Tower (30-ft elevation) for the period from June 1973 through November 2013 is attached. Based on assessments using cumulative moving average and simple moving median calculations, a slight upward trend in annual average temperature at the Byron Station Meteorological Tower was observable for this data set. However, Exelon Generation cannot conclude from these observations, which represent only one location, whether any atmospheric warming trend has been observed in the Rock River Hill Country region.

List of Attachments Provided:

Byron Station Meteorological Tower – Average Monthly Temperatures, 30' Elevation. June 1973 through November 2013.

Byron Station Meteorological Tower - Average Monthly Temperatures 30' Elevation (°F)

<div> <div>Month</div> <div>Year</div> </div>	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
1973	*	*	*	*	*	68.6	68.1	67.1	58.6	54.9	38.4	22.9	**
1974	20.7	24.5	35.1	50.0	56.0	63.7	72.0	66.6	56.9	49.3	37.7	28.4	46.7
1975	25.1	23.7	28.4	41.1	61.8	69.9	73.3	72.6	59.8	54.7	44.2	30.1	48.7
1976	18.2	33.1	41.1	51.5	57.7	70.0	73.4	68.1	60.1	45.4	29.2	16.2	47.0
1977	6.3	24.5	42.0	55.4	67.7	67.1	74.1	68.7	62.6	49.0	36.9	20.5	47.9
1978	12.5	15.7	31.7	48.4	59.2	69.8	71.7	71.0	67.9	50.4	37.9	21.3	46.5
1979	6.8	12.4	34.4	45.7	60.6	69.7	71.2	69.0	65.1	52.8	37.0	30.3	46.3
1980	20.3	19.0	30.8	46.7	61.2	66.9	74.4	71.8	63.3	46.8	38.2	25.2	47.1
1981	21.7	26.0	37.6	51.3	56.4	69.1	71.1	69.0	61.2	49.0	40.3	24.7	48.1
1982	9.8	21.3	32.8	43.8	64.9	64.0	72.8	68.4	61.7	53.5	38.0	33.3	47.0
1983	25.0	30.4	36.8	44.0	55.1	70.6	76.6	75.6	63.6	52.4	40.4	13.4	48.7
1984	18.0	32.9	29.3	46.7	56.7	70.8	70.5	72.4	61.4	54.4	38.1	29.7	48.4
1985	13.3	20.4	39.1	53.7	62.9	66.1	71.5	67.4	63.3	52.2	34.9	14.6	46.6
1986	22.3	21.6	39.9	52.1	60.4	67.9	73.8	66.3	64.1	51.7	33.5	28.2	48.5
1987	24.0	32.5	38.7	51.5	63.7	71.7	74.1	69.3	62.3	45.5	42.0	29.8	50.4
1988	16.8	20.1	36.7	48.4	64.1	72.5	76.6	75.6	65.4	45.6	39.1	26.5	49.0
1989	30.2	16.4	33.9	47.1	58.6	67.9	73.2	69.4	60.7	52.9	35.8	14.7	46.7
1990	31.9	29.0	39.8	48.8	56.1	69.3	70.5	70.0	64.3	50.4	43.1	24.4	49.8
1991	17.2	29.4	38.7	51.9	65.1	72.4	73.0	71.8	62.1	51.0	32.7	28.2	49.5
1992	26.3	31.6	37.0	45.3	59.9	66.1	66.8	64.6	60.7	49.8	35.3	26.0	47.5
1993	23.5	22.5	32.9	45.3	60.2	66.3	71.9	70.6	57.3	49.5	36.6	27.1	47.0
1994	12.6	19.3	36.8	49.8	59.9	70.1	69.7	66.5	63.7	52.9	41.6	31.2	47.8
1995	20.3	23.7	38.0	44.1	57.3	70.6	73.8	74.9	59.9	51.3	30.5	23.7	47.3
1996	18.8	23.8	29.8	45.1	54.9	67.9	68.3	69.7	60.8	51.3	31.1	24.5	45.5
1997	16.5	27.1	37.0	44.8	53.9	69.3	71.0	67.2	62.5	52.6	34.9	28.7	47.1
1998	26.8	36.4	38.3	49.5	64.9	68.0	72.2	71.7	67.0	53.4	42.6	32.5	51.9
1999	19.3	33.4	35.7	50.3	62.1	69.1	76.3	68.2	61.8	51.6	44.9	28.0	50.1

Byron Station Meteorological Tower - Average Monthly Temperatures 30' Elevation (°F)

<div> <div>Month</div> <div>Year</div> </div>	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
2000	22.6	33.1	43.7	48.1	61.9	66.8	69.9	70.8	63.1	55.7	36.2	13.9	48.8
2001	23.4	23.1	33.2	53.5	61.4	68.2	74.0	71.7	60.7	50.8	48.5	32.4	50.1
2002	30.6	31.4	33.1	49.1	55.9	71.3	75.5	71.4	66.9	48.0	36.6	30.0	50.0
2003	19.6	22.2	36.2	49.5	57.3	66.9	71.7	72.8	62.8	52.3	40.1	30.6	48.5
2004	18.7	27.3	40.8	51.6	60.8	67.7	69.8	66.0	66.2	52.7	41.8	27.6	49.3
2005	21.7	31.6	35.1	53.2	57.6	73.8	73.9	72.2	68.1	53.6	40.9	21.2	50.2
2006	34.1	26.7	37.0	53.5	59.7	68.0	74.9	71.5	60.6	48.1	41.8	32.2	50.7
2007	25.9	15.8	42.2	46.9	64.5	69.4	70.6	71.9	66.1	57.7	38.3	24.5	49.5
2008	21.0	19.9	32.7	48.6	57.0	69.5	71.5	68.8	63.8	50.8	37.8	19.6	46.8
2009	13.5	26.2	38.1	47.8	59.6	68.0	66.2	67.2	62.5	46.6	44.2	24.3	47.0
2010	17.7	24.2	41.2	55.0	61.4	69.8	74.2	73.3	63.2	54.6	40.1	19.7	49.5
2011	18.2	24.8	35.4	47.1	59.4	69.8	76.5	71.0	59.4	53.3	41.7	32.5	49.1
2012	27.5	30.1	51.8	49.4	64.9	71.9	78.2	70.6	61.8	49.1	39.0	32.6	52.2
2013	24.3	23.9	29.2	45.3	61.6	67.8	71.1	70.5	64.7	51.6	35.5	*	**
AVG	20.6	25.3	36.6	48.8	60.1	68.9	72.4	70.1	62.6	51.2	38.5	25.6	48.4

Source: Monthly Reports on the Meteorological Monitoring Program at the Byron Nuclear Generating Station, June 1973 to November 2013. Prepared for Exelon Nuclear by Murray and Trettel, Inc.

* No monthly data report available

** Annual Average not calculated due to incomplete data set for the year

Byron Environmental Audit – Request for Additional Information Response

Question #: Met-14b

Category: Meteorology, Air Quality and Noise

Statement of Question:

In support of NRC's greenhouse gas, climate change, and cumulative impacts analysis, please address the following:

- b) Has a river warming trend been observed in the Rock River during the period of plant operations? Provide any study(ies) or data that support the conclusions reached (e.g., mean annual, seasonal, and/or or monthly water temperature trend for the period of record).

Response:

Rock River intake temperatures at the river screen house are not readily transferable from plant operating logs. However, a recent review of circulating water system performance generated a graph of make-up water (Rock River) temperatures for the most recent 10 years, beginning in December 2003 and ending in December 2013 (see Figure 1 below). On Figure 1, the horizontal axis represents time, and the vertical axis is temperature in degrees Fahrenheit from 0 to 100 °F. No warming trend is discernible from the graph during the 10-year time period displayed.

The nearest USGS gaging station (05440700) on the Rock River with temperature data is at Byron, IL, approximately 8 km (5 mi) upstream of the Byron intake. The following table identifies the temperature data collected by the U.S. Geologic Survey at that gaging station.

Byron, Illinois, Gaging Station (USGS 05440700)

Type of data	Time period	Notes
Water Temperature	July 4, 2012 to present	Measurement taken every 15 minutes
Field/Lab water quality samples, including water temperature	October 1977 to present, but not continuous	Monthly from Oct 1977 to April 1997; Nov 2008 to present

The USGS also maintains a gaging station (05443500) at Como, IL, approximately 74 km (46 miles) downstream of the Byron discharge. The following table identifies the temperature data collected by the U.S. Geologic Survey at that gaging station.

Como, Illinois, Gaging Station (USGS 05443500)

Type of data	Time period	Notes
Field/Lab water quality samples, including water temperature	October 1977 to present, but not continuous	Monthly from Oct 1977 to April 1997; Nov 2008 to present

Because there is no continuous data record at either USGS gaging station and because the collection methodologies at both stations varied over time and typically consisted of one water temperature taken monthly in conjunction with the collection of water quality samples, the USGS data cannot be used to perform a trend analysis.

List Attachments Provided:

None

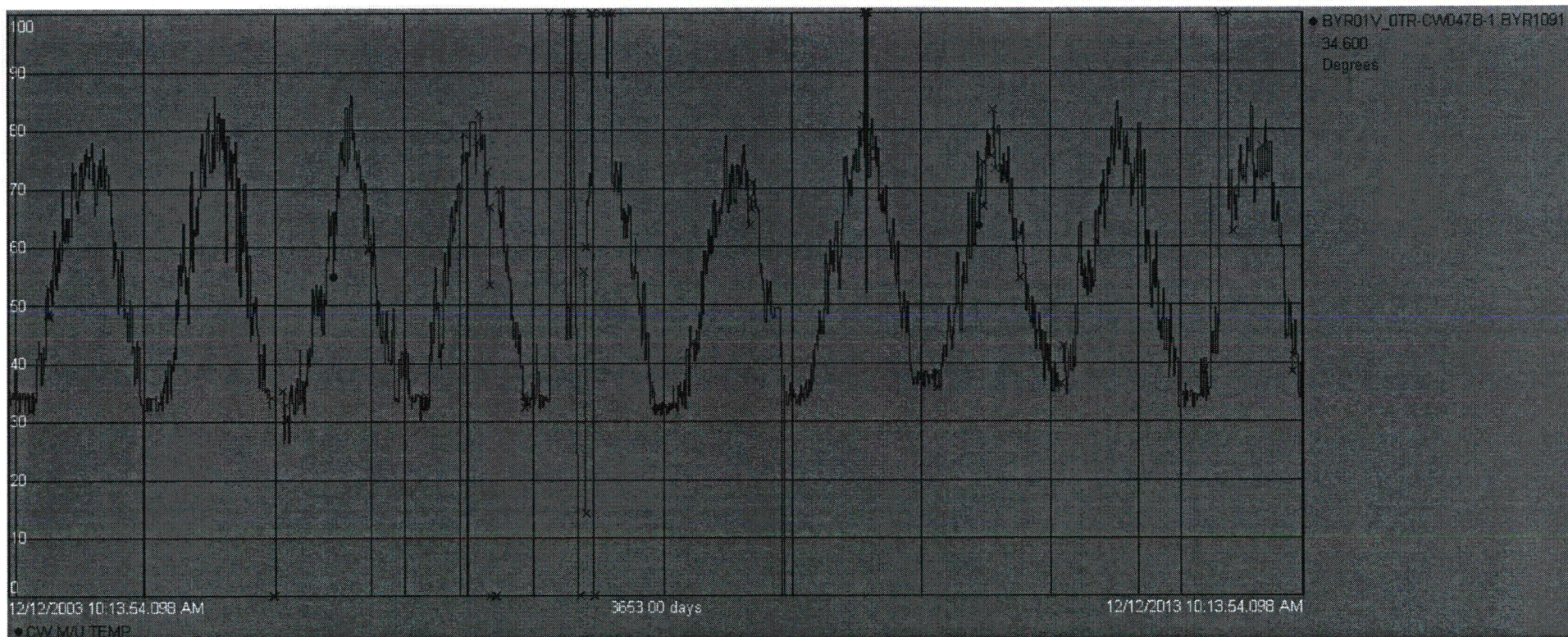


Figure 1: Circulating Water Make-up Temperatures (°F) – December 2003 to December 2013

Byron Environmental Audit – Request for Additional Information Response

Question #: R-1

Category: Refurbishment

Statement of Question:

Chapter 3 of the ER states that Exelon has no plans for refurbishment or replacement activities at Byron and hypothetically assumes that replacement of the Unit 2 steam generators may occur prior to the end of the 40-year initial license term (page 3-18 of the ER). However, for the air quality refurbishment issue presented in Chapter 4, Exelon assumes that replacement of the Unit 2 steam generators may occur "during the license renewal term" (page 4-26 of the ER). Please clarify the expected timeframe (year) that the Unit 2 steam generator replacement would occur and whether this hypothetical activity should be considered refurbishment. Will steam generator replacement occur prior to the end of the current license or during the period of extended operation?

Response:

It is not possible to clarify the expected year in which the hypothesized Unit 2 steam generator replacement would occur. Exelon Generation chose to assess in the Byron License Renewal Environmental Report impacts of possible steam generator replacement because the decision to replace the Unit 2 steam generator will ultimately depend on the success of mitigation measures and monitoring intended to address "degradation mechanisms" (i.e., aging). The link between the potential steam generator replacement and plant aging mechanisms, in conjunction with the possibility that the potential replacement might be needed at a time roughly coincident with the end of the current licensed term for Byron suggested that an analysis of the replacement activity as hypothetical refurbishment would be prudent.

List Attachments Provided:

None

Byron Environmental Audit – Response to Request for Additional Information

Question #: R-2

Category: Refurbishment

Statement of Question:

In support of NRC's analysis of the impacts of Unit 2 steam generator replacement, please address the following questions:

- a. How many temporary or permanent buildings will be constructed to support steam generator replacement activities?
- b. What is the estimated footprint (ft²) of new buildings to be constructed? What is the estimated depth of excavation?

Response:

- a.) The only building likely to be constructed to support steam generator replacement activities is the storage building for the old steam generators. Temporary office trailers and temporary shelters may be located near the construction site.
- b.) The estimated footprint (ft²) of the new steam generator storage building would be approximately 7,000 ft². The footings will extend about 4 ft beyond the building walls making the footprint of the structure approximately 8,500 ft². The building would also have an entrance vestibule that occupies approximately 200 ft².

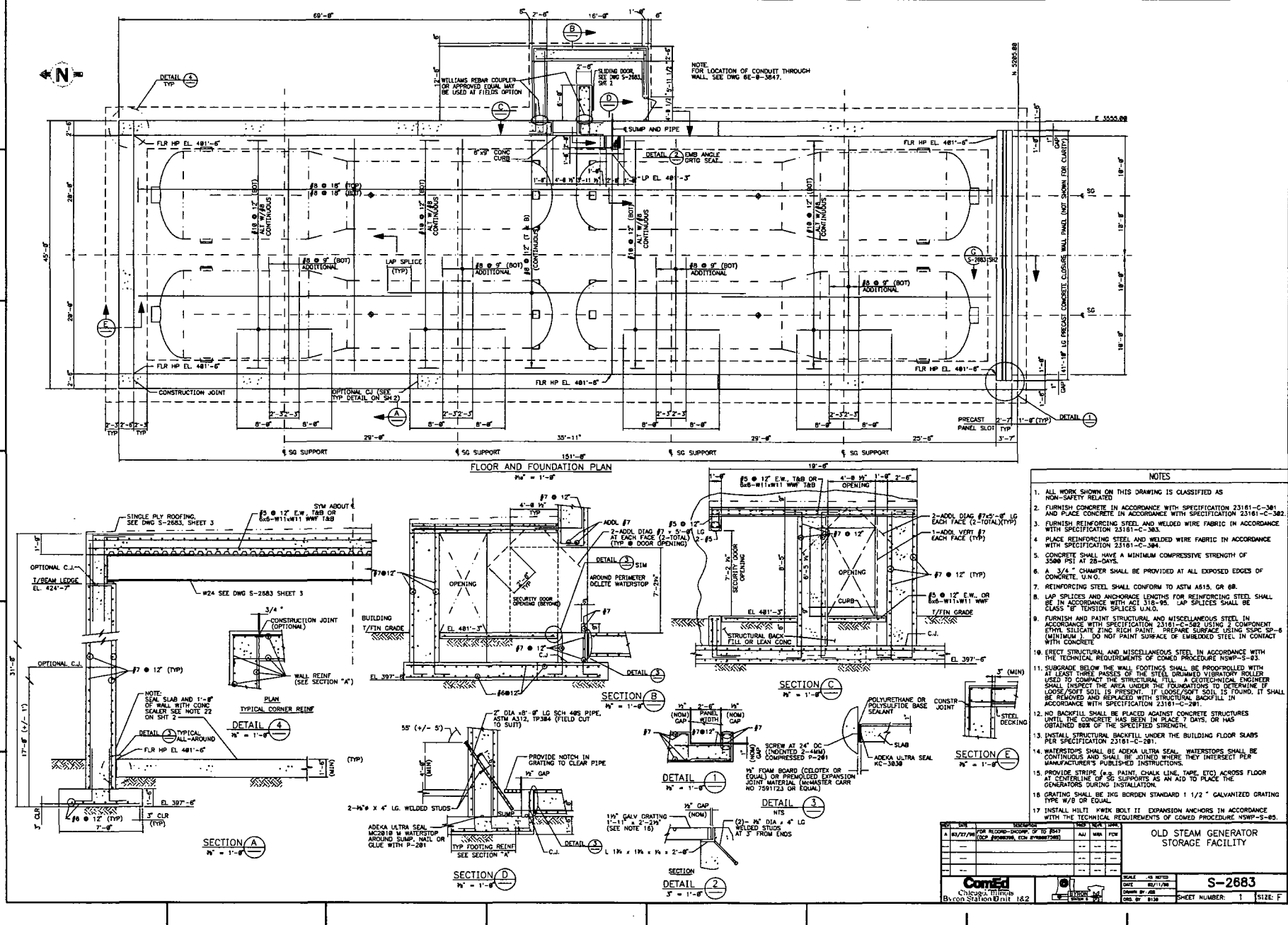
The estimated depth of the excavation would be approximately 4 ft.

The old steam generator facility building plan drawing for the Byron Unit 1 old steam generators is attached to this response as an example.

List Attachments Provided:

ComEd Byron Drawing S-2683, Sheet Number 1, Old Steam Generator Storage Facility

1 LHS 3892-S



Byron Environmental Audit – Request for Additional Information Response

Question #: S-1

Category: Socioeconomics

Statement of Question:

Provide updated permanent workforce data, preferably a residential distribution of permanent workforce by county in Table format.

Response:

The table below provides an updated distribution of permanent workforce by county in Illinois.

County	Permanent Workforce
Boone	11
Bureau	1
Carroll	2
Cook	5
DeKalb	25
DuPage	4
Fayette	1
Grundy	1
Jackson	3
Kane	13
Kendall	3
Lake	1
LaSalle	4
Lee	115
McHenry	9
Ogle	352
Pike	1
Rock	1
Stephenson	10
Tazewell	1
Whiteside	52
Will	3
Winnebago	243
Counties not in Illinois	6
Total	867

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: S-2

Category: Socioeconomics

Statement of Question:

Provide updated property tax information, similar to the data provided in Tables 2.7-2 and 2.7-3 of the ER. Include data for the years 2011 and 2012, if available.

Response:

Data provided below were collected from Ogle County. Note that the Ogle County Treasurer indicates that the 2012 data are preliminary and that the total levies for any one of the taxing bodies within Ogle County may change until December 2013 when the tax year closes.

Table S-2.1 Property Tax Payment Comparison, All Taxing Districts Combined for 2011 and 2012

Year	Total Combined Taxing District Levy – Ogle County (\$)	Byron Station Property Tax Payment (\$)	Byron Station Payment as Percent of Total District Levy (%)
2011	113,872,426.83	30,762,852.80	27
2012	116,641,832.35	32,990,082.32	28

Table S-2.2 Property Tax Payment Comparison, Byron Unit 226 School District

Year	Total Byron Unit 226 School District Levy (\$)	Byron Unit 226 District Portion of Byron Station Property Tax Payment (\$)	Byron Station Payment as Percent of Byron Unit 226 School District Levy (%)
2011	23,175,260.74	17,219,124.59	74.2
2012	24,531,412.11	18,540,024.03	75.6

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: S-3

Category: Socioeconomics

Statement of Question:

Byron's last settlement agreement was signed on November 8, 2008 and covered tax years 2005 through 2011. What is the status of the latest settlement agreement for current and future tax years? Please provide any relevant information.

Response:

Exelon Generation and the taxing bodies have not entered into another settlement agreement, although negotiations have begun. The Ogle County Assessor set the equalized assessed value (EAV) for the 2012 tax year at \$499 million, which is more than 4% higher than the EAV set under the existing settlement agreement. Exelon Generation believes the higher EAV overvalues Byron Station because an independent appraiser set the 2012 value of the station at \$1.85 billion, which equates to an EAV of approximately \$296.9 million. On this basis, Exelon Generation appealed the 2012 assessment to the Ogle County Board of Review. Upon an unfavorable ruling by the Board of Review, Exelon Generation then appealed the assessment to the Illinois Property Tax Appeal Board. The company will continue to negotiate with the taxing bodies to attempt to reach a settlement agreement, and in its absence, will appeal any assessment that does not reflect a fair valuation of the plant. However, pending the outcome of such actions, Exelon Generation has paid the tax assessed for 2012 (an increase of more than \$2 million over the prior year). [Note that this was the EAV set by the assessor just for the two power block Property Identification Numbers (PINs) combined, while Exelon Generation actually pays taxes on 48 parcels at the Byron Station. The total taxes paid by Exelon Generation identified in Table S-2.1 includes taxes for all of the PINs.]

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: S-4

Category: Socioeconomics

Statement of Question:

In accordance with the 2008 settlement agreement, Exelon agreed to make payments in addition to taxes (PIATs) to specific tax recipients. Under the agreement, Exelon made two PIAT payments of \$2,302,000 each; one in 2008 and the other, in 2010. Will there be additional PIATs in the future? If so, will there be any changes to the list of recipients in ER Table 2.7-1? Please provide any relevant information.

Response:

The negotiations with the taxing bodies that receive taxes for Byron Station are in the early stages, and Exelon Generation cannot confirm or rule out the future use of PIAT payments as part of any settlement agreement. Exelon Generation expects the list of recipients would be the same as those listed in ER Table 2.7-1 because those are the taxing bodies that levy tax on the two power block Property Index Numbers (PINs). The settlement agreements have historically only settled the EAV for the two power block PINs.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: S-5

Category: Socioeconomics

Statement of Question:

Exelon pays annual property taxes to a number of taxing entities within, and including, Ogle County. The Ogle County Treasurer collects Byron's property tax payment and disperses it to the various taxing entities to partially fund their respective operating budgets. Provide additional information about tax payments to Ogle County (after tax triggers and not including PIAT payments) and the portion of the county tax monies allocated to "the Byron Forest Preserve, the Oregon Park District, the Rock Valley Community College 511, the Byron Unit 226 School District, the Byron Fire District, the Byron Library District, Ogle County, and Rockvale Township." A brief explanation of how these payments are allocated would be helpful. A table showing the amount of distribution (or percentage) of the Byron property tax payment and each entity's total revenue (or percent of total revenue) would also be helpful. It's important to know how dependent some of these entities may be on the revenue received from the Byron property tax payment via Ogle County.

Response:

Exelon Generation pays taxes directly to Ogle County in accordance with tax bills received from Ogle County each year. A copy of one of those bills is attached to this response as an example. This illustrative bill shows a line entry for each of the taxing bodies that impose tax on that particular tax parcel. As the Byron Station property is large, some of the tax parcels it includes fall within multiple taxing districts. There is no one tax parcel that is levied on by every taxing body that levies against the station, and therefore no one bill that shows all of the taxing districts that levy tax on the total property.

Exelon Generation has no control over how the tax money it pays is allocated by the County to the taxing districts. Each district has the ability to levy against all taxpayers within its respective district according to its own charter and according to state law. The current levies are noted as a percentage in the column marked "Current Rate" on the tax bill. Exelon Generation understands that the County Treasurer allocates the tax money collected to the respective taxing bodies according to their pre-determined levies once all taxes have been collected.

The tables below for 2011 and 2012 show the total levy for each taxing body that imposes a tax on some portion of the Byron Station property, and show the exact amount paid by Exelon Generation to each taxing body. The tables also show the percentage of total revenue represented by Exelon Generation's payment for each taxing body for the tax years 2011 and 2012. It should be noted that the Ogle County Treasurer indicates that the 2012 data are preliminary and that the total levies for any one of the taxing bodies within Ogle County may change until December 2013 when the tax year closes.

Table S-5.1**2011 Property Tax Payment Comparison, Each Taxing District Individually**

Taxing Body	Total Taxing District Levy (\$)	Taxing District Portion of Byron Station Property Tax Payment (\$)	Byron Station Payment as Percent of Taxing District Levy (%)
Rockvale Township Road District	439,398.38	412,078.70	94%
Rockvale Township	162,893.90	147,867.78	91%
Oregon Park District	2,426,968.19	1,945,577.49	80%
Byron Library District	985,733.24	790,179.58	80%
Byron Fire District	2,847,882.53	2,137,067.08	75%
Byron Forest Preserve	2,235,104.08	1,664,691.42	75%
Byron School Unit 226	23,175,260.74	17,219,124.59	74%
Byron Museum District	107,847.70	80,314.40	74%
Rock Valley Community College 511	3,996,316.29	2,131,800.53	53%
Ogle County	10,895,856.26	3,500,490.42	32%
Oregon School Unit 220	9,954,055.80	608,129.98	6%
Kishwaukee College 523	2,178,105.74	70,351.06	3%
Marion Township Road	280,324.97	7,001.20	2%
Marion Township	202,895.79	4,815.41	2%
Stillman Valley Fire District	564,747.94	6,558.42	1%
Byron Park District	535,352.10	5,599.27	1%
Meridian Unit 223	7,668,245.10	28,676.18	less than 1 %
Julia Hull District Library	216,840.52	746.90	less than 1 %
Oregon Fire District	393,225.48	511.33	less than 1 %
City of Byron	680,358.62	789.59	less than 1 %
Byron Township Road	531,168.42	359.68	less than 1 %
Byron Township	197,888.03	121.79	less than 1 %

Table S-5.2
2012 Property Tax Payment Comparison, Each Taxing District Individually

Taxing Body	Total Taxing District Levy (\$)	Taxing District Portion of Byron Station Property Tax Payment (\$)	Byron Station Payment as Percent of Taxing District Levy (%)
Rockvale Township Road District	473,936.19	433,301.95	91%
Rockvale Township	170,402.82	155,781.07	91%
Oregon Park District	2,592,707.40	2,053,432.47	79%
Byron Library District	1,100,021.40	832,826.26	76%
Byron Fire District	2,849,570.86	2,173,799.08	76%
Byron Forest Preserve	2,723,877.90	2,063,496.61	76%
Byron School Unit 226	24,531,412.11	18,540,024.03	76%
Byron Museum District	107,904.13	81,743.99	76%
Rock Valley Community College 511	3,983,228.58	2,186,116.75	55%
Ogle County	11,050,901.32	3,696,958.55	33%
Oregon School Unit 220	9,727,868.75	636,845.75	7%
Kishwaukee College 523	2,408,561.88	81,556.77	3%
Marion Township Road	275,794.50	6,764.70	2%
Marion Township	203,166.03	4,835.00	2%
Stillman Valley Fire District	546,071.62	6,333.17	1%
Byron Park District	537,766.04	5,622.09	1%
Meridian Unit 223	7,638,510.57	28,042.48	less than 1 %
Julia Hull District Library	227,365.20	721.32	less than 1 %
Oregon Fire District	407,275.39	556.99	less than 1 %
City of Byron	664,602.29	814.93	less than 1 %
Byron Township Road	548,577.95	366.86	less than 1 %
Byron Township	205,197.50	141.50	less than 1 %

List Attachments Provided:

2011 Real Estate Tax Bill for Byron Station from Ogle County Tax Assessor

OGLE COUNTY
JOHN H. COFFMAN, COUNTY CLERK
OGLE COUNTY COURTHOUSE
P.O. BOX 40
OREGON, IL 61061-0040

2011 REAL ESTATE TAX BILL

PLEASE READ the instructions on the back of this bill regarding when and where to pay your taxes. Additional information is provided for changing your mailing address and tax exemptions in which you might be entitled.

The County Treasurer only collects your taxes and is not responsible for the amount of your assessment or the amount of your tax bill. We will be happy to assist you or direct you to the proper authority regarding questions about your tax bill.

**THIS IS THE ONLY NOTICE YOU WILL
 RECEIVE FOR BOTH INSTALLMENTS.**

ASSESSED TO: EXELON GENERATION CO LLC

COMMONWEALTH EDISON CO
 PROPERTY TAX DEPT
 P O BOX 767
 CHICAGO IL 60690-0000

RECEIPT PORTION - KEEP FOR YOUR RECORDS
 2011 OGLE COUNTY REAL ESTATE TAX
 PAY TO: OGLE COUNTY COLLECTOR

FORMULA FOR TAX CALCULATION - 2011

LAND	533,330
STRUCTURES/BLDG.	467,466,870
FARM BLDG.	0
FARM LAND	0
BD OF REVIEW EQUALIZED VALUE	468,000,000
HOME IMPROVEMENT EXEMPTION	0
VETERANS' EXEMPTION	0
VALUE PRIOR TO STATE EQUALIZE	468,000,000
STATE EQUALIZATION FACTOR***	X 1.0000
STATE EQUALIZED VALUE	= 468,000,000
OWNER OCCUPIED EXEMPTION	- 0
SENIOR HOMESTEAD EXEMPTION	0
SENIOR ASSESSMENT FREEZE	0
DISABLED PERSONS' EXEMPTION	0
RETURNING VETERANS' EXEMPTION	- 0
DISABLED VETERANS' EXEMPTION	0
MISC. EXEMPTION	0
TAXABLE VALUE	= 468,000,000
TAX RATE	X 6.33459
TOTAL TAX	= \$29,645,881.20

***NOT TO BE USED FOR FARM LAND AND
 FARM BUILDINGS

INTEREST 1% PER MONTH	TOTAL TAX DUE
	\$29,645,881.20

1977 EQUALIZED VALUE	FAIR MARKET VALUE

PROPERTY DESCRIPTION		PARCEL NUMBER (PIN)		
RNG/BLK: 10 TWP:24 SECT/LOT:13 SE4 BK 01-467 & 470		09-13-400-002		
		ACRES	TAXABLE VALUE	
		160.00	468,000,000	
		CLASS CODE	TAX CODE	
		0080	02151	
LOCATION OF PROPERTY 4448 N GERMAN CHURCH RD BYRON, IL 61010-0000		TOWNSHIP Rockvale		
TAXING BODY	PRIOR RATE	PRIOR AMOUNT	CURRENT RATE	CURRENT AMOUNT
OGLE COUNTY	0.55378	\$2,537,898.03	0.54556	\$2,553,220.66
OGLE CO. MENTAL HEALTH	0.05303	\$243,008.66	0.05301	\$248,086.75
OGLE CO. EXTENSION	0.00985	\$45,138.69	0.00982	\$45,958.96
OGLE CO. VETERANS ASSISTANCE	0.00631	\$28,917.02	0.00628	\$29,391.33
OGLE CO. SENIOR SERVICES	0.01507	\$69,059.00	0.01473	\$68,935.05
OGLE COUNTY PENSION	0.09623	\$440,972.85	0.09588	\$448,717.65
BYRON FIRE DISTRICT	0.41964	\$1,923,001.06	0.41583	\$1,946,083.45
BYRON FIRE DISTRICT PENSION	0.02700	\$123,726.74	0.02803	\$131,181.35
ROCK VALLEY COM COL 511	0.45042	\$2,064,049.65	0.45320	\$2,120,976.00
BYRON UNIT 226	3.82505	\$16,611,786.16	3.81111	\$16,900,002.50
BYRON UNIT 226 PENSION	0.06483	\$297,088.94	0.05381	\$251,823.10
BYRON LIBRARY DIST	0.15905	\$728,846.99	0.16034	\$750,391.10
BYRON LIBRARY DIST PENSION	0.00608	\$27,861.24	0.00355	\$16,614.10
BYRON MUSEUM DISTRICT	0.01685	\$77,215.13	0.01666	\$77,968.80
OREGON PARK DIST	0.37429	\$1,715,183.19	0.38639	\$1,808,305.31
OREGON PARK DIST PENSION	0.01715	\$78,590.61	0.01860	\$87,047.89
ROCKVALE TWP ROAD DIST	0.08341	\$382,226.33	0.08575	\$401,310.00
BYRON FOREST PRES	0.33211	\$1,521,894.81	0.33292	\$1,558,065.77
BYRON FOREST PRES PENSION	0.01014	\$46,465.82	0.01235	\$57,797.83
ROCKVALE TOWNSHIP	0.02987	\$136,879.28	0.03077	\$144,003.60
Total		\$29,645,881.20	\$29,645,881.20	\$29,645,881.20



Byron Environmental Audit – Request for Additional Information Response

Question #: S-6

Category: Socioeconomics

Statement of Question:

In addition to property tax payments and payment in addition to taxes (PIAT) information presented in Section 2. 7 of the ER, describe any other major annual support payments, onetime payments, and other forms of non-tax compensation (if any) provided to local organizations, communities, and jurisdictions (e.g., county, municipality, townships, villages, incorporated places, and school districts) on behalf of Byron.

Response:

Byron Station also provides charitable donations in fairly small amounts to a number of local governmental, charitable, educational and other organizations. The total of these donations for 2012 was \$68,000. The attached chart shows a typical list of all the charitable donations for the year 2011. These charitable donations have not been significantly different in recent years, and are expected to continue at this or a slightly lower level in future years.

Byron Station also made a one-time donation to the Ogle County Sheriff's Department of \$30,000 in 2013, and a donation of \$25,000 to help fund a new Emergency Preparedness Facility at the County in 2011. The station also makes payments to the Illinois Emergency Management Agency (IEMA), a portion of which are sent to Ogle County to assist with the operation of the County Emergency Preparedness Facility. The portion of Exelon's fee to IEMA that was sent to Ogle County for fiscal 2012 (July 1, 2012 – June 30, 2013) was \$83,770.

List Attachments Provided:

Byron Station Charitable Spending For 2011

Byron Station Charitable Spending For 2011

ORGANIZATION	PROJECT TITLE	2011
AMERICAN CANCER SOCIETY	Relay for Life - Ogle West	\$ 500
ALL VETRANS' MEMORIAL PARK OF STEPHENSON COUNTY	Golf Outing	\$ 200
AMERICAN YOUTH SOFTBALL ASSOCIATION	Softball tourney	\$ 400
ARTHRITIS FOUNDATION	Jingle Bell Run/Walk	\$ 1,000
AUTUMN ON PARADE	Festival	\$ 500
AUTUMN ON PARADE	5K	\$ 400
BOY SCOUTS OF AMERICA	Pinewood Derby	\$ 250
BREAD OF LIFE - VALLEY EV.	Holiday food drive	\$ 500
BYRON CHAMBER OF COMMERCE	Carriages for Miracle on 2nd St.	\$ 400
BYRON CIVIC THEATRE	Annual program	\$ 2,000
BYRON COMMUNITY REVITALIZATION	Annual fundraiser	\$ 250
BYRON COMMUNITY REVITALIZATION	Alumni Challenge	\$ 300
BYRON FIRE ASSOCIATION	Golf outing	\$ 370
BYRON FOREST PRESERVE	Winter Kids Concerts	\$ 500
BYRON PARK DISTRICT	Baseball and softball teams	\$ 300
BYRON SCHOOL DISTRICT	Math/Science Scholarship	\$ 1,000
BYRON TIGERS JUNIOR TACKLE	Football season	\$ 500
CITY OF BYRON	Operation Santa	\$ 750
CITY OF BYRON	4th of July fireworks	\$ 1,000
CITY OF DAVIS JUNCTION	Weekend in the Park	\$ 1,500
CITY OF OREGON	Historic Coliseum refurbishment	\$ 10,000
CROSSROADS BLUES SOCIETY	Byron Crossroads Blues Festival fundraiser	\$ 1,000
DISCIPLES UNITED METHODIST CHURCH	Crop Walk for Hunger	\$ 100
DIXON WRESTLING CLUB	Sponsorship	\$ 100
FIELDS PROJECT, THE	Community Art Legacy project	\$ 1,000
GRAND DETOUR	Next Picture Show Photo Contest	\$ 200
GRANNY ROSE ANIMAL SHELTER	Fur Ball 2010	\$ 300
HAPPY TAILS INC.	Golf fundraiser	\$ 400
HARD KNOX BASEBALL	Golf fundraiser	\$ 300
HOO HAVEN WILDLIFE REHABILITATION CENTER	Exelon Aquatic Center wing (\$5k from Chem. too)	\$ 10,000
KEEP NORTHERN ILLINOIS BEAUTIFUL	Earth Day fundraiser	\$ 500
KNIGHTS OF COLUMBUS - BYRON #4739	Tootsie Roll fundraiser	\$ 250
LA VOZ LATINA	Annual celebration gala	\$ 600
LEAF RIVER LIONS CLUB	Summer Daze (emergency funding)	\$ 3,000
LEAF RIVER LIONS CLUB	Summer Daze	\$ 1,200
LEE COUNTY VETERANS COMMISSION	Annual dinner	\$ 300

Byron Station Charitable Spending For 2011

ORGANIZATION	PROJECT TITLE	2011
LIFELINE FOOD AND SELF HELP PROJECT	Food pantry donation	\$ 350
MAYWOOD EVANGELICAL CHURCH	Andy Patten Leadership Center Golf Outing	\$ 150
MERIDIAN C.U.S.D. 223	Math/Science Scholarship	\$ 1,000
MONTESSORI LEARNING PATH	Fundraiser	\$ 75
MORNING STAR PRESCHOOL	Fundraiser	\$ 300
MOVEMBER	Fundraiser for men's health	\$ 200
OGLE COUNTY HOSPICE ASSOCIATION	Rick Hahn Memorial Run	\$ 250
OREGON CHAMBER OF COMMERCE	Oregon Candlewalk	\$ 450
OREGON HAWKS SOFTBALL	Season sponsor	\$ 300
OREGON LIONS	Car show	\$ 150
OREGON PARK DISTRICT	Oregon Summer Concerts	\$ 1,000
OREGON SCHOOL DISTRICT	Math/Science Scholarship	\$ 1,000
OREGON TRAIL DAYS	Festival sponsorship	\$ 1,000
PEGASUS FOUNDATION	Pegasus fundraiser for injured riders	\$ 500
POWERHOUSE SOFTBALL	Yearly entrance fee	\$ 250
RETREAT & REFRESH STROKE CAMP	Summer camp	\$ 500
ROCKFORD ASSOCIATION FOR MINORITY MANAGEMENT	Annual Scholarship Banquet	\$ 750
ROCKFORD MEMORIAL HOSPITAL	Neonatal holiday gift	\$ 300
ROCK VALLEY MUSTANG CLUB	Annual car show	\$ 500
ST. EDWARD SCHOOL	Fun Fair	\$ 250
STERLING PARK DISTRICT	Brad Onken Memorial S.M.A.R.T. Summer	\$ 500
STERLING STEAM	Softball sponsorship	\$ 300
STILLMAN VALLEY FIREMAN'S ASSOCIATION	Golf outing	\$ 500
TOUR DE FARMS	National MS Scoiety	\$ 600
UNIV. OF ILLINOIS EXTENSION SERVICE	4-H education	\$ 275
VARIOUS - HOLIDAY	Holiday giving	\$ 5
VETERANS NETWORK COMMITTEE	Honor Flight Program	\$ 125
VILLAGE OF MT. MORRIS	Let Freedom Ring Festival	\$ 1,000
VILLAGE OF MT. MORRIS	Christmas decorations	\$ 200
VILLAGE OF PROGRESS	Winter Wish list	\$ 750
VILLAGE OF STILLMAN VALLEY	Stillman Valley Fall Festival	\$ 1,000
WINNEBAGO SCHOOL DISTRICT	Winnebago Co. Robotics fund (match with Central fund)	\$ 5,000
WINNING WHEELS	Scudder benefit	\$ 500
WOUNDED HEROES	Fishing for a Cure 2011	\$ 600

TOTAL

\$64,511

Byron Environmental Audit – Request for Additional Information Response

Question #: S-7

Category: Socioeconomics

Statement of Question:

Provide information about any anticipated changes in State and local tax laws, rates, and assessed property value or any other recent or anticipated tax payment adjustments that could result in notable future increases or decreases in property taxes or other payments.

Response:

Except as stated in the Request for Additional Information Responses S-4, S-5 and S-6, Exelon Generation has no information about future increases or decreases in property taxes or other payments to state and local taxing entities.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: SSSH-1 **Category:** Special Status Species and Habitats

Statement of Question:

The June 20, 2013, final rule that amended 10 CFR Part 51 revised the scope of the transmission line review for license renewal to be those "transmission lines that connect the nuclear power plant to the substation where electricity is fed into the regional power distribution system and transmission lines that supply power to the nuclear plant from the grid" (see 10 CFR 51, Appendix B to Subpart A, Table B-1, Footnote 4). Accordingly, the NRC staff will address only consider those transmission lines that meet this definition in its environmental review.

- a. Identify the name and location of the substation that connects Byron to the regional grid.
- b. Clarify which portions of the four 345-kV lines described in Section 3.1.6 of the ER are in scope for the license renewal review according to the 2013 definition.
- c. Confirm that the following statement regarding transmission lines that supply power to Byron remains true under the 2013 transmission line scope (Section 3.1.6, Page 3-13, Paragraph 2, of the ER): "No separate transmission lines exist for the purpose of supplying power to Byron from the grid (off-site power)."

Response:

- a. Byron is connected to the regional grid at the on-site 345-kV Byron Station switchyard.
- b. Electricity generated at Byron Station is transformed from generator voltage to a nominal 345-kV transmission system voltage by the main power transformers. The main power transformers are connected via intermediate, on-site transmission lines to the on-site 345-kV Byron Station switchyard. The location of the intermediate transmission towers on the site property is shown in Byron UFSAR (Exelon Nuclear 2010a), Figure 8.2-3. For ease of reference, a copy of the figure is attached to this response. Based on this information and that there are no other transmission lines that would be dismantled or otherwise decommissioned as a result of terminating operations at Byron, Exelon concludes that, under the new regulations, the intermediate, on-site transmission lines are the only in-scope transmission lines for the Byron license renewal environmental review. These transmission lines are located entirely within the Byron Station protected area.

Under the previous regulations and guidance, the in-scope transmission lines for Byron license renewal included the transmissions lines that were constructed with the station to connect it to the regional electricity grid. Such lines, which are all owned and operated by ComEd, are identified in the Byron License Renewal ER as follows:

- Byron to Wempleton (345-kV line extending north from the Byron switchyard)
- Byron to Cherry Valley (double circuit 345-kV lines extending east from Byron switchyard)
- Byron South (345-kv line extending south from Byron switchyard)

None of these transmission lines are in-scope for the Byron license renewal environmental review under the 2013 definition of in-scope transmission lines.

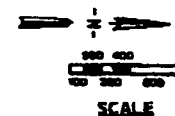
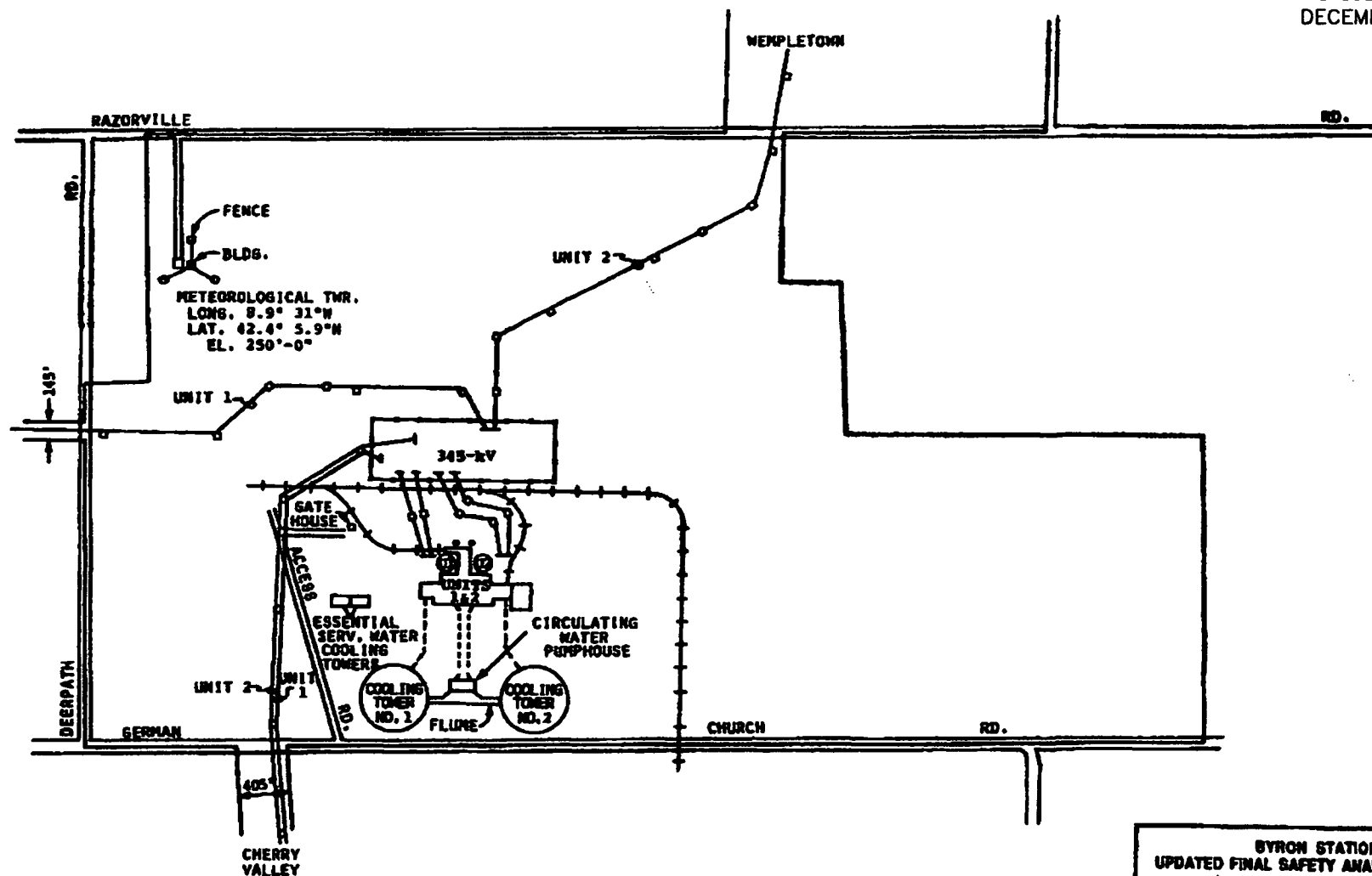
- c. The statement in the Byron License Renewal ER regarding transmission lines that supply power to Byron Station remains true under the 2013 definition of in-scope transmission lines. A description of the offsite electric power system that supplies power for safety functions is provided in the Byron/Braidwood UFSAR (Exelon Nuclear 2010a), section 3.1.2.2.8 (pp. 3.1-8 and 3.1-9) and Chapter 8.

List Attachments Provided:

UFSAR (Exelon Nuclear 2010a), Figure 8.2-3

REVISION 9
DECEMBER 2002

LEE COUNTY STATION (TSS 937) / NELSON



BYRON STATION
UPDATED FINAL SAFETY ANALYSIS REPORT
FIGURE B 2-3
PROPERTY PLAN

Byron Environmental Audit – Request for Additional Information Response

Question #: SSSH-2 **Category:** Special Status Species and Habitats

Statement of Question:

Please provide all reports of "unusual or important environmental events" reportable under Appendix B, Section 4.1 to the Byron Operating Licenses (NPF-37 and NPF-66) that have occurred within the past 10 years (2003-2013). As stated in Section 4.1 of the ER, this would include events such as excessive bird impaction events, onsite plant or animal disease outbreaks, mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973, fish kills, increase in nuisance organisms or conditions, and unanticipated or emergency discharge of waste water or chemical substances.

Response:

During the period from January 1, 2003 through the present, no environmental events have occurred for which reporting was required under Appendix B, Section 4.1 to the Byron Operating Licenses.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: TE-1

Category: Terrestrial Ecology

Statement of Question:

Byron appears to be located in the vicinity of the Castle Rock State Park and Lowden-Miller State Forest Important Bird Area (IBA) described here:

<http://netapp.audubon.org/IBA/Site/1698>

Based on the NRC staff's initial review, the Byron site boundaries and the in-scope transmission line corridors do not appear to cross any designated IBAs. Confirm whether these statements are true.

Response:

Byron is approximately 6 miles northeast of the nearest IBA, and the nearest in-scope transmission line corridor (GEIS 1996 version) is approximately 3 miles west of an IBA. Thus, the NRC's initial conclusion regarding the relationship of the in-scope land area in relation to the IBAs is correct – the Byron property and transmission corridors do not cross any designated IBA.

It should be noted that, under the final NRC regulations promulgated on June 20, 2013 (78 Federal Register 37282), the License Renewal scope for NEPA review of transmission lines has changed. Under the new regulations, in-scope transmission lines are those that "connect the nuclear power plant to the substation where electricity is fed into the regional power distribution system and transmission lines that supply power to the nuclear plant from the grid." At Byron, the in-scope transmission lines under the new regulations end at the on-site switchyard.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: TE-2

Category: Terrestrial Ecology

Statement of Question:

In Section 2.4 (Page 2-25), the ER states that “bat houses have been erected and are monitored” on the Byron site as part of wildlife habitat enhancement and conservation education activities. Provide any monitoring information available on these bat houses, including their locations and any information on what species of bat inhabit them, if any.

Response:

The interest in bats began in 2007 when Byron personnel noticed bats roosting under an awning and on a brick wall at the Main Access Building (MAB) where employees enter and exit the plant. The bat houses were part of an effort to encourage the bats to feed on the plentiful insects found at the River Screen House (RSH) and roost in a location away from the MAB. Observations have been performed on the houses during Spring and Summer since they were installed, and a few additional houses have been added since 2007.

The bat houses are observed while on rounds to check on other bird houses and while visiting the RSH area. The observations are not conducted by biologists trained to identify bat species and primarily serve to ascertain whether bats are present. There have been very few observations of actual bats in the houses. Deposits on foliage below the houses suggest that bats are present, but dusk or dawn observations have not been performed to properly document the number of bats. (Exelon Nuclear 2011c)

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: TE-3

Category: Terrestrial Ecology

Statement of Question:

Section 4.9, Page 4-22, of the ER states that, "All refurbishment activities would occur on previously-disturbed or developed areas that are devoid of natural habitat..." Describe the specific records or information reviewed to determine that the potentially affected areas are devoid of natural habitat, including whether any surveys were conducted.

Response:

The areas most likely to be used for activities associated with the hypothetical replacement of steam generators or a reactor vessel head were identified. These areas would be used primarily for materials laydown and to construct a storage building for the removed components. Such areas would be located within or near the existing protected area. No surveys were conducted, but a review of aerial photos indicates that the areas most likely to be used are currently lawn or weedy areas that have been previously disturbed and are devoid of natural habitat.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: TE-4

Category: Terrestrial Ecology

Statement of Question:

Section 4.9, Page 4-22, of the ER states that, "Some songbirds could be temporarily displaced by noise, machinery, and personnel associated with refurbishment activities, but such disturbances would be temporary and minor. Provide a reference, or describe how this conclusion was reached.

Response:

The conclusion is based on the field and educational experience of the biological subject matter experts who prepared and reviewed section 4.9 of the ER.

List Attachments Provided:

None

Byron Environmental Audit – Request for Additional Information Response

Question #: TE-5

Category: Terrestrial Ecology

Statement of Question:

Section 3.1.6, Page 3-14, of the ER states, “The intention is for these transmission lines to remain a permanent part of the transmission system even after Byron is decommissioned.” Provide a written source from ComEd to support this statement.

Response:

At the time the Byron License Renewal ER was prepared, the quoted statement was based on verbal communications between ComEd transmission engineers and Exelon Generation personnel. The statement has since been confirmed in the attached email message from the ComEd Manager, Interconnection & System Studies.

List Attachments Provided:

Email message from ComEd (T. Kay) to Exelon Generation (N. Ranek) dated 8/29/2013.

From: Kay, Thomas W.:(ComEd)
Sent: Thursday, August 29, 2013 12:12 PM
To: Ranek, Nancy L.:(GenCo-Nuc)
Cc: Allen, William J:(ComEd); Leeming, Thomas W:(ComEd); Regner, Ronald F.:(ComEd); Riedl, Brett A:(ComEd)
Subject: FW: Byron Station License Renewal Environmental Report -- NRC Request Regarding Transmission Lines

Nancy,

This is in response to your request below regarding the NRC request regarding transmission lines. The purpose of this e-mail is to confirm that the 345kV transmission lines and switchyards that connect to Station 6 Byron and Station 20 Braidwood are significant components of the ComEd transmission system. I expect that these transmission lines and switchyards would remain as significant components of the ComEd transmission system even after the Byron and Braidwood stations are decommissioned. As evidence, there have been multiple generation retirements within ComEd in recent years, including Zion Station. In each case, the switchyards and transmission lines connected to these stations continue to serve as important components of the ComEd transmission system.

Please contact me if you need additional information.

Best Regards,

Tom Kay
Manager
Interconnection & System Studies
ComEd
Ph: 630-437-2758

From: Ranek, Nancy L.:(GenCo-Nuc)
Sent: Wednesday, August 28, 2013 3:15 PM
To: Riedl, Brett A:(ComEd)
Cc: Allen, William J:(ComEd); Leeming, Thomas W:(ComEd); Fulvio, Albert A:(GenCo-Nuc)
Subject: Byron Station License Renewal Environmental Report -- NRC Request Regarding Transmission Lines

Hi Brett –

As we discussed today, the Exelon Generation Nuclear License Renewal Department has filed an application for renewal of the Byron Station NRC Operating License. The application includes an Environmental Report (ER), which identifies 4 transmission line circuits (and their rights-of-way) that were constructed at the time the Station was constructed to connect it to the regional electricity grid. The applicable NRC regulations at the time the Byron License Renewal Application was prepared specified these transmission lines as being within the scope of the license renewal environmental review. For your reference, I am attaching the pages from the Byron Station License Renewal ER (Section 3.1.6) that identify and describe the “in-scope” transmission lines.

Section 3.1.6 in the ER contains the following sentence at the top of page 3-14: "The intention is for these transmission lines to remain a permanent part of the transmission system even after Byron is decommissioned."

The NRC Staff is currently reviewing the Byron Station License Renewal ER, and during the week of September 16, 2013, they will conduct a License Renewal Environmental Audit at the Station. Among other things, the NRC Staff has asked Exelon Generation to provide during the Audit a ComEd source (i.e., reference document) for the above-quoted sentence.

During our conversation today, you indicated that, while a published document may not be available as a reference, it is your belief that the sentence is accurate. Accordingly, I am requesting that, after reviewing the attached section 3.1.6 from the Byron Station License Renewal ER, you or an appropriate ComEd spokesperson that you identify provide an email response to this message confirming that the statement in the Byron Station License Renewal ER accurately represents ComEd's intention.

Please note that an application for renewal of the Braidwood Station NRC Operating License is also currently under review by the NRC, and a License Renewal Environmental Audit for Braidwood is scheduled for November 2013. We have not yet received NRC's requests for information for the Braidwood Audit. However, because the Braidwood Station License Renewal ER (Section 3.1.6) contains information and a statement about Braidwood transmission lines that are similar to those in the Byron ER, I am also attaching the pages from the Braidwood Station License Renewal ER (Section 3.1.6) to this message. It would be helpful if ComEd's email response could also confirm that the statements in the Braidwood Station License Renewal ER regarding the Braidwood transmission lines (page 3-14, next to last paragraph) accurately represent ComEd's intention for those lines.

Thanks in advance for your support of the Byron and Braidwood License Renewal Project.
Please call if there are questions or you need additional information.

Regards,

Nancy

Nancy L. Ranek
License Renewal Environmental Lead
Exelon Generation, LLC
200 Exelon Way, KSA/2-E
Kennett Square, PA 19348
Phone: 610-765-5369
Fax: 610-765-5658
Email: nancy.ranek@exeloncorp.com

Byron Environmental Audit – Request for Additional Information Response

Question #: WR-GW-1 **Category:** Water Resources - Groundwater

Statement of Question:

Provide copies of the following ER references:

- a. (Exelon Nuclear 2011b) Exelon Nuclear, 2011, "Hydrogeologic Investigation Report, May 2011". As discussed during the environmental audit conducted in September 2013.

Response:

The requested reference is attached.

List Attachments Provided:

1. Exelon Nuclear 2011b. NEI 07-07 Update, Hydrogeologic Investigation Report, Byron Generating Station. Prepared for Exelon Generation Company, LLC by Conestoga-Rovers & Associates, Ref. No. 072245 (2). May 2011.

Exelon Nuclear 2011b
Byron - 043



NEI 07-07 UPDATE HYDROGEOLOGIC INVESTIGATION REPORT

**BYRON GENERATING STATION
BYRON, ILLINOIS**

**Prepared for
Exelon Generation Company, LLC**

DISCLAIMER:
SOME FORMATTING CHANGES MAY HAVE OCCURRED WHEN
THE ORIGINAL DOCUMENT WAS PRINTED TO PDF; HOWEVER,
THE ORIGINAL CONTENT REMAINS UNCHANGED.

**Prepared by:
Conestoga-Rovers
& Associates**

8615 W. Bryn Mawr Avenue
Chicago, Illinois
U.S. 60631

Office: (773) 380-9933
Fax: (773) 380-6421

web: <http://www.CRAworld.com>

**MAY 2011
REF. NO. 072245 (2)**

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OVERVIEW

This summary report has been prepared to document changes in Site conditions that would require an update to the Byron Generating Station (Byron Station) Hydrogeologic Investigation Report (HIR) in accordance with NEI 07-07. The Byron Station HIR was completed in September 2006 as part of the first set of fleet wide investigations. The guidance in NEI 07-07 require that reviews of hydrogeologic studies be performed when any of the following occurs:

- Substantial on-Site construction
- Substantial disturbance of Site property
- Substantial changes in on-Site or off-Site use of water, or
- Substantial changes in on-Site or nearby off-Site groundwater pumping rates

In addition, NEI 07-07 guidance suggests that the HIR be updated with changes to the characterization of hydrology or geology at the Site. The other changes that Exelon has identified as being substantial and, therefore, necessary to update the HIR include:

- Significant modification to the Site Conceptual Model based upon new groundwater, geologic, or chemistry data;
- Newly documented releases or leaks of tritium or other radionuclides into the subsurface;
- The change of operation of remediation systems at the Site;
- The collection and documentation of subsequent groundwater quality and groundwater level data since the initiation of the 2006 groundwater study at the Byron Station.

This report presents changes in Site conditions, analytical data, and hydrologic information acquired from September 2006 through December 2010 per NEI 07-07. These changes have been identified by Exelon personnel at the Station or by CRA through its work at the Station. This summary report discusses the general nature of these changed conditions and refers to various appendices for further detail. It is anticipated that a more comprehensive presentation and evaluation of the changes identified herein will be incorporated into an updated version of the "*Hydrogeologic Investigation Report*" for this Station.

1.0 HYDROLOGIC STUDIES COMPLETED SINCE 2006

1.1 ADDITIONAL HYDROGEOLOGIC STUDIES COMPLETED AT THE STATION

One hydrogeologic study has been completed since September 2006. This study involved the collection of rain at eight locations surrounding the facility and analyzing the captured rainfall for tritium. The study is entitled "*Tritium Precipitation Recapture Study performed from September 2009 to August 2010*" and is presented as Appendix 1.1.

1.2 GROUNDWATER SAMPLING PROGRAMS ESTABLISHED OUTSIDE THE REQUIREMENTS OF THE STATION'S RGPP

No other groundwater sampling programs or studies have been implemented at the Byron Generating Station from September 2006 through December 2010.

1.3 ADDITIONAL GROUNDWATER AND SURFACE WATER MONITORING POINTS ESTABLISHED AT THE STATION SINCE 2006

No other groundwater or surface water monitoring programs or studies have been implemented at the Byron Generating Station from September 2006 through December 2010.

1.4 TRENDS IN THE ROUTINE RGPP DATA WHICH INDICATE CHANGES IN CONDITIONS

The Byron Station monitors tritium at 13 monitoring wells and groundwater elevations at 22 monitoring wells. Tables 1.4A through 1.4C summarize tritium data, monitoring well construction, and water level data.

Monitoring well locations and tritium concentrations are presented on Figure 1.4A. Tritium concentration data for these wells are summarized in Table 1.4A.

Tritium concentrations tend to be stable or decreasing from September 2006 through December 2010. Routine monitoring of these wells will continue to determine whether the trend is long-term.

Table 1.4B presents a summary of groundwater level data. Groundwater contours from the most recent data are presented on Figure 1.4B. Groundwater flow in the area is generally to the west from the Station towards the Rock River.

A summary of monitoring well construction details is presented in Table 1.4C. Monitoring well and stratigraphic logs are presented in Appendix 1.4.

2.0 SUBSURFACE DISTURBANCE/CONSTRUCTION SINCE 2006

2.1 MAJOR SUBSURFACE CONSTRUCTION BUILT INTO THE GROUNDWATER TABLE

Three cathodic protection wells were installed in 2009 and 2010. Each boring was drilled to bedrock, approximately 500 feet below ground surface. No water was withdrawn during drilling activities.

Locations of the cathodic wells are presented on Figure 2.1. The well construction and boring logs were unavailable.

2.2 OTHER HYDROGEOLOGIC STUDIES OR GEOTECHNICAL ASSESSMENTS OR ENGINEERING EVALUATIONS

No other geotechnical or engineering studies have been completed at the Station from September 2006 through December 2010.

2.3 NATURAL OR MAN-MADE EROSION WHICH OCCURRED AT THE STATION

There have been no occurrences of natural or man-made erosion at the Station from September 2006 through December 2010.

**3.0 CHANGES IN ON-STATION
PROPERTY OR OFF-SITE GROUNDWATER SUPPLIES SINCE 2006**

**3.1 WATER SUPPLY
EVALUATIONS ON AND OFF THE STATION PROPERTY**

The Byron Generating Station obtains non-contact cooling water from the Rock River, which is used in the electricity generation process. Additionally, there are two deep wells within the protected area (Deep Well 1 and Deep Well 2) that are used for the Station's water supply.

There have been no additional water supply evaluations on or off the Station property from September 2006 through December 2010.

3.2 RESULTS OF WATER WELL INVENTORY SEARCHES SINCE 2006

The Station has not performed a water well inventory since 2006.

**3.3 CHANGES IN THE USE OF
GROUNDWATER ON THE STATION PROPERTY**

There have been no changes in the use of groundwater at the Byron Station from September 2006 through December 2010.

**3.4 INSTALLATION AND OPERATION OF
WATER SUPPLY WELLS OFF THE STATION PROPERTY
(CHANGES IN GROUNDWATER USE OFF THE STATION PROPERTY)**

There have been no changes in surface water or groundwater use off the property from September 2006 through December 2010.

**3.5 LICENSED PROPERTY BOUNDARY REVISED
OR THE STATION SOLD OR PURCHASED ADDITIONAL LANDS**

There have been no changes in the property boundary and no land has been purchased or sold from September 2006 through December 2010.

4.0 SPILLS OR LEAKS REPORTED TO AGENCIES AND DOCUMENTED SINCE 2006

**4.1 LEAKS OF LIQUID RADWASTE,
TRITIATED WATERS OR OTHER SPILLS TO THE SOILS
AND REQUIRED REPORTING TO A STATE OR FEDERAL AGENCY**

No reportable leaks occurred at the Byron Station from September 2006 through December 2010.

**4.2 HYDROGEOLOGIC STUDIES (IDENTIFIED IN QUESTION 1.0
ABOVE) PERFORMED IN RESPONSE TO THESE SPILLS/LEAKS**

Since there were no reportable leaks at Byron Station during this period, no additional hydrogeologic studies were performed.

**4.3 RELEASES OF OTHER CONTAMINANTS (NON RADIOLOGICAL) TO
THE SUBSURFACE SOILS AND GROUNDWATER AT THE STATION**

No reportable releases of non-radiological contaminants have occurred at the Byron Station from September 2006 through December 2010.

5.0 CHANGES IN EXISTING GROUNDWATER REMEDIAL ACTIONS SINCE 2006

**5.1 STATUS OF GROUNDWATER OR SURFACE WATER
REMEDATION SYSTEMS FOR TRITIUM OR OTHER RADIONUCLIDES**

There have been no changes to the groundwater or surface water remediation systems at the property from September 2006 through December 2010.

**5.2 STATE OR LOCAL AGENCY REQUIRED ADDITIONAL
GROUNDWATER ACTIONS ON OR OFF THE STATION PROPERTY**

No additional monitoring or remedial actions have been required by State or local agencies on or off the property.

**5.3 STATUS OF GROUNDWATER OR SURFACE WATER REMEDIATION
SYSTEMS FOR OTHER, NON-RADIOLOGICAL, CONTAMINANTS**

There are no groundwater or surface water remediation systems for non-radiological contaminants at the Byron Station.

6.0 SUMMARY

This document demonstrates that Byron Station has completed its review of the Groundwater Protective Initiative in accordance with objective 3.1 (b) of the NEI 07-07 guidance.

The following summarizes the major changes in Site characteristics from September 2006 through December 2010:

Hydrogeologic Studies

- A tritium precipitation recapture study was performed from September 2009 to August 2010.

Subsurface Disturbance and Construction

- Three cathodic protection wells were installed in 2009 and 2010.

Changes in Groundwater Supplies On and Off Station Property

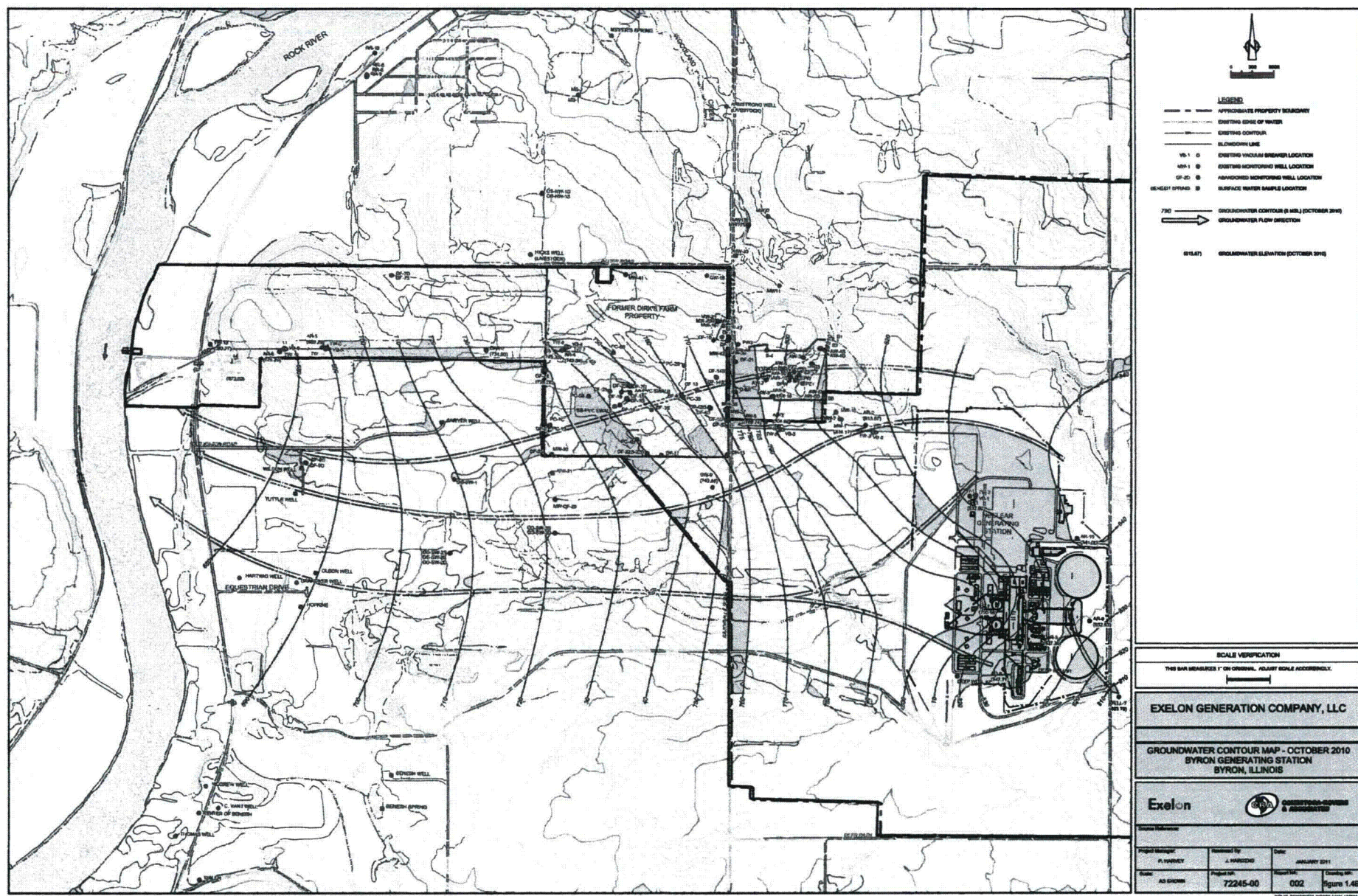
- There have been no changes in the use of groundwater on or off Station property from September 2006 through December 2010.

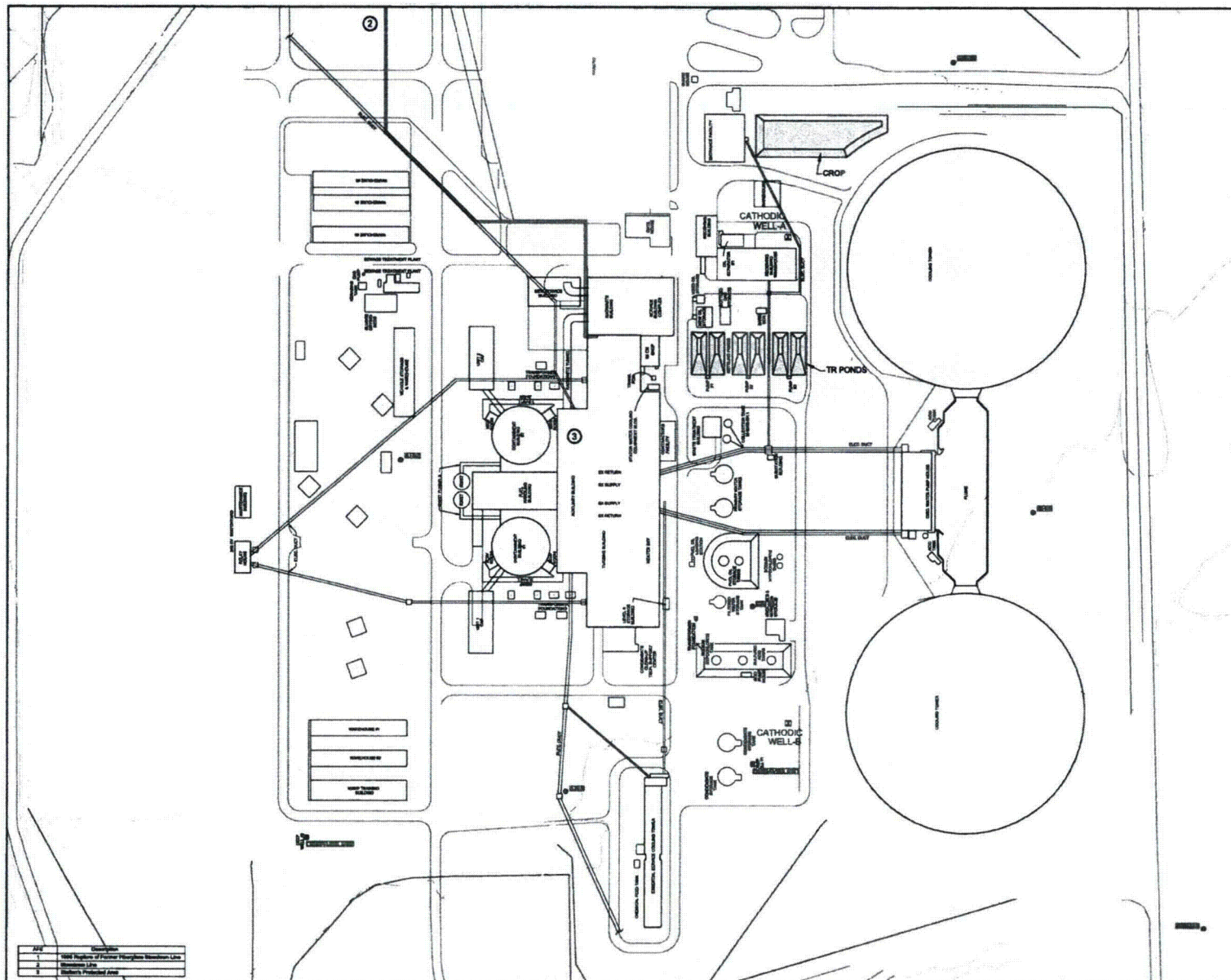
Spills and Leaks Reported to Agencies


- No reportable releases or leaks of non-radiological contaminants occurred from September 2006 through October 2010.
- No reportable releases or leaks of tritium or other radiological contaminants occurred from September 2006 through October 2010.

Changes in Groundwater Remedial Activities

- There are no groundwater or surface water remediation systems for non-radiological contaminants on or off Station property.
- There are no groundwater or surface water remediation systems for tritium or other radiological contaminants on or off Station property.







0 10 20

LEGEND

- EDGE OF WATER
- X — FENCE
- EXISTING CONTOUR
- EXISTING LINE
- SPK 1 ● EXISTING MONITORING WELL LOCATION
- ③ EXISTING EXELON MONITORING WELL LOCATION
- ③ AREA FOR FURTHER EVALUATION (APD) OFFSHORE GENERATING STATION
- ③ CATHODIC MONITORING WELL LOCATION

STATION SYSTEMS IDENTIFIED BY EXELON RECORDS THAT CONTAIN OR POTENTIALLY CONTAIN ILLINOIS

NOTE
APD 1 IS NOT SHOWN ON THIS FIGURE

SCALE VERIFICATION
THE DIMENSIONS 7' ON ORIGINAL, ADJUST SCALE ACCORDINGLY

EXELON GENERATION COMPANY, LLC
BYRON GENERATING STATION, BYRON, ILLINOIS
FLEETWIDE ASSESSMENT

LOCATIONS OF CATHODIC PROTECTION WELLS

Exelon

Source Reference

CONESTOGA-ROVERS & ASSOCIATES

Project Manager: S. GURLEY	Reviewed By: M. KELLY	Date: JUN 2011	
Scale: AS SHOWN	Project No.: 72245-00	Report No.: 002	Drawing No.: figure 2.1

72245-00-002-00001 MAY 18/2011

200	Exelon
100	West Region of Exelon's Fleetwide Assessment
50	Monitoring Wells
25	Station's Protected Area

TABLE 1.4A

**SUMMARY OF TRITIUM RESULTS
FOR THE BYRON GENERATING STATION**

<i>Sample Location</i>	<i>Sample Name</i>	<i>Sample Date</i>	<i>Parameter</i>	<i>Result (pCi/L)</i>	<i>Activity</i>	<i>Result Error</i>
AR-1	BY-AR-1_20100517	5/17/2010	Tritium	<LLD	55.3	+/-96.9
AR-1	BY-AR-1_20101022	10/22/2010	Tritium	<LLD	60.6	+/-101
AR-2	BY-AR-2_20100519	5/19/2010	Tritium	<LLD	30	+/-99
AR-2	BY-AR-2_20101020	10/20/2010	Tritium	<LLD	101	+/-105
AR-3	BY-AR-3_20100519	5/19/2010	Tritium	<LLD	63	+/-98.9
AR-3	BY-AR-3_20101020	10/20/2010	Tritium	<LLD	84.4	+/-104
AR-4	BY-AR-4_20100519	5/19/2010	Tritium	1250	1250	+/-173
AR-4	BY-AR-4_20101021	10/21/2010	Tritium	1170	1170	+/-168
AR-7	BY-AR-7_20100517	5/17/2010	Tritium	<LLD	179	+/-103
AR-7	BY-AR-7_20101021	10/21/2010	Tritium	<LLD	254	+/-113
AR-8	BY-AR-8_20100517	5/17/2010	Tritium	<LLD	130	+/-99.4
AR-8	BY-AR-8_20101021	10/21/2010	Tritium	<LLD	104	+/-106
AR-9	BY-AR-9_20100517	5/17/2010	Tritium	<LLD	80.2	+/-96.5
AR-9	BY-AR-9_20101022	10/22/2010	Tritium	<LLD	22.7	+/-99
AR-10	BY-AR-10_20100517	5/17/2010	Tritium	<LLD	45.4	+/-98.6
AR-10	BY-AR-10_20101022	10/22/2010	Tritium	<LLD	158	+/-107
AR-11	BY-AR-11_20100520	5/20/2010	Tritium	1120	1120	+/-162
AR-11	BY-AR-11_20101021	10/21/2010	Tritium	947	947	+/-149
CAR-1	BY-CAR-1_20101020	10/20/2010	Tritium	<LLD	59.8	+/-99.1
CAR-3	BY-CAR-3_20100517	5/17/2010	Tritium	<LLD	109	+/-103
CAR-3	BY-CAR-3_20101021	10/21/2010	Tritium	<LLD	45.1	+/-100
DF-24	BY-DF-24_20100519	5/19/2010	Tritium	<LLD	132	+/-104
DF-24	BY-DF-24_20101021	10/21/2010	Tritium	<LLD	46.6	+/-98.6
TW-13	BY-TW-13_20100519	5/19/2010	Tritium	<LLD	92.6	+/-98.9
TW-13	BY-TW-13_20101021	10/21/2010	Tritium	<LLD	38.6	+/-100

**SUMMARY OF GROUNDWATER ELEVATIONS
AT THE BYRON GENERATING STATION**

<i>Well ID</i>	<i>Measurement Date</i>	<i>TOC</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>
AR-1	3/23/2006	871.1	39.7	831.4
AR-1	4/4/2006	871.1	39.72	831.38
AR-1	4/26/2006	871.1	35.16	835.94
AR-1	11/1/2006	871.1	37.88	833.22
AR-1	6/2/2008	871.1	33.67	837.43
AR-1	10/1/2008	871.1	32.41	838.69
AR-1	4/29/2009	871.1	33.55	837.55
AR-1	10/13/2009	871.1	34.86	836.24
AR-1	5/17/2010	871.1	36.12	834.98
AR-1	10/22/2010	871.1	38.2	832.9
AR-2	3/23/2006	867.38	65.69	798.68
AR-2	4/4/2006	867.38	11	798.31
AR-2	4/26/2006	867.38	68.88	798.5
AR-2	11/1/2006	867.38	69.9	797.48
AR-2	10/8/2007	867.38	63.42	803.96
AR-2	5/29/2008	867.38	54.8	812.58
AR-2	9/29/2008	867.38	56.2	811.18
AR-2	4/29/2009	867.38	48.85	818.53
AR-2	10/13/2009	867.38	54.4	812.98
AR-2	5/17/2010	867.38	48.91	818.47
AR-2	10/20/2010	867.38	51.71	815.67
AR-3	3/23/2006	860.64	59.6	798.16
AR-3	4/4/2006	860.64	60.27	797.49
AR-3	4/26/2006	860.64	63.77	796.87
AR-3	11/1/2006	860.64	64.5	796.14
AR-3	10/8/2007	860.64	58.33	802.31
AR-3	5/29/2008	860.64	55.8	804.84
AR-3	9/29/2008	860.64	57.5	803.14
AR-3	4/29/2009	860.64	54.32	806.32
AR-3	10/14/2009	860.64	56.54	804.1
AR-3	5/17/2010	860.64	55.35	805.29
AR-3	10/20/2010	860.64	56.02	804.62
AR-4	4/27/2006	832.74	90	742.74
AR-4	11/21/2006	832.74	92.07	740.67
AR-4	10/10/2007	832.74	88.5	744.24
AR-4	5/28/2008	832.74	84.6	748.14
AR-4	9/29/2008	832.74	88.1	744.64
AR-4	4/29/2009	832.74	79.26	753.48
AR-4	10/15/2009	832.74	87.72	745.02
AR-4	5/17/2010	832.74	81.01	751.73
AR-4	10/21/2010	832.74	88.9	743.84
AR-5	3/23/2006	795.75	105.37	687.9
AR-5	4/4/2006	795.75	104.21	689.06

**SUMMARY OF GROUNDWATER ELEVATIONS
AT THE BYRON GENERATING STATION**

<i>Well ID</i>	<i>Measurement Date</i>	<i>TOC</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>
AR-5	4/27/2006	795.75	107.67	688.08
AR-5	11/21/2006	795.75	108	687.75
AR-5	10/10/2007	795.75	108.33	687.42
AR-5	5/28/2008	795.75	106.75	689
AR-5	9/29/2008	795.75	107.55	688.2
AR-5	4/28/2009	795.75	104.8	690.95
AR-5	10/14/2009	795.75	107.27	688.48
AR-5	5/17/2010	795.75	105.08	690.67
AR-5	10/20/2010	795.75	107.46	688.29
AR-6	3/23/2006	784.55	107.75	674.47
AR-6	4/4/2006	784.55	107.54	674.68
AR-6	4/27/2006	784.55	109.55	675
AR-6	11/21/2006	784.55	109.8	674.75
AR-6	10/10/2007	784.55	109.33	675.22
AR-6	5/28/2008	784.55	107.9	676.65
AR-6	9/29/2008	784.55	108.85	675.7
AR-6	4/28/2009	784.55	106	678.55
AR-6	10/14/2009	784.55	109.1	675.45
AR-6	5/17/2010	784.55	105.2	679.35
AR-6	10/20/2010	784.55	109.26	675.29
AR-7	4/4/2006	871.28	103.02	765.96
AR-7	4/27/2006	871.28	104.54	766.74
AR-7	10/30/2006	871.28	102.86	768.42
AR-7	6/2/2008	871.28	83.4	787.88
AR-7	10/1/2008	871.28	84.9	786.38
AR-7	4/29/2009	871.28	77.67	793.61
AR-7	10/13/2009	871.28	80.41	790.87
AR-7	5/17/2010	871.28	79.57	791.71
AR-7	10/21/2010	871.28	80.7	790.58
AR-8	4/4/2006	872.11	53.57	816.14
AR-8	4/27/2006	872.11	33.56	838.55
AR-8	10/30/2006	872.11	35.25	836.86
AR-8	6/2/2008	872.11	23.55	848.56
AR-8	10/1/2008	872.11	20.45	851.66
AR-8	4/29/2009	872.11	21.71	850.4
AR-8	10/13/2009	872.11	20.35	851.76
AR-8	5/17/2010	872.11	24.13	847.98
AR-8	10/21/2010	872.11	24.4	847.71
AR-9	4/27/2006	876.77	59.5	817.27
AR-9	10/30/2006	876.77	57.56	819.21
AR-9	6/2/2008	876.77	45.89	830.88
AR-9	10/1/2008	876.77	45.65	831.12

**SUMMARY OF GROUNDWATER ELEVATIONS
AT THE BYRON GENERATING STATION**

<i>Well ID</i>	<i>Measurement Date</i>	<i>TOC</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>
AR-9	4/29/2009	876.77	44.51	832.26
AR-9	10/13/2009	876.77	43.66	833.11
AR-9	5/17/2010	876.77	44.35	832.42
AR-9	10/22/2010	876.77	44.14	832.63
AR-10	4/26/2006	859.15	21.49	837.66
AR-10	11/1/2006	859.15	21.7	837.45
AR-10	6/2/2008	859.15	16.18	842.97
AR-10	10/1/2008	859.15	17.02	842.13
AR-10	4/29/2009	859.15	15.25	843.9
AR-10	10/13/2009	859.15	16.85	842.3
AR-10	5/17/2010	859.15	16.14	843.01
AR-10	10/22/2010	859.15	18.09	841.06
AR-11	4/26/2006	831.65	89.24	742.41
AR-11	11/21/2006	831.65	98.9	732.75
AR-11	10/10/2007	831.65	110.42	721.23
AR-11	5/28/2008	831.65	86.85	744.8
AR-11	9/29/2008	831.65	89.95	741.7
AR-11	4/29/2009	831.65	83.06	748.59
AR-11	10/15/2009	831.65	89.18	742.47
AR-11	5/17/2010	831.65	84.3	747.35
AR-11	10/21/2010	831.65	88.35	743.3
CAR-1	3/23/2006	694.87	20.03	672.22
CAR-1	4/4/2006	694.87	20.06	672.2
CAR-1	4/27/2006	694.87	22.24	672.63
CAR-1	11/1/2006	694.87	22.95	671.92
CAR-1	10/8/2007	694.87	27.5	667.37
CAR-1	5/28/2008	694.87	21.08	673.79
CAR-1	9/29/2008	694.87	22.5	672.37
CAR-1	4/29/2009	694.87	18.88	675.99
CAR-1	10/14/2009	694.87	22.87	672
CAR-1	5/17/2010	694.87	19.05	675.82
CAR-1	10/20/2010	694.87	23.17	671.7
CAR-2	3/23/2006	772.01	32.9	736.5
CAR-2	4/4/2006	772.01	26.84	742.56
CAR-2	4/27/2006	772.01	35.12	736.89
CAR-2	11/2/2006	772.01	35.32	736.69
CAR-2	10/8/2007	772.01	36.58	735.43
CAR-2	5/28/2008	772.01	35.2	736.81
CAR-2	9/29/2008	772.01	35.4	736.61
CAR-2	4/28/2009	772.01	28.62	743.39
CAR-2	10/14/2009	772.01	34.96	737.05
CAR-2	5/17/2010	772.01	29.4	742.61

**SUMMARY OF GROUNDWATER ELEVATIONS
AT THE BYRON GENERATING STATION**

<i>Well ID</i>	<i>Measurement Date</i>	<i>TOC</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>
CAR-2	10/21/2010	772.01	37.11	734.9
CAR-3	4/4/2006	872.16	44.49	824.62
CAR-3	4/27/2006	872.16	45.64	826.52
CAR-3	10/30/2006	872.16	43.83	828.33
CAR-3	6/2/2008	872.16	33.95	838.21
CAR-3	10/1/2008	872.16	31.21	840.95
CAR-3	4/29/2009	872.16	30.2	841.96
CAR-3	10/13/2009	872.16	26.47	845.69
CAR-3	5/17/2010	872.16	34.29	837.87
CAR-3	10/21/2010	872.16	34.8	837.36
DF-24	3/23/2006	813.68	91.28	722.4
DF-24	4/4/2006	813.68	91.11	722.57
DF-24	4/26/2006	813.68	89.89	723.79
DF-24	11/21/2006	813.68	92.1	721.58
DF-24	10/10/2007	813.68	89.17	724.51
DF-24	5/28/2008	813.68	80.9	732.78
DF-24	9/29/2008	813.68	87.35	726.33
DF-24	4/29/2009	813.68	74.4	739.28
DF-24	10/14/2009	813.68	85.46	728.22
DF-24	5/17/2010	813.68	79.7	733.98
DF-24	10/21/2010	813.68	85.4	728.28
GW-9	4/28/2006	841.73	96.27	745.46
GW-9	11/21/2006	841.73	92	749.73
GW-9	10/10/2007	841.73	89.5	752.23
GW-9	5/29/2008	841.73	79.85	761.88
GW-9	9/29/2008	841.73	93.5	748.23
GW-9	4/28/2009	841.73	82.8	758.93
GW-9	10/14/2009	841.73	81.1	760.63
GW-9	5/17/2010	841.73	81.4	760.33
GW-9	10/21/2010	841.73	98.15	743.58
MW-1	3/23/2006	861.77	61.82	799.95
MW-1	4/4/2006	861.77	61.01	800.76
MW-1	4/26/2006	861.77	62.14	799.63
MW-1	11/1/2006	861.77	63.15	798.62
MW-1	10/8/2007	861.77	57.5	804.27
MW-1	5/29/2008	861.77	49.65	812.12
MW-1	9/29/2008	861.77	53.35	808.42
MW-1	4/28/2009	861.77	42.4	819.37
MW-1	10/14/2009	861.77	49.72	812.05
MW-1	10/21/2010	861.77	47.6	814.17
MW-3	4/26/2006	858.6	71.09	787.51

**SUMMARY OF GROUNDWATER ELEVATIONS
AT THE BYRON GENERATING STATION**

<i>Well ID</i>	<i>Measurement Date</i>	<i>TOC</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>
MW-3	11/1/2006	858.6	72.6	786
MW-3	10/8/2007	858.6	69.33	789.27
MW-3	5/29/2008	858.6	68.15	790.45
MW-3	4/28/2009	858.6	67.45	791.15
MW-3	10/14/2009	858.6	59.95	798.65
MW-3	10/21/2010	858.6	68.86	789.74
TW-13	4/27/2006	700.47	17.11	683.36
TW-13	11/1/2006	700.47	17.42	683.05
TW-13	10/8/2007	700.47	17.63	682.84
TW-13	5/28/2008	700.47	16.61	683.86
TW-13	9/29/2008	700.47	16.9	683.57
TW-13	4/29/2009	700.47	16.21	684.26
TW-13	10/14/2009	700.47	17.09	683.38
TW-13	5/17/2010	700.47	16.25	684.22
TW-13	10/21/2010	700.47	17.2	683.27
TW-14	4/27/2006	699.41	26.48	672.93
TW-14	11/1/2006	699.41	27.3	672.11
TW-14	10/8/2007	699.41	27	672.41
TW-14	5/28/2008	699.41	24.95	674.46
TW-14	9/29/2008	699.41	26.7	672.71
TW-14	4/29/2009	699.41	22.26	677.15
TW-14	10/14/2009	699.41	27.02	672.39
TW-14	5/17/2010	699.41	22.45	676.96
TW-14	10/21/2010	699.41	27.36	672.05
TW-15	4/27/2006	695.73	22.84	672.89
TW-15	11/1/2006	695.73	23.72	672.01
TW-15	10/8/2007	695.73	23.25	672.48
TW-15	5/28/2008	695.73	21.27	674.46
TW-15	9/29/2008	695.73	23	672.73
TW-15	4/29/2009	695.73	18.61	677.12
TW-15	10/14/2009	695.73	23.35	672.38
TW-15	5/17/2010	695.73	18.8	676.93
TW-15	10/21/2010	695.73	23.7	672.03
WELL 7	4/27/2006	891.24	115.77	775.47
WELL 7	10/10/2007	891.24	102	789.24
WELL 7	5/29/2008	891.24	87.3	803.94
WELL 7	9/29/2008	891.24	106.5	784.74
WELL 7	4/28/2009	891.24	86.2	805.04
WELL 7	10/14/2009	891.24	81.32	809.92
WELL 7	5/17/2010	891.24	82.6	808.64
WELL 7	10/21/2010	891.24	87.45	803.79

TABLE 1.4C

**SUMMARY OF EXISTING WELL INFORMATION
BYRON GENERATING STATION
BYRON, ILLINOIS**

Sample Location	X coord. (State Plane Coordinates)	Y coord. (State Plane Coordinates)	Surface Elevation (ft AMSL) ²	Reference Elevation (ft AMSL)	Screened Interval					Well Construction	Hydrogeologic Unit Screened ¹
					Top	Bottom	Top	Bottom	Middle		
					(ft bgs) ³		(ft AMSL)				
<u>Exelon-Owned Wells</u>											
<u>Previously Existing Water Wells</u>											
GW-9 ⁴	2532455.60	1972488.60	841.51	841.73	NA ⁵	NA	--	--	--	6-inch open hole	GPWT
Well 7 ⁴	2538213.33	1969732.76	891.17	891.24	NA	NA	--	--	--	6-inch open hole	GPWT
Deep Well 1	2537066.85	1970148.36	NA	NA	NA	~ 1500	--	--	--	12 to 15-inch open hole	NA
Deep Well 2	2535936.76	1969964.84	NA	NA	NA	~ 1500	--	--	--	12 to 15-inch open hole	NA
<u>Monitoring Wells Installed During the Blowdown Line Investigation</u>											
AR-1	2536048.98	1972460.65	868.11	871.10	50	70	818.11	798.11	808.11	2-inch PVC screen	GPWT
AR-2	2534570.16	1973401.77	864.37	867.38	71	81	793.37	783.37	788.37	2-inch PVC screen	GPWT
AR-3	2533354.08	1973345.67	857.76	860.64	60	70	797.76	787.76	792.76	2-inch PVC screen	GPWT
AR-4	2530325.59	1974343.03	830.23	832.74	99.5	119.5	730.73	710.73	720.73	2-inch PVC screen	GPWT
AR-5	2526970.90	1974279.73	793.27	795.75	102	122	691.27	671.27	681.27	2-inch PVC screen	GPWT
AR-6	2526375.64	1974201.54	782.22	784.55	95	115	687.22	667.22	677.22	2-inch PVC screen	GPWT
AR-7	2536172.26	1970914.51	868.99	871.28	102	112	766.99	756.99	761.99	2-inch PVC screen	GPWT
AR-8	2536591.62	1970080.22	869.71	872.11	30	50	839.71	819.71	829.71	2-inch PVC screen	GPWT
AR-9	2537777.21	1970783.66	873.77	876.77	55.5	65.5	818.27	808.27	813.27	2-inch PVC screen	GPWT
AR-10	2537573.15	1971916.71	856.65	859.15	19	29	837.65	827.65	832.65	2-inch PVC screen	GPWT
AR-11	2530300.13	1974330.58	829.35	831.65	139.5	149.5	689.85	679.85	684.85	2-inch PVC screen	BGP
CAR-1	2525447.90	1974018.64	692.25	694.87	45	55	647.25	637.25	642.25	2-inch PVC screen	UAWT
CAR-2	2529246.47	1974300.12	769.40	772.01	25	35	744.40	734.40	739.40	2-inch PVC screen	GPWT
CAR-3	2537064.71	1970545.52	869.11	872.16	43	63	826.11	806.11	816.11	2-inch PVC screen	GPWT
TW-1	2536119.01	1972474.04	868.81	870.70	3.5	8.5	865.31	860.31	862.81	2-inch PVC screen	Shallow Overburden
TW-2	2536137.15	1972477.09	869.11	870.73	2	7	867.11	862.11	864.61	2-inch PVC screen	Shallow Overburden
TW-3	2534676.01	1973300.70	866.92	868.35	5.5	10.5	861.42	856.42	858.92	2-inch PVC screen	Shallow Overburden
TW-4	2534674.53	1973321.59	866.53	869.48	5.5	10.5	861.03	856.03	858.53	2-inch PVC screen	Shallow Overburden
TW-5	2533371.75	1973305.18	858.37	860.78	3	8	855.37	850.37	852.87	2-inch PVC screen	Shallow Overburden
TW-6	2533370.28	1973323.29	858.07	859.93	3.5	8.5	854.57	849.57	852.07	2-inch PVC screen	Shallow Overburden
TW-7	2530360.35	1974366.22	830.91	832.25	6	11	824.91	819.91	822.41	2-inch PVC screen	Shallow Overburden
TW-8	2530358.62	1974386.10	830.10	831.67	7	12	823.10	818.10	820.60	2-inch PVC screen	Shallow Overburden
TW-9	2527013.94	1974272.31	793.82	796.42	3	8	790.82	785.82	788.32	2-inch PVC screen	Shallow Overburden
TW-10	2527013.99	1974256.60	793.70	795.88	2.5	7.5	791.20	786.20	788.70	2-inch PVC screen	Shallow Overburden
TW-11	2526439.04	1974253.50	782.38	785.16	5	10	777.38	772.38	774.88	2-inch PVC screen	Shallow Overburden

TABLE 1.4C

SUMMARY OF EXISTING WELL INFORMATION
BYRON GENERATING STATION
BYRON, ILLINOIS

Sample Location	X coord. (State Plane Coordinates)	Y coord. (State Plane Coordinates)	Surface Elevation (ft AMSL) ²	Reference Elevation (ft AMSL)	Screened Interval					Well Construction	Hydrogeologic Unit Screened ¹
					Top	Bottom	Top	Bottom	Middle		
					(ft bgs) ³		(ft AMSL)				
Monitoring Wells Installed During the Blowdown Line Investigation											
TW-12	2526438.39	1974235.97	783.38	785.32	7	12	776.38	771.38	773.88	2-inch PVC screen	Shallow Overburden
TW-13	2525412.16	1974276.44	698.03	700.47	13	18	685.03	680.03	682.53	2-inch PVC screen	Shallow Overburden
TW-14	2525537.43	1974058.60	697.40	699.41	24	34	673.40	663.40	668.40	2-inch PVC screen	Shallow Overburden
TW-15	2525587.27	1973925.58	694.32	695.73	24	29	670.32	665.32	667.82	2-inch PVC screen	Shallow Overburden
Byron Salvage PRP Group-Owned Monitoring Wells											
DF-1S	2531216.65	1973682.92	785.49	786.89	44	59	741.49	726.49	733.99	2-inch stainless steel screen	GPWT
DF-1D	2531226.90	1973676.38	786.32	787.48	79	84	707.32	702.32	704.82	2-inch stainless steel screen	BGP
DF-2S	2531242.96	1973864.59	794.44	794.96	59	74	735.44	720.44	727.94	2-inch stainless steel screen	GPWT
DF-3S	2531570.17	1973536.07	790.26	791.82	51	66	739.26	724.26	731.76	2-inch stainless steel screen	GPWT
DF-4DS	2532386.02	1973588.26	831.41	832.98	46	61	785.41	770.41	777.91	2-inch stainless steel screen	GPWT
DF-4DD	2532385.52	1973588.31	NA	832.79	144	149	--	--	--	2-inch stainless steel screen	BGP
DF-5S	2532646.87	1973412.71	843.19	844.12	13	65	830.19	778.19	804.19	6-inch open hole	GPWT
DF-6	2531991.61	1973735.68	826.31	827.89	118	123	708.31	703.31	705.81	2-inch stainless steel screen	BGP
DF-7S	2527903.67	1975299.65	709.98	712.38	22	27	687.98	682.98	685.48	2-inch stainless steel screen	UAWT
DF-7D	2527898.09	1975298.28	709.67	712.55	43	48	666.67	661.67	664.17	2-inch stainless steel screen	UAM
DF-8	2530141.74	1973270.87	755.05	757.47	58	63	697.05	692.05	694.55	2-inch stainless steel screen	BGP
DF-10	2532417.79	1974527.51	833.04	834.01	69	84	764.04	749.04	756.54	2-inch stainless steel screen	GPWT
DF-11	2532534.02	1974574.44	833.05	834.21	68	83	765.05	750.05	757.55	2-inch stainless steel screen	GPWT
DF-12	2532609.19	1974523.28	831.43	834.48	127	132	704.43	699.43	701.93	2-inch stainless steel screen	BGP
DF-13	2532200.73	1973830.53	836.33	838.84	106	111	730.33	725.33	727.83	2-inch stainless steel screen	MGP
DF-15	2532645.11	1972942.97	846.50	847.79	7	115	839.50	731.50	785.50	6-inch open hole	GPWT
DF-17	2531725.46	1972911.91	817.65	820.14	115	120	702.65	697.65	700.15	2-inch stainless steel screen	BGP
DF-18	2531124.33	1973590.07	777.77	780.28	45	60	732.77	717.77	725.27	2-inch stainless steel screen	GPWT
DF-19	2531143.77	1973770.63	786.13	788.53	55	65	731.13	721.13	726.13	2-inch stainless steel screen	GPWT
DF-22S	2531524.65	1972931.42	808.73	811.85	76	86	732.73	722.73	727.73	2-inch stainless steel screen	GPWT
DF-22D	2531524.95	1972931.41	808.73	811.56	101	106	707.73	702.73	705.23	2-inch stainless steel screen	BGP
DF-23	2530101.41	1972863.81	752.57	755.39	60	65	692.57	687.57	690.07	2-inch stainless steel screen	BGP
DF-24	2530081.29	1974051.80	812.28	813.68	19	102	793.28	710.28	751.78	6-inch open hole	GPWT
DF-25	2530981.83	1973779.38	785.15	786.36	NA	NA	--	--	--	--	NA
MW-1	2534233.15	1973475.34	859.96	861.77	13	71	846.96	788.96	817.96	4-inch open hole	GPWT
MW-2	2534208.57	1973479.15	860.08	861.07	225	230	635.08	630.08	632.58	2-inch stainless steel screen	SS
MW-3	2533174.54	1973415.41	855.90	858.6	14	76	841.90	779.90	810.90	4-inch open hole	GPWT

TABLE 1.4C

**SUMMARY OF EXISTING WELL INFORMATION
BYRON GENERATING STATION
BYRON, ILLINOIS**

Sample Location	X coord. (State Plane Coordinates)	Y coord. (State Plane Coordinates)	Surface Elevation (ft AMSL) ²	Reference Elevation (ft AMSL)	Screened Interval					Well Construction	Hydrogeologic Unit Screened ¹
					Top	Bottom	Top	Bottom	Middle		
					(ft bgs) ³		(ft AMSL)				
Byron Salvage PRP Group-Owned Monitoring Wells											
MW-15	2532472.31	1974788.27	821.22	822.23	75	86	746.22	735.22	740.72	2-inch stainless steel screen	GPWT
MW-16	2532464.57	1974786.05	821.29	823.47	109	120	712.29	701.29	706.79	2-inch stainless steel screen	BGP
MW-20R	2532466.05	1974790.91	820.57	821.85	181	191	639.57	629.57	634.57	2-inch stainless steel screen	SS
MW-21	2532458.60	1974791.94	820.42	821.63	224	234	596.42	586.42	591.42	2-inch stainless steel screen	SS
MW-30	2530196.65	1972880.11	754.70	758.68	27	37	727.70	717.70	722.70	2-inch stainless steel screen	GPWT
MW-36	2532608.79	1973569.23	841.60	843.73	146	156	695.60	685.60	690.60	2-inch stainless steel screen	BGP
MW-37	2532608.88	1973558.19	841.16	843.33	192	202	649.16	639.16	644.16	2-inch stainless steel screen	SS
MW-39	2532616.75	1974389.87	834.18	836.67	175	185	659.18	649.18	654.18	2-inch stainless steel screen	SS
MW-41	2531156.40	1975401.53	814.46	816.87	111	121	703.46	693.46	698.46	2-inch stainless steel screen	BGP
MW-42	2532613.32	1974380.69	834.21	836.31	141	151	693.21	683.21	688.21	2-inch stainless steel screen	BGP
PC-1B	2530160.35	1973268.15	755.49	757.28	36	46	719.49	709.49	714.49	2-inch stainless steel screen	GPWT
PC-1C	2530162.01	1973286.18	755.80	757.89	101	111	654.80	644.80	649.80	2-inch stainless steel screen	SS
PC-2B	2532010.43	1974162.53	840.43	842.54	85	103	755.43	737.43	746.43	2-inch stainless steel screen	GPWT
PC-3B	2532010.72	1973717.55	826.58	828.3	67	78	759.58	748.58	754.08	2-inch stainless steel screen	GPWT
PC-4B	2531377.35	1973122.19	800.53	802.8	71	81	729.53	719.53	724.53	2-inch stainless steel screen	GPWT
PC-5B	2530689.47	1973701.97	786.26	788.35	62	72	724.26	714.26	719.26	2-inch stainless steel screen	GPWT
PC-6B	2531016.38	1974314.45	828.85	831.01	86	96	742.85	732.85	737.85	2-inch stainless steel screen	GPWT

Notes:

- ¹ Hydrogeologic unit screened: GPWT, well open to the water table in the Galena-Platteville aquifer
 BGP, well open to the base of the Galena-Platteville aquifer
 MGP, well open to the middle of the Galena-Platteville aquifer
 UAWT, well open to the water table in the unconsolidated aquifer
 UAM, well open to the middle of the unconsolidated aquifer
 SS, well open to the St. Peter Sandstone aquifer

² ft AMSL - feet Above Mean Sea Level

³ ft bgs - feet below ground surface

⁴ The tops of the wells for GW-9 and Well 7 are located underground within concrete vaults. The surveyed reference elevation is actually the top of the metal rim of the concrete vault at the ground surface.

⁵ NA - not available

Tritium Precipitation Recapture Study performed from September 2009 to August 2010

There were eight collection locations that were located at the eight points of the compass (North, Northeast, East, Southeast, South, Southwest, West and Northwest) and the collections sites were about 260 ft to 350 ft from the vent stacks. The West and Southwest sites were within 200 ft of exhaust venting that was occurring during work performed in the spent fuel area for the dry cask storage project.

Summary of the amount of precipitation collected.

Yearly total ranged from South with 41.3 inches (July Max of 9.22 inches) and West with 30.98 inches (July Max 6.17 inches). July was wettest month for all rain gauges, and least amount of precipitation fell in February (All locations were about 0.45 inches)

Tritium results were none detected (<200 picocuries / L) for months September 2009, December 2009, February 2010, June to August 2010 and for any locations and months other than the following. For October 2009 (when Byron Station was in a refueling outage) the following locations had positive results, North had 288 picocuries / L, Southwest had 303 picocuries / L, West had 550 picocuries / L, Northwest had 413 picocuries / L. November 2009 had East with 1160 picocuries / L and West has 380 picocuries / L. January 2010 had Northwest with a 405 picocuries / L. March 2010 had the South location with 638 picocuries / L and the Southwest location with 437 picocuries / L. In April the station had another refueling outage and the South location had 620 picocuries / L, the Southwest location had 703 picocuries / L and the West location had 719 picocuries / L. In May 2010 the Northeast location had 641 picocuries / L.

There was a single rain event on April 5th that a separate analysis was performed at the direction of Corporate. Rainfall amount was between 0.75 inches to 0.9 inches. Tritium results were Southwest (319 picocuries / L), West were (617 picocuries / L) and all the others were less than 200 picocuries / L.

So in summary the majority of the rainfall amounts showed less than 200 picocuries / L and the highest monthly tritium was in November of 2009 at the East rain gauge with 1160 picocuries / L. Timeframes near refueling outages (October & November 2009 and March, April and May 2010) had 12 of the 13 positive tritium recapture monthly composites with all locations but Southeast having been positive at least once.

WELL COMPLETION RECORD

Site: OTFAO5FA92 County: Ogle Well No.: MW-1
 Site Name: Byron Salvage Yard Grid Coordinates: Northing 1973429.130 Easting 737685.285
 Drilling Contractor: Wehling Well Works Date Drilling Started: 03/08/89
 Driller: Wehling well Works Geologist: Scott Spesshardt Date Drilling Ended: 03/08/89
 Drilling Method: Air Mist Rotary and Coring Drilling Fluid (type): Water

ANNULAR SPACE DETAILS:

Type of Surface Seal: N/A
 Type of Annular Sealant: Cement Portland Grout

Amount of cement: # of bags 4 lbs. per bag 94
 Amount of bentonite: # of bags N/A lbs. per bag N/A
 Type of bentonite seal (granular, pellets): N/A

Amount of bentonite: # of bags N/A lbs. per bag N/A
 Type of Sand Pack: N/A
 Source of Sand: N/A

Amount of Sand: # of bags N/A lbs. per bag N/A

WELL CONSTRUCTION MATERIALS:

Date of Construction: <u>3/8/89</u>	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint	N/A			
Riser pipe above W.T.	N/A			
Riser pipe below W.T.	N/A			
Screen	N/A			
Coupling joint screen to riser	N/A			
Protective Casing				6 in Steel
Surface Casing	4 in s.s.			

MEASUREMENTS

to 0.01 ft. (where applicable)

Riser pipe length	N/A
Protective casing length	N/A
Screen length	N/A
Bottom of screen to end cap	N/A
Top of screen to first joint	N/A
Length of surface casing	14.97 ft (13 ft in depth)
Screen slot size	N/A
No. of opening in screen	N/A
I D of Riser Pipe	N/A
Diameter of bore hole	7 7/8 in

862.15 MSL Top of Protective Casing
862.12 MSL Top of Surface Casing
2 Ft. of Protective Casing Stickup
1.97 Ft. of Surface Casing Stickup

860.15 MSL Ground Surface

7.875 in. Borehole

Portland Cement Grout

13 Ft. Bottom of Surface Casing

3.875 in. Borehole

70.83 Ft. Bottom of Borehole

Well Constructed By: Wehling Well Works
 Surveyed By: U.S. Army Corps of Engineers
 Form Completed By: Scott Prinos USGS

Site: OTFA05FA92 County: Ogle Well No.: MW-2
Site Name: Byron Salvage Yard Grid Coordinates: Northing 1973432.842 Easting 737660.554
Drilling Contractor: Wehling Well Works Date Drilling Started: 02/27/89
Driller: Wehling Well Works Geologist: Scott Spesshardt Date Drilling Ended: 03/22/89
Drilling Method: Air Mist Rotary and Coring Drilling Fluid (type): Water

ANNULAR SPACE DETAILS:

Type of Surface Seal: N/AType of Annular Sealant: Cement Portland Grout

Amount of cement: # of bags 29 lbs. per bag 94

Amount of bentonite: # of bags _____ lbs. per bag _____

Type of bentonite seal (granular, pellets): Volclay Pellets

Amount of bentonite: # of bags 3 buckets lbs. per bag 50 lbs/bucket

Type of Sand Pack: Silica Blasting Sand

Source of Sand: N/A

Amount of Sand: # of bags 1 1/2 lbs. per bag 100

WELL CONSTRUCTION MATERIALS:

Date of Construction: <u>3/22/89</u>	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint	Flush Threaded			
Riser pipe above W.T.	2 in s.s			
Riser pipe below W.T.	2 in s.s			
Screen	2 in s.s			
Coupling joint screen to riser	N/A			
Protective Casing	4 in s.s.			
Surface Casing				5" Black Steel

MEASUREMENTS

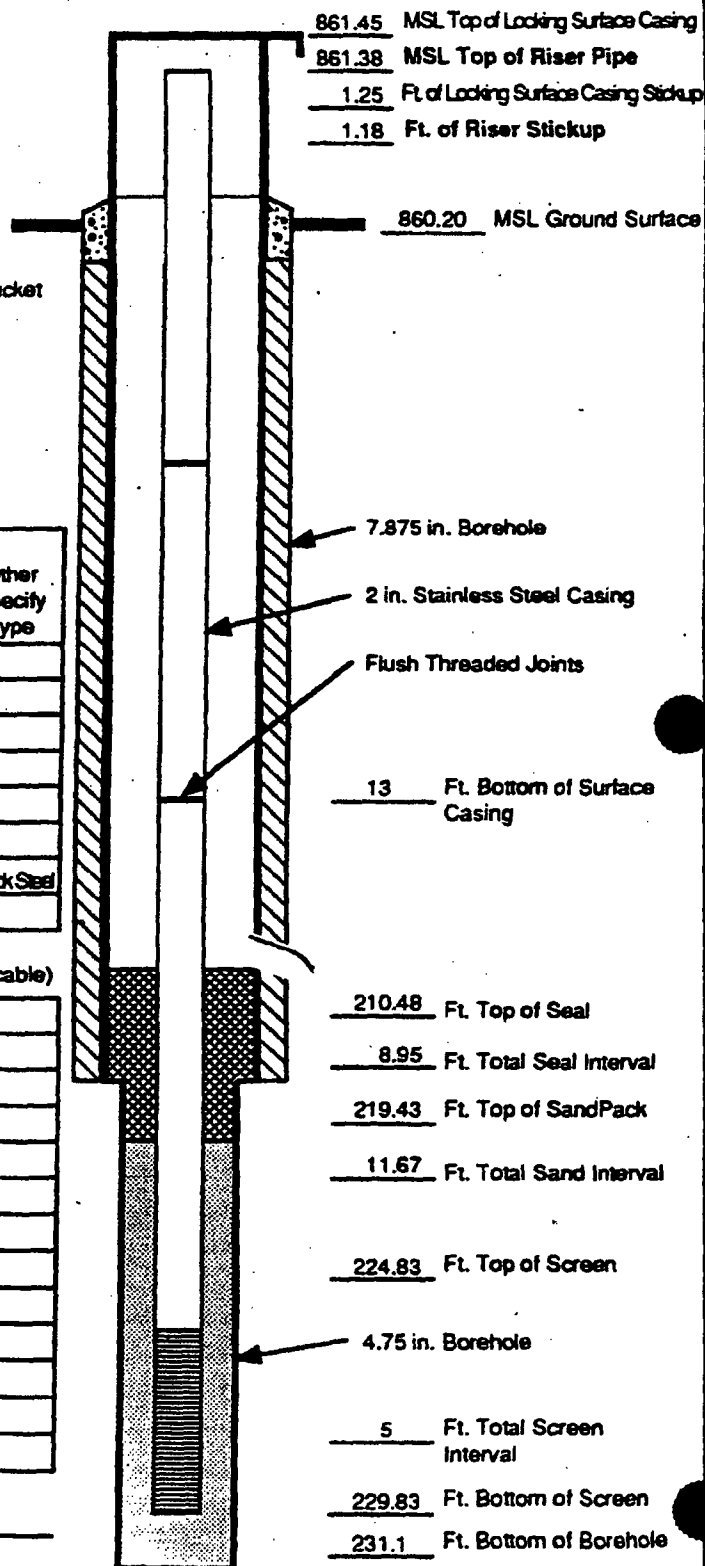
to 0.01 ft. (where applicable)

Riser pipe length	226.0
Protective casing length	N/A
Screen length	5 ft
Bottom of screen to end cap	231.0
Top of screen to first joint	N/A
Length of surface casing	14.18 ft (13 ft in depth)
Screen slot size	.010
No. of opening in screen	N/A
ID of Riser Pipe	2 in
Diameter of bore hole	7 7/8 in

Well Constructed By: Wehling Well Works

Surveyed By: U.S. Army Corps of Engineers

Form Completed By: Scott Prinos USGS



WELL COMPLETION RECORD

USGS Rev 1-81

Site: OTFA05FA92 County: Ogle Well No.: MW-3
 Site Name: Byron Salvage Yard Grid Coordinates: Northing 1974017.103 Easting 736944.336
 Drilling Contractor: Wehling Well Works Date Drilling Started: 03/28/89
 Driller: Wehling Well Works Geologist: Scott Spesshardt Date Drilling Ended: 03/28/89
 Drilling Method: Air-mist Rotary Drilling Fluid (type): N/A

ANNULAR SPACE DETAILS:

Type of Surface Seal: N/A
 Type of Annular Sealant: Portland Cement Grout
 Amount of cement: # of bags 4 lbs. per bag 94
 Amount of bentonite: # of bags N/A lbs. per bag N/A
 Type of bentonite seal (granular, pellets): N/A
 Amount of bentonite: # of bags N/A lbs. per bag N/A
 Type of Sand Pack: N/A
 Source of Sand: N/A
 Amount of Sand: # of bags N/A lbs. per bag N/A

WELL CONSTRUCTION MATERIALS:

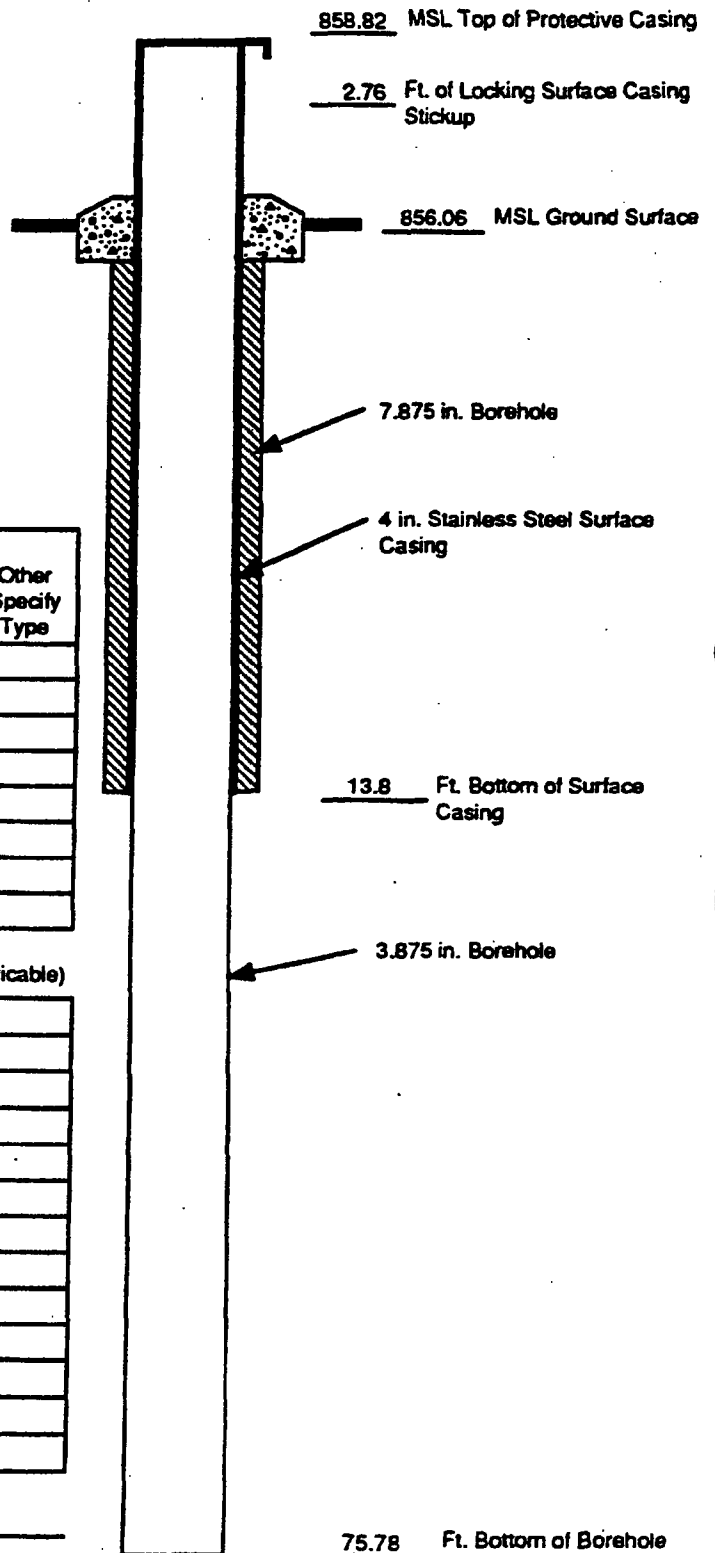
Date of Construction: <u>3/28/89</u>	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint	N/A			
Riser pipe above W.T.	N/A			
Riser pipe below W.T.	N/A			
Screen	N/A			
Coupling joint screen to riser	N/A			
Protective Casing	N/A			
Surface Casing	4 in s.s.			

MEASUREMENTS

to 0.01 ft. (where applicable)

Riser pipe length	N/A
Protective casing length	N/A
Screen length	N/A
Bottom of screen to end cap	N/A
Top of screen to first joint	N/A
Length of surface casing	16.56 ft (13.8 ft in depth)
Screen slot size	N/A
No. of opening in screen	N/A
ID of Riser Pipe	N/A
Diameter of bore hole	7 7/8 in to 13.8 ft, 3 7/8 in to 75.78 ft

Well Constructed By: Wehling Well Works
 Surveyed By: U.S. Army Corps of Engineers
 Form Completed By: Scott Prinos USGS



WELL COMPLETION RECORD

USGS Form 1006

Site: OTFA 5AFL 92 County: Ogle Well No.: DF-2S
 Site Name: Byron Salvage Yard Grid Coordinates: Northing 1973819.717 ft. Easting 734694.770 ft.
 Drilling Contractor: U.S.G.S. Coal Branch Date Drilling Started: 8-10-90
 Driller: U.S.G.S. Coal Branch Geologist: Bob Kay Date Drilling Ended: 8-11-90
 Drilling Method: Tri Cone Roller 0 - 75 ft. Drilling Fluid (type): Air 0 - 18 ft. Water 18 - 75 ft.

ANNULAR SPACE DETAILS:

Type of Surface Seal: Quick Crete - Barker Lumber
 Type of Annular Sealant: Portland Cement
Barker Lumber
 Amount of cement: # of bags 6.25 lbs. per bag 94
 Amount of bentonite: # of bags 0 lbs. per bag 50
 Type of bentonite seal (granular, pellets): Pellets
0.65 (50 lbs. buckets) 16 lbs. per feet
 Amount of bentonite: # of bags 0 lbs. per bag N/A
 Type of Sand Pack: 0.35 - 0.45 mm Silica Sand
 Source of Sand: American Material
 Amount of Sand: # of bags 1.75 lbs. per bag 100

ELEVATION - 0.01 ft.

795.74 MSL Top of Protective Casing
795.29 MSL Top of Riser Pipe
1.14 Ft. of Protective Casing Stickup
0.69 Ft. of Riser Stickup

794.60 MSL Ground Surface
2.00 Ft. Bottom of Surface plug

WELL CONSTRUCTION MATERIALS:

Date of Construction: <u>9/27/90</u>	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint	T304			
Riser pipe above W.T.	T304			
Riser pipe below W.T.	T304			
Screen	T304			
Coupling joint screen to riser	T304			
Protective Casing				Black Pipe
Surface Casing			Sch 80	

50.0 Ft. Total Portland Cement

18.0 Ft. Bottom of Surface Casing

MEASUREMENTS

to 0.01 ft. (where applicable)

Riser pipe length	60.1 ft
Protective casing length	10.00 in. x 5.00 ft
Screen length	15.00 ft.
Bottom of screen to end cap	2.00 in.
Top of screen to first joint	2.00 in.
Total length of casing	8.00 in x 18.0 ft.
Screen slot size	0.01 in.
No. of opening in screen	2571
I D of Riser Pipe	2.067 in.
Diameter of bore hole	9.875 in.) 0.00 ft - 18.0 ft
	4.75 in.) 18.0 ft - 75.0 ft.

50.0 Ft. Top of Seal

2.0 Ft. Total Seal Interval

52.0 Ft. Top of SandPack

5.0 Ft. Total Sand Interval

57.0 Ft. Top of Pea Gravel

59.4 Ft. Top of Screen

18.0 Ft. Total Pea Gravel Interval

15.0 Ft. Total Screen Interval

74.40 Ft. Bottom of Screen

75.0 Ft. Bottom of Borehole

Well Constructed By: USGS - Wisconsin District

Surveyed By: Army Corp. of Engineers

Form Completed By: Bart J. Manion USGS - WRD

Site name: Byron Salvage Yard Grid Coordinates: Northing 1973367.106 ft. Easting 736098.90
Drilling Contractor: U.S.G.S. Coal Branch Date Drilling Started: 8-23-91
Driller: U.S.G.S. Coal Branch Geologist: Bob Kay Date Drilling Ended: 8-23-91
1 in Cone Roller 0 - 13 ft.
Drilling Method: Pneumatic Hammer 13 - 65 ft. Drilling Fluid (type): Water

ANNULAR SPACE DETAILS:

Type of Surface Seal: Quick Crete - Barker Lumber

Type of Annular Sealant: Portland Cement

Barker Lumber

Amount of cement: # of bags 0 lbs. per bag 94

Amount of bentonite: # of bags 0 lbs. per bag 50

Type of bentonite seal (granular, pellets): _____

Amount of bentonite: # of bags 0 lbs. per bag N/A

Type of Sand Pack: 0.35 - 0.45 mm Silica Sand

Source of Sand: American Materials

Amount of Sand: # of bags 0 lbs. per bag 100

WELL CONSTRUCTION MATERIALS:

Date of Construction: <u>8/23/90</u>	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint				
Riser pipe above W.T.				
Riser pipe below W.T.				
Screen				
Coupling joint screen to riser				
Protective Casing				Black Pipe
Surface Casing			Sch 80	

MEASUREMENTS

to 0.01 ft. (where applicable)

Riser pipe length	N/A
Protective casing length	10 in. x 4.00 ft
Screen length	N/A
Bottom of screen to end cap	N/A
Top of screen to first joint	N/A
Total length of casing	8.00 in x 13.0 ft.
Screen slot size	N/A
No. of opening in screen	N/A
I D of Riser Pipe	N/A
Diameter of bore hole	9.875 in.) 0.00 ft - 13.0 ft
	6.0 in.) 13.0 ft - 65.0 ft.

Well Constructed By: USGS - Wisconsin District

Surveyed By: Army Corp. of Engineers / USEPA

Form Completed By: Bart J. Manion USGS - WRD

ELEVATION - 0.01 ft.

844.91 MSL Top of Protective Cas.

1.33 Ft. of Protective Casing Str

844.29 MSL Top of Surface Casir

0.71 Ft. of Surface Casing Sticlu

843.58 MSL Ground Surfa

2.00 Ft. Bottom of Surface p

13.0 Ft. Bottom of Surface Casing

65.0 Ft. Bottom of Borehole

WELL COMPLETION RECORD

USGS Rev 1-01

Site: OTFA 5AFL 92 County: Ogle Well No.: DF-6
 Site Name: Byron Salvage Yard Grid Coordinates: Northing 1973690.603 ft. Easting 7365443.429 ft.
 Drilling Contractor: U.S.G.S. Coal Branch Date Drilling Started: 8-12-90
 Driller: U.S.G.S. Coal Branch Geologist: Bob Kay Date Drilling Ended: 8-13-90
 Drilling Method: Tri Cone Roller 0 - 150.8 ft. Drilling Fluid (type): Air 0 - 36.0 ft. Water 36.0 - 150.8 ft.

ANNULAR SPACE DETAILS:

Type of Surface Seal: Quick Crete - Barker Lumber
 Type of Annular Sealant: Portland Cement- Barker Lumber
 ** Borehole plug: Volclay Grout, Bentonite Chips, Pellets, Silica Sand
 Amount of cement: # of bags 3.0 lbs. per bag 94
 Amount of bentonite: # of bags 4.0 lbs. per bag 50
 Type of bentonite seal (granular, pellets): Pellets
2.0 Buckets (50 lbs. buckets)
 Amount of bentonite: # of bags 2.5 lbs. per bag 50
 Type of Sand Pack: 0.35 - 0.45 mm Silica Sand
 Source of Sand: American Material
 Amount of Sand: # of bags 1.0 lbs. per bag 100

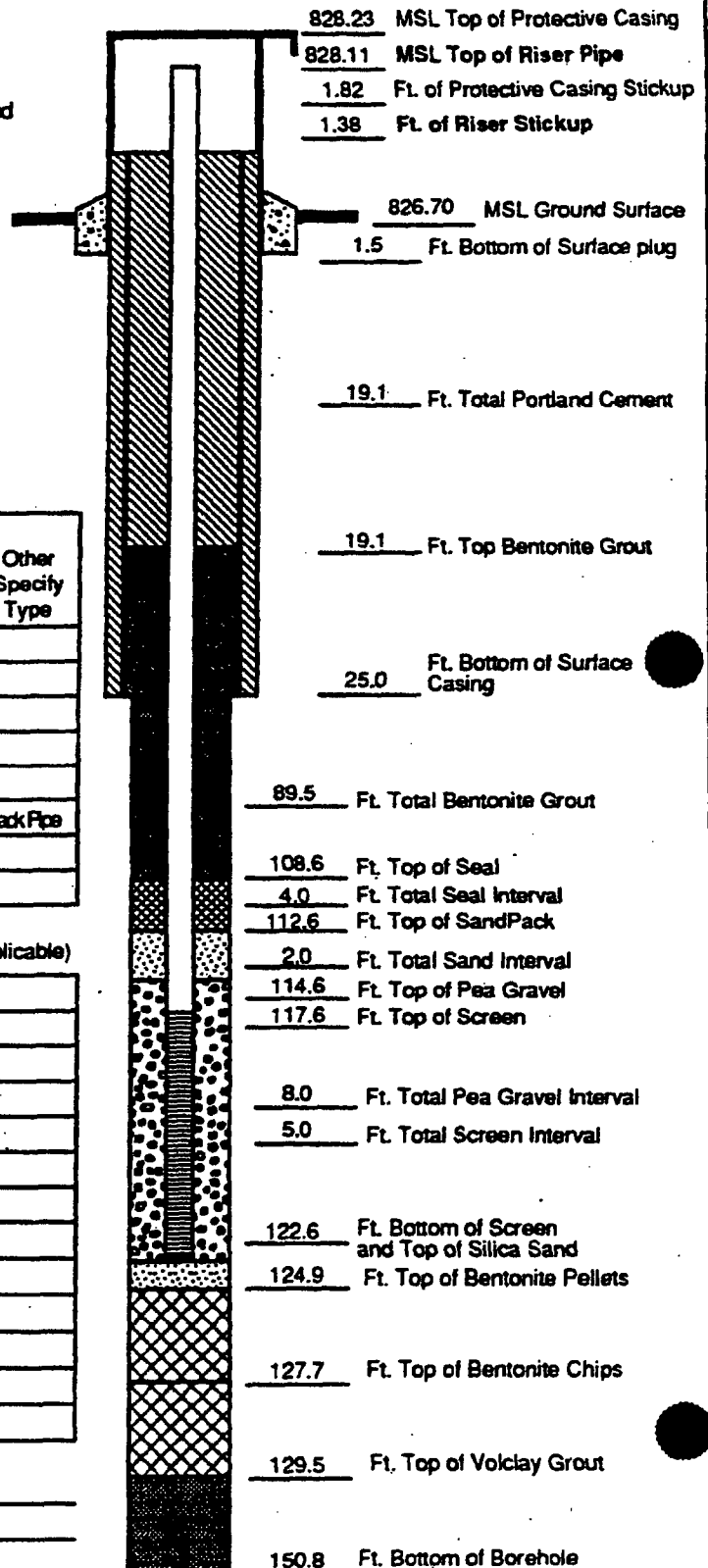
WELL CONSTRUCTION MATERIALS:

Date of Construction: <u>5/16/91</u>	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint	T304			
Riser pipe above W.T.	T304			
Riser pipe below W.T.	T304			
Screen	T304			
Coupling joint screen to riser	T304			
Protective Casing				Black Pipe
Surface Casing			Sch 80	

MEASUREMENTS

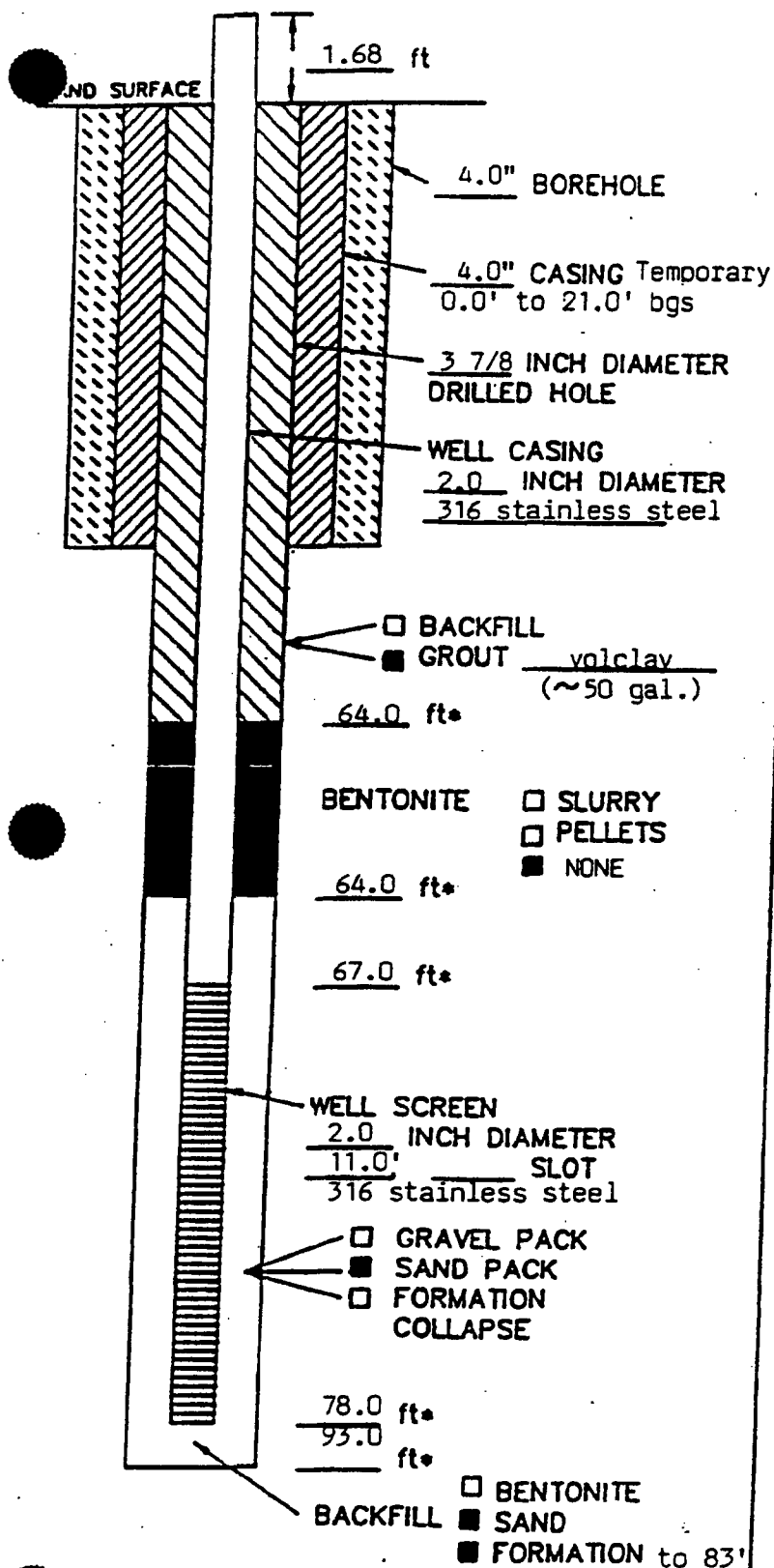
to 0.01 ft. (where applicable)

Riser pipe length	119.0 ft
Protective casing length	10.00 in. x 4.0 ft
Screen length	5.00 ft
Bottom of screen to end cap	2.00 in.
Top of screen to first joint	2.00 in.
Total length of casing	8.00 in ID x 25.0 ft.
Screen slot size	0.01 in.
No. of opening in screen	857
ID of Riser Pipe	2.067 in.
Diameter of bore hole	9.875 in. 0.00 ft - 25.0 ft
	5.875 in. 25.0 ft - 150.8 ft.



Well Constructed By: USGS Wisconsin District
 Surveyed By: Army Corp. of Engineers
 Form Completed By: Bart J. Manion USGS - WRD

WELL CONSTRUCTION LOG



MEASURING POINT IS TOP OF WELL
CASING UNLESS OTHERWISE NOTED.

* DEPTH BELOW LAND SURFACE

PROJECT 7089RBCECO WELL PC-38
TOWN/CITY Byron
COUNTY Ogle STATE IL
PERMIT NO. N/A
LAND-SURFACE ELEVATION
AND DATUM 826.84 feet ☒ SURVEYED
above MSL ☐ ESTIMATE
INSTALLATION DATE(S) 3/9/89 to 3/13/89
DRILLING METHOD Flight auger, NX core
DRILLING CONTRACTOR Fox Drilling, Inc.
DRILLING FLUID Clear water from Byron
Municipal Water Supply

DEVELOPMENT TECHNIQUE(S) AND DATE(S)
4/1/89 Airlift, no water
4/24/89 Brainard-Kilman PVC hand pump

FLUID LOSS DURING DRILLING 1300
WATER REMOVED DURING DEVELOPMENT
300

STATIC DEPTH TO WATER
70.84 FEET BELOW M.P.

PUMPING DEPTH TO WATER
N/A FEET BELOW M.P.

PUMPING DURATION N/A HOURS

YIELD N/A gpm DATE N/A

SPECIFIC CAPACITY N/A gpm/ft

WELL PURPOSE Water table monitoring well

REMARKS

- Initial Water Level: 68.2' bgs
- Didn't use bentonite pellets for seal
due to likely bridging in boring
- Tremied in volclay grout

PREPARED BY D.P. Edwards



ERM - North Central, Inc.

Environmental Resources Management

GEOLOGIC DRILL LOG

PROJECT

DIRKS FARM

PROJECT NUMBER

7089RBCECO

SHEET NO.

1 OF 4

HOLE NO.

PC-3B

SITE

DIRKS FARM

COORDINATES

N 1973671; E 735463

ANGLE FROM HORIZON

Vertical

BEGUN

3-9-89

COMPLETED

3-13-89

DRILLER

Fox Drilling

DRILLING EQUIPMENT

CME 75 w/ 4" Flight Auger & NX Core

BORING DIA.

4.0"

TOTAL DEPTH

93.0

CORE RECOVERY (FT./%)

70.6/94

CORE BOXES/SAMPLES

8

3

EL. TOP CASING

828.52

GROUND EL.

826.8

DEPTH/EL. GROUND WATER

68.8/758.0 ATD

68.8/758.0 24-HOUR

DEPTH/EL. TOP OF ROCK

21.0/805.8

SAMPLE DEVICE

2"x 2' Split Spoon and NX Core

CASING LEFT IN HOLE: DIA./LENGTH

NONE

LOGGED BY:

D.P. Edwards

Samples/R. Core

Contaminant Screening

Sample No.
Time

Rec. (ft)

Length (ft)

Blow Count
RQD (%)Amb. Air
VOC (ppm)Sample **
VOC (ppm)Sample
HCN (ppm)LAYER
ELEV.
DEPTH

DEPTH

GRAPHICS

DESCRIPTION AND CLASSIFICATION

NOTES ON:
WATER LEVELS,
WATER RETURN,
CHARACTER OF
DRILLING, ETC.

SS-1

1.3

2.0

4
4
5
9

0.0

0.0

0.0

820.3
6.5Reddish brown, medium dense, moderately
sorted, CLAYEY FINE TO MEDIUM
SAND w/ trace fine gravel, moist.

SS-2

2.0

2.0

12
11
13
17

0.0

0.0

0.0

10

Light brown, dense, poorly sorted, CLAYEY
FINE TO COARSE SAND w/ trace fine &
coarse gravel, moist.

SS-3

2.0

2.0

18
27
20
24

0.0

0.0

0.0

15

809.3
17.5-Auger refusal
17.3'-Smooth coring; 100%
water return; drill
rate: 0.55 ft/min

CONTAMINANT SCREENING NOTES

SITE

DATE

DUNLEITH FORMATION of the GALENA GROUP: Light yellowish brown, sandy to finely crystalline, thin to medium bedded, DOLOMITIC CALCARENITE, vuggy w/ FeOX stained fine carbonate sand infillings, fossiliferous, occasional green shale partings, preferential dissolution of



ERM - North Central, Inc.

Environmental Resources Management

GEOLOGIC DRILL LOG

PROJECT

DIRKS FARM

PROJECT NUMBER

7089RBCECO

SHEET NO.

2 OF 4

HOLE NO.

PC-31

Sample # Time	Samples/R. Core			Contaminant Screening			LAYER ELEV. DEPTH	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
	Rec. (ft)	Length (ft)	Blow Cnt. Rqd (%)	Amb Air** VOC (ppm)	Sample** VOC (ppm)	Sample HCN (ppm)						
RUN 2	4.4	5.0	0.0	0.0	0.0	0.0					skeletal fragments, fractured (2 horizontal & 1 vertical) w/ heavy mineral infillings.	
								25			-Same as above w/ numerous fractures and bedding planes (22 horizontal, 1 vertical & a fracture zone from 23.5' to 24.2').	-Smooth coring; 10 water return; drill rate: 0.50 ft/min
RUN 3	4.5	5.0	8.0	0.0	0.0	0.0					-Same as above w/ fractures (33 horizontal & 4 vertical).	-Smooth coring; 10 water return; drill rate: 0.50 ft/min
								30				
RUN 4	10.0	10.0	11.0	0.0	0.0	0.0	794.4 32.4				GUTTENBURG FORMATION of the GALENA GROUP : Buff, sandy to finely crystalline, thin to medium bedded, DOLOMITE , vuggy w/ FeOX stained fine carbonate sand infillings, fossiliferous, abundant reddish-brown shale partings, preferential dissolution of skeletal fragments, extensively fractured (20 horizontal & 1 vertical) w/ heavy mineral infillings.	-Smooth coring; 90% water return; drill rate: 0.40 ft/min
								35				
							789.1 37.7				QUMBYS MILL FORMATION of the PLATTEVILLE GROUP : Buff and light gray, finely crystalline, argillaceous, thin to medium bedded, slightly fossiliferous, DOLOMITE w/ occasional vugs, chert nodules, shale beds, heavy mineral accumulations, peloids, phosphate nodules and FeOX stained bedding planes, some fractures (27 horizontal & 3-70 to 80 degree).	-Core blocked out
								40				
RUN 5	10.0	10.0	42.0	0.0	0.0	0.0					-Same as above w/ abundant fractures and bedding planes (40 horizontal & 10-70 to 80 degree).	-Smooth coring; 100% water return; drill rate: 0.33 ft/min



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Environmental Resources Management

GEOLOGIC DRILL LOG

PROJECT

DIRKS FARM

PROJECT NUMBER

7089RBCECO

SHEET NO.

3 OF 4

HOLE NO.

POTAB

Samples/R. Core

Contaminant

Sample #
Time

Rec. (ft)

Length
(ft)Blow Cnt
RQD(%)Amb Air
VOC(ppm)Sample
VOC(ppm)Sample
HCN(ppm)LAYER
ELEV.
DEPTH

DEPTH

GRAPHICS

SAMPLE

DESCRIPTION AND CLASSIFICATION

NOTES ON:
WATER LEVELS,
WATER RETURN,
CHARACTER OF
DRILLING, ETC.

RUN 6 10.0 10.0 61.0 0.0 0.0 0.0

RUN 7 10.0 10.0 83.0 0.0 0.0 0.0

774.5
52.5

50

55

60

65

**NACHUSA FORMATION of the
PLATTEVILLE GROUP:** Yellowish brown
and gray, finely crystalline, argillaceous,
thin bedded to massive, DOLOMITE w/
some peloids and gray shale partings;
occasional FeOX staining, vugs and zones of
fossils; minor fracturing (36 horizontal, 1
vertical & 5-70 degree) w/ black heavy
mineral infillings and secondary calcite
cement.

-Same as above w/ few fractures (30
horizontal, 1 vertical & 2-70 degree
fractures).

-Same as above, but appears more vuggy and

-Lost circulation
completely

-Core blocked out
-Smooth coring; no
water return; drill
rate: 0.25 ft/min

-Smooth coring; no
water return; drill
rate: 0.33 ft/min



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Environmental Resources Management

GEOLOGIC DRILL LOG

PROJECT

DIRKS FARM

PROJECT NUMBER

7089RBCECO

SHEET NO.

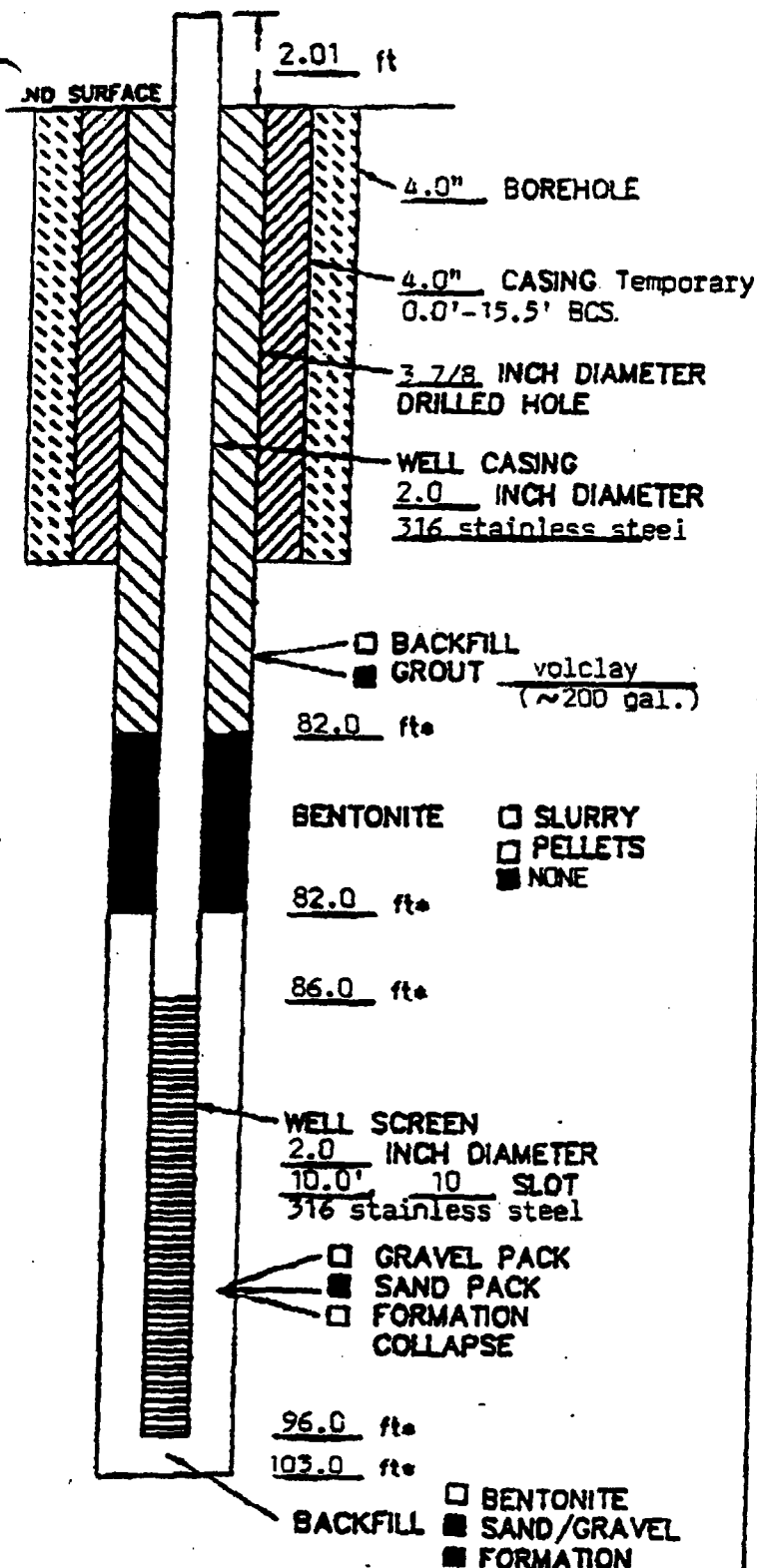
4 OF 4

HOLE NO.

PC-37

Samples/R. Core							LAYER ELEV. DEPTH	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
Sample #	Time	Rec. (ft)	Length (ft)	Blow Cnt. RQD (%)	Amb Air** VOC (ppm)	Sample** VOC (ppm)						
RUN 8		10.0	10.0	66.0	0.0	0.0	751.9 74.9	75			-Same as above w/ some bedding planes (11 horizontal).	-Smooth coring; no water return; drill rate: 0.50 ft/min
											GRAND DETOUR FORMATION of the PLATTEVILLE GROUP: Light and dark greenish gray, argillaceous, massive, interformational conglomerate composed of clasts up to 0.1' in diameter in a argillaceous DOLOMITIC LIMESTONE matrix w/ occasional black and dark gray shale partings, few phosphatic nodules, moderately fractured (22 horizontal) w/ pyrite and calcite infillings, moderately fossiliferous.	
RUN 9		10.0	10.0	80.0	0.0	0.0		85			-Same as above but mottled light green and white clasts of coarse sand to cobble size interformational conglomerate in a dark green to black argillaceous matrix. -Same as above w/ few fractures and bedding planes (22 horizontal, 1 vertical & 3_20 to 30 degree), occasional phosphatic infilling.	-Smooth coring; no water return; drill rate: 0.50 ft/min
							733.8 93.0	90			END OF BORING, 93.0'. Drilling fluid consisted of clear water from the Byron Municipal water supply.	

WELL CONSTRUCTION LOG



MEASURING POINT IS TOP OF WELL
CASING UNLESS OTHERWISE NOTED.

• DEPTH BELOW LAND SURFACE

PROJECT 7089RBOECO WELL PC-68
TOWN/CITY Byron
COUNTY Ogle STATE IL
PERMIT NO. N/A
LAND-SURFACE ELEVATION
AND DATUM 829.29 feet ☒ SURVE
above MSL ☐ ESTIM.
INSTALLATION DATE(S) 2/27/89 to 3/2/89
DRILLING METHOD Flight auger, NX core,
DRILLING CONTRACTOR Fox Drilling, Inc.
DRILLING FLUID Clear water from Byron
Municipal Water Supply
DEVELOPMENT TECHNIQUE(S) AND DATE(S)
4/27/89 hand bailed

FLUID LOSS DURING DRILLING ~6500
WATER REMOVED DURING DEVELOPMENT
8
STATIC DEPTH TO WATER
88.27 FEET BELOW
PUMPING DEPTH TO WATER
N/A FEET BELOW
PUMPING DURATION N/A HOUR
YIELD N/A gpm DATE N/A
SPECIFIC CAPACITY N/A gpm/
WELL PURPOSE Water table monitoring
well

REMARKS
- Initial Water Level: 87.15' BGS
- Didn't use bentonite pellets for seal
due to likely bridging in small bore.
- Tremied in volclay grout

PREPARED BY D.P. Edwards



ERM - North Central, Inc.

Environmental Resources Management

GEOLOGIC DRILL LOG

PROJECT

DIRKS FARM

PROJECT NUMBER

7089RBCECO

SHEET NO.

1 OF 5

HOLE NO.

PC-6

SITE

DIRKS FARM

COORDINATES

N 1974268; E 734469

ANGLE FROM HORIZ

Vertical

BEARING

BEGUN

2-27-89

COMPLETED

3-2-89

DRILLER

Fox Drilling

DRILLING EQUIPMENT

CME 75 w/ 4" Flight Auger & NX Core

BORING DIA.

4.0"

TOTAL DEP

103.0

CORE RECOVERY (FT./%)

82.7/95

CORE BOXES

9

SAMPLES

3

EL. TOP CASING

831.30

GROUND EL.

829.3

DEPTH/EL. GROUND WATER

86.2/743.1 ATD**86.2/743.1 24-HOUR**

DEPTH/EL. TOP OF ROCK

13.5/815.7

SAMPLE DEVICE

2"x 2' Split Spoon and NX Core

CASING LEFT IN HOLE: DIA./LENGTH

NONE

LOGGED BY:

D.P. Edwards

Samples/R. Core

Contaminant

Screening

Sample No.
Time

Rec. (ft)

Length (ft)

Blow Count
RQD (%)Amb. Air
VOC (ppm)Sample **
VOC (ppm)Sample
HCN (ppm)LAYER
ELEV.
DEPTH

DEPTH

GRAPHICS

SAMPLE

DESCRIPTION AND CLASSIFICATION

NOTES ON:
WATER LEVELS,
WATER RETURN,
CHARACTER OF
DRILLING, ETC.**826.3****3.0****SS-1****1.7****2.0****3****2****4****3****0.0****0.0****0.0**Dark brown, CLAYEY FINE SAND w/
rootlets and other organics, moist.**5**Reddish brown, loose, well sorted, FINE
SAND w/ trace clay, moist.**822.8****6.5****SS-2****1.6****2.0****4****2****2****7****0.0****0.0****0.0**Mottled light and dark brown, firm,
moderately well sorted, CLAYEY SILT
w/ trace fine sand, rootlets, wood, straw
and other organics, FeOX stained, moist
(loose).**10****817.8****11.5**Light brown, medium dense, moderately well
sorted, CLAYEY FINE SAND, dry.**SS-3****1.2****2.0****7****100/6'****0.0****0.0****0.0****815.8****13.5**Buff, finely crystalline, massive, LIMESTONE
BIOSPARITE, faint horizontal bedding,
fractured (14 horizontal, 5 vertical, 1-65
degree & 1-35 degree) w/ heavy mineral,
clay and carbonate sand infillings, vuggy,
slightly fossiliferous w/ minor
preferential dissolution of the skeletal
fragments, thin clay partings, extensively
weathered to carbonate sand, gravel and
clay at the top.**15**-Auger refusal at
15.5'
-Smooth coring; 90%
water return; drill
rate: 0.25 ft/min



ERM - North Central, Inc.

Environmental Resources Management

GEOLOGIC DRILL LOG

PROJECT

DIRKS FARM

PROJECT NUMBER

7089RBCECO

SHEET NO.

2 OF 5

HOLE NO.

PC 6B

Samples/R. Core				Contaminant Screening			LAYER ELEV. DEPTH	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
Sample # Time	Rec. (ft)	Length (ft)	Blow Cnt. RQD (%)	Amb Air** VOC (ppm)	Sample** VOC (ppm)	Sample HCN (ppm)						
RUN 2	8.9	10.0	22.0	0.0	0.0	0.0	803.7 25.6	25			-Same as above w/ few white and light brown chert nodules and some fractures.	-Smooth coring; no water return below 28'; drill rate: 0.2 ft/min
								25.6			Yellowish brown and buff, horizontally bedded, LIMESTONE/DOLOMITE , possibly oolitic, considerable white and light brown chert nodules and chert beds, few vugs, extensively fractured (39 horizontal & 8 vertical) w/ heavy mineral and calcite infillings.	-Core blocked out at 28.5' BGS
RUN 3	10.0	10.0	75.0	0.0	0.0	0.0	786.6 42.7	30			-Same as above w/ increased fossil and peloid content, clay partings, wavy bedding (alternating zones of horizontally bedded sandy biosparite and wavy bedded pelbiomicrite), some fractures (28 horizontal and 5-15 degree).	-Smooth, slow coring; no water return; drill rate: 0.15 ft/min
								35				
RUN 4	10.0	10.0	55.0	0.0	0.0	0.0		40			Yellowish brown and buff, finely crystalline, massive, fossiliferous, LIMESTONE/DOLOMITE w/ extensive vugs and yellow porous zones, fractured (33	-Smooth coring; no water return; drill rate: 0.22 ft/min



ERM - North Central, Inc.

Environmental Resources Management

GEOLOGIC DRILL LOG

PROJECT

DIRKS FARM

PROJECT NUMBER

7089RBCECO

SHEET NO.

3 OF 5

HOLE NO.

PC-

Samples/R. Core

Contaminant

Screening

Sample #
Time

Rco. (ft)

Length
(ft)Blow Cnt
RQD (%)Amb Air**
VOC (ppm)Sample**
VOC (ppm)Sample
HCN (ppm)LAYER
ELEV.
DEPTH

DEPTH

GRAPHICS

TABLE

DESCRIPTION AND CLASSIFICATION

NOTES ON:
WATER LEVELS,
WATER RETURN,
CHARACTER OF
DRILLING, ETC.781.3
48.0

50

Buff, finely crystalline, massive
LIMESTONE/DOLOMITE w/ sandy
zones, wavy clay partings, skeletal
fragments, and minor vugginess, few
fractures w/ minor heavy mineral and
calcite infillings.

-Lost 1200 gallons of
water to formation
between 15.5' and
53.0'

RUN 5 10.0 10.0 70.0 0.0 0.0 0.0

-Same as above w/ some fractures (24
horizontal, 4 vertical & 1-30 degree).

-Smooth, slow coring
no water return; dri-
rate: 0.11 ft/min

55

60

767.8
61.5

Gray, finely crystalline, medium bedded,
LIMESTONE/DOLOMITE w/ horizontal
and wavy black clay partings, large fossil
fragments, few peloids and intraclasts, few
vugs and fractures (15 horizontal, 1
vertical, 1-60 degree and 3-10 degree),
occasional highly porous beds of sandy or
micritic carbonate.

-Smooth, slow coring;
no water return; drill
rate: 0.13 ft/min

RUN 6 10.0 10.0 83.0 0.0 0.0 0.0

65



ERM - North Central, Inc.

Environmental Resources Management

GEOLOGIC DRILL LOG

PROJECT

DIRKS FARM

PROJECT NUMBER

7089RBCECO

SHEET NO.

4 OF 5

HOLE NO.

PC-6B

Samples/R. Core

Contaminant

Sample #
Time

Rec. (ft)

Length
(ft)Blow Cnt.
RQD(%)Amb Air
VOC(ppm)Sample
VOC(ppm)Sample
HCN(ppm)LAYER
ELEV.
DEPTH

DEPTH

GRAPHICS

SAMPLE

DESCRIPTION AND CLASSIFICATION

NOTES ON:
WATER LEVELS,
WATER RETURN,
CHARACTER OF
DRILLING, ETC.

RUN 7 10.0 10.0 93.0 0.0 0.0 0.0

-Same as above w/ fractures (14 horizontal,
4-45 degree, 2-70 degree & 1-80 degree).-Smooth, slow coring;
no water return; drill
rate: 0.14 ft/min

75

751.3
78.0Mottled brown, reddish brown and gray, finely
crystalline, massive
LIMESTONE/DOLOMITE w/ few
horizontal and wavy laminae, fractures,
vugs and highly porous beds, minor fossil
content and some FeOX accumulations
along fractures and vugs.

80

RUN 8 10.0 10.0 77.0 0.0 0.0 0.0

-Same as above w/ fractures (21 horizontal &
1-70 degree).-Smooth coring; no
water return; drill
rate: 0.17 ft/min

85

738.8
90.5

90

Gray, finely crystalline, massive
LIMESTONE/DOLOMITE w/ some
horizontal and wavy laminae, fossiliferous,
some clay partings, preferential
dissolution of skeletal fragments, some
fractures (15 horizontal) and heavy mineral
(pyrite) accumulations along fractures.-Smooth coring; no
water return; drill
rate: 0.17 ft/min

RUN 9 10.0 10.0 93.0 0.0 0.0 0.0

GEOLOGIC DRILL LOG

PROJECT

DIRKS FARM

PROJECT NUMBER

7089RBCECO

SHEET NO.

\$ OF \$

HOLE NO.

PC-6

Sample #	Time	Rec. (ft)	Length (ft)	Blow Cnt	RQD(%)	Amb Air**	VOC(ppm)	Sample***	VOC(ppm)	Sample	HCN(ppm)	LAYER ELEV. DEPTH	DEPTH	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
												726.3	100			
												103.0			END OF BORING, 103.0'. Drilling fluid consisted of clear water from the Byron Municipal water supply.	
													105			
													110			
													115			



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 3

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: AR-1

PROJECT NUMBER: 19232-21

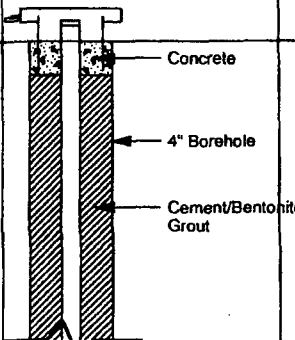
DATE COMPLETED: March 23, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: SONIC

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SP SAND (FILL) - trace of limestone gravel, medium grain, brown, dry							
4								
6								
8								
10	END OF OVERBURDEN HOLE @ 9.0ft BGS							
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA_CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 3

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: AR-1

PROJECT NUMBER: 19232-21

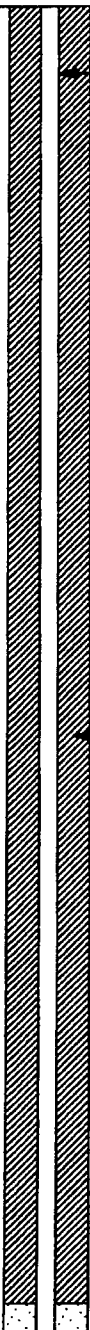
DATE COMPLETED: March 23, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: SONIC

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	RUN NUMBER	CORE RECOVERY %	RQD %	
10	WEATHERED DOLOMITE - fissured, fractured, light brown, wet	9.00					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							
36							
38							
40							
42							
44							
46							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 3 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

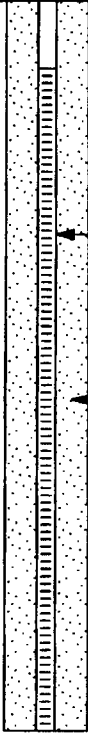
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-1

DATE COMPLETED: March 23, 2006

DRILLING METHOD: SONIC

FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	RUN NUMBER	CORE RECOVERY %	RQD %
50						
52						
54						
56						
58						
60						
62						
64						
66						
68						
70	END OF BOREHOLE @ 70.0ft BGS	70.00				
72						
74						
76						
78						
80						
82						
84						
86						

WELL DETAILS

Screened Interval:

50.00 to 70.00ft BGS

Length: 20ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

47.00 to 70.00ft BGS

Material: #2 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

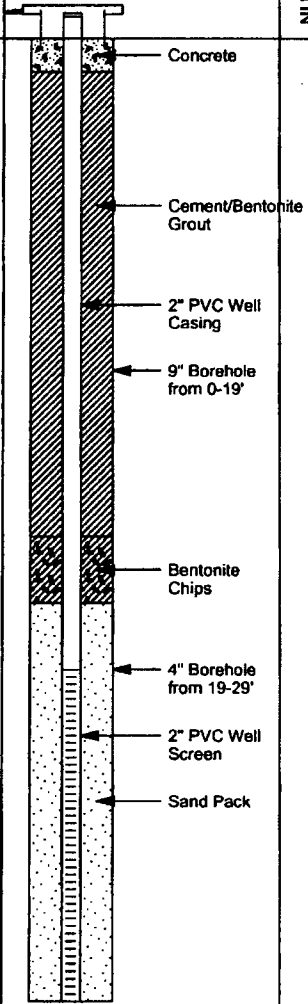
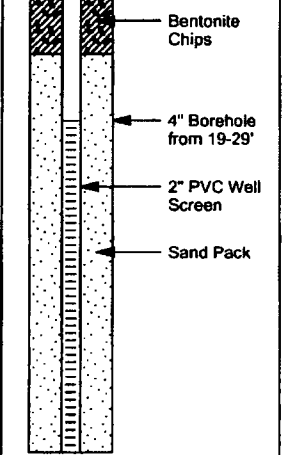
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-10

DATE COMPLETED: April 5, 2006

DRILLING METHOD: 4-1/4" HSA/AIR ROTARY

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	UNCONSOLIDATED SEDIMENTS	15.00						
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30	LIMESTONE - weathered - competent rock at 19.0ft BGS END OF BOREHOLE @ 29.0ft BGS	29.00						
32								
34								
36								
38								

WELL DETAILS

Screened interval:

19.00 to 29.00ft BGS

Length: 10ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

17.00 to 29.00ft BGS

Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 4

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

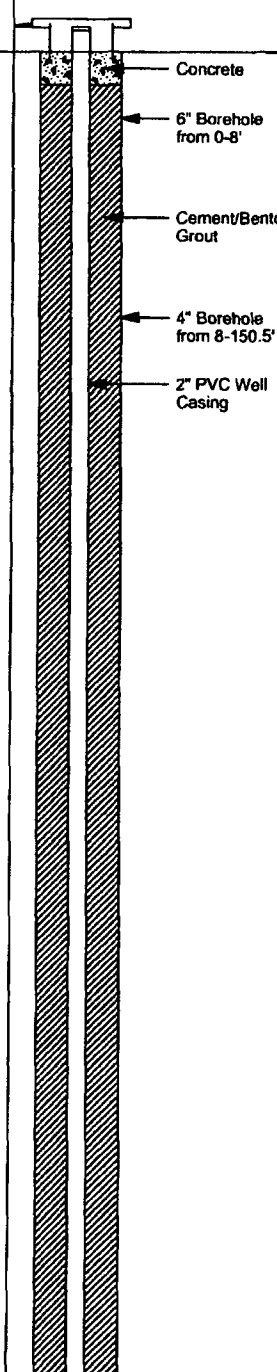
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-11

DATE COMPLETED: April 11, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: E. VARNAS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
	UNCONSOLIDATED SEDIMENTS							
2								
4								
6								
8	BEDROCK - gray limestone	8.00						
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 4

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: AR-11

PROJECT NUMBER: 19232-21

DATE COMPLETED: April 11, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: AIR ROTARY

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: E. VARNAS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								
70	- some red color at 70.0ft BGS							
72								
74	- gray color at 74.0ft BGS							
76								
78	- red color at 78.0ft BGS							

4" Borehole
from 8-150.5'

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.CPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 3 of 4

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-11

DATE COMPLETED: April 11, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: E. VARNAS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
82								
84								
86								
88								
90								
92								
94								
96								
98								
100								
102								
104								
106	- 1' of gray color at 106.0ft BGS							
108								
110								
112								
114								
116								
118								

4" Borehole
from 8-150.5'

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 4 of 4

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

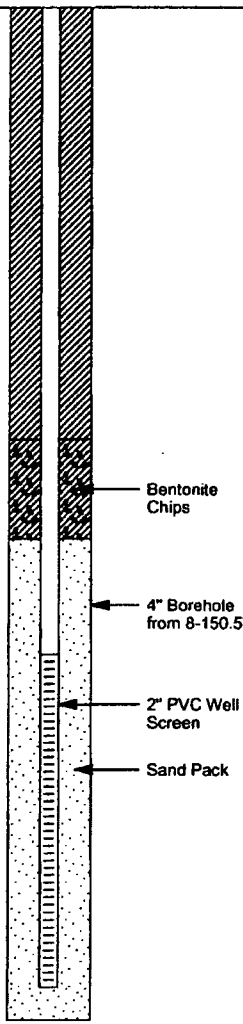
HOLE DESIGNATION: AR-11

DATE COMPLETED: April 11, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: E. VARNAS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE			
				NUMBER	INTERVAL	REC (%)	N' VALUE
122							
124							
126							
128							
130							
132							
134							
136							
138							
140							
142							
144							
146							
148							
150	SHALE	150.00					
152	END OF BOREHOLE @ 150.5ft BGS	150.50					
154							
156							
158							



WELL DETAILS
Screened interval:
139.50 to 149.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
136.00 to 150.50ft BGS
Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

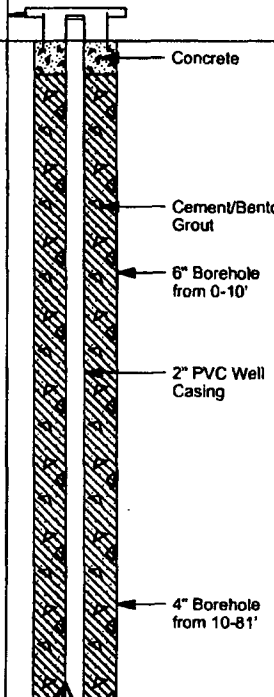
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-2

DATE COMPLETED: March 21, 2006

DRILLING METHOD: SONIC

FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE						
				NUMBER	INTERVAL	REC (%)	"N" VALUE			
2	SM SILTY SAND - with fine gravel, compact, fine grained, poorly graded, brown, moist	10.00								
4										
6										
8										
10	DOLOSTONE - fissured, fractured, light brown									
12										
14										
16										
18										
20	END OF OVERBURDEN HOLE @ 20.0ft BGS									
22										
24										
26										
28										
30										
32										
34										
36										
38										

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 3

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: AR-2

PROJECT NUMBER: 19232-21

DATE COMPLETED: March 21, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: SONIC

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	RUN NUMBER	CORE RECOVERY %	RCD %	
20							
22							
24							
26							
28							
30							
32							
34							
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							

4" Borehole
from 10-81'

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 3 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

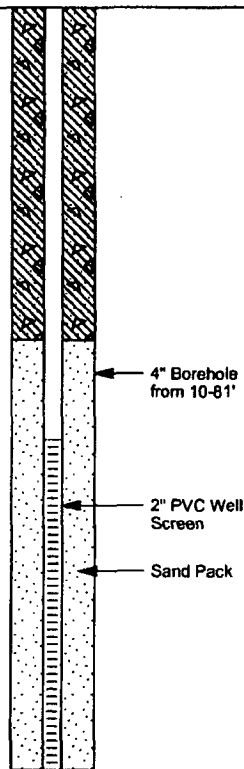
HOLE DESIGNATION: AR-2

DATE COMPLETED: March 21, 2006

DRILLING METHOD: SONIC

FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	RUN NUMBER	CORE RECOVERY %	RQD %
60						
62						
64						
66	- wet at 65.0ft BGS					
68						
70						
72						
74	- wet at 75.0ft BGS					
76						
78						
80						
81.00	END OF BOREHOLE @ 81.0ft BGS	81.00				
82						
84						
86						
88						
90						
92						
94						
96						



WELL DETAILS

Screened interval:

71.00 to 81.00ft BGS

Length: 10ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

68.00 to 81.00ft BGS

Material: #2 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 3

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: AR-3

PROJECT NUMBER: 19232-21

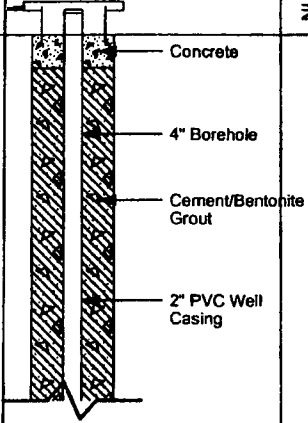
DATE COMPLETED: March 22, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: SONIC

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE			
				NUMBER	INTERVAL	REC (%)	'N' VALUE
2	SM SILTY SAND - with fine gravel, compact, fine grained, poorly graded, brown, moist						
4							
6							
8							
10							
12							
14							
16							
18							
20							
22	END OF OVERBURDEN HOLE @ 11.0ft BGS						
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC


LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-3

DATE COMPLETED: March 22, 2006

DRILLING METHOD: SONIC

FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	RUN NUMBER	CORE RECOVERY %	RQD %
12	DOLOSTONE - fissured, fractured, light brown	11.00				
14						
16						
18						
20						
22						
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 3 of 3

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: AR-3

PROJECT NUMBER: 19232-21

DATE COMPLETED: March 22, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: SONIC

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	RUN NUMBER	CORE RECOVERY %	RQD %
52						
54						
56						
58						
60						
62						
64						
66	- wet at 65.0ft BGS					
68						
70						
72	END OF BOREHOLE @ 71.0ft BGS	71.00	WELL DETAILS Screened interval: 60.00 to 70.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 57.00 to 71.00ft BGS Material: #2 Sand			
74						
76						
78						
80						
82						
84						
86						
88						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-4

DATE COMPLETED: March 24, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE			
				NUMBER	INTERVAL	REC (%)	'N' VALUE
2	UNCONSOLIDATED SEDIMENTS (see logs for TW-7 and TW-8)						
4							
6							
8	BEDROCK	8.00					
10							
12	- competent rock at 12.0ft BGS						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							
36							
38							
40							
42							
44							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG: 19232-21.GPJ, CRA, CORP, GDT, 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-4

DATE COMPLETED: March 24, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								
70								
72								
74								
76								
78								
80								
82								
84								
86								
88								

Cement/Bentonite
Grout

4" Borehole
from 12-121.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 3 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

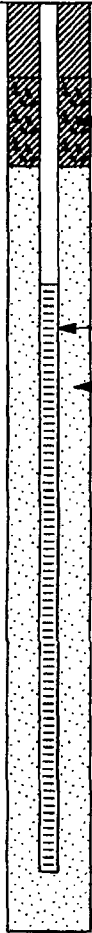
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-4

DATE COMPLETED: March 24, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
92			 <p>Bentonite Chips</p> <p>4" Borehole from 12-121.5</p> <p>2" PVC Well Screen</p> <p>Sand Pack</p>					
94								
96								
98								
100								
102								
104								
106								
108								
110								
112								
114								
116								
118								
120								
122	END OF BOREHOLE @ 121.5ft BGS	121.50						
124			WELL DETAILS Screened interval: 99.50 to 119.50ft BGS Length: 20ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 95.50 to 121.50ft BGS Material: Sand					
126								
128								
130								
132								
134								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-5

DATE COMPLETED: March 23, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: N. KUHLE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	UNCONSOLIDATED SEDIMENTS (see logs for TW-9 and TW-10)		Concrete					
4	BEDROCK - weathered, gray limestone	3.50	Cement/Bentonite Grout					
6			6" Borehole from 0-12'					
8			2" PVC Well Casing					
10								
12	- competent rock at 12.0ft BGS		4" Borehole from 12-122'					
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								
40								
42								
44								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-5

DATE COMPLETED: March 23, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
46								
48								
50								
52								
54								
56								
58								
60								
62	- gray-brown at 62.0ft BGS							
64								
66								
68								
70								
72								
74								
76								
78								
80								
82								
84								
86								
88								

4" Borehole
from 12-122'

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 3 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

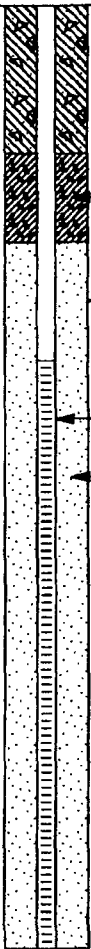
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-5

DATE COMPLETED: March 23, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
92			 <p>Bentonite Chips</p> <p>4" Borehole from 12-122'</p> <p>2" PVC Well Screen</p> <p>Sand Pack</p>					
94								
96								
98								
100								
102								
104								
106								
108								
110								
112								
114								
116								
118								
120								
122	END OF BOREHOLE @ 122.0ft BGS	122.00						
124			<p>WELL DETAILS Screened interval: 102.00 to 122.00ft BGS Length: 20ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 98.00 to 122.00ft BGS Material: #6 Sand</p>					
126								
128								
130								
132								
134								

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

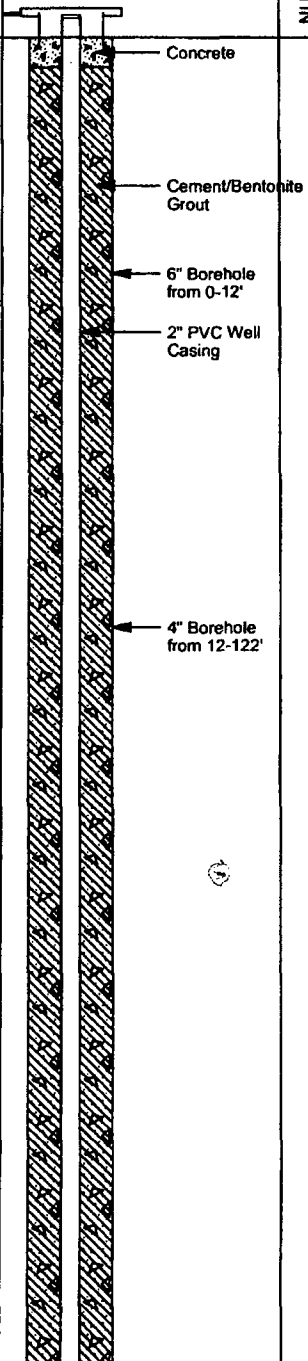
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-6

DATE COMPLETED: March 21, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: E. VARNAS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	UNCONSOLIDATED SEDIMENTS (see logs for TW-11 and TW-12)							
4								
6								
8	BEDROCK	8.00						
10								
12	- competent rock at 12.0ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								
40								
42								
44								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 3

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: AR-6

PROJECT NUMBER: 19232-21

DATE COMPLETED: March 21, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: AIR ROTARY

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: E. VARNAS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								
70								
72								
74								
76								
78								
80								
82								
84								
86								
88								

4" Borehole
from 12-122'

Cement/Bentonite
Grout

Bentonite
Chips

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 3 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

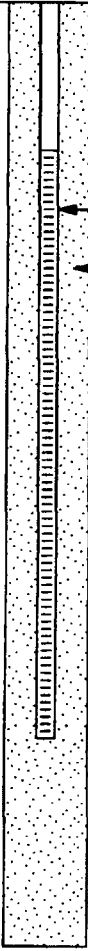
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-6

DATE COMPLETED: March 21, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: E. VARNAS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	
92			 <p>4" Borehole from 12-122'</p> <p>2" PVC Well Screen</p> <p>Sand Pack</p>					
94								
96								
98								
100								
102								
104								
106								
108								
110								
112								
114								
116								
118								
120								
122	END OF BOREHOLE @ 122.0ft BGS	122.00						
124			WELL DETAILS Screened interval: 95.00 to 115.00ft BGS Length: 20ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 85.00 to 122.00ft BGS Material: #6 Sand					
126								
128								
130								
132								
134								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

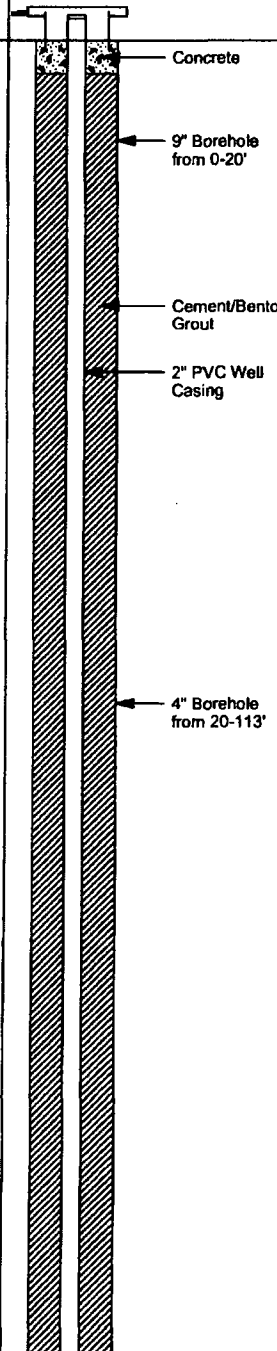
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-7

DATE COMPLETED: March 28, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	
								
2	SP SAND/GRAVEL FILL							
4								
6								
8								
10								
12								
14								
15.00	SC CLAYEY SAND	15.00						
17.00	BEDROCK LIMESTONE - weathered	17.00						
20	- competent rock at 20.0ft BGS							
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 3

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: AR-7

PROJECT NUMBER: 19232-21

DATE COMPLETED: March 28, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: AIR ROTARY

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
42								
44								
46								
48								
50								
52								
54								
56								
58								
60	- occasional sand pockets from 60-79' at 60.0ft BGS							
62								
64								
66								
68								
70								
72								
74								
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/08



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 3 of 3

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-7

DATE COMPLETED: March 28, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
82								
84								
86								
88								
90								
92								
94								
96								
98								
100								
102								
104								
106								
108								
110								
112								
114	END OF BOREHOLE @ 113.0ft BGS	113.00						
116								
118								

Bentonite
Chips

2" PVC Well
Screen

Sand Pack

WELL DETAILS

Screened Interval:

102.00 to 113.00ft BGS

Length: 11ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

100.00 to 113.00ft BGS

Material: #5 Sand

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-8

DATE COMPLETED: March 31, 2006

DRILLING METHOD: 4-1/4" HSA/AIR ROTARY

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
	GPS SAND/GRAVEL (FILL)		Concrete					
2	LIMESTONE - weathered	2.00	9" Borehole from 0-5'					
4			4" Borehole from 5-53'					
6	- competent rock at 5.0ft BGS		Cement/Bentonite Grout					
8			2" PVC Well Casing					
10								
12								
14								
16								
18								
20								
22								
24								
26								
28			Bentonite Chips					
30								
32			2" PVC Well Screen					
34			Sand Pack					
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG: 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 2

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: AR-8

PROJECT NUMBER: 19232-21

DATE COMPLETED: March 31, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: 4-1/4" HSA/AIR ROTARY

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
42			 4" Borehole from 5-53'					
44								
46								
48								
50								
52								
53.00	END OF BOREHOLE @ 53.0ft BGS	53.00						
54								
56								
58								
60								
62								
64								
66								
68								
70								
72								
74								
76								
78								

WELL DETAILS

Screened interval:

30.00 to 50.00ft BGS

Length: 20ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

28.00 to 53.00ft BGS

Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/08



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

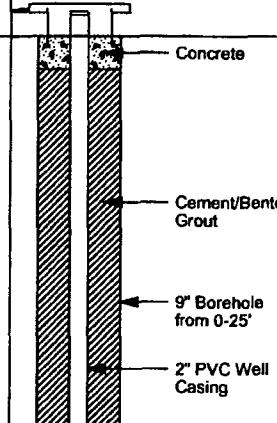
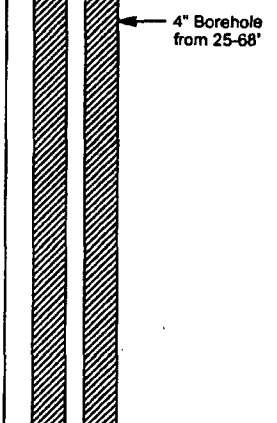
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-9

DATE COMPLETED: April 4, 2006

DRILLING METHOD: 4-1/4" HSA/AIR ROTARY

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
	UNCONSOLIDATED SEDIMENTS							
2								
4								
6								
8								
10								
12								
14								
16								
18								
20	BEDROCK - weathered	20.00						
22								
24								
26	- competent rock at 25.0ft BGS							
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 2

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

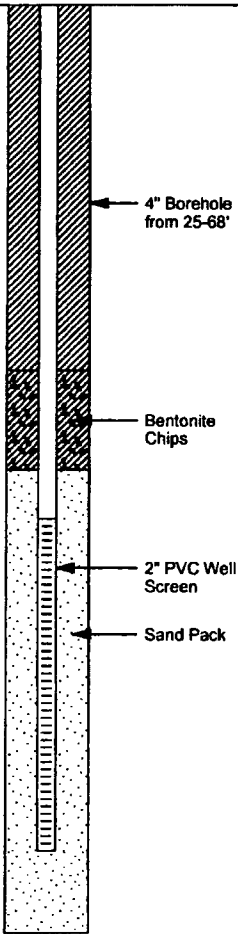
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: AR-9

DATE COMPLETED: April 4, 2006

DRILLING METHOD: 4-1/4" HSA/AIR ROTARY

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE			
				NUMBER	INTERVAL	REC (%)	'N' VALUE
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68	END OF BOREHOLE @ 68.0ft BGS	68.00					
70							
72							
74							
76							
78							

WELL DETAILS

Screened interval:

55.50 to 65.50ft BGS

Length: 10ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

54.00 to 68.00ft BGS

Material: #6 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: CAR-1

DATE COMPLETED: March 21, 2006

DRILLING METHOD: 4-1/4" HSA

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SP SAND - fine grained, trace medium sand, poorly graded, medium brown, moist		Concrete					
4								
6								
8								
10			8" Borehole					
12	- some coarse sand, dark brown at 11.2ft BGS							
14								
16	- trace fine gravel at 15.0ft BGS							
18								
20	- some fine gravel at 20.0ft BGS							
22			Cement/Bentonite Grout					
24								
26								
28	- wet at 27.0ft BGS							
30								
32								
34								
36								
38			2" PVC Well Casing					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 2

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

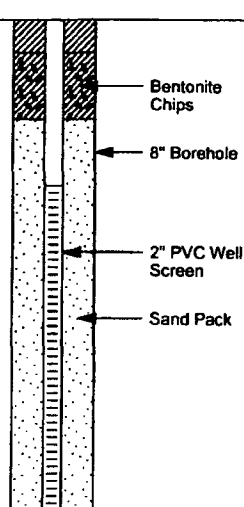
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: CAR-1

DATE COMPLETED: March 21, 2006

DRILLING METHOD: 4-1/4" HSA

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
42			 <p>Bentonite Chips</p> <p>8" Borehole</p> <p>2" PVC Well Screen</p> <p>Sand Pack</p> <p>WELL DETAILS Screened interval: 45.00 to 55.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 43.00 to 55.00ft BGS Material: Sand</p>					
44								
46								
48								
50	- dense at 50.0ft BGS							
52								
54								
56	END OF BOREHOLE @ 55.0ft BGS	55.00						
58								
60								
62								
64								
66								
68								
70								
72								
74								
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

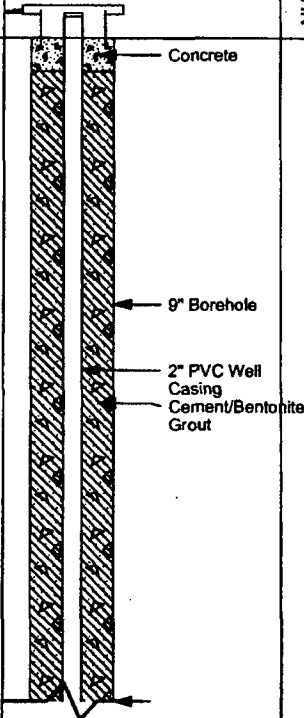
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: CAR-2

DATE COMPLETED: March 22, 2006

DRILLING METHOD: 4-1/4" HSA/4" ROTARY

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SP SAND		 <p>Concrete</p> <p>9" Borehole</p> <p>2" PVC Well Casing</p> <p>Cement/Bentonite Grout</p>					
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								
	END OF OVERBURDEN HOLE @ 20.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 2

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: CAR-2

PROJECT NUMBER: 19232-21

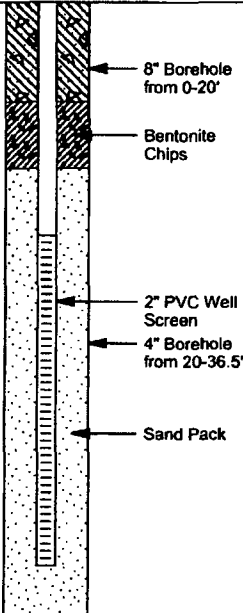
DATE COMPLETED: March 22, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: 4-1/4" HSA/4" ROTARY

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	RUN NUMBER	CORE RECOVERY %	RQD %	
20	LIMESTONE/DOLOMITE (highly weathered) - thinly bedded, trace fine sand pockets, white/beige, dry, calcareous nodules	20.00		1	4.6		
22				2	100		
24				3	100		
26	END OF BOREHOLE @ 36.5ft BGS	36.50	<p>WELL DETAILS Screened interval: 25.00 to 35.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 23.00 to 36.50ft BGS Material: Sand</p>				
28							
30							
32							
34							
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 19232-21.GPJ CRA CORP.GDT 5/23/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

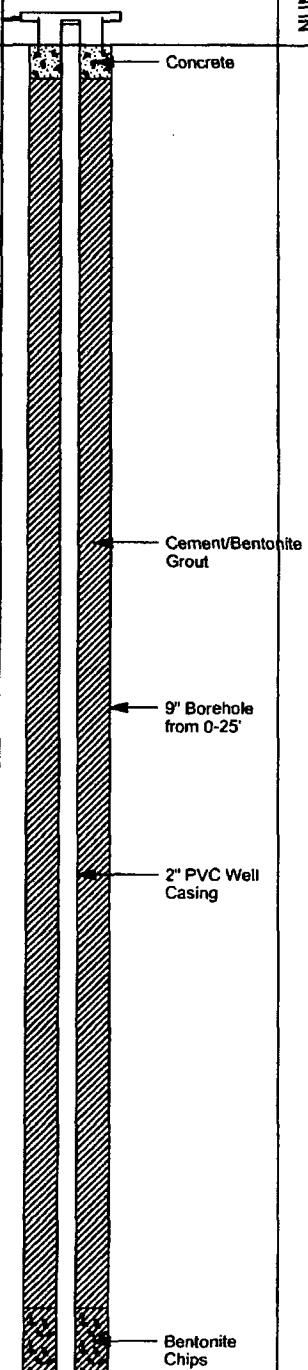
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: CAR-3

DATE COMPLETED: March 29, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
	UNCONSOLIDATED SEDIMENTS		 <p>Concrete</p> <p>Cement/Bentonite Grout</p> <p>9" Borehole from 0-25'</p> <p>2" PVC Well Casing</p> <p>Bentonite Chips</p>					
2								
4								
6								
8								
10								
12								
14								
16								
18								
20	WEATHERED LIMESTONE BEDROCK	19.00						
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 2

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

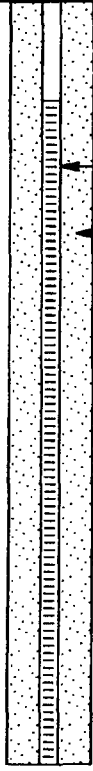
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: CAR-3

DATE COMPLETED: March 29, 2006

DRILLING METHOD: AIR ROTARY

FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	
42			 <p>4" Borehole from 25-63'</p> <p>2" PVC Well Screen</p> <p>Sand Pack</p>					
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
63.00	END OF BOREHOLE @ 63.0ft BGS	63.00						
64								
66								
68								
70								
72								
74								
76								
78								

WELL DETAILS

Screened interval:

43.00 to 63.00ft BGS

Length: 20ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

40.00 to 63.00ft BGS

Material: #5 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

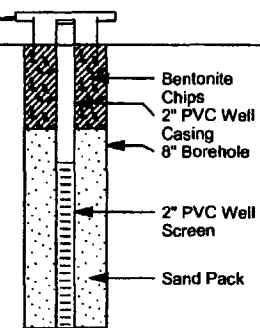
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: TW-1

DATE COMPLETED: February 27, 2006

DRILLING METHOD: GEOPROBE/4-1/4" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	P/D (ppm)
	TOPSOIL							
2	SP SAND (FILL) - trace limestone gravel, medium grain, brown, dry	1.00		1GP				0.0
4								
6								
8	LIMESTONE - sandy and silty, weathered, brown, dry	8.00		2GP				0.0
10	- AUGER REFUSAL at 8.5ft BGS - GEOPROBE REFUSAL at 9.0ft BGS END OF BOREHOLE @ 9.0ft BGS	9.00						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
3.50 to 8.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
2.50 to 8.50ft BGS
Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: TW-10

PROJECT NUMBER: 19232-21

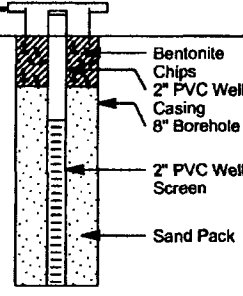
DATE COMPLETED: March 1, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: GEOPROBE/4-1/4" HSA

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	TOPSOIL							
2	CL CLAY (FILL) - sandy, low plasticity, brown, moist	1.00		1GP				0.0
4	SP SAND - medium grain, brown, dry	3.00						
6				2GP				0.0
8	WEATHERED LIMESTONE - sandy, silty, brown, dry	7.00						
10	- AUGER REFUSAL at 7.5ft BGS - GEOPROBE REFUSAL at 8.0ft BGS END OF BOREHOLE @ 8.0ft BGS	8.00	WELL DETAILS Screened interval: 2.50 to 7.50ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 1.50 to 7.50ft BGS Material: Sand					
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

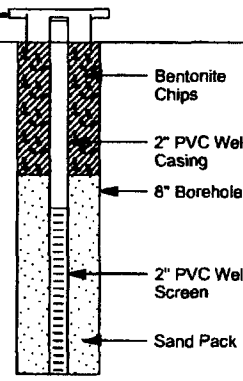
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: TW-11

DATE COMPLETED: March 1, 2006

DRILLING METHOD: GEOPROBE/4-1/4" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	TOPSOIL							
2	CL CLAY (FILL) - sandy, low plasticity, brown, moist	1.00		1GP				0.0
4	SP SAND - medium grained, brown, dry	4.50						
6				2GP				0.0
8								
10	WEATHERED LIMESTONE - sandy, silty, brown, dry	9.00	<p>WELL DETAILS Screened interval: 5.00 to 10.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 4.00 to 10.00ft BGS Material: Sand</p>					
12	- GEOPROBE REFUSAL at 9.0ft BGS	10.00						
14	- AUGER REFUSAL at 10.0ft BGS							
16	END OF BOREHOLE @ 10.0ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

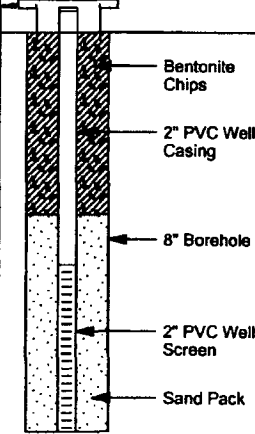
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: TW-12

DATE COMPLETED: March 1, 2006

DRILLING METHOD: GEOPROBE/4-1/4" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	TOPSOIL							
2	CL CLAY (FILL) - sandy, low plasticity, moist	1.00		1GP				0.0
4								
6	SP SAND - medium grained, brown, dry	4.50		2GP				0.0
8								
10	WEATHERED LIMESTONE - sandy, silty, brown, dry - GEOPROBE REFUSAL at 9.0ft BGS	9.00						
12	- AUGER REFUSAL at 12.0ft BGS END OF BOREHOLE @ 12.0ft BGS	12.00						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

WELL DETAILS

Screened interval:

7.00 to 12.00ft BGS

Length: 5ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

5.50 to 12.00ft BGS

Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

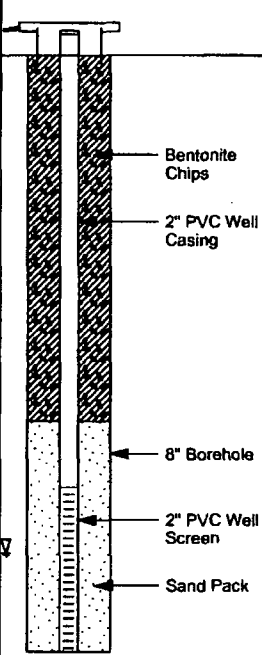
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: TW-13

DATE COMPLETED: March 1, 2006

DRILLING METHOD: GEOPROBE/4-1/4" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	TOPSOIL							
2	CL CLAY - sandy, low plasticity, brown, moist	1.00		1GP				0.0
4	SP SAND - medium grain, brown, dry	4.00						
6								
8	GC CLAYEY GRAVEL (limestone) - sandy, orange/brown, dry	8.00		2GP				0.0
10	SP SAND - medium grain, brown, dry	10.00						
12	- GEOPROBE REFUSAL at 12.0ft BGS			3GP				0.0
14								
16	- saturated at 15.0ft BGS							
18	- AUGER REFUSAL at 18.0ft BGS END OF BOREHOLE @ 18.0ft BGS	18.00						
20			WELL DETAILS Screened interval: 13.00 to 18.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 11.00 to 18.00ft BGS Material: Sand					
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ↓

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

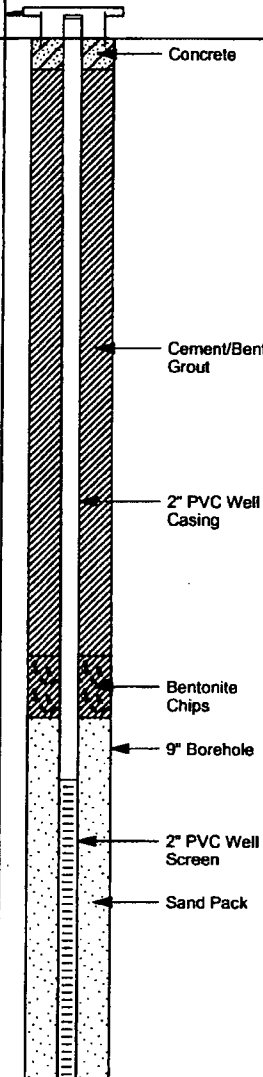
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: TW-14

DATE COMPLETED: April 5, 2006

DRILLING METHOD: GEOPROBE/4-1/4" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
2	TOPSOIL	1.00		1GP				0.0
4	CL CLAY - sandy, low plasticity, brown, moist	4.00		2GP				0.0
6	SP SAND - medium grained, brown, dry			3GP				0.0
8	- moist at 8.5ft BGS			4GP				0.0
10				5GP				0.0
12		13.00						
14	GC CLAYEY GRAVEL (limestone) - sandy, orange/brown, moist							
16								
18								
20	- interbedded layers of sand at 21.0ft BGS							
22								
24	- weathered sandstone pieces mixed in medium grained, green/gray at 24.0ft BGS							
26	- GEOPROBE REFUSAL at 25.0ft BGS							
28								
30								
32								
34	END OF BOREHOLE @ 34.0ft BGS	34.00						
36			WELL DETAILS Screened interval: 24.00 to 34.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 22.00 to 34.00ft BGS Material: Sand					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

LOCATION: BYRON, ILLINOIS

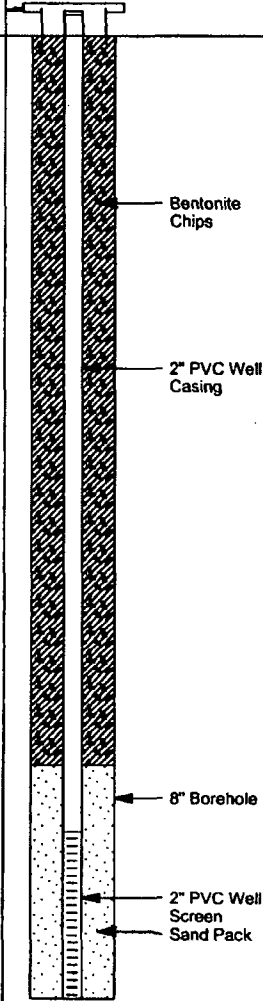
HOLE DESIGNATION: TW-15

DATE COMPLETED: March 1, 2006

DRILLING METHOD: GEOPROBE/4-1/2" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	TOPSOIL							
2	SP SAND - medium grained, brown, moist	1.00		1GP				0.0
4								
6				2GP				0.0
8								
10				3GP				0.0
12								
14	- increasing clay with depth at 14.0ft BGS							
16	CI CLAY - silty, medium plasticity, brown, moist	16.00		4GP				0.0
18	SP SAND - medium grained, brown, moist	18.00						
20								
22				5GP				0.0
24								
26	GC CLAYEY GRAVEL - sandy, light brown, saturated	25.00		6GP				0.0
28								
30	- GEOPROBE REFUSAL at 29.0ft BGS - AUGER REFUSAL at 30.0ft BGS END OF BOREHOLE @ 30.0ft BGS	30.00						
32								
34								
36								
38								



WELL DETAILS
Screened interval:
24.00 to 29.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
22.00 to 29.00ft BGS
Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21 GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: TW-2

PROJECT NUMBER: 19232-21

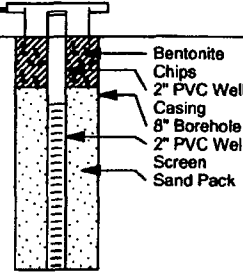
DATE COMPLETED: February 27, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: GEOPROBE/4-1/4" HSA

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	TOPSOIL							
2	SP SAND (FILL) - trace of limestone gravel, medium grain, brown, dry	1.00		1GP				0.0
4								
6								
8	- AUGER REFUSAL at 7.0ft BGS			2GP				0.0
10	WEATHERED LIMESTONE - sandy, silty, brown, dry	8.00	<p>WELL DETAILS Screened interval: 2.00 to 7.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 1.50 to 7.00ft BGS Material: Sand</p>					
12	- GEOPROBE REFUSAL at 9.0ft BGS END OF BOREHOLE @ 9.0ft BGS	9.00						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.CPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: TW-3

PROJECT NUMBER: 19232-21

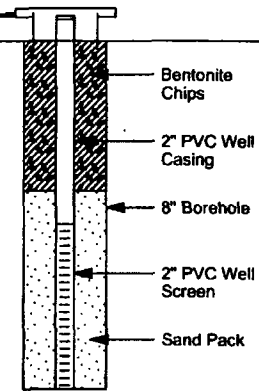
DATE COMPLETED: February 28, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: GEOPROBE/4-1/4" HSA

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	N' VALUE	PID (ppm)
	TOPSOIL							
2	CL CLAY (FILL) - sandy, low plasticity, brown, moist	1.00		1GP				0.0
4	SP SAND - medium grain, brown, dry	4.00						
6				2GP				0.0
8	- moist at 8.5ft BGS							
10	WEATHERED LIMESTONE - sandy, silty, brown, dry	9.00						
12	- GEOPROBE REFUSAL at 9.0ft BGS - AUGER REFUSAL at 10.5ft BGS END OF BOREHOLE @ 10.5ft BGS	10.50						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

WELL DETAILS

Screened Interval:

5.50 to 10.50ft BGS

Length: 5ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

4.50 to 10.50ft BGS

Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA_CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

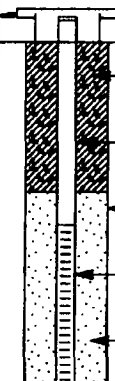
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: TW-4

DATE COMPLETED: February 28, 2006

DRILLING METHOD: GEOPROBE/4-1/4" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	TOPSOIL							
2	CL CLAY (FILL) - sandy, low plasticity, brown, moist	1.00		1GP				0.0
4	SP SAND - medium grain, brown, dry	4.00						
6				2GP				0.0
8								
10	WEATHERED LIMESTONE - sandy, silty, brown, dry	9.00	<p>WELL DETAILS Screened interval: 5.50 to 10.50ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 4.50 to 10.50ft BGS Material: Sand</p>					
12	- GEOPROBE REFUSAL at 9.0ft BGS	10.50						
14	- AUGER REFUSAL at 10.5ft BGS							
16	END OF BOREHOLE @ 10.5ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

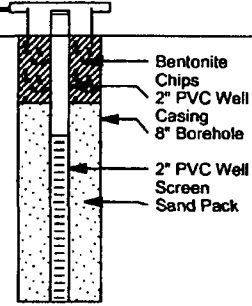
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: TW-5

DATE COMPLETED: February 28, 2006

DRILLING METHOD: GEOPROBE/4-1/4" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	TOPSOIL		 <p>Bentonite Chips 2" PVC Well Casing 8" Borehole 2" PVC Well Screen Sand Pack</p>					
2	CL CLAY (FILL) - sandy, low plasticity, brown, moist	1.00		1GP				0.0
4	SP SAND - medium grain, brown, dry	4.00						
6				2GP				0.0
8	- GEOPROBE REFUSAL at 8.0ft BGS - AUGER REFUSAL at 8.0ft BGS END OF BOREHOLE @ 8.0ft BGS	8.00						
10			<u>WELL DETAILS</u> Screened interval: 3.00 to 8.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 2.00 to 8.00ft BGS Material: Sand					
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

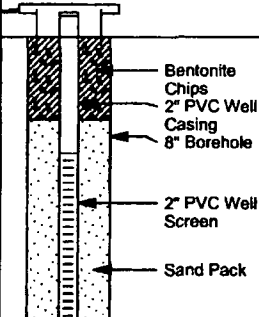
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: TW-6

DATE COMPLETED: February 28, 2006

DRILLING METHOD: GEOPROBE/4-1/4" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	TOPSOIL			1GP				0.0
2	CL CLAY (FILL) - sandy, low plasticity, brown, moist	1.00						
4	SP SAND - medium grain, brown, dry	4.00		2GP				0.0
8	- GEOPROBE REFUSAL at 8.5ft BGS - AUGER REFUSAL at 8.5ft BGS END OF BOREHOLE @ 8.5ft BGS	8.50	<p>WELL DETAILS Screened Interval: 3.50 to 8.50ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 2.50 to 8.50ft BGS Material: Sand</p>					
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: TW-7

PROJECT NUMBER: 19232-21

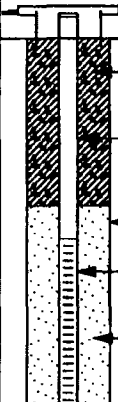
DATE COMPLETED: February 28, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: GEOPROBE/4-1/4" HSA

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	P/D (ppm)
	TOPSOIL							
2	CL CLAY (FILL) - sandy, low plasticity, brown, moist	1.00		1GP				0.0
4	SP SAND, medium grain, brown, dry	3.50						
6				2GP				0.0
8								
10	CL CLAY - sandy, low plasticity, brown, moist - GEOPROBE REFUSAL at 9.5ft BGS - AUGER REFUSAL at 11.0ft BGS END OF BOREHOLE @ 11.0ft BGS	9.50						
12		11.00						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

WELL DETAILS

Screened interval:

6.00 to 11.00ft BGS

Length: 5ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

5.00 to 11.00ft BGS

Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP.GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

HOLE DESIGNATION: TW-8

PROJECT NUMBER: 19232-21

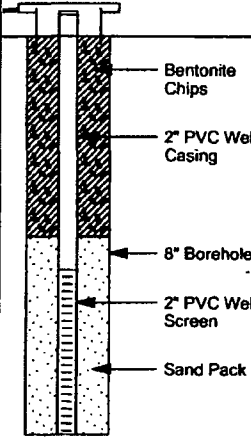
DATE COMPLETED: February 28, 2006

CLIENT: EXELON GENERATION COMPANY LLC

DRILLING METHOD: GEOPROBE/4-1/4" HSA

LOCATION: BYRON, ILLINOIS

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	N' VALUE	PID (ppm)
	TOPSOIL							
2	CL CLAY (FILL) - sandy, low plasticity, brown, moist	1.00		1GP				0.0
4	SP SAND - medium grain, brown, dry	3.50						
6				2GP				0.0
8								
10	CL CLAY - sandy, low plasticity, brown, moist - GEOPROBE REFUSAL at 9.5ft BGS	9.50						
12	- AUGER REFUSAL at 12.0ft BGS END OF BOREHOLE @ 12.0ft BGS	12.00						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

WELL DETAILS

Screened interval:

7.00 to 12.00ft BGS

Length: 5ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

6.00 to 12.00ft BGS

Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA CORP GDT 5/29/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: EXELON-BYRON

PROJECT NUMBER: 19232-21

CLIENT: EXELON GENERATION COMPANY LLC

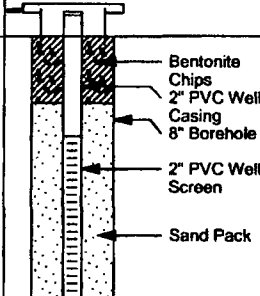
LOCATION: BYRON, ILLINOIS

HOLE DESIGNATION: TW-9

DATE COMPLETED: February 28, 2006

DRILLING METHOD: GEOPROBE/4-1/4" HSA

FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Temporary Well	SAMPLE				
				NUMBER	INTERVAL	REC (%)	N' VALUE	PID (ppm)
	TOPSOIL							
2	CL CLAY (FILL) - sandy, low plasticity, brown, moist	1.00		1GP				0.0
4	SP SAND - medium grain, brown, dry	3.00						
6				2GP				0.0
8	WEATHERED LIMESTONE - sandy, silty, brown, dry	7.00						
10	- GEOPROBE REFUSAL at 8.0ft BGS - AUGER REFUSAL at 8.0ft BGS END OF BOREHOLE @ 8.0ft BGS	8.00	<p>WELL DETAILS Screened interval: 3.00 to 8.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 2.00 to 8.00ft BGS Material: Sand</p>					
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 19232-21.GPJ CRA_CORP.GDT 5/29/06

Byron Environmental Audit – Request for Additional Information Response

Question #: WR-GW-1 **Category:** Water Resources - Groundwater

Statement of Question:

Provide copies of the following ER references:

- b. The last five years of annual reports submitted to the Illinois State Water Survey reporting the pumping rates of high-capacity wells at the plant

Response:

The requested information is attached.

List Attachments Provided:

1. The Illinois State Water Inventory Program, Ill State Water Survey, 2008.
2. The Illinois State Water Inventory Program, Ill State Water Survey, 2009.
3. The Illinois State Water Inventory Program, Ill State Water Survey, 2010.
4. The Illinois State Water Inventory Program, Ill State Water Survey, 2011.
5. The Illinois State Water Inventory Program, Ill State Water Survey, 2012.



Illinois State
WATER
Survey (1895)

Illinois Water Inventory Program

2204 Griffith Drive - Champaign, IL 61820-7495 - Phone (217) 333-0239 - Fax (217) 244-0777

February 2009

Dear Sir or Madam:

The Illinois State Water Survey is continuing its statewide Illinois Water Inventory Program (IWIP) in order to determine the total amounts of water withdrawn from groundwater sources (wells) and surface water sources (intakes). IWIP also collects data on the amount of water your facility buys from other entities. Your prompt reply will make the 2008 inventory as complete and useful as possible. If your facility did not return an inventory form for 2007, you will also receive a form for that year.

Note: If you have already completed and sent in the enclosed form(s), please disregard this message, recycle the paper, and give yourself a pat on the back!

We hope that the questions on the form are self-explanatory, but feel free at any time to call data-entry staff at 217-333-0239 or me at 217-333-9619 if you have any questions at all. The best times to call are 8:45 - 4:45 Monday through Friday, and you can also get in touch through e-mail (tbryant@illinois.edu) or through a fax sent to 217-244-0777.

If your facility has 10 or fewer water source points (wells or intakes), we can provide a Microsoft Word template that you can modify to your operation and submit via e-mail.

You may notice a slightly different format for the water-use breakdown portion of the form. Specifically we have added spaces for discharge of cooling water—either directly to a stream or lost to evaporation (e.g., through cooling towers). If you can account for discharge and consumption of processing water too, that information would be appreciated.

If the contact name, address, direct phone number, or e-mail address have changed, simply write in the necessary changes. New wells or intakes should be noted too.

Please complete your facility's form(s) as soon as you are able, and return them in the postage-paid, self-addressed envelope included with each form or set of forms.

Thank you for helping the Illinois State Water Survey gain a better understanding of water use throughout Illinois.

Sincerely,

Tim Bryant
Coordinator

Phone: (217) 333-9619

Fax: (217) 244-0777

E-mail: tbryant@illinois.edu

RECEIVED FEB 03 2009



Illinois Water Inventory Program

Illinois State Water Survey

Illinois State
WATER
Survey (1895)

2204 Griffith Drive • Champaign, IL 61820-7495 • Tel (217) 333-0299 • Fax (217) 244-0777

Please return form by 3/18/09

14131145 EXELON - BYRON STATION
DAVE STARKE, ENVIRONMENTAL CHEMIST
4450 N. GERMAN CHURCH ROAD
BYRON, IL 61010

Contact Person and Title:

Phone (815) 4063207

e-mail: david.starke@exeloncorp.com

We have records of the following wells and/or intakes for your facility. Please correct inaccuracies and add missing information on this form. Enter water level information on the last page, if available. If reported amounts are not in gallons, please indicate units of measurement.

2008 - TOTAL GALLONS PUMPED - WELLS/INTAKES

Well or Intake	Status	Tw	Rng	Sec	Depth	Maximum Daily Pumpage *	Total Annual Gallons Withdrawn
1 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.4H	1500	280,000	5,833,806
1 ROCK RIVER	In-Use	24N	10E	15.5H		75,744,000	19,142,415,360
2 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.2H	1500	270,000	3,338,448
Total Gallons Withdrawn from All Sources:							19,151,587,614

* Highest number of gallons pumped on the highest single day of the year.

Please note that any purchased amount needs to be reported in the column Total Gallons Purchased, below. This amount is needed to indicate the water use for your location and your future needs.

If your facility is not equipped with meters to calculate total water pumpage, an estimated figure or other helpful information (such as staff population and visitors, acreage flooded, or time used at estimated pumping rate) is acceptable to help us calculate water usage at your facility.

Total Gallons Purchased

Total Gallons - Wells/Intakes

2008 Total Pumpage:

A. Processing/Washing

B. Cooling & Condensing

Type of Cooling System ☐ Once-through ☒ Recirculation ☐ Other (specify):

Discharge:

Consumption:

C. Boiler Feed:

D. Employee/Sanitary:

E. Hydroelectric Flows:

F. Other:

2. Supplier of PURCHASED GALLONS:

3. Average number of employees, patrons, etc. daily:

4. (Power Generation Stations) Your total annual power generation during 2008:

Net Generation

Gross Generation

Units:

☐ KW☒ MWH☐ GW

Other (specify):

MW Hours

Well Treatment, Rehabilitation, and Water Levels

During the last year, have any of your wells had treatment or rehabilitation work? (Examples would include surging, jetting, acidizing, shock chlorination, etc.)

Yes ☐ No ☒ If yes, please list which well numbers and the type of treatment(s) within the following table.

Well no.	Treatment(s)

If known, please provide the following water level information:

Well No.	*Airline length (ft)	Water Levels							
		Water level date	Nonpumping			Pumping			
			Hours off	Gage** reading (ft)	Depth to water (ft)	Hours on	Gage** reading	Depth to water (ft)	Pumping Rate (gpm)

Notes: *Same as pump setting

**If gage reading is in pounds per square inch (psi), add "psi" to the number.

During the last year, were water conservation practices requested or imposed?

No ☒
Yes ☐

If yes, due to a limited treatment capacity?

Yes ☐

No ☐

If yes, due to limited water availability?

☐

☐

Other reason? _____

Type of restriction: _____

Date: _____

Are there any plans to increase treatment or supply capacity?

No ☒

Yes ☐

What are they? _____

Do you discharge water? No ☐ Yes ☒

If yes: To a municipal wastewater treatment system? _____

System name _____

If yes: To a stream or other surface water body? ☒

Your NPDES permit # IL 0048313

If yes: To a septic system? _____

If yes: To other? _____



Illinois Water Inventory Program

Illinois State
WATER
Survey (1895)

2204 Griffith Drive

Champaign, IL 61820-7495

Tel (217) 333-0239

Fax (217) 244-0777

Please return form by 4/7/10

14131145 EXELON - BYRON STATION
DAVE STARKE, ENVIRONMENTAL CHEMIST
4450 N. GERMAN CHURCH ROAD
BYRON, IL 61010

Contact Person and Title:

Phone (815) 4063207

e-mail: david.starke@exeloncorp.com

We have records of the following wells and/or intakes for your facility. Please correct inaccuracies and add missing information on this form. Enter water level information on the last page, if available. If reported amounts are not in gallons, please indicate units of measurement.

2009 - TOTAL GALLONS PUMPED - WELLS/INTAKES

Well or Intake	Status	Tw	Rng	Sec	Depth	Total Annual Gallons Withdrawn
1 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.4H	1500	757,200
2 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.2H	1500	11,947,200
1 ROCK RIVER	In-Use	24N	10E	15.5H		20,239,516,800
Total Gallons Withdrawn from All Sources:						20,252,221,200

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MAR 08 2010

BY:

Please note that any purchased amount needs to be reported in the column Total Gallons Purchased, below. This amount is needed to indicate the water use for your location and your future needs.

If your facility is not equipped with meters to calculate total water pumpage, an estimated figure or other helpful information (such as staff population and visitors, acreage flooded, or time used at estimated pumping rate) is acceptable to help us calculate water usage at your facility.

	Total Gallons Purchased	Total Gallons - Wells/Intakes
1. 2009 Total Pumpage:	_____	<u>20,252,221,200</u>
A. Processing/Washing:	_____	<u>10,189,496</u>
B. Cooling & Condensing:	_____	<u>20,239,496,800</u>
Type of Cooling System: <input type="checkbox"/> Once-through <input checked="" type="checkbox"/> Recirculation <input type="checkbox"/> Other (specify): _____		
Discharge:	_____	<u>7,272,890,000</u>
Consumption:	_____	<u>12,966,068,000</u>
C. Boiler Feed:	_____	<u>20,000</u>
D. Employee/Sanitary:	_____	<u>2,514,904</u>
E. Hydroelectric Flows:	_____ <u>0</u>	<u>0</u>
F. Other: _____	_____	_____
2. Supplier of PURCHASED GALLONS:	<u>Not Applicable</u>	
3. Average number of employees, patrons, etc. daily:	<u>850</u>	
4. (Power Generation Stations) Your total annual power generation during 2009:	Net Generation: _____	Gross Generation: <u>20842797</u>
	Units: <input type="checkbox"/> kW <input checked="" type="checkbox"/> MW <input type="checkbox"/> GW	Other (specify): _____

Well Treatment, Rehabilitation, and Water Levels

During the last year, have any of your wells had treatment or rehabilitation work? (Examples would include surging, jetting, acidizing, shock chlorination, etc.)

Yes ___ No ___ If yes, please list which well numbers and the type of treatment(s) within the following table.

Well no.	Treatment(s)

If known, please provide the following water level information:

Well No.	*Airline length (ft)	Water Levels							
		Water level date	Nonpumping			Pumping			
			Hours off	Gage** reading (ft)	Depth to water (ft)	Hours on	Gage** reading	Depth to water (ft)	Pumping Rate (gpm)

Notes: *Same as pump setting

**If gage reading is in pounds per square inch (psi), add "psi" to the number.

During the last year, were water conservation practices requested or imposed?

No X
Yes

If yes, due to a limited treatment capacity?

Yes

☐

No

☐

If yes, due to limited water availability?

☐
☐

Other reason? _____

Type of restriction: _____

Date: _____

Are there any plans to increase treatment or supply capacity?

No X Yes What are they? _____

Do you discharge water? No Yes X

If yes: To a municipal wastewater treatment system? No

System name _____

If yes: To a stream or other surface water body? Yes

Your NPDES permit # IL0048313

If yes: To a septic system? No

If yes: To other? _____



Illinois Water Inventory Program

2284 Griffith Drive

Champaign, IL 61820-7495

Tel (217) 333-0239

Fax (217) 244-0777

Please return form by 4/29/11

14131145 EXELON - BYRON STATION
DAVE STARKE, ENVIRONMENTAL CHEMIST
4450 N. GERMAN CHURCH ROAD
BYRON, IL 61010

Contact Person and Title:

Phone (815) 4063207

e-mail: david.starke@exeloncorp.com

We have records of the following wells and/or intakes for your facility. Please correct inaccuracies and add missing information on this form. Enter water level information on the last page, if available. If reported amounts are not in gallons, please indicate units of measurement.

2010 - TOTAL GALLONS PUMPED - WELLS/INTAKES

Well or Intake	Status	Twn	Rng	Sec	Depth	Total Annual Gallons Withdrawn
1 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.4H	1500	6,148,516
2 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.2H	1500	8,601,717
1 ROCK RIVER	In-Use	24N	10E	15.5H		20,264,990,000
Total Gallons Withdrawn from All Sources:						20,279,740,231

Please note that any purchased amount needs to be reported in the column Total Gallons Purchased, below. This amount is needed to indicate the water use for your location and your future needs.

If your facility is not equipped with meters to calculate total water pumpage, an estimated figure or other helpful information (such as staff population and visitors, acreage flooded, or time used at estimated pumping rate) is acceptable to help us calculate water usage at your facility.

	Total Gallons Purchased	Total Gallons - Wells/Intakes
1. 2010 Total Pumpage:	_____ 0	20, 279, 740, 231
A. Processing/Washing:	_____ 0	_____ 14, 750, 231
B. Cooling & Condensing:	_____ 0	20, 264, 990, 000

Type of Cooling System: ☐ Once-through ☒ Recirculation ☐ Other (specify): _____

Discharge:	_____ 7, 462, 916, 200
Consumption:	12, 802, 063, 800

C. Boiler Feed:	_____ 80, 000
D. Employee/Sanitary:	_____ 2, 291, 555
E. Hydroelectric Flow:	_____
F. Other:	_____

2. Supplier of PURCHASED GALLONS: _____ 0

3. Average number of employees, patrons, etc. daily: _____ 825

4. (Power Generation Stations) Your total annual power generation during 2010:

Net Generation:	19, 855, 711	Gross Generation:	_____
Units:	<input type="checkbox"/> KW <input checked="" type="checkbox"/> MW <input type="checkbox"/> GW	Other (specify):	_____

Well Treatment, Water Levels, Conservation, and Discharge

During the last year, have any of your wells had treatment or rehabilitation work? (Examples would include surging, jetting, acidizing, shock chlorination, etc.)

Yes ___ No X If yes, please list the well numbers and the type of treatment(s) in the following table.

Well No.	Treatment(s)

If your wells were pump-tested during the calendar year, please provide the following water level information.

Well No.	Airline length (ft.) [*]	Water Levels						
		Water level date	Nonpumping		Pumping			
			Hours off	Gauge reading (ft.) ^{**}	Hours on	Gauge reading (ft.) ^{**}	Depth to Water	Pumping Rate (gpm)

^{*}Same as pump setting

^{**}If gauge reading is in pounds per square inch (psi), indicate that in the column. If the gauge is direct reading, indicate feet (ft).

During the last year, were water conservation practices requested or imposed? Yes ___ No X

If Yes: Because of limited treatment capacity? Yes ___ No ___ Because of limited water availability? Yes ___ No ___

Other: _____

Type of restriction: _____ Dates: _____

Are there plans to increase treatment or supply capacity? Yes ___ No X

Plans: _____

Does your facility discharge wastewater? Yes X No ___

If Yes: To a municipal wastewater treatment system? No

Name of system: _____

To a stream or other surface water body? Yes

Your NPDES permit #: IL 0048313

To a septic system? No

Other: _____



**ILLINOIS STATE
WATER SURVEY**
PRAIRIE RESEARCH INSTITUTE

Illinois Water Inventory Program
University of Illinois at Urbana-Champaign
2204 Griffith Drive • Champaign, IL 61820-7463
T 217-333-0239 • F 217-244-0777

Please return form by 8/2/12

14131145 EXELON - BYRON STATION
DAVE STARKE, ENVIRONMENTAL CHEMIST
4450 N. GERMAN CHURCH ROAD
BYRON, IL 61010

Contact Person and Title:

Phone (815) 4063207
e-mail: david.starke@exeloncorp.com

We have records of the following wells and/or intakes for your facility. Please correct inaccuracies and add missing information on this form. Enter water level information on the last page, if available. If reported amounts are not in gallons, please indicate units of measurement.

2011 - TOTAL GALLONS PUMPED - WELLS/INTAKES

Well or Intake	Status	Twn	Rng	Sec	Depth	Total Annual Gallons Withdrawn
1 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.4H	1500	19,899,744
2 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.2H	1500	125,256
1 ROCK RIVER	In-Use	24N	10E	15.5H		18,966,801,000
Total Gallons Withdrawn from All Sources:						18,986,826,000

14131145 EXELON - BYRON STATION

Please note that any purchased amount needs to be reported in the column Total Gallons Purchased, below. This amount is needed to indicate the water use for your location and your future needs.

If your facility is not equipped with meters to calculate total water pumpage, an estimated figure or other helpful information (such as staff population and visitors, acreage flooded, or time used at estimated pumping rate) is acceptable to help us calculate water usage at your facility.

	Total Gallons Purchased	Total Gallons - Wells/Intakes
1. 2011 Total Pumpage:	_____	<u>18,986,826,000</u>
A. Processing/Washing:	_____	<u>20,025,000</u>
B. Cooling & Condensing:	_____	<u>18,966,801,000</u>
Type of Cooling System: <input type="checkbox"/> Once-through <input checked="" type="checkbox"/> Recirculation <input type="checkbox"/> Other (specify): _____		
Discharge:	_____	<u>7,003,120,000</u>
Consumption:	_____	<u>11,963,681,000</u>
C. Boiler Feed:	_____	<u>10,000</u>
D. Employee/Sanitary:	_____	<u>2,511,000</u>
E. Hydroelectric Flows:	_____	_____
F. Other: _____	_____	_____
2. Supplier of PURCHASED GALLONS:	<u>0</u>	
3. Average number of employees, patrons, etc. daily:	<u>830</u>	
4. (Power Generation Stations) Your total annual power generation during 2011:	Net Generation: <u>18,122,735</u> Gross Generation: _____	
	Units: <input type="checkbox"/> KW <input checked="" type="checkbox"/> MW <input type="checkbox"/> GW Other (specify): _____	

Well Treatment, Water Levels, Conservation, and Discharge

During the last year, have any of your wells had treatment or rehabilitation work? (Examples would include surging, jetting, acidizing, shock chlorination, etc.)

Yes ___ No X If yes, please list the well numbers and the type of treatment(s) in the following table.

Well No.	Treatment(s)

If your wells were pump-tested during the calendar year, please provide the following water level information.

Well No.	Airline length (ft.)*	Water Levels						
		Water level date	Nonpumping		Pumping			
			Hours off	Gauge reading (ft.)**	Hours on	Gauge reading (ft.)**	Depth to Water	Pumping Rate (gpm)

*Same as pump setting

**If gauge reading is in pounds per square inch (psi), indicate that in the column. If the gauge is direct reading, indicate feet (ft).

During the last year, were water conservation practices requested or imposed? Yes ___ No X

If Yes: Because of limited treatment capacity? Yes ___ No ___ Because of limited water availability? Yes ___ No ___

Other: _____

Type of restriction: _____ Dates: _____

Are there plans to increase treatment or supply capacity? Yes ___ No X

Plans: _____

Does your facility discharge wastewater? Yes X No ___

If Yes: To a municipal wastewater treatment system? No

Name of system: _____

To a stream or other surface water body? Yes

Your NPDES permit #: IL 0048313

To a septic system? No

Other: _____



ILLINOIS STATE
WATER SURVEY
PRAIRIE RESEARCH INSTITUTE

Illinois Water Inventory Program

2204 Griffith Drive - Champaign, IL 61820-7495 - Phone (217) 333-0239 - Fax (217) 244-0777

March 2013

Dear Engineers, Superintendents, and Plant Managers:

Most of you will recognize the enclosed Water Inventory form from past years. Basically we ask for two things: (1) the amount of water withdrawn from your own wells or surface water intakes in calendar year 2012, and (2) the amounts of water used at your facility for various purposes (Processing, Cooling and Condensing, etc.) during the year. Illinois Public Act 096-0222 now requires all owners of high-capacity wells and intakes (those that are capable of pumping 70 gallons per minute or more) to report their annual water use to the Illinois State Water Survey.

If you didn't complete and send in a form for calendar year 2011, you'll receive two forms in the mail—one for 2012 and one for 2011. The 2011 forms will not include the last page.

The Water Inventory website has recently been updated, so you might check there first for answers to questions: <http://www.isws.illinois.edu/gwa/iwip/>. However, feel free to call data-entry staff at 217-333-0239 or me at 217-333-9619 if you have any questions at all. The best times to call are 8:30 – 4:30 Monday through Friday, and you can also get in touch through e-mail (tbryant@illinois.edu or tayman@illinois.edu) or through a fax sent to 217-244-0777.

Please note: Water Inventory forms for specific facilities cannot be downloaded from the website. However, we can provide a fillable PDF of your facility form upon if you request it in an e-mail. Be sure to put the name of your facility in the subject line of your request. If you have Microsoft Word, you can also use the Industrial-Commercial template on the Water Inventory website to enter well and/or intake locations, depths, and withdrawals. **THE TEMPLATE CAN ONLY BE USED IF YOU HAVE 10 OR FEWER ACTIVE WATER SOURCE POINTS** (wells or intakes). The resulting document can be submitted via e-mail.

If your main contact information (name, address, phone number, or e-mail address) has changed, please make the necessary changes. Also write down any *new* wells or intakes you started using in 2012.

Complete your facility's form(s) as soon as you are able, and return them in the postage-paid, self-addressed envelope included with each form or set of forms—or through scanning the original form and sending it by e-mail. If you send a legible fax or scan, or if you e-mail us a PDF or a Word file, there is no need to follow with a separate hard copy.

Thank you for helping the Illinois State Water Survey gain a better understanding of water use throughout Illinois.

Sincerely,

Tim Bryant
Coordinator, Illinois Water Inventory Program
Phone: (217) 333-9619
Fax: (217) 244-0777
E-mail: tbryant@illinois.edu

VED
MAR 27 2013

BY: _____
Reply sent 3/28/13



**ILLINOIS STATE
WATER SURVEY**
PRAIRIE RESEARCH INSTITUTE

Illinois Water Inventory Program
University of Illinois at Urbana-Champaign
2204 Griffith Drive • Champaign, IL 61820-7483
T 217-333-0239 • F 217-244-0777

Please return form by 4/12/13

14131145 EXELON - BYRON STATION
DAVE STARKE, ENVIRONMENTAL CHEMIST
4450 N. GERMAN CHURCH ROAD
BYRON, IL 61010

Contact Person and Title:

Phone (815) 4063207

e-mail: david.starke@exeloncorp.com

We have records of the following wells and/or intakes for your facility. Please correct inaccuracies and add missing information on this form. Enter water level information on the last page, if available. If reported amounts are not in gallons, please indicate units of measurement.

2012 - TOTAL GALLONS PUMPED - WELLS/INTAKES

Well or Intake	Status	Twn	Rng	Sec	Depth	Total Annual Gallons Withdrawn			
1 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.4H	1500	24 22	22	505	722
2 EMERGENCY COOLING/SECONDARY MAKEUP/SAN	In-Use	24N	10E	24.2H	1500			173	200
1 ROCK RIVER	In-Use	24N	10E	15.5H		19	530	000	000
Total Gallons Withdrawn from All Sources:						19	552	678	982

Please note that any purchased amount needs to be reported in the column Total Gallons Purchased, below. This amount is needed to indicate the water use for your location and your future needs.

If your facility is not equipped with meters to calculate total water pumpage, an estimated figure or other helpful information (such as staff population and visitors, acreage flooded, or time used at estimated pumping rate) is acceptable to help us calculate water usage at your facility.

Total Gallons Purchased

Total Gallons - Waste/Intakes

1. 2012 Total Pumpage:

A. Processing/Washing:

B. Cooling & Condensing:

Type of Cooling System: ☐ Once-through ☒ Recirculation ☐ Other (specify):

Discharge:

Consumption:

C. Boiler Feed:

D. Employee/Sanitary:

E. Hydroelectric Flows:

F. Other:

2. Supplier of PURCHASED GALLONS:

3. Average number of employees, patrons, etc. daily:

4. (Power Generation Stations) Your total annual power generation during 2012:

Net Generation:

19428518

Gross Generation:

Units:

☐ kW☒ MWh☐ GW

Other (specify):

Well Treatment, Water Levels, Conservation, and Discharge

During the last year, have any of your wells had treatment or rehabilitation work? (Examples would include surging, jetting, acidizing, shock chlorination, etc.)

Yes ___ No ☒ If yes, please list the well numbers and the type of treatment(s) in the following table.

Well No.	Treatment(s)

If your wells were pump-tested during the calendar year, please provide the following water level information.

Well No.	Airline length (ft.) [*]	Water Levels						
		Water level date	Nonpumping		Pumping			
			Hours off	Gauge reading (ft.) ^{**}	Hours on	Gauge reading (ft.) ^{**}	Depth to Water	Pumping Rate (gpm)

^{*}Same as pump setting

^{**}If gauge reading is in pounds per square inch (psi), indicate that in the column. If the gauge is direct reading, indicate feet (ft).

During the last year, were water conservation practices requested or imposed? Yes ___ No ☒

If Yes: Because of limited treatment capacity? Yes ___ No ___ Because of limited water availability? Yes ___ No ___

Other: _____

Type of restriction: _____ Dates: _____

Are there plans to increase treatment or supply capacity? Yes ___ No ☒

Plans: _____

Does your facility discharge wastewater? Yes ☒ No ___

If Yes: To a municipal wastewater treatment system? ___

Name of system: _____

To a stream or other surface water body? ☒

Your NPDES permit #: IL 0048313

To a septic system? ___

Other: _____



Illinois State
WATER
Survey (1895)

E-mail: zoe.cox@eteloncorp.com

Well or Intake #	Status	Township	Range	Section and Plot	Depth	Annual Gallons
1 Emergency Cooling / Secondary Makeup / Sanitary -0A Well	In-Use	24N	10E	24.4H	1500	22,505,722
2 Emergency Cooling / Secondary Makeup / Sanitary -0B Well	In-Use	24N	10E	24.2H	1500	173,260
1 Rock River	In-Use	24N	10E	15.5H		19,530,000,000
	In-Use					
	In-Use					
	In-Use					
	In-Use					
	In-Use					
	In-Use					
	In-Use					

Total Gallons Withdrawn from Wells and Intakes
19,552,678,982

Water Use Breakdown and Disposal

Please note that any purchased amount needs to be reported in the column Total Gallons Purchased, below. This amount is needed to indicate the water use for your location and your future needs.

If your facility is not equipped with meters to calculate total water pumpage, an estimated figure or other helpful information (such as staff population and visitors, acreage flooded, or time used at estimated pumping rate) is acceptable to help us calculate water usage at your facility.

	Total Gallons Purchased	Total Gallons Wells/intakes
1. Total Pumpage: 2012		19,552,678,982
A. Processing/Washing:		22678982
B. Cooling & Condensing:		19,530,000,000
Type of Cooling System:	Once-through: <input type="checkbox"/>	Recirculating: <input checked="" type="checkbox"/>
Discharge:		Other (specify):
Consumption:		6,855,123,765
		12,674,876,235
C. Boiler Feed:		5000
D. Employee/Sanitary:		2187270
E. Hydroelectric Flows:		
F. Other (Irrigation, Ash Sluice, Blowdown, etc.):		

2. Supplier of Purchased Gallons:

3. Average number of employees, patrons, etc. daily: 830

4. Total annual power generation during 2012

Units of measurement:

kW-h: ☐

Net:

MW-h: ☐

GW-h: ☐

Gross:

Other (specify):

Well Treatment, Water Levels, Conservation, and Discharge

During the last year, have any of your wells had treatment or rehabilitation work? (Examples would include grouting, jetting, acidizing, shock chlorination, etc.)

Yes ☐ No ☒ If yes, please list which well numbers and the type of treatment(s) in the following table.

Well No.	Treatment(s)

If your wells were tested during the calendar year, please provide the following water level information.

Well No.	Airline Length (feet)*	Test Date	Nonpumping (Static) Level			Pumping (Dynamic) Level			
			Hours Off	Gauge Reading **	Depth to Water (feet)	Hours On	Gauge Reading**	Depth to Water (feet)	Pumping Rate (gpm)

*Same as pump setting

**If gauge reading is in pounds per square inch (psi), indicate that in the column. If the gauge is direct reading, indicate feet (ft).

During the last year, were water conservation practices requested or imposed? Yes ☐ No ☒

If Yes: Because of limited treatment capacity ☐ Because of limited water availability ☐

Other: _____

Type of restriction: _____

Dates: _____

Success or estimated amount of savings: _____

Are there plans to increase treatment or supply capacity? No ☒ Yes ☐ Plans: _____

Do you discharge water? Yes ☒ No ☐

If Yes: To a municipal wastewater treatment system ☐

Name of system: _____

To a stream or other surface water body ☒

Your NPDES permit #: IL0048313

To a septic system ☐

Other: _____

Byron Environmental Audit – Request for Additional Information Response

Question #: WR-GW-2 **Category:** Water Resources - Groundwater

Statement of Question:

Provide groundwater water quality monitoring data (including radiological constituents) for the period from the last submittal to the NRC up to the present.

Response:

By letter dated May 13, 2013, Byron Station submitted its "Annual Radiological Environmental Operating Report" (AREOR) for year 2012 to NRC. The 2012 Radiological Groundwater Monitoring Program data were contained in Appendix G to that report. The AREOR for year 2013 will be submitted to NRC in May 2014. Currently, draft data from the first three quarters of 2013 are available, but have not been submitted to the NRC. Reports containing these draft data are attached to this response. No data from the 2013 fourth quarter are yet available.

List Attachments Provided:

1. Letter from AMO Environmental Decisions (R. Golia) to Byron Generating Station regarding March 2013 RGPP Summary Monitoring Report (1st Quarter 2013) [DRAFT]. May 2, 2013.
2. Letter from AMO Environmental Decisions (R. Golia) to Byron Generating Station regarding May 2013 RGPP Summary Monitoring Report (2nd Quarter 2013) [DRAFT]. July 17, 2013.
3. Letter from AMO Environmental Decisions (R. Golia) to Byron Generating Station regarding August 2013 RGPP Summary Monitoring Report (3rd Quarter 2013) [DRAFT]. September 10, 2013.

May 2, 2013

Byron Generating Station
Chemistry Manager/RGPP Coordinator
4450 North German Church Road
Byron, Illinois

Subject: March 2013 RGPP Summary Monitoring Report (1st Quarter 2013)

AMO has interpreted the analytical data and field data for the March 2013 Radiological Groundwater Protection Program (RGPP) sampling round, which was completed by EIML (a third party vendor under contract with Exelon Corporation) between March 18, 2013 and March 20, 2013. Exelon's RGPP (EN-AA-408-4000 and EN-BY-408-4160) incorporates guidance as detailed in NEI 07-07, ANI 07-01, and EPRI 1015118. All laboratory and field data from this sampling round has been uploaded to the Exelon RGPP Database maintained by Locus Technologies.

The attached tables, graphs, and figures summarize the findings of the March 2013 sampling round. Overall, tritium concentrations have been decreasing at the Station since the 2006. Based on our review of the March 2013 sampling round and available historic data, there does not appear to be ongoing tritium leak at the site.

The Station conformed with its RGPP during the 1st quarter 2013 with respect to sampling protocol.

Please call me at 215-230-8282 if you have questions.

Respectfully,

AMO Environmental Decisions

Ralph T. Golia, P.G.
Principal
Hydrogeologist

attachments

File

Station: Byron Generating Station
Monitoring Round: Completed March 18 through March 20, 2013

Compliance Evaluation

Evaluation Checklist	Yes or No	Explanation	P.I.
1 - Was depth to water collected at all monitoring locations?	YES		1
2 - Were all required field data measurements collected?	YES		1
3 - Were all required sampling points sampled?	YES	See the attached Figures 1a and 1b for sample locations.	1
4 - Were all required analyses performed?	YES		1
5 - Should there be changes to sampling frequency based on analytical data?	NO		NA
6 - Should there be a well designation change based on analytical data?	NO		NA
		Total P.I. Score for the Quarter	4

Data Evaluation

Data Evaluation	Yes or No	Explanation
1 - Are there tritium concentrations >2,000 pCi/L, but <20,000 pCi/L?	NO	
2 - Are there tritium concentrations >20,000 pCi/L, but <100,000 pCi/L?	NO	
3 - Are there tritium concentrations >100,000 pCi/L?	NO	
4 - Are there increasing tritium concentration trends?	NO	
5 - Are there decreasing tritium concentration trends?	YES	The attached graphs for AR-4 and AR-11 show an overall decreasing tritium concentration trend since 2006.
6 - Are non-tritium analytes detected greater than MDL?	NA	
7 - Are there increasing non-tritium concentration trends?	NA	
8 - Are there decreasing non-tritium concentration trends?	NA	
9 - Are there increasing groundwater elevation trends?	NO	
10 - Are there decreasing groundwater elevation trends?	NO	
11 - Are there significant changes to groundwater flow directions?	NO	

Notes:

1. P.I. – RGPP Performance Indicator. A score of 0 indicates that the RGPP guidance was not followed. A score of 1 indicates the RGPP guidance was followed.

Sample ID	Sample Round	Result (pC/L)	Qual	Sample Round	Result (pC/L)	Qual	Change in Concentration (pC/L)	Change in Concentration (%)	Aquifer
AR-4	4th Qtr. 2012	830	+	1st Qtr. 2013	818	+	-22	-3	Upper Galena-Platteville
AR-1	4th Qtr. 2012	173	U	1st Qtr. 2013	191	U	0	0	Upper Galena-Platteville
AR-10	4th Qtr. 2012	172	U	1st Qtr. 2013	187	U	0	0	Upper Galena-Platteville
AR-3	4th Qtr. 2012	158	U	1st Qtr. 2013	190	U	0	0	Upper Galena-Platteville
AR-8	4th Qtr. 2012	174	U	1st Qtr. 2013	189	U	0	0	Upper Galena-Platteville
AR-9	4th Qtr. 2012	171	U	1st Qtr. 2013	192	U	0	0	Upper Galena-Platteville
CAR-3	4th Qtr. 2012	175	U	1st Qtr. 2013	188	U	0	0	Upper Galena-Platteville
DF-24	4th Qtr. 2012	158	U	1st Qtr. 2013	187	U	0	0	Upper Galena-Platteville
AR-7	4th Qtr. 2012	191	+	1st Qtr. 2013	245	+	45	21	Upper Galena-Platteville
AR-11	4th Qtr. 2012	994	+	1st Qtr. 2013	850	+	-144	-16	Lower Galena-Platteville

Explanation:

pC/l - Pico-curies per liter.

U - Analyte not detected at a concentration exceeding the laboratory minimum detectable concentration.

+

Notes:

- 1) Change in concentration (pC/l) represents the difference in concentrations between the 4th quarter 2012 and the 1st quarter 2013 monitoring rounds unless otherwise noted. Positive numbers represent an increase in concentration; negative numbers represent a decrease in concentration.
- 2) All detections and detection limits less than 200 pico-curies per liter are considered equal to 200 pico-curies per liter for the purposes of this report.
- 3) Change in concentration (%) is equal to the change in concentration between the two sampling rounds divided by the average of the analytical results for the two sampling rounds.
- 4) Data reported in the tables and figures does not include the results of re-analyses completed by the laboratory. Only the highest analyte concentration per sample location is presented.

Monitoring Well ID	1st Quarter 2012 Groundwater Elevation	1st Quarter 2013 Groundwater Elevation	Change in Groundwater Elevation (ft)	Aquifer
TW-13	683.20	683.19	-0.01	Shallow Overburden
CAR-1	672.48	674.55	2.07	Upper Unconsolidated
AR-7 ¹	781.82	775.88	-5.94	Upper Galena-Platteville
AR-8	839.10	835.11	-3.99	Upper Galena-Platteville
MW-1	806.45	803.34	-3.11	Upper Galena-Platteville
AR-10	838.61	835.76	-2.85	Upper Galena-Platteville
AR-4	743.47	740.94	-2.53	Upper Galena-Platteville
MW-3	788.48	786.48	-2.00	Upper Galena-Platteville
AR-3	803.41	802.38	-1.03	Upper Galena-Platteville
AR-2	809.18	808.18	-1.00	Upper Galena-Platteville
AR-1	830.95	831.09	0.14	Upper Galena-Platteville
DF-24	724.71	725.17	0.46	Upper Galena-Platteville
AR-9 ²	828.75	837.15	8.40	Upper Galena-Platteville
WELL-7 ³	793.58	809.81	16.23	Upper Galena-Platteville
CAR-3 ⁴	833.94	850.75	16.81	Upper Galena-Platteville
AR-11	744.88	742.34	-2.54	Lower Galena-Platteville

Explanation:

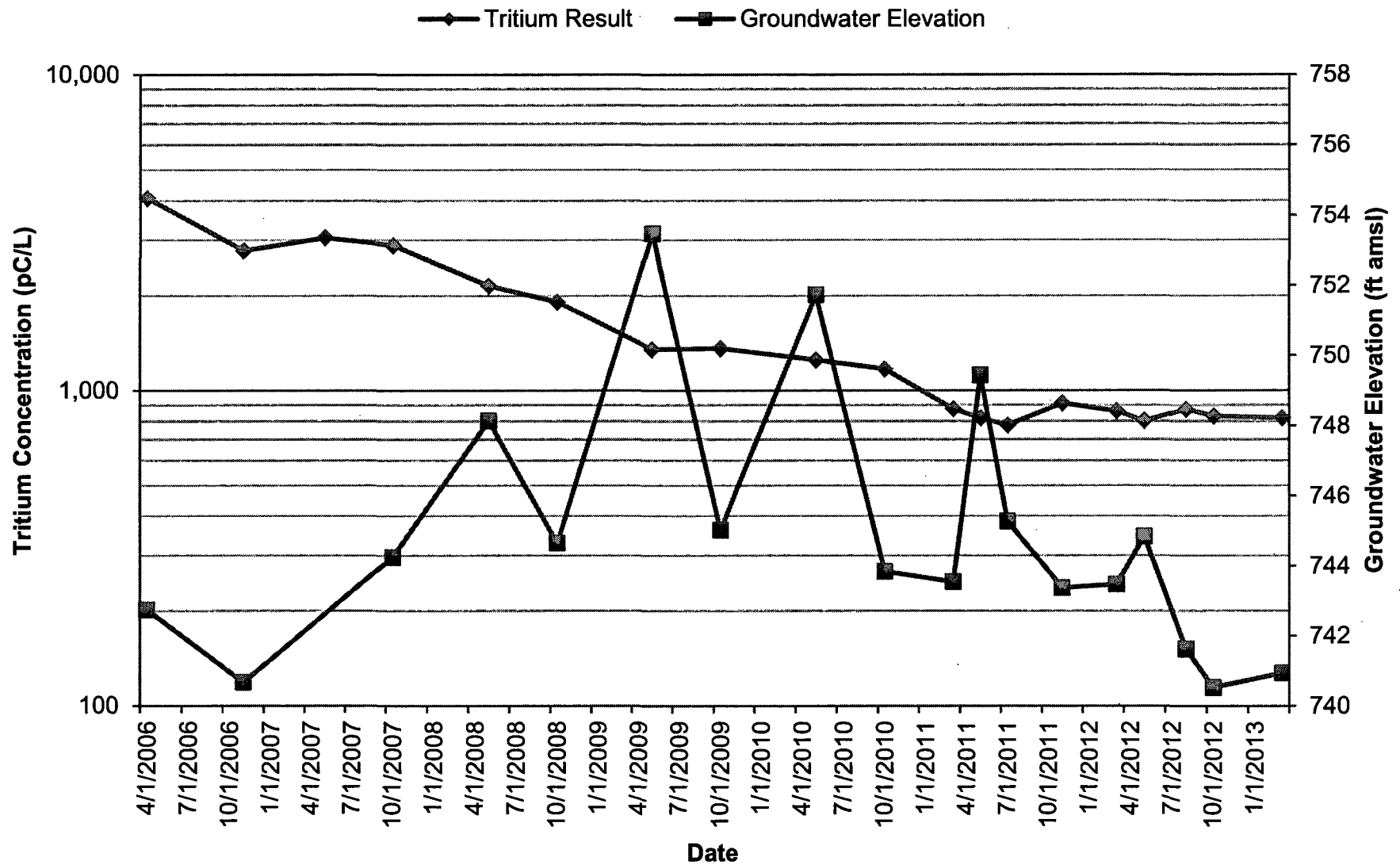
- 1 - Groundwater fluctuations in AR-7 have ranged between 765.96 feet amsl (April 2006) and 793.61 feet amsl (April 2009).
- 2 - Groundwater fluctuations in AR-9 have ranged between 819.21 feet amsl (April 2006) and 851.76 feet amsl (October 2006).
- 3 - Groundwater fluctuations in WELL-7 have ranged between 775.47 feet amsl (April 2006) and 810.34 feet amsl (March 2011).
- 4 - The groundwater elevation reported for CAR-3 during the 1st quarter 2013 sampling round was the highest reported groundwater elevation since reporting began in spring 2006. Prior to the 1st quarter 2013 the groundwater elevation fluctuated between 819.21 feet amsl (April 2006) and 845.69 feet amsl (October 2009).

Notes:

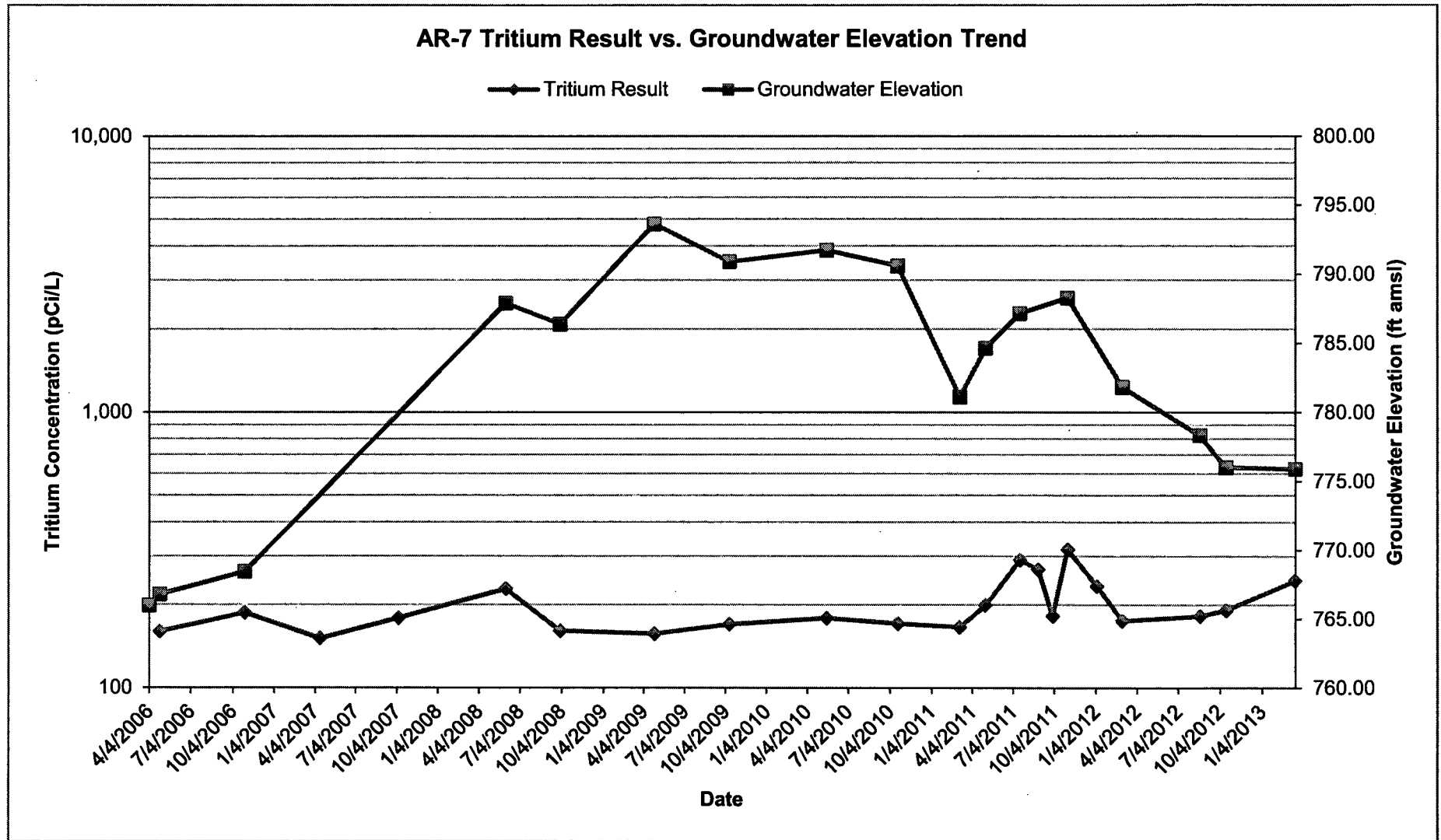
- 1) All groundwater elevations presented in feet above mean sea level.
- 2) Change in groundwater elevation represents the difference in groundwater elevations between the 1st quarter 2012 and 1st quarter 2013 sampling rounds.

DRAFT

AR-4 Tritium Result vs. Groundwater Elevation

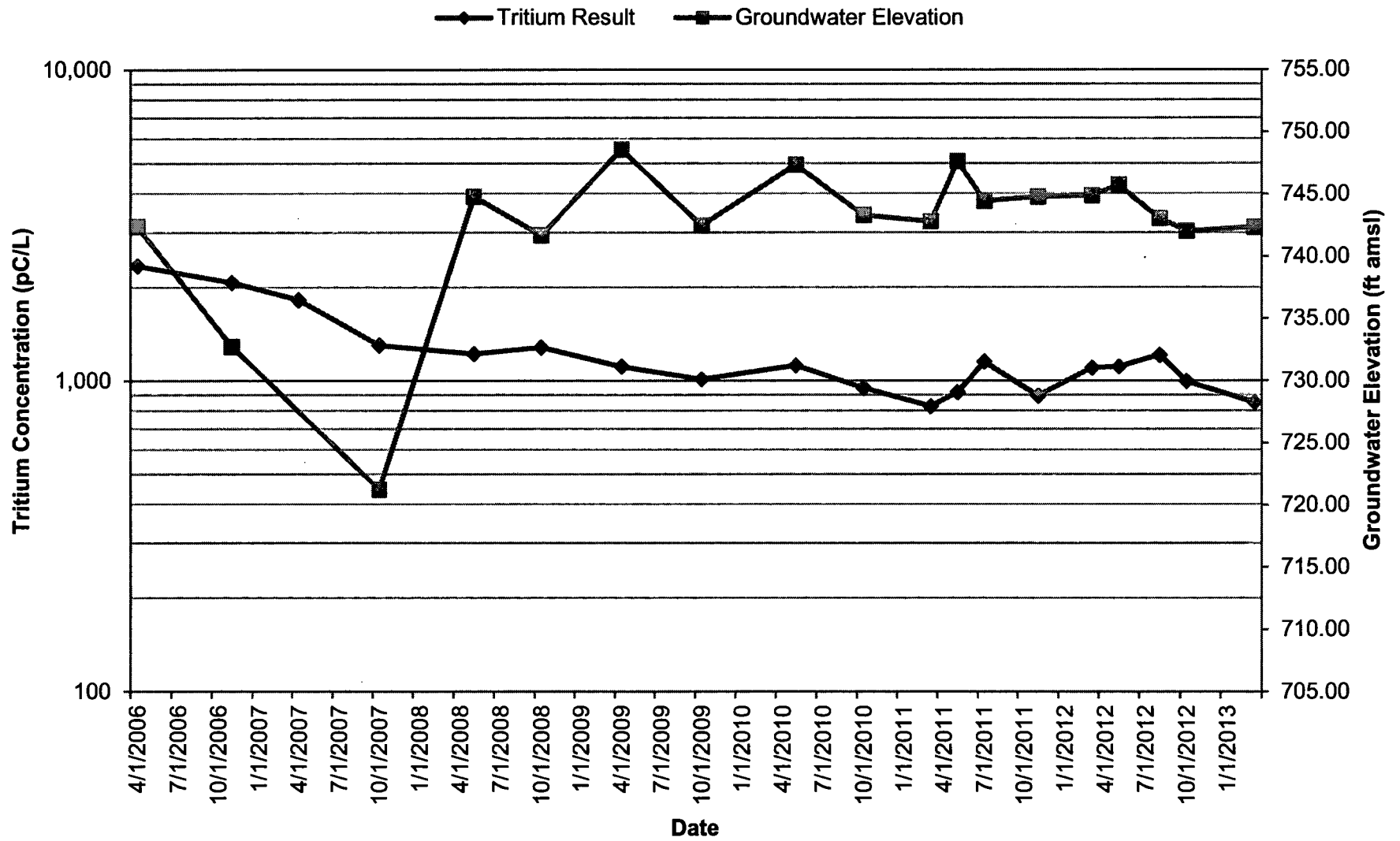


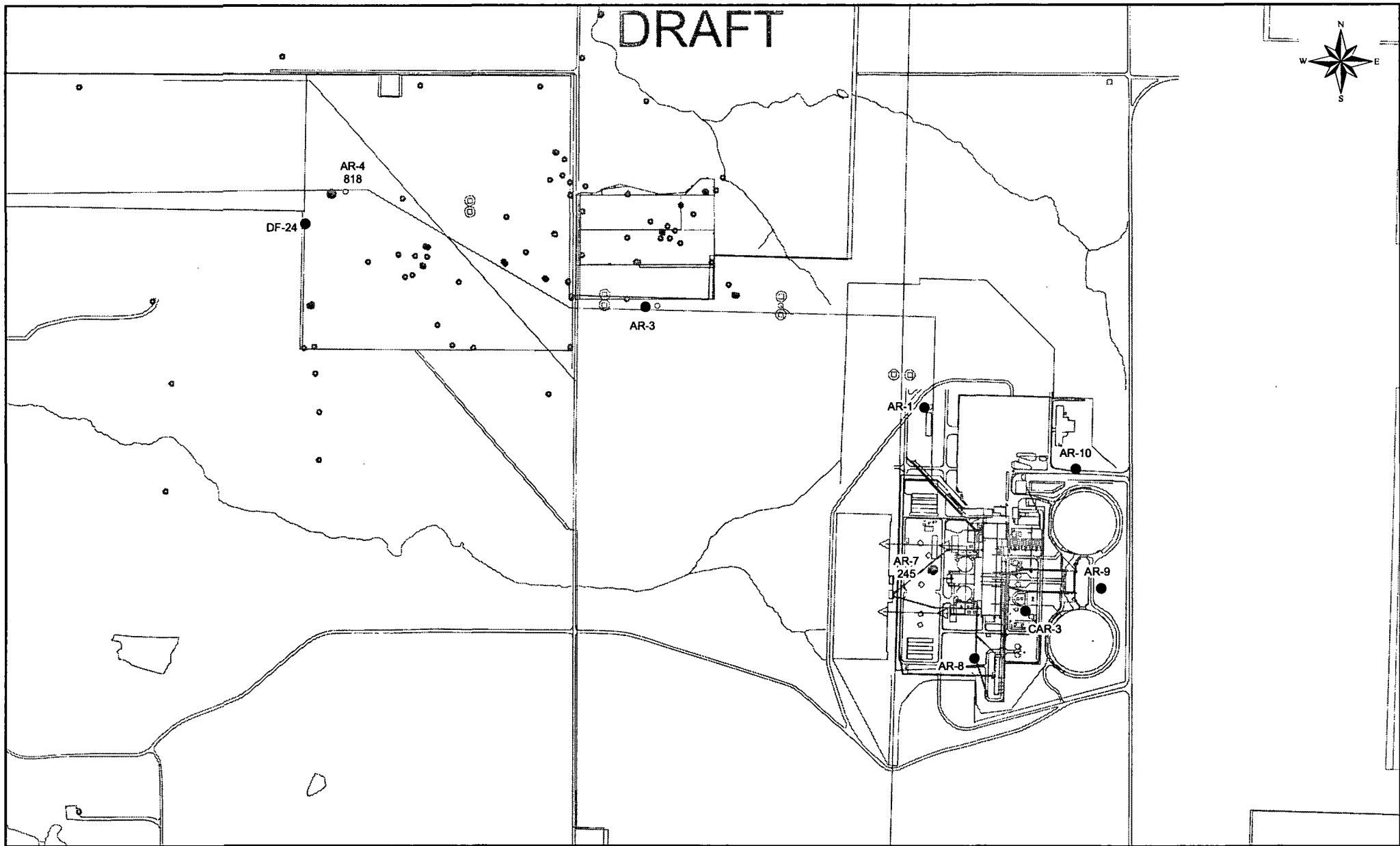
DRAFT



DRAFT

AR-11 Tritium Result vs. Groundwater Elevation





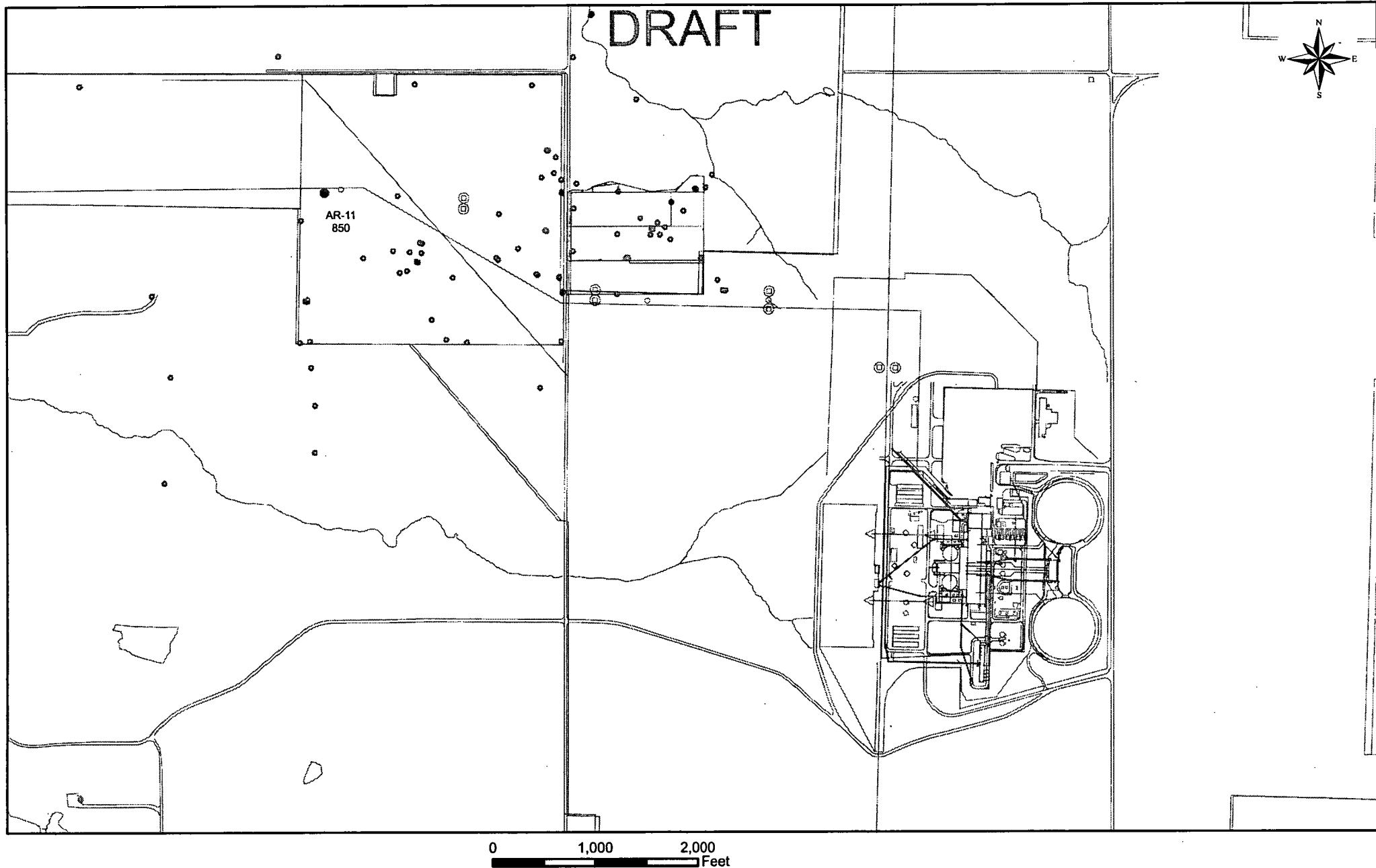
0 1,000 2,000
Feet

Explanation:

1st Qtr. 2013 Upper Galena-Platteville Formation Tritium Sample Locations

- Result 200 to 2,000 pCi/L
- Result \leq 200 pCi/L

Figure 1a
1st Qtr. 2013 RGPP
Tritium Sample Locations
Upper Galena-Platteville Formation
Exelon Corporation
Byron Generating Station

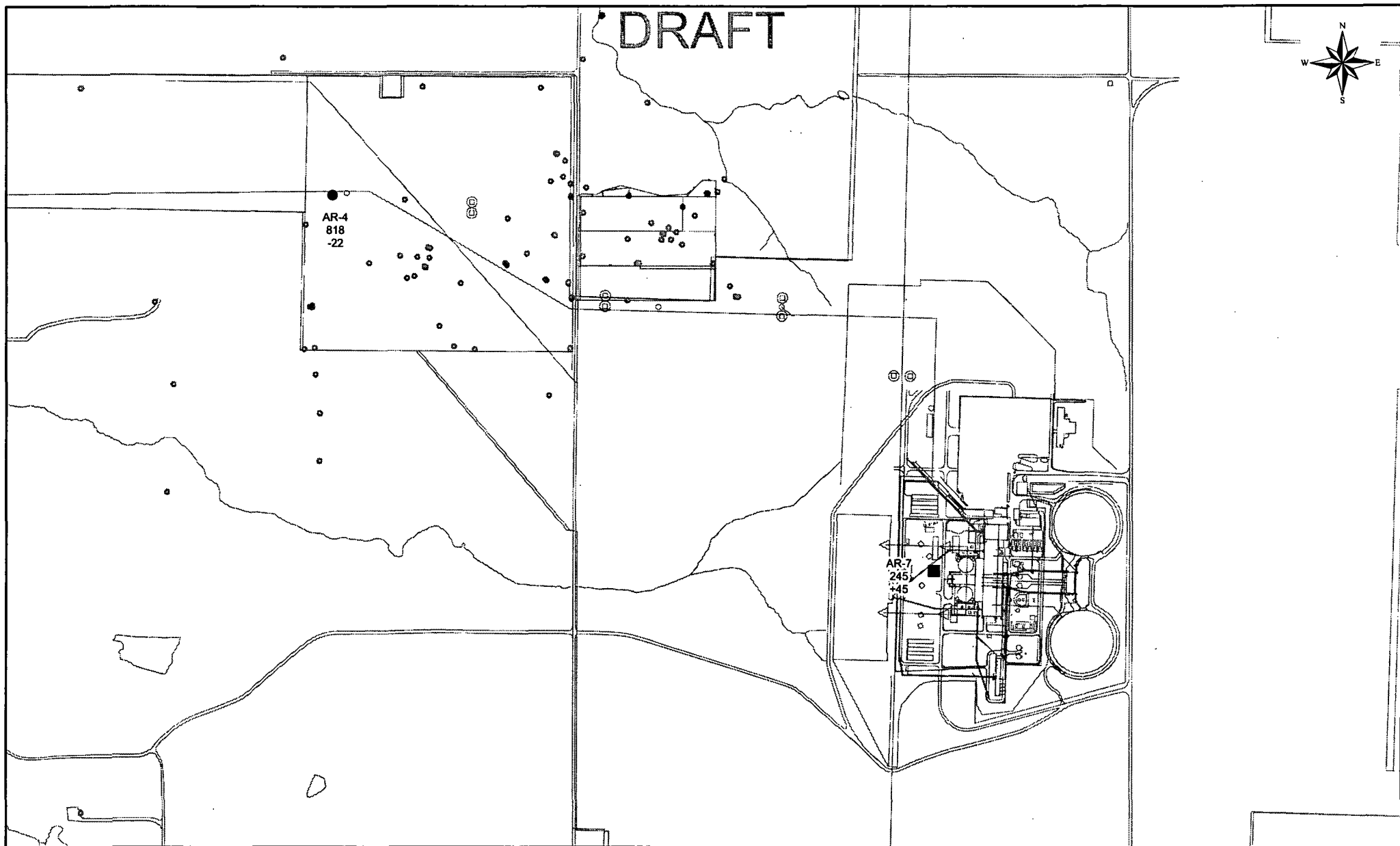


Explanation:

1st Qtr. 2013 Lower Galena-Platteville Formation Tritium Sample Location

- Result 200 to 2,000 pCi/L

Figure 1b
1st Qtr. 2013 RGPP
Tritium Sample Locations
Lower Galena-Platteville Formation
Exelon Corporation
Byron Generating Station



0 1,000 2,000
Feet

Explanation:

1st Qtr. 2013 Upper Galena-Platteville Formation Tritium Concentration Change

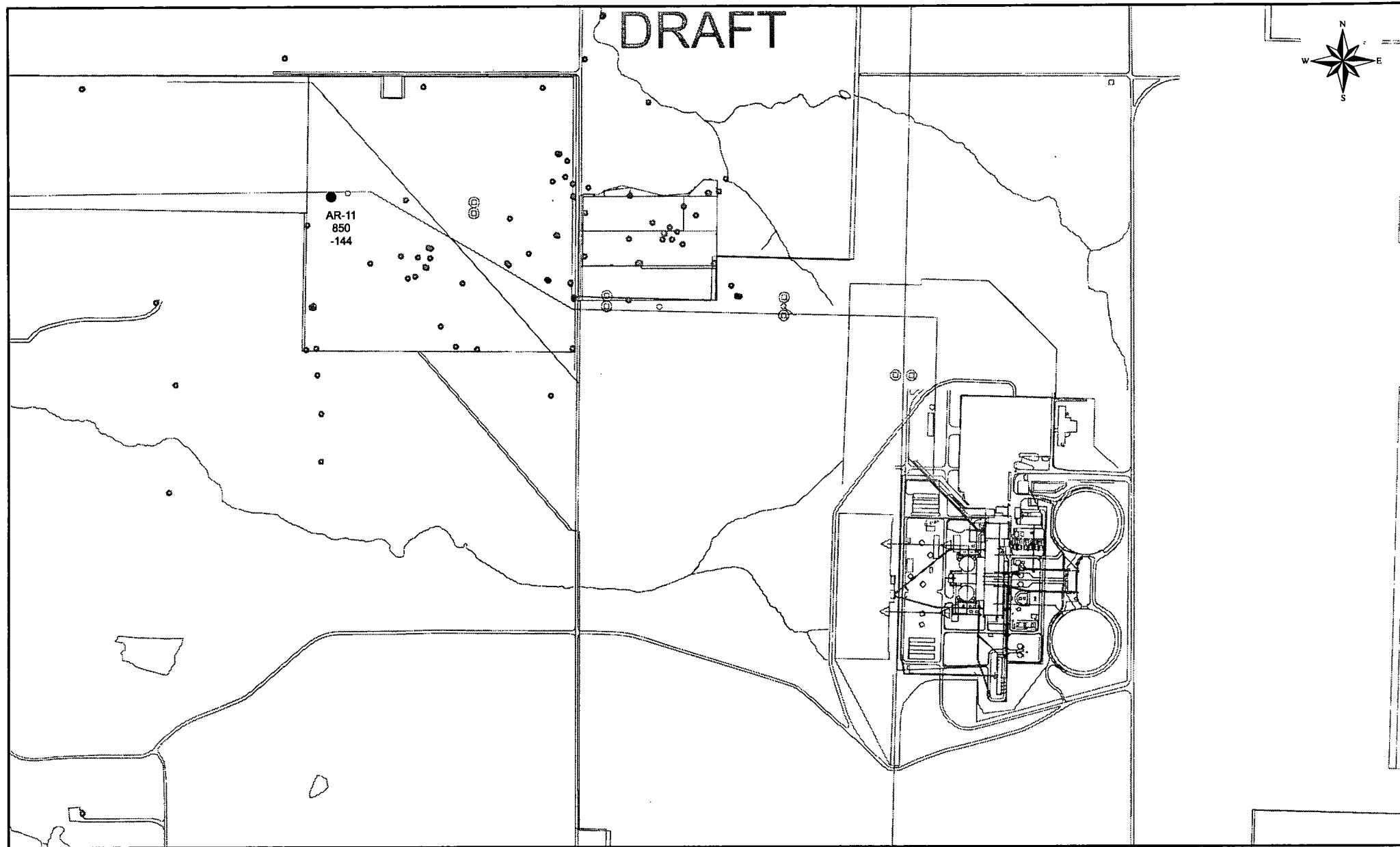
- Increase in Tritium Concentration
- Decrease in Tritium Concentration

818 - Tritium result presented in pico-curies per liter (pCi/L)

-22 - Difference in tritium concentration between the 4th quarter 2012 and 1st quarter 2013 RGPP Sample Rounds.

- Only sample locations with reported tritium concentration greater than 200 pCi/L during the 4th quarter 2012 or 1st quarter 2013 RGPP sample rounds are depicted.

Figure 2a
1st Qtr. 2013 RGPP
Tritium Concentration Change
Upper Galena-Platteville Formation
Exelon Corporation
Byron Generating Station



Explanation:

1st Qtr. 2013 Lower Galena-Platteville Formation Tritium Concentration Change

- Decrease in Tritium Concentration

850 - Tritium result presented in pico-curies per liter (pCi/L)

-144 - Difference in tritium concentration between the 4th quarter 2012

and 1st quarter 2013 RGPP Sample Rounds.

- Only sample locations with reported tritium concentration greater than 200 pCi/L during the 4th quarter 2012 or 1st quarter 2013 RGPP sample rounds are depicted.

Figure 2b
1st Qtr. 2013 RGPP
Tritium Concentration Change
Lower Galena-Platteville Formation
Exelon Corporation
Byron Generating Station

Sample ID	Sample Date	Result	Qual	Aquifer
TW-13	4/27/2006	157	U	Shallow Overburden
TW-13	4/27/2006	201	+	Shallow Overburden
TW-13	11/1/2006	186	U	Shallow Overburden
TW-13	4/20/2007	152	U	Shallow Overburden
TW-13	10/8/2007	171	U	Shallow Overburden
TW-13	5/28/2008	188	U	Shallow Overburden
TW-13	10/2/2008	164	U	Shallow Overburden
TW-13	4/29/2009	152	U	Shallow Overburden
TW-13	10/14/2009	151	U	Shallow Overburden
TW-13	5/19/2010	153	U	Shallow Overburden
TW-13	10/21/2010	161	U	Shallow Overburden
TW-13	5/9/2011	185	U	Shallow Overburden
TW-13	11/2/2011	181	U	Shallow Overburden
TW-13	5/16/2012	164	U	Shallow Overburden
TW-13	10/17/2012	159	U	Shallow Overburden
TW-14	4/27/2006	153	U	Shallow Overburden
TW-14	11/1/2006	189	U	Shallow Overburden
TW-14	4/20/2007	154	U	Shallow Overburden
TW-14	10/8/2007	176	U	Shallow Overburden
TW-14	5/28/2008	186	U	Shallow Overburden
TW-14	10/2/2008	168	U	Shallow Overburden
TW-14	4/29/2009	Not Sampled	U	Shallow Overburden
TW-15	4/27/2006	159	U	Shallow Overburden
TW-15	11/1/2006	185	U	Shallow Overburden
TW-15	4/20/2007	156	U	Shallow Overburden
TW-15	10/8/2007	176	U	Shallow Overburden
TW-15	5/28/2008	186	U	Shallow Overburden
TW-15	10/2/2008	164	U	Shallow Overburden
TW-15	4/29/2009	Not Sampled	U	Shallow Overburden
CAR-1	4/27/2006	154	U	Upper Unconsolidated
CAR-1	11/1/2006	190	U	Upper Unconsolidated
CAR-1	4/20/2007	155	U	Upper Unconsolidated
CAR-1	10/8/2007	174	U	Upper Unconsolidated
CAR-1	5/28/2008	187	U	Upper Unconsolidated
CAR-1	10/1/2008	166	U	Upper Unconsolidated
CAR-1	4/29/2009	152	U	Upper Unconsolidated
CAR-1	10/14/2009	149	U	Upper Unconsolidated
CAR-1	5/17/2010	Not Sampled	U	Upper Unconsolidated
CAR-1	10/20/2010	157	U	Upper Unconsolidated
CAR-1	5/9/2011	191	U	Upper Unconsolidated
CAR-1	11/2/2011	184	U	Upper Unconsolidated
CAR-1	5/16/2012	168	U	Upper Unconsolidated
CAR-1	10/17/2012	159	U	Upper Unconsolidated
AR-1	4/26/2006	165	U	Upper Galena-Platteville
AR-1	11/1/2006	185	U	Upper Galena-Platteville
AR-1	4/20/2007	153	U	Upper Galena-Platteville
AR-1	10/8/2007	180	U	Upper Galena-Platteville
AR-1	6/2/2008	187	U	Upper Galena-Platteville
AR-1	9/30/2008	163	U	Upper Galena-Platteville
AR-1	4/27/2009	157	U	Upper Galena-Platteville
AR-1	10/15/2009	165	U	Upper Galena-Platteville
AR-1	5/17/2010	154	U	Upper Galena-Platteville
AR-1	10/22/2010	159	U	Upper Galena-Platteville
AR-1	3/7/2011	139	U	Upper Galena-Platteville
AR-1	5/3/2011	184	U	Upper Galena-Platteville
AR-1	7/19/2011	172	U	Upper Galena-Platteville
AR-1	11/2/2011	181	U	Upper Galena-Platteville
AR-1	3/6/2012	174	U	Upper Galena-Platteville
AR-1	5/14/2012	175	U	Upper Galena-Platteville
AR-1	8/20/2012	170	U	Upper Galena-Platteville
AR-1	10/16/2012	173	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-1	3/18/2013	191	U	Upper Galena-Platteville
AR-10	4/26/2006	185	U	Upper Galena-Platteville
AR-10	11/1/2006	188	U	Upper Galena-Platteville
AR-10	4/15/2007	156	U	Upper Galena-Platteville
AR-10	10/8/2007	178	+	Upper Galena-Platteville
AR-10	6/2/2008	189	U	Upper Galena-Platteville
AR-10	9/30/2008	160	U	Upper Galena-Platteville
AR-10	4/27/2009	155	U	Upper Galena-Platteville
AR-10	10/15/2009	194	U	Upper Galena-Platteville
AR-10	5/17/2010	157	U	Upper Galena-Platteville
AR-10	10/22/2010	160	U	Upper Galena-Platteville
AR-10	3/7/2011	174	U	Upper Galena-Platteville
AR-10	5/3/2011	184	U	Upper Galena-Platteville
AR-10	7/19/2011	171	U	Upper Galena-Platteville
AR-10	11/2/2011	189	U	Upper Galena-Platteville
AR-10	3/6/2012	173	U	Upper Galena-Platteville
AR-10	5/14/2012	174	U	Upper Galena-Platteville
AR-10	8/20/2012	173	U	Upper Galena-Platteville
AR-10	10/16/2012	172	U	Upper Galena-Platteville
AR-10	3/18/2013	187	U	Upper Galena-Platteville
AR-2	4/26/2006	432	+	Upper Galena-Platteville
AR-2	4/26/2006	527	+	Upper Galena-Platteville
AR-2	11/1/2006	492	+	Upper Galena-Platteville
AR-2	11/1/2006	413	+	Upper Galena-Platteville
AR-2	4/18/2007	548	+	Upper Galena-Platteville
AR-2	10/8/2007	383	+	Upper Galena-Platteville
AR-2	5/29/2008	186	U	Upper Galena-Platteville
AR-2	10/1/2008	169	U	Upper Galena-Platteville
AR-2	4/29/2009	152	U	Upper Galena-Platteville
AR-2	10/15/2009	152	U	Upper Galena-Platteville
AR-2	5/19/2010	160	U	Upper Galena-Platteville
AR-2	10/20/2010	163	U	Upper Galena-Platteville
AR-2	5/9/2011	183	U	Upper Galena-Platteville
AR-2	11/2/2011	183	U	Upper Galena-Platteville
AR-2	5/16/2012	169	U	Upper Galena-Platteville
AR-2	10/17/2012	157	U	Upper Galena-Platteville
AR-3	3/24/2006	214	+	Upper Galena-Platteville
AR-3	3/24/2006	160		Upper Galena-Platteville
AR-3	3/24/2006	271	+	Upper Galena-Platteville
AR-3	3/24/2006	198		Upper Galena-Platteville
AR-3	3/24/2006	207	+	Upper Galena-Platteville
AR-3	3/27/2006	459	+	Upper Galena-Platteville
AR-3	3/27/2006	346	+	Upper Galena-Platteville
AR-3	3/29/2006	372	+	Upper Galena-Platteville
AR-3	4/3/2006	489	+	Upper Galena-Platteville
AR-3	4/10/2006	351	+	Upper Galena-Platteville
AR-3	4/26/2006	389	+	Upper Galena-Platteville
AR-3	4/26/2006	234	+	Upper Galena-Platteville
AR-3	6/22/2006	224	+	Upper Galena-Platteville
AR-3	7/20/2006	225	+	Upper Galena-Platteville
AR-3	11/1/2006	253	+	Upper Galena-Platteville
AR-3	11/1/2006	190	U	Upper Galena-Platteville
AR-3	4/18/2007	327	+	Upper Galena-Platteville
AR-3	10/8/2007	965	+	Upper Galena-Platteville
AR-3	10/8/2007	1,110	+	Upper Galena-Platteville
AR-3	11/27/2007	1,180	+	Upper Galena-Platteville
AR-3	1/8/2008	757	+	Upper Galena-Platteville
AR-3	5/29/2008	186	U	Upper Galena-Platteville
AR-3	10/1/2008	163	U	Upper Galena-Platteville
AR-3	4/29/2009	155	U	Upper Galena-Platteville
AR-3	10/14/2009	149	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-3	5/19/2010	156	U	Upper Galena-Platteville
AR-3	10/20/2010	162	U	Upper Galena-Platteville
AR-3	3/7/2011	149	U	Upper Galena-Platteville
AR-3	5/9/2011	188	U	Upper Galena-Platteville
AR-3	7/20/2011	170	U	Upper Galena-Platteville
AR-3	11/2/2011	181	U	Upper Galena-Platteville
AR-3	3/7/2012	169	U	Upper Galena-Platteville
AR-3	5/16/2012	172	U	Upper Galena-Platteville
AR-3	8/15/2012	193	U	Upper Galena-Platteville
AR-3	10/17/2012	158	U	Upper Galena-Platteville
AR-3	3/20/2013	190	U	Upper Galena-Platteville
AR-4	4/27/2006	3,260	+	Upper Galena-Platteville
AR-4	4/27/2006	4,080	+	Upper Galena-Platteville
AR-4	11/21/2006	2,980	+	Upper Galena-Platteville
AR-4	11/21/2006	2,440	+	Upper Galena-Platteville
AR-4	11/21/2006	2,610	+	Upper Galena-Platteville
AR-4	11/21/2006	2,880	+	Upper Galena-Platteville
AR-4	5/1/2007	3,050	+	Upper Galena-Platteville
AR-4	10/10/2007	2,890	+	Upper Galena-Platteville
AR-4	5/28/2008	2,150	+	Upper Galena-Platteville
AR-4	10/1/2008	1,910	+	Upper Galena-Platteville
AR-4	4/29/2009	1,350	+	Upper Galena-Platteville
AR-4	10/15/2009	1,360	+	Upper Galena-Platteville
AR-4	5/19/2010	1,250	+	Upper Galena-Platteville
AR-4	10/21/2010	1,170	+	Upper Galena-Platteville
AR-4	3/7/2011	875	+	Upper Galena-Platteville
AR-4	5/9/2011	818	+	Upper Galena-Platteville
AR-4	7/20/2011	777	+	Upper Galena-Platteville
AR-4	11/2/2011	912	+	Upper Galena-Platteville
AR-4	3/7/2012	861	+	Upper Galena-Platteville
AR-4	5/16/2012	802	+	Upper Galena-Platteville
AR-4	8/15/2012	872	+	Upper Galena-Platteville
AR-4	10/17/2012	830	+	Upper Galena-Platteville
AR-4	3/20/2013	818	+	Upper Galena-Platteville
AR-5	4/27/2006	151	U	Upper Galena-Platteville
AR-5	11/21/2006	188	U	Upper Galena-Platteville
AR-5	4/21/2007	170	U	Upper Galena-Platteville
AR-5	10/10/2007	178	U	Upper Galena-Platteville
AR-5	5/28/2008	184	U	Upper Galena-Platteville
AR-5	10/1/2008	166	U	Upper Galena-Platteville
AR-5	4/29/2009	NA	U	Upper Galena-Platteville
AR-6	4/27/2006	153	U	Upper Galena-Platteville
AR-6	11/21/2006	190	U	Upper Galena-Platteville
AR-6	4/21/2007	169	U	Upper Galena-Platteville
AR-6	10/10/2007	179	U	Upper Galena-Platteville
AR-6	5/28/2008	188	U	Upper Galena-Platteville
AR-6	10/1/2008	171	U	Upper Galena-Platteville
AR-6	4/29/2009	NA	U	Upper Galena-Platteville
AR-7	4/27/2006	160	U	Upper Galena-Platteville
AR-7	10/30/2006	187	U	Upper Galena-Platteville
AR-7	4/15/2007	151	U	Upper Galena-Platteville
AR-7	10/8/2007	179	U	Upper Galena-Platteville
AR-7	6/2/2008	228	+	Upper Galena-Platteville
AR-7	9/30/2008	161	U	Upper Galena-Platteville
AR-7	4/27/2009	157	U	Upper Galena-Platteville
AR-7	10/13/2009	170	U	Upper Galena-Platteville
AR-7	5/17/2010	179	+	Upper Galena-Platteville
AR-7	10/21/2010	171	U	Upper Galena-Platteville
AR-7	3/7/2011	166	U	Upper Galena-Platteville
AR-7	5/3/2011	199	+	Upper Galena-Platteville
AR-7	7/19/2011	291	+	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-7	11/2/2011	318	+	Upper Galena-Platteville
AR-7	1/6/2012	234	+	Upper Galena-Platteville
AR-7	3/2/2012	175	U	Upper Galena-Platteville
AR-7	5/14/2012	200	U	Upper Galena-Platteville
AR-7	8/20/2012	182	+	Upper Galena-Platteville
AR-7	10/16/2012	191	+	Upper Galena-Platteville
AR-7	3/18/2013	245	+	Upper Galena-Platteville
AR-8	4/27/2006	161	U	Upper Galena-Platteville
AR-8	10/30/2006	192	U	Upper Galena-Platteville
AR-8	4/15/2007	152	U	Upper Galena-Platteville
AR-8	10/8/2007	180	U	Upper Galena-Platteville
AR-8	6/2/2008	185	U	Upper Galena-Platteville
AR-8	9/30/2008	169	U	Upper Galena-Platteville
AR-8	4/27/2009	151	U	Upper Galena-Platteville
AR-8	10/13/2009	163	U	Upper Galena-Platteville
AR-8	5/17/2010	150	U	Upper Galena-Platteville
AR-8	10/21/2010	163	U	Upper Galena-Platteville
AR-8	3/7/2011	155	U	Upper Galena-Platteville
AR-8	5/3/2011	187	U	Upper Galena-Platteville
AR-8	7/19/2011	173	U	Upper Galena-Platteville
AR-8	11/2/2011	185	U	Upper Galena-Platteville
AR-8	3/6/2012	171	U	Upper Galena-Platteville
AR-8	5/14/2012	172	U	Upper Galena-Platteville
AR-8	8/20/2012	173	U	Upper Galena-Platteville
AR-8	10/16/2012	174	U	Upper Galena-Platteville
AR-8	3/18/2013	189	U	Upper Galena-Platteville
AR-9	4/27/2006	155	U	Upper Galena-Platteville
AR-9	10/30/2006	191	U	Upper Galena-Platteville
AR-9	4/20/2007	155	U	Upper Galena-Platteville
AR-9	10/8/2007	178	U	Upper Galena-Platteville
AR-9	6/2/2008	189	U	Upper Galena-Platteville
AR-9	9/30/2008	164	U	Upper Galena-Platteville
AR-9	4/27/2009	153	U	Upper Galena-Platteville
AR-9	10/13/2009	182	U	Upper Galena-Platteville
AR-9	5/17/2010	150	U	Upper Galena-Platteville
AR-9	10/22/2010	161	U	Upper Galena-Platteville
AR-9	3/7/2011	182	U	Upper Galena-Platteville
AR-9	5/3/2011	184	U	Upper Galena-Platteville
AR-9	7/19/2011	171	U	Upper Galena-Platteville
AR-9	11/2/2011	189	U	Upper Galena-Platteville
AR-9	3/6/2012	172	U	Upper Galena-Platteville
AR-9	5/14/2012	173	U	Upper Galena-Platteville
AR-9	8/20/2012	171	U	Upper Galena-Platteville
AR-9	10/16/2012	171	U	Upper Galena-Platteville
AR-9	3/18/2013	192	U	Upper Galena-Platteville
CAR-2	4/27/2006	159	U	Upper Galena-Platteville
CAR-2	11/2/2006	187	U	Upper Galena-Platteville
CAR-2	4/20/2007	152	U	Upper Galena-Platteville
CAR-2	10/8/2007	175	U	Upper Galena-Platteville
CAR-2	5/28/2008	191	U	Upper Galena-Platteville
CAR-2	10/1/2008	158	U	Upper Galena-Platteville
CAR-2	4/29/2009	NA	U	Upper Galena-Platteville
CAR-3	4/27/2006	150	U	Upper Galena-Platteville
CAR-3	10/30/2006	198	U	Upper Galena-Platteville
CAR-3	4/15/2007	157	U	Upper Galena-Platteville
CAR-3	10/8/2007	178	U	Upper Galena-Platteville
CAR-3	6/2/2008	185	U	Upper Galena-Platteville
CAR-3	9/30/2008	167	U	Upper Galena-Platteville
CAR-3	4/27/2009	153	U	Upper Galena-Platteville
CAR-3	10/13/2009	191	U	Upper Galena-Platteville
CAR-3	5/17/2010	158	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
CAR-3	10/21/2010	160	U	Upper Galena-Platteville
CAR-3	3/7/2011	151	U	Upper Galena-Platteville
CAR-3	5/3/2011	184	U	Upper Galena-Platteville
CAR-3	7/19/2011	170	U	Upper Galena-Platteville
CAR-3	11/2/2011	166	U	Upper Galena-Platteville
CAR-3	3/6/2012	171	U	Upper Galena-Platteville
CAR-3	5/14/2012	174	U	Upper Galena-Platteville
CAR-3	8/20/2012	172	U	Upper Galena-Platteville
CAR-3	10/16/2012	175	U	Upper Galena-Platteville
CAR-3	3/18/2013	188	U	Upper Galena-Platteville
DF-13	4/26/2006	158	U	Upper Galena-Platteville
DF-19	4/25/2006	187	U	Upper Galena-Platteville
DF-1S	4/25/2006	185	U	Upper Galena-Platteville
DF-24	4/26/2006	162	U	Upper Galena-Platteville
DF-24	11/21/2006	191	U	Upper Galena-Platteville
DF-24	4/19/2007	170	U	Upper Galena-Platteville
DF-24	10/10/2007	179	U	Upper Galena-Platteville
DF-24	5/28/2008	188	U	Upper Galena-Platteville
DF-24	10/1/2008	167	U	Upper Galena-Platteville
DF-24	4/29/2009	154	U	Upper Galena-Platteville
DF-24	10/14/2009	170	U	Upper Galena-Platteville
DF-24	5/19/2010	157	U	Upper Galena-Platteville
DF-24	10/21/2010	157	U	Upper Galena-Platteville
DF-24	3/7/2011	152	U	Upper Galena-Platteville
DF-24	5/9/2011	185	U	Upper Galena-Platteville
DF-24	7/20/2011	170	U	Upper Galena-Platteville
DF-24	11/2/2011	184	U	Upper Galena-Platteville
DF-24	3/7/2012	173	U	Upper Galena-Platteville
DF-24	5/16/2012	167	U	Upper Galena-Platteville
DF-24	8/15/2012	194	U	Upper Galena-Platteville
DF-24	10/17/2012	158	U	Upper Galena-Platteville
DF-24	3/20/2013	187	U	Upper Galena-Platteville
DF-2S	4/25/2006	186	U	Upper Galena-Platteville
DF-3S	4/25/2006	190	U	Upper Galena-Platteville
DF-4DS	4/25/2006	191	U	Upper Galena-Platteville
GW-9	4/28/2006	159	U	Upper Galena-Platteville
GW-9	11/21/2006	190	U	Upper Galena-Platteville
GW-9	4/21/2007	168	U	Upper Galena-Platteville
GW-9	10/10/2007	175	U	Upper Galena-Platteville
GW-9	5/29/2008	181	U	Upper Galena-Platteville
GW-9	10/2/2008	163	U	Upper Galena-Platteville
GW-9	4/29/2009	NA	U	Upper Galena-Platteville
MW-1	4/26/2006	189	U	Upper Galena-Platteville
MW-1	11/1/2006	186	U	Upper Galena-Platteville
MW-1	4/19/2007	149	U	Upper Galena-Platteville
MW-1	10/8/2007	176	U	Upper Galena-Platteville
MW-1	5/29/2008	186	U	Upper Galena-Platteville
MW-1	10/1/2008	172	U	Upper Galena-Platteville
MW-1	4/29/2009	NA	U	Upper Galena-Platteville
MW-1	5/16/2012	167	U	Upper Galena-Platteville
MW-1	10/17/2012	160	U	Upper Galena-Platteville
MW-3	4/26/2006	182	U	Upper Galena-Platteville
MW-3	11/1/2006	186	U	Upper Galena-Platteville
MW-3	4/19/2007	158	U	Upper Galena-Platteville
MW-3	10/8/2007	177	U	Upper Galena-Platteville
MW-3	5/29/2008	186	U	Upper Galena-Platteville
MW-3	10/1/2008	Dry		Upper Galena-Platteville
MW-3	5/16/2012	163	U	Upper Galena-Platteville
MW-3	10/17/2012	157	U	Upper Galena-Platteville
MW-30	4/28/2006	160	U	Upper Galena-Platteville
PC-1B	4/26/2006	161	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
PC-2B	4/25/2006	175	U	Upper Galena-Platteville
PC-5B	4/26/2006	165	U	Upper Galena-Platteville
PC-6B	4/26/2006	165	U	Upper Galena-Platteville
WELL-7	4/27/2006	164	U	Upper Galena-Platteville
WELL-7	4/27/2006	159	U	Upper Galena-Platteville
WELL-7	10/10/2007	189	U	Upper Galena-Platteville
WELL-7	5/29/2008	186	U	Upper Galena-Platteville
WELL-7	10/2/2008	150	U	Upper Galena-Platteville
WELL-7	4/29/2009	NA	U	Upper Galena-Platteville
AR-11	4/26/2006	2,340	+	Lower Galena-Platteville
AR-11	11/21/2006	1,780	+	Lower Galena-Platteville
AR-11	11/21/2006	1,710	+	Lower Galena-Platteville
AR-11	11/21/2006	2,070	+	Lower Galena-Platteville
AR-11	11/21/2006	1,860	+	Lower Galena-Platteville
AR-11	4/23/2007	1,820	+	Lower Galena-Platteville
AR-11	10/10/2007	1,300	+	Lower Galena-Platteville
AR-11	5/28/2008	1,220	+	Lower Galena-Platteville
AR-11	10/1/2008	1,280	+	Lower Galena-Platteville
AR-11	4/29/2009	1,110	+	Lower Galena-Platteville
AR-11	10/15/2009	1,010	+	Lower Galena-Platteville
AR-11	5/20/2010	1,120	+	Lower Galena-Platteville
AR-11	10/21/2010	947	+	Lower Galena-Platteville
AR-11	3/7/2011	827	+	Lower Galena-Platteville
AR-11	5/9/2011	919	+	Lower Galena-Platteville
AR-11	7/20/2011	1,150	+	Lower Galena-Platteville
AR-11	11/2/2011	894	+	Lower Galena-Platteville
AR-11	3/7/2012	1,100	+	Lower Galena-Platteville
AR-11	5/16/2012	1,110	+	Lower Galena-Platteville
AR-11	8/15/2012	1,210	+	Lower Galena-Platteville
AR-11	10/17/2012	994	+	Lower Galena-Platteville
AR-11	3/20/2013	850	+	Lower Galena-Platteville
DF-12	4/25/2006	175	U	Lower Galena-Platteville
DF-1D	4/25/2006	176	U	Lower Galena-Platteville
DF-6	4/25/2006	176	U	Lower Galena-Platteville
MW-36	4/25/2006	176	U	Lower Galena-Platteville
MW-2	4/27/2006	157	U	St. Peter Sandstone
MW-37	4/26/2006	158	U	St. Peter Sandstone
MW-39	4/26/2006	158	U	St. Peter Sandstone
PC-1C	4/26/2006	164	U	St. Peter Sandstone

All concentrations presented in pico-curies per liter.

Explanation:

2,340 - Bold concentrations represent exceedences of the Lower Limit of Detection of 200 pico-curies per liter.

U - Tritium not detected above the laboratory detection limit.

+- Tritium detected above the laboratory detection limit.

Sample Location	Sample Date	Groundwater Elevation	Aquifer
DF-7S	4/24/2006	Not Measured	Shallow Overburden
TW-13	4/27/2006	683.36	Shallow Overburden
TW-13	11/1/2006	683.05	Shallow Overburden
TW-13	4/20/2007	Not Measured	Shallow Overburden
TW-13	10/8/2007	682.84	Shallow Overburden
TW-13	5/28/2008	683.86	Shallow Overburden
TW-13	9/29/2008	683.57	Shallow Overburden
TW-13	4/29/2009	684.26	Shallow Overburden
TW-13	10/14/2009	683.38	Shallow Overburden
TW-13	5/17/2010	684.22	Shallow Overburden
TW-13	10/21/2010	683.27	Shallow Overburden
TW-13	3/8/2011	683.70	Shallow Overburden
TW-13	5/9/2011	682.83	Shallow Overburden
TW-13	7/20/2011	683.26	Shallow Overburden
TW-13	11/2/2011	682.97	Shallow Overburden
TW-13	3/7/2012	683.20	Shallow Overburden
TW-13	5/16/2012	683.26	Shallow Overburden
TW-13	8/15/2012	682.86	Shallow Overburden
TW-13	10/17/2012	682.86	Shallow Overburden
TW-13	3/18/2013	683.19	Shallow Overburden
TW-14	4/27/2006	672.93	Shallow Overburden
TW-14	11/1/2006	672.11	Shallow Overburden
TW-14	4/20/2007	Not Measured	Shallow Overburden
TW-14	10/8/2007	672.41	Shallow Overburden
TW-14	5/28/2008	674.46	Shallow Overburden
TW-14	9/29/2008	672.71	Shallow Overburden
TW-14	4/29/2009	677.15	Shallow Overburden
TW-14	10/14/2009	672.39	Shallow Overburden
TW-14	5/17/2010	676.96	Shallow Overburden
TW-14	10/21/2010	672.05	Shallow Overburden
TW-14	3/8/2011	674.55	Shallow Overburden
TW-14	5/7/2011	675.10	Shallow Overburden
TW-14	7/20/2011	672.00	Shallow Overburden
TW-14	11/2/2011	671.66	Shallow Overburden
TW-15	4/27/2006	672.89	Shallow Overburden
TW-15	11/1/2006	672.01	Shallow Overburden
TW-15	4/20/2007	Not Measured	Shallow Overburden
TW-15	10/8/2007	672.48	Shallow Overburden
TW-15	5/28/2008	674.46	Shallow Overburden
TW-15	9/29/2008	672.73	Shallow Overburden
TW-15	4/29/2009	677.12	Shallow Overburden
TW-15	10/14/2009	672.38	Shallow Overburden
TW-15	5/17/2010	676.93	Shallow Overburden
TW-15	10/21/2010	672.03	Shallow Overburden
TW-15	3/8/2011	674.53	Shallow Overburden
TW-15	5/7/2011	675.05	Shallow Overburden
TW-15	7/20/2011	671.97	Shallow Overburden
TW-15	11/2/2011	671.63	Shallow Overburden
CAR-1	3/23/2006	672.22	Upper Unconsolidated
CAR-1	4/4/2006	672.20	Upper Unconsolidated
CAR-1	4/27/2006	672.63	Upper Unconsolidated
CAR-1	11/1/2006	671.92	Upper Unconsolidated
CAR-1	4/20/2007	Not Measured	Upper Unconsolidated
CAR-1	10/8/2007	667.37	Upper Unconsolidated
CAR-1	5/28/2008	673.79	Upper Unconsolidated
CAR-1	9/29/2008	672.37	Upper Unconsolidated
CAR-1	4/29/2009	675.99	Upper Unconsolidated
CAR-1	10/14/2009	672.00	Upper Unconsolidated
CAR-1	5/17/2010	675.82	Upper Unconsolidated

Sample Location	Sample Date	Groundwater Elevation	Aquifer
CAR-1	10/20/2010	671.70	Upper Unconsolidated
CAR-1	3/8/2011	674.06	Upper Unconsolidated
CAR-1	5/9/2011	674.10	Upper Unconsolidated
CAR-1	7/20/2011	671.60	Upper Unconsolidated
CAR-1	11/2/2011	671.41	Upper Unconsolidated
CAR-1	3/7/2012	672.48	Upper Unconsolidated
CAR-1	5/16/2012	672.40	Upper Unconsolidated
CAR-1	8/15/2012	670.69	Upper Unconsolidated
CAR-1	10/17/2012	670.70	Upper Unconsolidated
CAR-1	3/18/2013	674.55	Upper Unconsolidated
DF-7D	4/24/2006	675.08	Middle Unconsolidated
AR-1	3/23/2006	831.40	Upper Galena-Platteville
AR-1	4/4/2006	831.38	Upper Galena-Platteville
AR-1	4/26/2006	835.94	Upper Galena-Platteville
AR-1	11/1/2006	833.22	Upper Galena-Platteville
AR-1	4/20/2007	Not Measured	Upper Galena-Platteville
AR-1	6/2/2008	837.43	Upper Galena-Platteville
AR-1	9/29/2008	838.69	Upper Galena-Platteville
AR-1	4/29/2009	837.55	Upper Galena-Platteville
AR-1	10/13/2009	836.24	Upper Galena-Platteville
AR-1	5/17/2010	834.98	Upper Galena-Platteville
AR-1	10/22/2010	832.90	Upper Galena-Platteville
AR-1	3/7/2011	832.92	Upper Galena-Platteville
AR-1	5/9/2011	835.71	Upper Galena-Platteville
AR-1	7/19/2011	834.28	Upper Galena-Platteville
AR-1	11/2/2011	834.07	Upper Galena-Platteville
AR-1	3/6/2012	830.95	Upper Galena-Platteville
AR-1	5/14/2012	832.14	Upper Galena-Platteville
AR-1	8/20/2012	829.59	Upper Galena-Platteville
AR-1	10/16/2012	828.57	Upper Galena-Platteville
AR-1	3/18/2013	831.09	Upper Galena-Platteville
AR-10	4/26/2006	837.66	Upper Galena-Platteville
AR-10	11/1/2006	837.45	Upper Galena-Platteville
AR-10	4/15/2007	Not Measured	Upper Galena-Platteville
AR-10	6/2/2008	842.97	Upper Galena-Platteville
AR-10	9/29/2008	842.13	Upper Galena-Platteville
AR-10	10/1/2008	842.13	Upper Galena-Platteville
AR-10	4/29/2009	843.90	Upper Galena-Platteville
AR-10	10/13/2009	842.30	Upper Galena-Platteville
AR-10	5/17/2010	843.01	Upper Galena-Platteville
AR-10	10/22/2010	841.06	Upper Galena-Platteville
AR-10	3/7/2011	839.44	Upper Galena-Platteville
AR-10	5/9/2011	841.10	Upper Galena-Platteville
AR-10	7/19/2011	840.75	Upper Galena-Platteville
AR-10	11/2/2011	839.52	Upper Galena-Platteville
AR-10	3/6/2012	838.61	Upper Galena-Platteville
AR-10	5/14/2012	838.90	Upper Galena-Platteville
AR-10	8/20/2012	837.04	Upper Galena-Platteville
AR-10	10/16/2012	836.40	Upper Galena-Platteville
AR-10	3/18/2013	835.76	Upper Galena-Platteville
AR-2	3/23/2006	798.68	Upper Galena-Platteville
AR-2	4/4/2006	798.31	Upper Galena-Platteville
AR-2	4/26/2006	798.50	Upper Galena-Platteville
AR-2	11/1/2006	797.48	Upper Galena-Platteville
AR-2	4/18/2007	Not Measured	Upper Galena-Platteville
AR-2	10/8/2007	803.96	Upper Galena-Platteville
AR-2	5/29/2008	812.58	Upper Galena-Platteville
AR-2	9/29/2008	811.18	Upper Galena-Platteville
AR-2	4/29/2009	818.53	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-2	10/13/2009	812.98	Upper Galena-Platteville
AR-2	5/17/2010	818.47	Upper Galena-Platteville
AR-2	10/20/2010	815.67	Upper Galena-Platteville
AR-2	3/7/2011	809.56	Upper Galena-Platteville
AR-2	5/9/2011	817.03	Upper Galena-Platteville
AR-2	7/20/2011	828.53	Upper Galena-Platteville
AR-2	11/2/2011	813.87	Upper Galena-Platteville
AR-2	3/7/2012	809.18	Upper Galena-Platteville
AR-2	5/16/2012	824.77	Upper Galena-Platteville
AR-2	8/15/2012	816.79	Upper Galena-Platteville
AR-2	10/17/2012	817.16	Upper Galena-Platteville
AR-2	3/18/2013	808.18	Upper Galena-Platteville
AR-3	3/23/2006	798.16	Upper Galena-Platteville
AR-3	4/4/2006	797.49	Upper Galena-Platteville
AR-3	4/26/2006	796.87	Upper Galena-Platteville
AR-3	11/1/2006	796.14	Upper Galena-Platteville
AR-3	4/18/2007	Not Measured	Upper Galena-Platteville
AR-3	10/8/2007	802.31	Upper Galena-Platteville
AR-3	5/29/2008	804.84	Upper Galena-Platteville
AR-3	9/29/2008	803.14	Upper Galena-Platteville
AR-3	4/29/2009	806.32	Upper Galena-Platteville
AR-3	10/14/2009	804.10	Upper Galena-Platteville
AR-3	5/17/2010	805.29	Upper Galena-Platteville
AR-3	10/20/2010	804.62	Upper Galena-Platteville
AR-3	3/7/2011	807.64	Upper Galena-Platteville
AR-3	5/9/2011	804.49	Upper Galena-Platteville
AR-3	7/20/2011	805.32	Upper Galena-Platteville
AR-3	11/2/2011	803.72	Upper Galena-Platteville
AR-3	3/7/2012	803.41	Upper Galena-Platteville
AR-3	5/16/2012	803.73	Upper Galena-Platteville
AR-3	8/15/2012	803.14	Upper Galena-Platteville
AR-3	10/17/2012	802.79	Upper Galena-Platteville
AR-3	3/18/2013	802.38	Upper Galena-Platteville
AR-4	4/27/2006	742.74	Upper Galena-Platteville
AR-4	11/21/2006	740.67	Upper Galena-Platteville
AR-4	4/23/2007	Not Measured	Upper Galena-Platteville
AR-4	10/10/2007	744.24	Upper Galena-Platteville
AR-4	5/28/2008	748.14	Upper Galena-Platteville
AR-4	9/29/2008	744.64	Upper Galena-Platteville
AR-4	4/29/2009	753.48	Upper Galena-Platteville
AR-4	10/15/2009	745.02	Upper Galena-Platteville
AR-4	5/17/2010	751.73	Upper Galena-Platteville
AR-4	10/21/2010	743.84	Upper Galena-Platteville
AR-4	3/7/2011	743.54	Upper Galena-Platteville
AR-4	5/9/2011	749.44	Upper Galena-Platteville
AR-4	7/20/2011	745.27	Upper Galena-Platteville
AR-4	11/2/2011	743.37	Upper Galena-Platteville
AR-4	3/7/2012	743.47	Upper Galena-Platteville
AR-4	5/16/2012	744.84	Upper Galena-Platteville
AR-4	8/15/2012	741.62	Upper Galena-Platteville
AR-4	10/17/2012	740.53	Upper Galena-Platteville
AR-4	3/18/2013	740.94	Upper Galena-Platteville
AR-5	3/23/2006	687.90	Upper Galena-Platteville
AR-5	4/4/2006	689.06	Upper Galena-Platteville
AR-5	4/27/2006	688.08	Upper Galena-Platteville
AR-5	11/21/2006	687.75	Upper Galena-Platteville
AR-5	4/21/2007	Not Measured	Upper Galena-Platteville
AR-5	10/10/2007	687.42	Upper Galena-Platteville
AR-5	5/28/2008	689.00	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-5	9/29/2008	688.20	Upper Galena-Platteville
AR-5	4/28/2009	690.95	Upper Galena-Platteville
AR-5	10/14/2009	688.48	Upper Galena-Platteville
AR-5	5/17/2010	690.67	Upper Galena-Platteville
AR-5	10/20/2010	688.29	Upper Galena-Platteville
AR-5	3/7/2011	689.40	Upper Galena-Platteville
AR-5	5/7/2011	690.12	Upper Galena-Platteville
AR-5	7/20/2011	688.35	Upper Galena-Platteville
AR-5	11/2/2011	687.94	Upper Galena-Platteville
AR-6	3/23/2006	674.47	Upper Galena-Platteville
AR-6	4/4/2006	674.68	Upper Galena-Platteville
AR-6	4/27/2006	675.00	Upper Galena-Platteville
AR-6	11/21/2006	674.75	Upper Galena-Platteville
AR-6	4/21/2007	Not Measured	Upper Galena-Platteville
AR-6	10/10/2007	675.22	Upper Galena-Platteville
AR-6	5/28/2008	676.65	Upper Galena-Platteville
AR-6	9/29/2008	675.70	Upper Galena-Platteville
AR-6	4/28/2009	678.55	Upper Galena-Platteville
AR-6	10/14/2009	675.45	Upper Galena-Platteville
AR-6	5/17/2010	679.35	Upper Galena-Platteville
AR-6	10/20/2010	675.29	Upper Galena-Platteville
AR-6	3/7/2011	676.60	Upper Galena-Platteville
AR-6	5/7/2011	677.34	Upper Galena-Platteville
AR-6	7/20/2011	675.26	Upper Galena-Platteville
AR-6	11/2/2011	674.87	Upper Galena-Platteville
AR-7	4/4/2006	765.96	Upper Galena-Platteville
AR-7	4/27/2006	766.74	Upper Galena-Platteville
AR-7	10/30/2006	768.42	Upper Galena-Platteville
AR-7	4/15/2007	Not Measured	Upper Galena-Platteville
AR-7	6/2/2008	787.88	Upper Galena-Platteville
AR-7	9/29/2008	786.38	Upper Galena-Platteville
AR-7	10/1/2008	786.38	Upper Galena-Platteville
AR-7	4/29/2009	793.61	Upper Galena-Platteville
AR-7	10/13/2009	790.87	Upper Galena-Platteville
AR-7	5/17/2010	791.71	Upper Galena-Platteville
AR-7	10/21/2010	790.58	Upper Galena-Platteville
AR-7	3/7/2011	781.11	Upper Galena-Platteville
AR-7	5/9/2011	784.63	Upper Galena-Platteville
AR-7	7/19/2011	787.14	Upper Galena-Platteville
AR-7	11/2/2011	788.26	Upper Galena-Platteville
AR-7	3/2/2012	781.82	Upper Galena-Platteville
AR-7	5/14/2012	782.14	Upper Galena-Platteville
AR-7	8/20/2012	778.32	Upper Galena-Platteville
AR-7	10/16/2012	776.00	Upper Galena-Platteville
AR-7	3/18/2013	775.88	Upper Galena-Platteville
AR-8	4/4/2006	816.14	Upper Galena-Platteville
AR-8	4/27/2006	838.55	Upper Galena-Platteville
AR-8	10/30/2006	836.86	Upper Galena-Platteville
AR-8	4/15/2007	Not Measured	Upper Galena-Platteville
AR-8	6/2/2008	848.56	Upper Galena-Platteville
AR-8	9/29/2008	851.66	Upper Galena-Platteville
AR-8	4/29/2009	Not Measured	Upper Galena-Platteville
AR-8	10/13/2009	851.76	Upper Galena-Platteville
AR-8	5/17/2010	847.98	Upper Galena-Platteville
AR-8	10/21/2010	847.71	Upper Galena-Platteville
AR-8	3/7/2011	840.64	Upper Galena-Platteville
AR-8	5/9/2011	842.76	Upper Galena-Platteville
AR-8	7/19/2011	844.45	Upper Galena-Platteville
AR-8	11/2/2011	845.01	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-8	3/6/2012	839.10	Upper Galena-Platteville
AR-8	5/14/2012	839.24	Upper Galena-Platteville
AR-8	8/20/2012	835.79	Upper Galena-Platteville
AR-8	10/16/2012	833.30	Upper Galena-Platteville
AR-8	3/18/2013	835.11	Upper Galena-Platteville
AR-9	4/27/2006	850.40	Upper Galena-Platteville
AR-9	10/30/2006	819.21	Upper Galena-Platteville
AR-9	4/20/2007	Not Measured	Upper Galena-Platteville
AR-9	6/2/2008	830.88	Upper Galena-Platteville
AR-9	9/29/2008	831.12	Upper Galena-Platteville
AR-9	10/1/2008	831.12	Upper Galena-Platteville
AR-9	4/29/2009	832.26	Upper Galena-Platteville
AR-9	10/13/2009	833.11	Upper Galena-Platteville
AR-9	5/17/2010	832.42	Upper Galena-Platteville
AR-9	10/22/2010	832.63	Upper Galena-Platteville
AR-9	3/7/2011	827.92	Upper Galena-Platteville
AR-9	5/9/2011	830.39	Upper Galena-Platteville
AR-9	7/19/2011	832.94	Upper Galena-Platteville
AR-9	11/2/2011	829.95	Upper Galena-Platteville
AR-9	3/6/2012	828.75	Upper Galena-Platteville
AR-9	5/14/2012	828.95	Upper Galena-Platteville
AR-9	8/20/2012	826.91	Upper Galena-Platteville
AR-9	10/16/2012	825.42	Upper Galena-Platteville
AR-9	3/18/2013	837.15	Upper Galena-Platteville
CAR-2	3/23/2006	736.50	Upper Galena-Platteville
CAR-2	4/4/2006	742.56	Upper Galena-Platteville
CAR-2	4/27/2006	736.89	Upper Galena-Platteville
CAR-2	11/2/2006	736.69	Upper Galena-Platteville
CAR-2	4/20/2007	Not Measured	Upper Galena-Platteville
CAR-2	10/8/2007	735.43	Upper Galena-Platteville
CAR-2	5/28/2008	736.81	Upper Galena-Platteville
CAR-2	9/29/2008	736.61	Upper Galena-Platteville
CAR-2	4/28/2009	743.39	Upper Galena-Platteville
CAR-2	10/14/2009	737.05	Upper Galena-Platteville
CAR-2	5/17/2010	742.61	Upper Galena-Platteville
CAR-2	10/21/2010	734.90	Upper Galena-Platteville
CAR-2	3/7/2011	742.66	Upper Galena-Platteville
CAR-2	5/7/2011	740.87	Upper Galena-Platteville
CAR-2	7/20/2011	735.51	Upper Galena-Platteville
CAR-2	11/2/2011	735.17	Upper Galena-Platteville
CAR-3	4/4/2006	824.62	Upper Galena-Platteville
CAR-3	4/27/2006	826.52	Upper Galena-Platteville
CAR-3	10/30/2006	828.33	Upper Galena-Platteville
CAR-3	4/15/2007	Not Measured	Upper Galena-Platteville
CAR-3	6/2/2008	838.21	Upper Galena-Platteville
CAR-3	9/29/2008	840.95	Upper Galena-Platteville
CAR-3	10/1/2008	840.95	Upper Galena-Platteville
CAR-3	4/29/2009	841.96	Upper Galena-Platteville
CAR-3	10/13/2009	845.69	Upper Galena-Platteville
CAR-3	5/17/2010	837.87	Upper Galena-Platteville
CAR-3	10/21/2010	837.36	Upper Galena-Platteville
CAR-3	3/7/2011	834.92	Upper Galena-Platteville
CAR-3	5/9/2011	844.36	Upper Galena-Platteville
CAR-3	7/19/2011	834.20	Upper Galena-Platteville
CAR-3	11/2/2011	835.29	Upper Galena-Platteville
CAR-3	3/6/2012	833.94	Upper Galena-Platteville
CAR-3	5/14/2012	833.11	Upper Galena-Platteville
CAR-3	8/20/2012	828.57	Upper Galena-Platteville
CAR-3	10/16/2012	831.07	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
CAR-3	3/18/2013	850.75	Upper Galena-Platteville
DF-10	4/24/2006	Not Measured	Upper Galena-Platteville
DF-11	4/24/2006	749.00	Upper Galena-Platteville
DF-15	3/23/2006	745.49	Upper Galena-Platteville
DF-15	4/4/2006	740.47	Upper Galena-Platteville
DF-15	4/24/2006	740.98	Upper Galena-Platteville
DF-18	3/23/2006	724.68	Upper Galena-Platteville
DF-18	4/4/2006	724.80	Upper Galena-Platteville
DF-18	4/24/2006	725.72	Upper Galena-Platteville
DF-19	3/23/2006	724.51	Upper Galena-Platteville
DF-19	4/4/2006	724.63	Upper Galena-Platteville
DF-19	4/25/2006	725.60	Upper Galena-Platteville
DF-1S	3/23/2006	724.97	Upper Galena-Platteville
DF-1S	4/4/2006	725.09	Upper Galena-Platteville
DF-1S	4/25/2006	726.04	Upper Galena-Platteville
DF-22S	3/23/2006	735.86	Upper Galena-Platteville
DF-22S	4/4/2006	725.99	Upper Galena-Platteville
DF-22S	4/24/2006	726.34	Upper Galena-Platteville
DF-24	3/23/2006	722.40	Upper Galena-Platteville
DF-24	4/4/2006	722.57	Upper Galena-Platteville
DF-24	4/26/2006	723.79	Upper Galena-Platteville
DF-24	11/21/2006	721.58	Upper Galena-Platteville
DF-24	4/19/2007	Not Measured	Upper Galena-Platteville
DF-24	10/10/2007	724.51	Upper Galena-Platteville
DF-24	5/28/2008	732.78	Upper Galena-Platteville
DF-24	9/29/2008	726.33	Upper Galena-Platteville
DF-24	4/29/2009	739.28	Upper Galena-Platteville
DF-24	10/14/2009	728.22	Upper Galena-Platteville
DF-24	5/17/2010	733.98	Upper Galena-Platteville
DF-24	10/21/2010	728.28	Upper Galena-Platteville
DF-24	3/7/2011	726.35	Upper Galena-Platteville
DF-24	5/9/2011	730.36	Upper Galena-Platteville
DF-24	7/20/2011	726.98	Upper Galena-Platteville
DF-24	11/2/2011	724.86	Upper Galena-Platteville
DF-24	3/7/2012	724.71	Upper Galena-Platteville
DF-24	5/16/2012	724.95	Upper Galena-Platteville
DF-24	8/15/2012	724.42	Upper Galena-Platteville
DF-24	10/17/2012	722.54	Upper Galena-Platteville
DF-24	3/18/2013	725.17	Upper Galena-Platteville
DF-2S	3/23/2006	725.48	Upper Galena-Platteville
DF-2S	4/4/2006	725.96	Upper Galena-Platteville
DF-2S	4/25/2006	727.08	Upper Galena-Platteville
DF-3S	3/23/2006	726.28	Upper Galena-Platteville
DF-3S	4/4/2006	726.36	Upper Galena-Platteville
DF-3S	4/25/2006	727.33	Upper Galena-Platteville
DF-4DS	4/25/2006	765.82	Upper Galena-Platteville
DF-5S	4/24/2006	799.77	Upper Galena-Platteville
GW-9	4/28/2006	745.46	Upper Galena-Platteville
GW-9	11/21/2006	749.73	Upper Galena-Platteville
GW-9	4/21/2007	Not Measured	Upper Galena-Platteville
GW-9	10/10/2007	752.23	Upper Galena-Platteville
GW-9	5/29/2008	761.88	Upper Galena-Platteville
GW-9	5/29/2008	761.88	Upper Galena-Platteville
GW-9	9/29/2008	748.23	Upper Galena-Platteville
GW-9	4/28/2009	758.93	Upper Galena-Platteville
GW-9	10/14/2009	760.63	Upper Galena-Platteville
GW-9	5/17/2010	760.33	Upper Galena-Platteville
GW-9	10/21/2010	743.58	Upper Galena-Platteville
GW-9	3/9/2011	754.81	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
GW-9	5/10/2011	755.97	Upper Galena-Platteville
GW-9	7/20/2011	753.17	Upper Galena-Platteville
GW-9	11/2/2011	754.86	Upper Galena-Platteville
MW-1	3/23/2006	799.95	Upper Galena-Platteville
MW-1	4/4/2006	800.76	Upper Galena-Platteville
MW-1	4/26/2006	799.63	Upper Galena-Platteville
MW-1	11/1/2006	798.62	Upper Galena-Platteville
MW-1	4/19/2007	Not Measured	Upper Galena-Platteville
MW-1	10/8/2007	804.27	Upper Galena-Platteville
MW-1	5/29/2008	812.12	Upper Galena-Platteville
MW-1	9/29/2008	808.42	Upper Galena-Platteville
MW-1	4/28/2009	819.37	Upper Galena-Platteville
MW-1	10/14/2009	812.05	Upper Galena-Platteville
MW-1	5/17/2010	Not Measured	Upper Galena-Platteville
MW-1	10/21/2010	814.17	Upper Galena-Platteville
MW-1	3/7/2011	807.40	Upper Galena-Platteville
MW-1	5/7/2011	808.37	Upper Galena-Platteville
MW-1	7/20/2011	Not Accessible	Upper Galena-Platteville
MW-1	11/2/2011	Not Measured	Upper Galena-Platteville
MW-1	3/7/2012	806.45	Upper Galena-Platteville
MW-1	5/16/2012	806.57	Upper Galena-Platteville
MW-1	8/15/2012	807.70	Upper Galena-Platteville
MW-1	10/17/2012	807.66	Upper Galena-Platteville
MW-1	3/18/2013	803.34	Upper Galena-Platteville
MW-15	3/23/2006	743.98	Upper Galena-Platteville
MW-15	4/4/2006	744.21	Upper Galena-Platteville
MW-15	4/24/2006	745.56	Upper Galena-Platteville
MW-3	4/26/2006	787.51	Upper Galena-Platteville
MW-3	11/1/2006	786.00	Upper Galena-Platteville
MW-3	4/19/2007	Not Measured	Upper Galena-Platteville
MW-3	10/8/2007	789.27	Upper Galena-Platteville
MW-3	5/29/2008	790.45	Upper Galena-Platteville
MW-3	9/29/2008	Dry	Upper Galena-Platteville
MW-3	4/28/2009	791.15	Upper Galena-Platteville
MW-3	10/14/2009	798.65	Upper Galena-Platteville
MW-3	5/17/2010	Not Measured	Upper Galena-Platteville
MW-3	10/21/2010	789.74	Upper Galena-Platteville
MW-3	3/7/2011	788.99	Upper Galena-Platteville
MW-3	5/7/2011	790.19	Upper Galena-Platteville
MW-3	7/20/2011	790.08	Upper Galena-Platteville
MW-3	11/2/2011	789.15	Upper Galena-Platteville
MW-3	3/7/2012	788.48	Upper Galena-Platteville
MW-3	5/16/2012	788.51	Upper Galena-Platteville
MW-3	8/15/2012	788.74	Upper Galena-Platteville
MW-3	10/17/2012	788.55	Upper Galena-Platteville
MW-3	3/18/2013	786.48	Upper Galena-Platteville
MW-30	3/23/2006	720.41	Upper Galena-Platteville
MW-30	4/28/2006	720.26	Upper Galena-Platteville
PC-1B	3/23/2006	717.21	Upper Galena-Platteville
PC-1B	4/4/2006	717.25	Upper Galena-Platteville
PC-1B	4/26/2006	718.01	Upper Galena-Platteville
PC-2B	4/4/2006	756.28	Upper Galena-Platteville
PC-2B	4/25/2006	756.23	Upper Galena-Platteville
PC-3B	4/24/2006	760.58	Upper Galena-Platteville
PC-4B	3/23/2006	726.15	Upper Galena-Platteville
PC-4B	4/4/2006	726.27	Upper Galena-Platteville
PC-4B	4/24/2006	726.49	Upper Galena-Platteville
PC-5B	3/23/2006	722.91	Upper Galena-Platteville
PC-5B	4/4/2006	722.47	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
PC-5B	4/26/2006	723.60	Upper Galena-Platteville
PC-6B	3/23/2006	749.82	Upper Galena-Platteville
PC-6B	4/4/2006	740.58	Upper Galena-Platteville
PC-6B	4/26/2006	743.18	Upper Galena-Platteville
WELL-7	4/27/2006	775.47	Upper Galena-Platteville
WELL-7	11/21/2006	784.24	Upper Galena-Platteville
WELL-7	10/10/2007	789.24	Upper Galena-Platteville
WELL-7	5/29/2008	803.94	Upper Galena-Platteville
WELL-7	9/29/2008	784.74	Upper Galena-Platteville
WELL-7	4/28/2009	805.04	Upper Galena-Platteville
WELL-7	10/14/2009	809.92	Upper Galena-Platteville
WELL-7	5/17/2010	808.64	Upper Galena-Platteville
WELL-7	10/21/2010	803.79	Upper Galena-Platteville
WELL-7	3/7/2011	810.34	Upper Galena-Platteville
WELL-7	5/7/2011	810.09	Upper Galena-Platteville
WELL-7	7/20/2011	805.48	Upper Galena-Platteville
WELL-7	11/2/2011	801.82	Upper Galena-Platteville
WELL-7	3/7/2012	793.58	Upper Galena-Platteville
WELL-7	5/16/2012	801.59	Upper Galena-Platteville
WELL-7	8/15/2012	790.65	Upper Galena-Platteville
WELL-7	10/17/2012	808.52	Upper Galena-Platteville
WELL-7	3/18/2013	809.81	Upper Galena-Platteville
AR-11	4/26/2006	742.41	Lower Galena-Platteville
AR-11	11/21/2006	732.75	Lower Galena-Platteville
AR-11	4/23/2007	Not Measured	Lower Galena-Platteville
AR-11	10/10/2007	721.23	Lower Galena-Platteville
AR-11	5/28/2008	744.80	Lower Galena-Platteville
AR-11	9/29/2008	741.70	Lower Galena-Platteville
AR-11	4/29/2009	748.59	Lower Galena-Platteville
AR-11	10/15/2009	742.47	Lower Galena-Platteville
AR-11	5/17/2010	747.35	Lower Galena-Platteville
AR-11	10/21/2010	743.30	Lower Galena-Platteville
AR-11	3/7/2011	742.80	Lower Galena-Platteville
AR-11	5/9/2011	747.64	Lower Galena-Platteville
AR-11	7/20/2011	744.43	Lower Galena-Platteville
AR-11	11/2/2011	744.78	Lower Galena-Platteville
AR-11	3/7/2012	744.88	Lower Galena-Platteville
AR-11	5/16/2012	745.74	Lower Galena-Platteville
AR-11	8/15/2012	743.05	Lower Galena-Platteville
AR-11	10/17/2012	742.03	Lower Galena-Platteville
AR-11	3/18/2013	742.34	Lower Galena-Platteville
DF-12	3/23/2006	744.35	Lower Galena-Platteville
DF-12	4/25/2006	746.06	Lower Galena-Platteville
DF-13	3/23/2006	744.39	Lower Galena-Platteville
DF-13	4/4/2006	744.68	Lower Galena-Platteville
DF-13	4/26/2006	746.06	Lower Galena-Platteville
DF-17	3/23/2006	729.14	Lower Galena-Platteville
DF-17	4/4/2006	729.27	Lower Galena-Platteville
DF-17	4/24/2006	729.76	Lower Galena-Platteville
DF-1D	3/23/2006	724.56	Lower Galena-Platteville
DF-1D	4/4/2006	724.73	Lower Galena-Platteville
DF-1D	4/25/2006	725.67	Lower Galena-Platteville
DF-22D	3/23/2006	725.78	Lower Galena-Platteville
DF-22D	4/24/2006	726.34	Lower Galena-Platteville
DF-23	3/23/2006	726.66	Lower Galena-Platteville
DF-23	4/4/2006	695.37	Lower Galena-Platteville
DF-23	4/24/2006	717.17	Lower Galena-Platteville
DF-4DD	3/23/2006	744.49	Lower Galena-Platteville
DF-4DD	4/4/2006	744.78	Lower Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
DF-4DD	4/24/2006	746.17	Lower Galena-Platteville
DF-6	3/23/2006	737.18	Lower Galena-Platteville
DF-6	4/4/2006	738.17	Lower Galena-Platteville
DF-6	4/25/2006	739.20	Lower Galena-Platteville
DF-8	3/23/2006	716.90	Lower Galena-Platteville
DF-8	4/4/2006	717.00	Lower Galena-Platteville
DF-8	4/24/2006	717.60	Lower Galena-Platteville
MW-16	3/23/2006	743.93	Lower Galena-Platteville
MW-16	4/4/2006	744.19	Lower Galena-Platteville
MW-16	4/24/2006	745.56	Lower Galena-Platteville
MW-36	3/23/2006	744.47	Lower Galena-Platteville
MW-36	4/4/2006	744.73	Lower Galena-Platteville
MW-36	4/25/2006	746.14	Lower Galena-Platteville
MW-41	3/23/2006	743.85	Lower Galena-Platteville
MW-41	4/4/2006	744.13	Lower Galena-Platteville
MW-41	4/24/2006	745.49	Lower Galena-Platteville
MW-42	3/23/2006	744.14	Lower Galena-Platteville
MW-42	4/4/2006	744.47	Lower Galena-Platteville
MW-42	4/24/2006	745.85	Lower Galena-Platteville
MW-2	3/23/2006	683.62	St. Peter Sandstone
MW-2	4/4/2006	684.18	St. Peter Sandstone
MW-2	4/27/2006	684.22	St. Peter Sandstone
MW-20R	3/23/2006	680.65	St. Peter Sandstone
MW-20R	4/4/2006	680.73	St. Peter Sandstone
MW-20R	4/24/2006	681.19	St. Peter Sandstone
MW-21	3/23/2006	680.58	St. Peter Sandstone
MW-21	4/4/2006	680.70	St. Peter Sandstone
MW-21	4/24/2006	681.16	St. Peter Sandstone
MW-37	3/23/2006	681.61	St. Peter Sandstone
MW-37	4/4/2006	681.73	St. Peter Sandstone
MW-37	4/26/2006	682.15	St. Peter Sandstone
MW-39	3/23/2006	680.94	St. Peter Sandstone
MW-39	4/4/2006	681.06	St. Peter Sandstone
MW-39	4/26/2006	681.49	St. Peter Sandstone
PC-1C	3/23/2006	678.99	St. Peter Sandstone
PC-1C	4/4/2006	678.99	St. Peter Sandstone
PC-1C	4/26/2006	679.53	St. Peter Sandstone
DF-25	4/24/2006	769.11	Unknown
DF-9S	3/23/2006	685.80	Unknown
DF-9S	4/4/2006	686.08	Unknown
MS-1	3/23/2006	694.03	Unknown
MS-1	4/4/2006	693.34	Unknown
MS-2	3/23/2006	676.91	Unknown
MS-2	4/4/2006	676.78	Unknown
MW-11	4/4/2006	713.67	Unknown
MW-12I	3/23/2006	704.92	Unknown
MW-12I	4/4/2006	704.90	Unknown
MW12S	3/23/2006	704.45	Unknown
MW12S	4/4/2006	706.29	Unknown
OS-NW-1D	3/23/2006	676.20	Unknown
OS-NW-1D	4/4/2006	743.12	Unknown
OS-NW-1S	3/23/2006	742.60	Unknown
OS-NW-1S	4/4/2006	774.16	Unknown
OS-SW-1	3/23/2006	669.94	Unknown
OS-SW-1	4/4/2006	678.43	Unknown
OS-SW-2D	3/23/2006	679.76	Unknown
OS-SW-2D	4/4/2006	679.89	Unknown
OS-SW-2I	3/23/2006	679.88	Unknown
OS-SW-2I	4/4/2006	680.00	Unknown

Sample Location	Sample Date	Groundwater Elevation	Aquifer
OS-SW-2S	3/23/2006	684.51	Unknown
OS-SW-2S	4/4/2006	685.06	Unknown
OS-SW-3D	3/23/2006	682.52	Unknown
OS-SW-3D	4/4/2006	659.12	Unknown
OS-SW-3S	3/23/2006	695.82	Unknown
OS-SW-3S	4/4/2006	673.83	Unknown
RR-10	4/4/2006	672.17	Unknown
RR-9	3/23/2006	670.92	Unknown
RR-9	4/4/2006	671.05	Unknown

All Elevations Presented in Feet Above Mean Sea Level

July 17, 2013

Byron Generating Station
Chemistry Manager/RGPP Coordinator
4450 North German Church Road
Byron, Illinois

Subject: May 2013 RGPP Summary Monitoring Report (2nd Quarter 2013)

AMO has interpreted the analytical data and field data for the May 2013 Radiological Groundwater Protection Program (RGPP) sampling round, which was completed by EIML (a third party vendor under contract with Exelon Corporation) between May 20, 2013 and May 22, 2013. Exelon's RGPP (EN-AA-408-4000 and EN-BY-408-4160) incorporates guidance as detailed in NEI 07-07, ANI 07-01, and EPRI 1015118. All laboratory and field data from this sampling round has been uploaded to the Exelon RGPP Database maintained by Locus Technologies.

The attached tables, graphs, and figures summarize the findings of the May 2013 sampling round. Overall, tritium concentrations have been decreasing at the Station since the 2006. Based on our review of the May 2013 sampling round and available historic data, there does not appear to be ongoing tritium leak at the site.

The Station conformed with its RGPP during the 2nd quarter 2013 with respect to sampling protocol.

Please call me at 215-230-8282 if you have questions.

Respectfully,

AMO Environmental Decisions

Ralph T. Golia, P.G.
Principal
Hydrogeologist

attachments

File

Station: Byron Generating Station
Monitoring Round: Completed May 20 through May 22, 2013

Compliance Evaluation

Evaluation Checklist		Yes or No	Explanation	P.I.
1 -	Was depth to water collected at all monitoring locations?	YES		1
2 -	Were all required field data measurements collected?	YES		1
3 -	Were all required sampling points sampled?	YES	See the attached Figures 1a and 1b for sample locations.	1
4 -	Were all required analyses performed?	YES		1
5 -	Should there be changes to sampling frequency based on analytical data?	NO		NA
6 -	Should there be a well designation change based on analytical data?	NO		NA
			Total P.I. Score for the Quarter	4

Data Evaluation

Data Evaluation		Yes or No	Explanation
1 -	Are there tritium concentrations >2,000 pCi/L, but <20,000 pCi/L?	NO	
2 -	Are there tritium concentrations >20,000 pCi/L, but <100,000 pCi/L?	NO	
3 -	Are there tritium concentrations >100,000 pCi/L?	NO	
4 -	Are there increasing tritium concentration trends?	NO	
5 -	Are there decreasing tritium concentration trends?	YES	The attached graphs for AR-4 and AR-11 show an overall decreasing tritium concentration trend since 2006.
6 -	Are non-tritium analytes detected greater than MDL?	YES	Gross-alpha (suspended) and gross-beta (suspended) were detected in the groundwater samples collected from AR-8 (0.843 pCi/L and 2.30 pCi/L, respectively) and AR-10 (3.78 pCi/L and 2.95 pCi/L, respectively). Gross-beta (dissolved) was detected in eight groundwater samples with concentrations ranging between 2.37 pCi/L (AR-1) and 15.10 pCi/L (AR-7). The gross alpha and beta concentrations are believed to be from naturally occurring radon and radon decay

			daughter products and not due to licensed material.
7 -	Are there increasing non-tritium concentration trends?	NA	
8 -	Are there decreasing non-tritium concentration trends?	NA	
9 -	Are there increasing groundwater elevation trends?	NO	
10 -	Are there decreasing groundwater elevation trends?	NO	
11 -	Are the significant changes to groundwater flow directions?	NO	

Notes:

1. P.I. – RGPP Performance Indicator. A score of 0 indicates that the RGPP guidance was not followed. A score of 1 indicates the RGPP guidance was followed.

Sample ID	Sample Round	Result (pC/L)	Qual	Sample Round	Result (pC/L)	Qual	Change in Concentration (pC/L)	Change in Concentration (%)	Aquifer
TW-13	1st Qtr. 2013	Not Sampled		2nd Qtr. 2013	175	U	NA	NA	Shallow Overburden
CAR-1	1st Qtr. 2013	Not Sampled		2nd Qtr. 2013	179	U	NA	NA	Upper Unconsolidated
AR-4	1st Qtr. 2013	818	+	2nd Qtr. 2013	523	+	-295	-44	Upper Galena-Platteville
AR-1	1st Qtr. 2013	191	U	2nd Qtr. 2013	170	U	0	0	Upper Galena-Platteville
AR-10	1st Qtr. 2013	187	U	2nd Qtr. 2013	173	U	0	0	Upper Galena-Platteville
AR-2	1st Qtr. 2013	Not Sampled		2nd Qtr. 2013	166	U	0	0	Upper Galena-Platteville
AR-3	1st Qtr. 2013	190	U	2nd Qtr. 2013	173	U	0	0	Upper Galena-Platteville
AR-8	1st Qtr. 2013	189	U	2nd Qtr. 2013	178	U	0	0	Upper Galena-Platteville
AR-9	1st Qtr. 2013	192	U	2nd Qtr. 2013	177	U	0	0	Upper Galena-Platteville
CAR-3	1st Qtr. 2013	188	U	2nd Qtr. 2013	171	U	0	0	Upper Galena-Platteville
DF-24	1st Qtr. 2013	187	U	2nd Qtr. 2013	178	U	0	0	Upper Galena-Platteville
AR-7	1st Qtr. 2013	245	+	2nd Qtr. 2013	351	+	106	36	Upper Galena-Platteville
MW-1	1st Qtr. 2013	Not Sampled		2nd Qtr. 2013	181	U	NA	NA	Upper Galena-Platteville
MW-3	1st Qtr. 2013	Not Sampled		2nd Qtr. 2013	180	U	NA	NA	Upper Galena-Platteville
AR-11	1st Qtr. 2013	850	+	2nd Qtr. 2013	933	+	83	9	Lower Galena-Platteville

Notes:

- 1) Change in concentration (pC/l) represents the difference in concentrations between the 1st quarter 2013 and the 2nd quarter 2013 monitoring rounds unless otherwise noted. Positive numbers represent an increase in concentration; negative numbers represent a decrease in concentration.
- 2) All detections and detection limits less than 200 pico-curies per liter are considered equal to 200 pico-curies per liter for the purposes of this report.
- 3) Change in concentration (%) is equal to the change in concentration between the two sampling rounds divided by the average of the analytical results for the two sampling rounds.
- 4) Data reported in the tables and figures does not include the results of re-analyses completed by the laboratory. Only the highest analyte concentration per sample location is presented.
- 5) The five wells not sampled during the 1st quarter 2013 RGPP sampling round are designated as background wells, which only require semi-annual sampling.

Monitoring Well ID	2nd Quarter 2012 Groundwater Elevation	2nd Quarter 2013 Groundwater Elevation	Change in Groundwater Elevation (ft)	Aquifer
TW-13	683.26	683.72	0.46	Shallow Overburden
CAR-1	672.40	673.92	1.52	Upper Unconsolidated
AR-2	824.77	812.10	-12.67	Upper Galena-Platteville
WELL-7	801.59	794.95	-6.64	Upper Galena-Platteville
MW-3	788.51	786.74	-1.77	Upper Galena-Platteville
MW-1	806.57	805.50	-1.07	Upper Galena-Platteville
AR-3	803.73	804.10	0.37	Upper Galena-Platteville
AR-4	744.84	746.57	1.73	Upper Galena-Platteville
AR-10	838.90	840.64	1.74	Upper Galena-Platteville
AR-7	782.14	785.43	3.29	Upper Galena-Platteville
AR-1	832.14	835.99	3.85	Upper Galena-Platteville
AR-8	839.24	843.20	3.96	Upper Galena-Platteville
DF-24	724.95	729.26	4.31	Upper Galena-Platteville
AR-9	828.95	833.55	4.60	Upper Galena-Platteville
CAR-3	833.11	842.24	9.13	Upper Galena-Platteville
AR-11	745.74	747.47	1.73	Lower Galena-Platteville

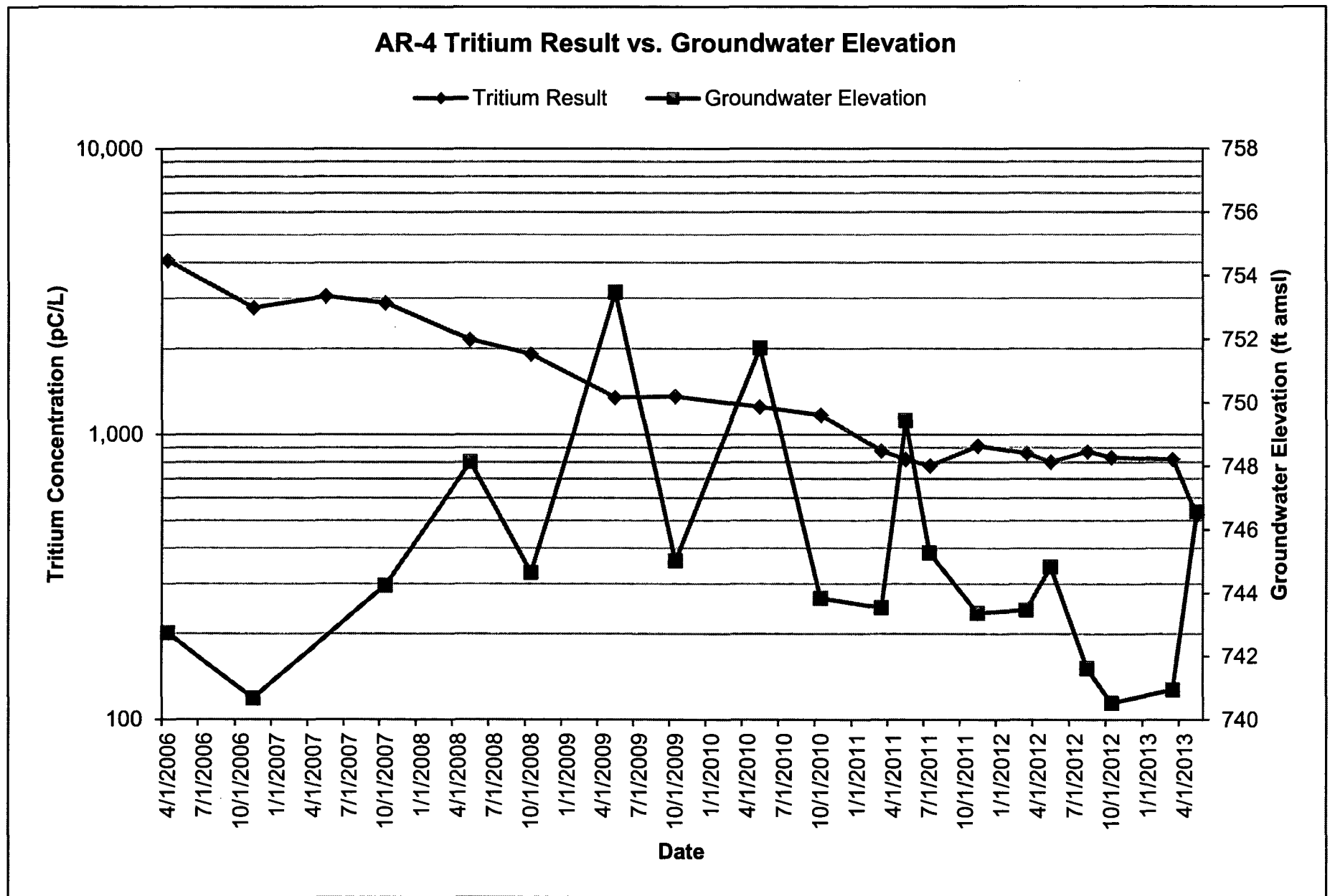
Explanation:

- 1 - Groundwater fluctuations in AR-7 have ranged between 765.96 feet amsl (April 2006) and 793.61 feet amsl (April 2009).
- 2 - Groundwater fluctuations in AR-2 have ranged between 797.48 feet amsl (November 2006) and 828.53 feet amsl (July 2011).
- 3 - The elevated groundwater fluctuations in Well-7, CAR-3, and AR-9 are due to the Circulating Water System piping leak near Cooling Tower 1.

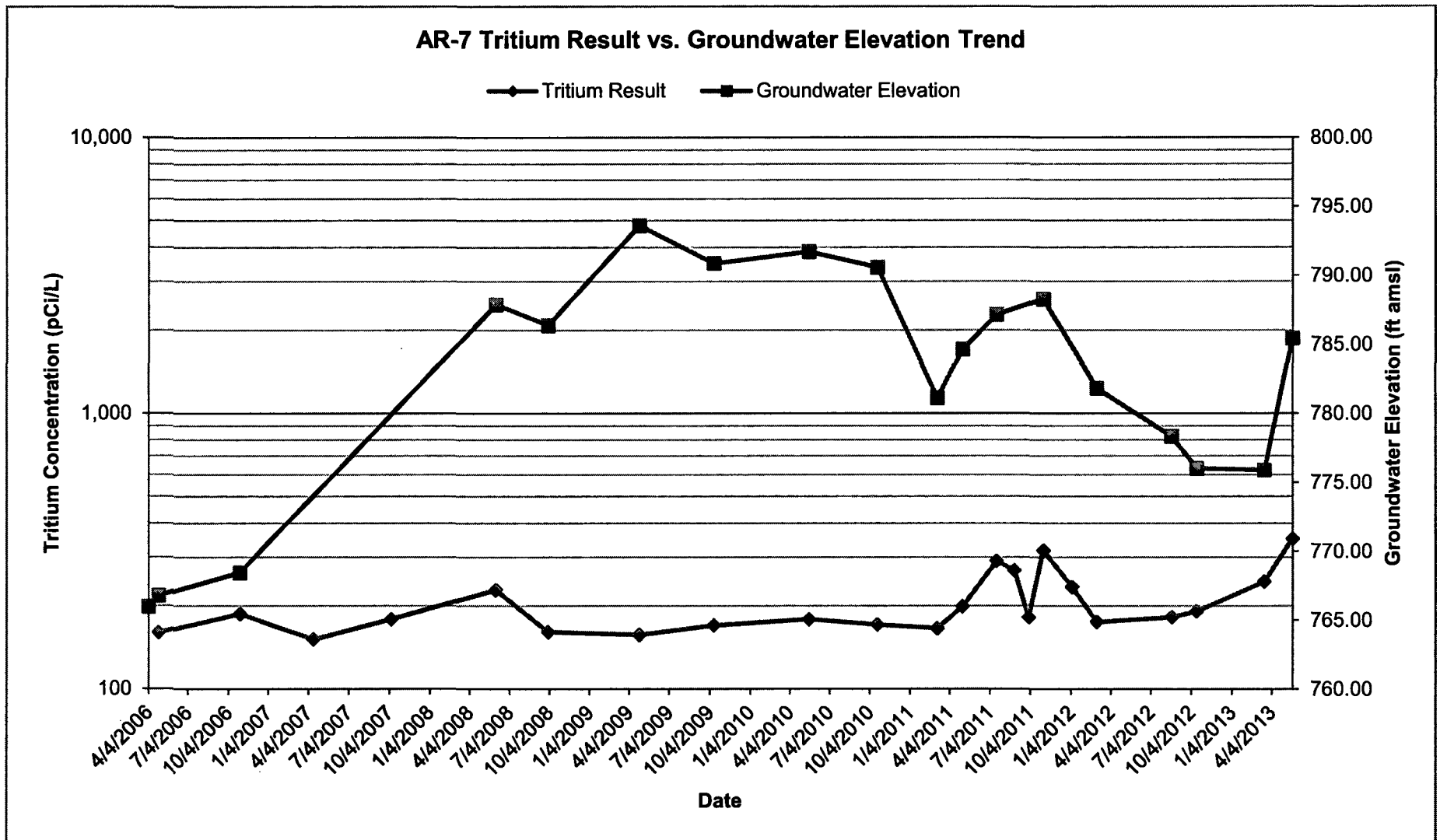
Notes:

- 1) All groundwater elevations presented in feet above mean sea level.
- 2) Change in groundwater elevation represents the difference in groundwater elevations between the 2nd quarter 2012 and 2nd quarter 2013 sampling rounds.

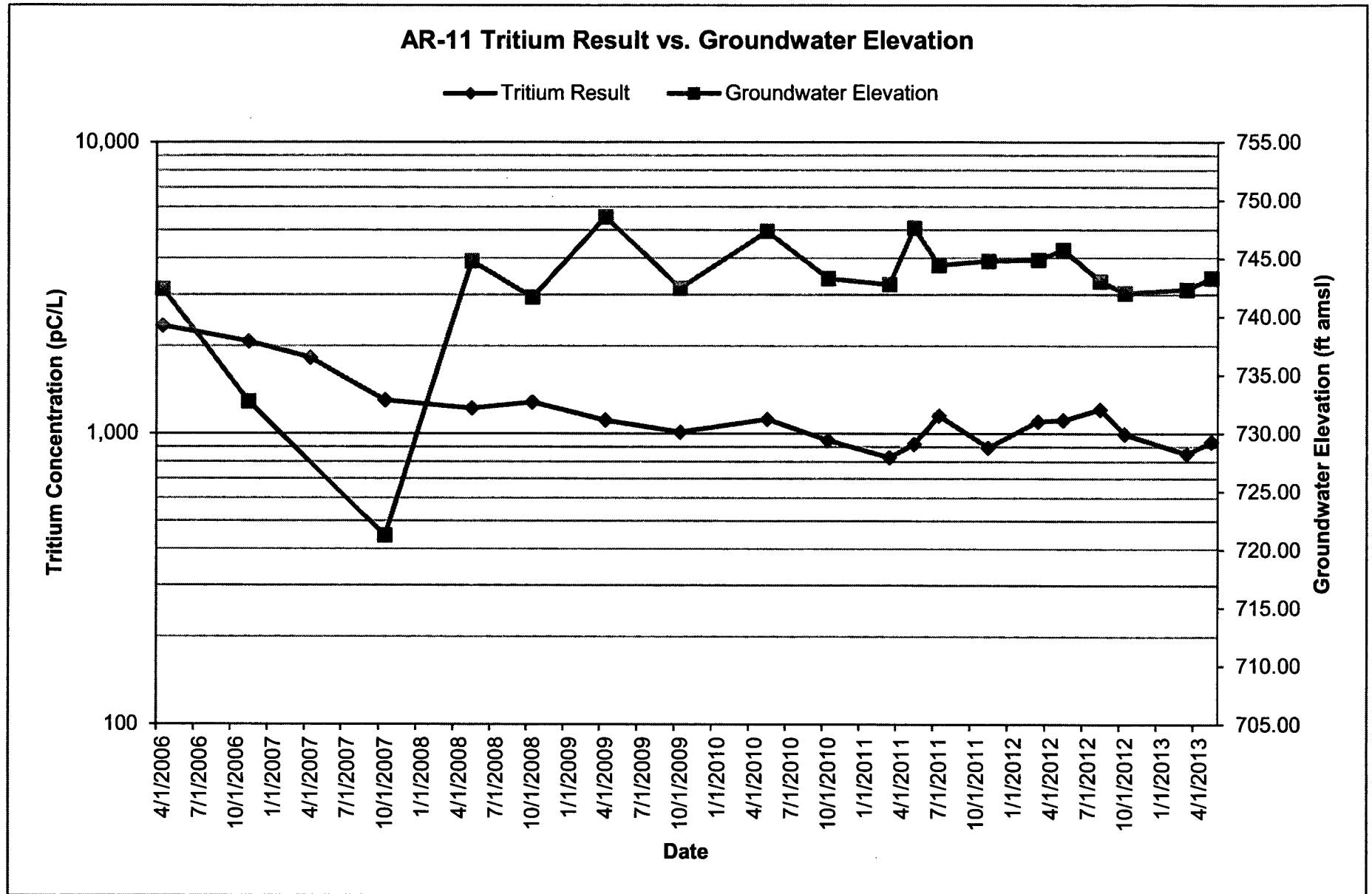
DRAFT



DRAFT



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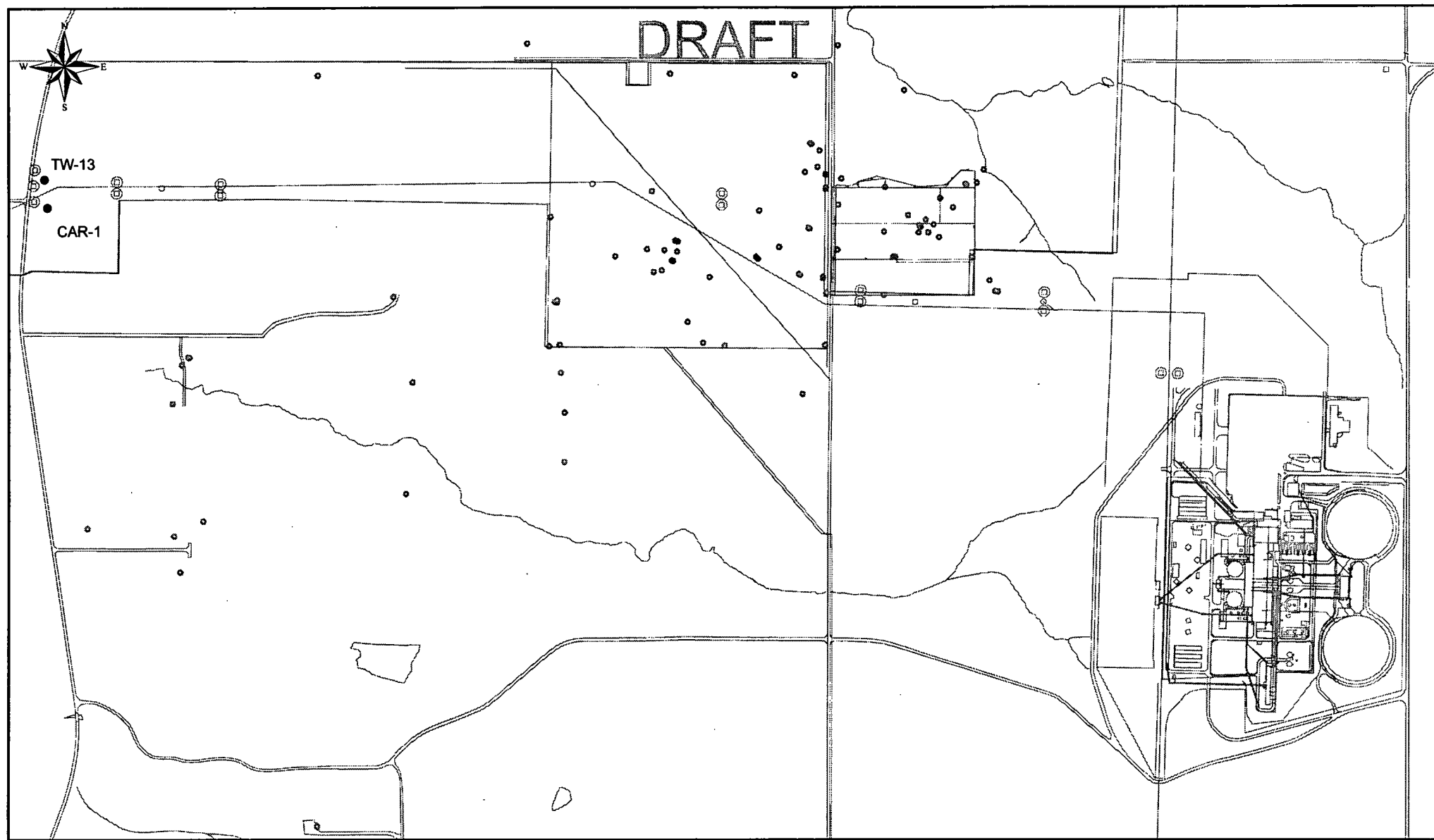
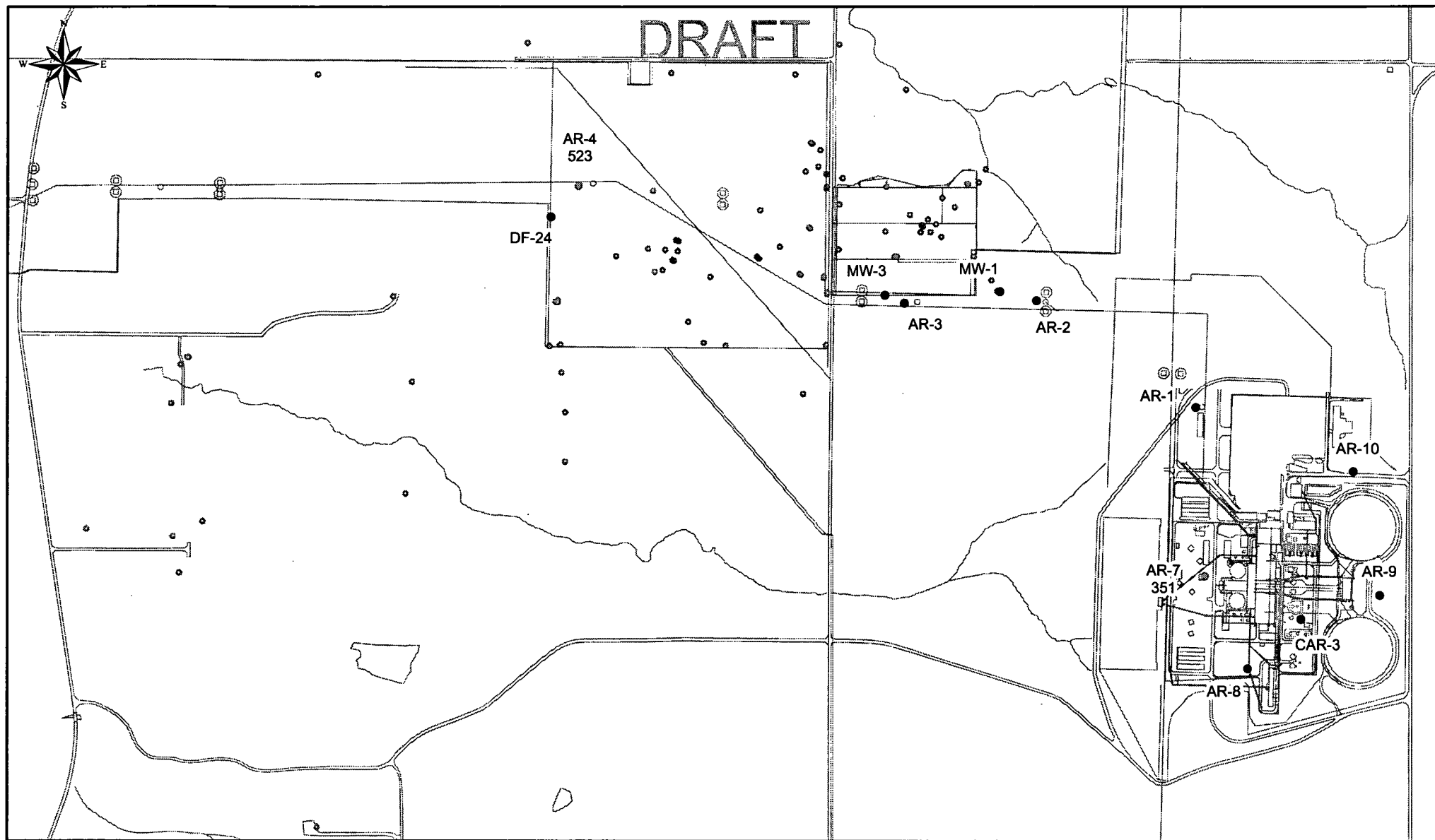


Figure 1a
2nd Quarter 2013 RGPP
Tritium Sample Locations
Overburden Aquifer
Exelon Corporation
Byron Generating Station

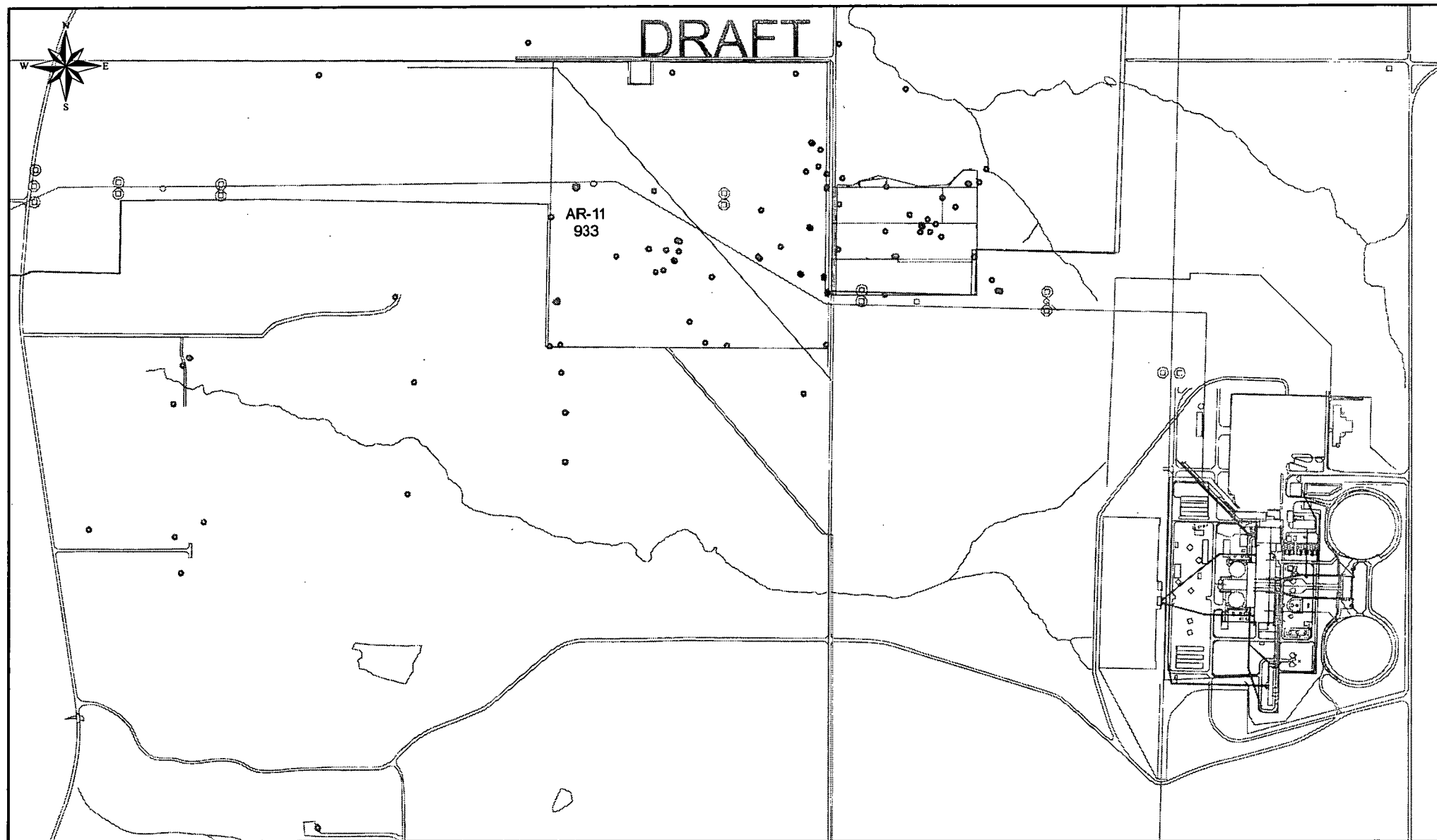


0 1,000 2,000
Feet

Explanation:

- Result 200 to 2,000 pCi/L
- Result < 200 pCi/L

Figure 1b
2nd Quarter 2013 RGPP
Tritium Sample Locations
Upper Galena-Platteville Formation
Exelon Corporation
Byron Generating Station

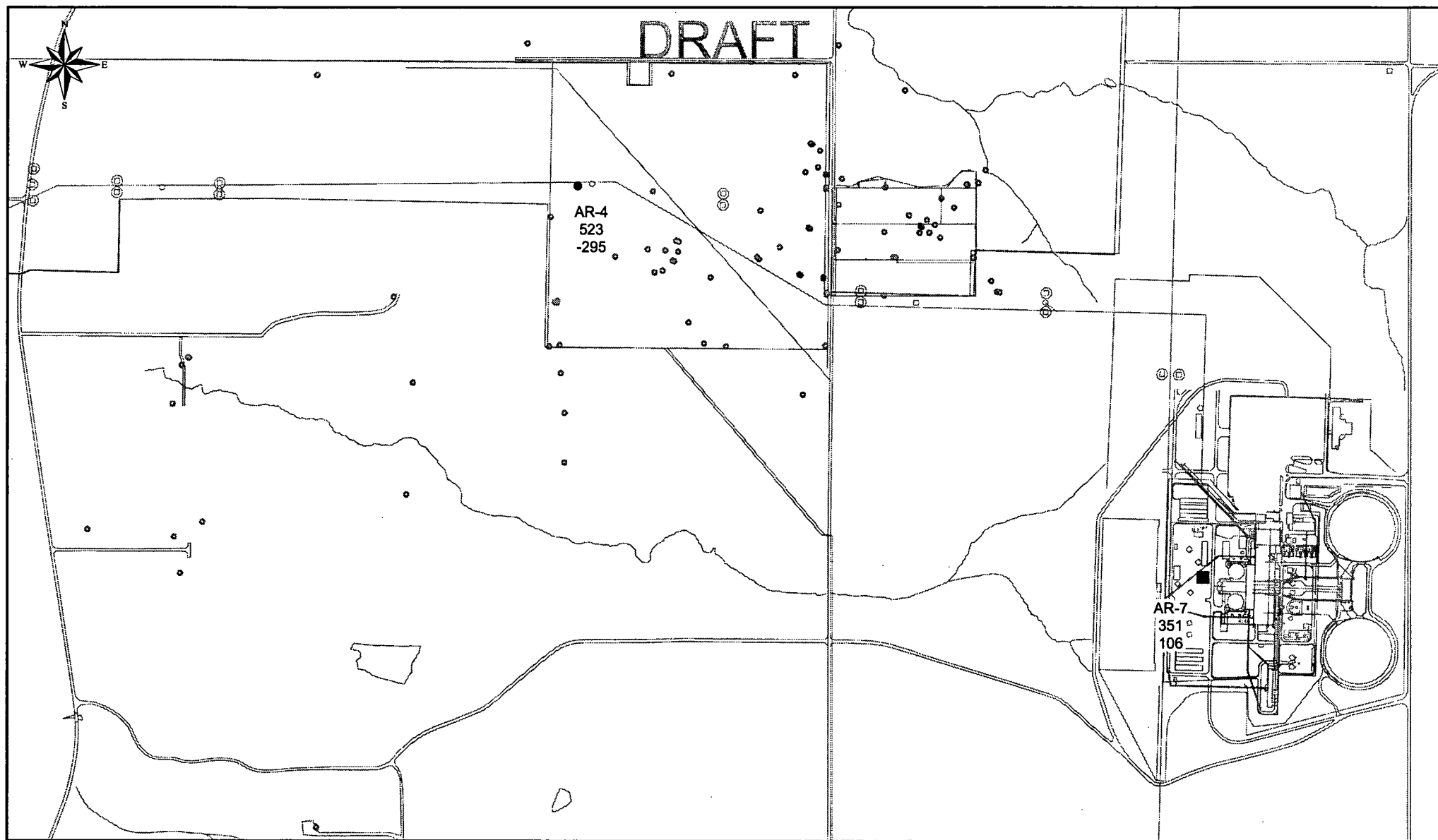


0 1,000 2,000
Feet

Explanation:

- Result 200 to 2,000 pCi/L
- AR-11 is the only Lower Galena-Platteville Formation well sampled as part of the RGPP

Figure 1c
2nd Quarter 2013 RGPP
Tritium Sample Locations
Lower Galena-Platteville Formation
Exelon Corporation
Byron Generating Station



0 1,000 2,000
Feet

Explanation:

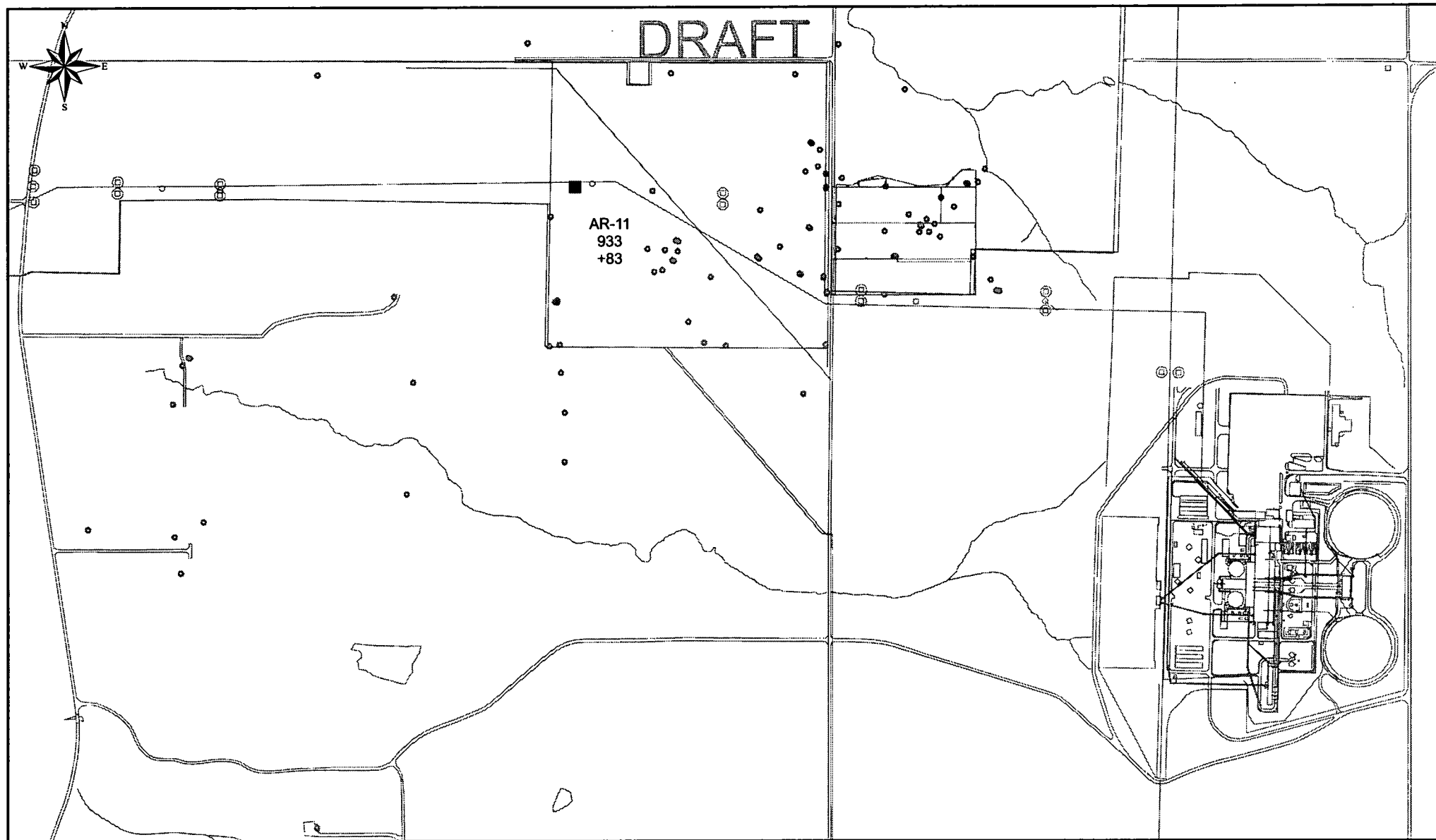
- Increase in Tritium Concentration
- Decrease in Tritium Concentration

523 - Tritium concentration presented in pico-curies per liter (pCi/L)

-295 - Difference in tritium concentration between the 1st quarter 2013 and 2nd quarter 2013 RGPP sampling rounds.

- Only sample locations with detected tritium concentrations greater than 200 pCi/L during the 1st quarter 2013 or 2nd quarter 2013 RGPP sampling rounds are depicted.

Figure 2a
2nd Quarter 2013 RGPP
Tritium Concentration Change
Upper Galena-Platteville Formation
Exelon Corporation
Byron Generating Station



Explanation:

- Increase in Tritium Concentration
- 933 - Tritium concentration presented in pico-curies per liter (pCi/L)
- +83 - Difference in tritium concentration between the 1st quarter 2013 and 2nd quarter 2013 RGPP sampling rounds.
- Only sample locations with detected tritium concentrations greater than 200 pCi/L during the 1st quarter 2013 or 2nd quarter 2013 RGPP sampling rounds are depicted.

Figure 2b
2nd Quarter 2013 RGPP
Tritium Concentration Change
Lower Galena-Platteville Formation
Exelon Corporation
Byron Generating Station

Sample ID	Sample Date	Result	Qual	Aquifer
TW-13	4/27/2006	157	U	Shallow Overburden
TW-13	4/27/2006	201	+	Shallow Overburden
TW-13	11/1/2006	186	U	Shallow Overburden
TW-13	4/20/2007	152	U	Shallow Overburden
TW-13	10/8/2007	171	U	Shallow Overburden
TW-13	5/28/2008	188	U	Shallow Overburden
TW-13	10/2/2008	164	U	Shallow Overburden
TW-13	4/29/2009	152	U	Shallow Overburden
TW-13	10/14/2009	151	U	Shallow Overburden
TW-13	5/19/2010	153	U	Shallow Overburden
TW-13	10/21/2010	161	U	Shallow Overburden
TW-13	5/9/2011	185	U	Shallow Overburden
TW-13	11/2/2011	181	U	Shallow Overburden
TW-13	5/16/2012	164	U	Shallow Overburden
TW-13	10/17/2012	159	U	Shallow Overburden
TW-13	5/22/2013	175	U	Shallow Overburden
TW-14	4/27/2006	153	U	Shallow Overburden
TW-14	11/1/2006	189	U	Shallow Overburden
TW-14	4/20/2007	154	U	Shallow Overburden
TW-14	10/8/2007	176	U	Shallow Overburden
TW-14	5/28/2008	186	U	Shallow Overburden
TW-14	10/2/2008	168	U	Shallow Overburden
TW-14	4/29/2009	Not Sampled	U	Shallow Overburden
TW-15	4/27/2006	159	U	Shallow Overburden
TW-15	11/1/2006	185	U	Shallow Overburden
TW-15	4/20/2007	156	U	Shallow Overburden
TW-15	10/8/2007	176	U	Shallow Overburden
TW-15	5/28/2008	186	U	Shallow Overburden
TW-15	10/2/2008	164	U	Shallow Overburden
TW-15	4/29/2009	Not Sampled	U	Shallow Overburden
CAR-1	4/27/2006	154	U	Upper Unconsolidated
CAR-1	11/1/2006	190	U	Upper Unconsolidated
CAR-1	4/20/2007	155	U	Upper Unconsolidated
CAR-1	10/8/2007	174	U	Upper Unconsolidated
CAR-1	5/28/2008	187	U	Upper Unconsolidated
CAR-1	10/1/2008	166	U	Upper Unconsolidated
CAR-1	4/29/2009	152	U	Upper Unconsolidated
CAR-1	10/14/2009	149	U	Upper Unconsolidated
CAR-1	5/17/2010	Not Sampled	U	Upper Unconsolidated
CAR-1	10/20/2010	157	U	Upper Unconsolidated
CAR-1	5/9/2011	191	U	Upper Unconsolidated
CAR-1	11/2/2011	184	U	Upper Unconsolidated
CAR-1	5/16/2012	168	U	Upper Unconsolidated
CAR-1	10/17/2012	159	U	Upper Unconsolidated
CAR-1	5/22/2013	179	U	Upper Unconsolidated
AR-1	4/26/2006	165	U	Upper Galena-Platteville
AR-1	11/1/2006	185	U	Upper Galena-Platteville
AR-1	4/20/2007	153	U	Upper Galena-Platteville
AR-1	10/8/2007	180	U	Upper Galena-Platteville
AR-1	6/2/2008	187	U	Upper Galena-Platteville
AR-1	9/30/2008	163	U	Upper Galena-Platteville
AR-1	4/27/2009	157	U	Upper Galena-Platteville
AR-1	10/15/2009	165	U	Upper Galena-Platteville
AR-1	5/17/2010	154	U	Upper Galena-Platteville
AR-1	10/22/2010	159	U	Upper Galena-Platteville
AR-1	3/7/2011	139	U	Upper Galena-Platteville
AR-1	5/3/2011	184	U	Upper Galena-Platteville
AR-1	7/19/2011	172	U	Upper Galena-Platteville
AR-1	11/2/2011	181	U	Upper Galena-Platteville
AR-1	3/6/2012	174	U	Upper Galena-Platteville
AR-1	5/14/2012	175	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-1	8/20/2012	170	U	Upper Galena-Platteville
AR-1	10/16/2012	173	U	Upper Galena-Platteville
AR-1	3/18/2013	191	U	Upper Galena-Platteville
AR-1	5/21/2013	170	U	Upper Galena-Platteville
AR-10	4/26/2006	185	U	Upper Galena-Platteville
AR-10	11/1/2006	188	U	Upper Galena-Platteville
AR-10	4/15/2007	156	U	Upper Galena-Platteville
AR-10	10/8/2007	178	+	Upper Galena-Platteville
AR-10	6/2/2008	189	U	Upper Galena-Platteville
AR-10	9/30/2008	160	U	Upper Galena-Platteville
AR-10	4/27/2009	155	U	Upper Galena-Platteville
AR-10	10/15/2009	194	U	Upper Galena-Platteville
AR-10	5/17/2010	157	U	Upper Galena-Platteville
AR-10	10/22/2010	160	U	Upper Galena-Platteville
AR-10	3/7/2011	174	U	Upper Galena-Platteville
AR-10	5/3/2011	184	U	Upper Galena-Platteville
AR-10	7/19/2011	171	U	Upper Galena-Platteville
AR-10	11/2/2011	189	U	Upper Galena-Platteville
AR-10	3/6/2012	173	U	Upper Galena-Platteville
AR-10	5/14/2012	174	U	Upper Galena-Platteville
AR-10	8/20/2012	173	U	Upper Galena-Platteville
AR-10	10/16/2012	172	U	Upper Galena-Platteville
AR-10	3/18/2013	187	U	Upper Galena-Platteville
AR-10	5/20/2013	173	U	Upper Galena-Platteville
AR-2	4/26/2006	432	+	Upper Galena-Platteville
AR-2	4/26/2006	527	+	Upper Galena-Platteville
AR-2	11/1/2006	492	+	Upper Galena-Platteville
AR-2	11/1/2006	413	+	Upper Galena-Platteville
AR-2	4/18/2007	548	+	Upper Galena-Platteville
AR-2	10/8/2007	383	+	Upper Galena-Platteville
AR-2	5/29/2008	186	U	Upper Galena-Platteville
AR-2	10/1/2008	169	U	Upper Galena-Platteville
AR-2	4/29/2009	152	U	Upper Galena-Platteville
AR-2	10/15/2009	152	U	Upper Galena-Platteville
AR-2	5/19/2010	160	U	Upper Galena-Platteville
AR-2	10/20/2010	163	U	Upper Galena-Platteville
AR-2	5/9/2011	183	U	Upper Galena-Platteville
AR-2	11/2/2011	183	U	Upper Galena-Platteville
AR-2	5/16/2012	169	U	Upper Galena-Platteville
AR-2	10/17/2012	157	U	Upper Galena-Platteville
AR-2	5/22/2013	166	U	Upper Galena-Platteville
AR-3	3/24/2006	214	+	Upper Galena-Platteville
AR-3	3/24/2006	160		Upper Galena-Platteville
AR-3	3/24/2006	271	+	Upper Galena-Platteville
AR-3	3/24/2006	198		Upper Galena-Platteville
AR-3	3/24/2006	207	+	Upper Galena-Platteville
AR-3	3/27/2006	459	+	Upper Galena-Platteville
AR-3	3/27/2006	346	+	Upper Galena-Platteville
AR-3	3/29/2006	372	+	Upper Galena-Platteville
AR-3	4/3/2006	489	+	Upper Galena-Platteville
AR-3	4/10/2006	351	+	Upper Galena-Platteville
AR-3	4/26/2006	389	+	Upper Galena-Platteville
AR-3	4/26/2006	234	+	Upper Galena-Platteville
AR-3	6/22/2006	224	+	Upper Galena-Platteville
AR-3	7/20/2006	225	+	Upper Galena-Platteville
AR-3	11/1/2006	253	+	Upper Galena-Platteville
AR-3	11/1/2006	190	U	Upper Galena-Platteville
AR-3	4/18/2007	327	+	Upper Galena-Platteville
AR-3	10/8/2007	965	+	Upper Galena-Platteville
AR-3	10/8/2007	1,110	+	Upper Galena-Platteville
AR-3	11/27/2007	1,180	+	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-3	1/8/2008	757	+	Upper Galena-Platteville
AR-3	5/29/2008	186	U	Upper Galena-Platteville
AR-3	10/1/2008	163	U	Upper Galena-Platteville
AR-3	4/29/2009	155	U	Upper Galena-Platteville
AR-3	10/14/2009	149	U	Upper Galena-Platteville
AR-3	5/19/2010	156	U	Upper Galena-Platteville
AR-3	10/20/2010	162	U	Upper Galena-Platteville
AR-3	3/7/2011	149	U	Upper Galena-Platteville
AR-3	5/9/2011	188	U	Upper Galena-Platteville
AR-3	7/20/2011	170	U	Upper Galena-Platteville
AR-3	11/2/2011	181	U	Upper Galena-Platteville
AR-3	3/7/2012	169	U	Upper Galena-Platteville
AR-3	5/16/2012	172	U	Upper Galena-Platteville
AR-3	8/15/2012	193	U	Upper Galena-Platteville
AR-3	10/17/2012	158	U	Upper Galena-Platteville
AR-3	3/20/2013	190	U	Upper Galena-Platteville
AR-3	5/22/2013	173	U	Upper Galena-Platteville
AR-4	4/27/2006	3,260	+	Upper Galena-Platteville
AR-4	4/27/2006	4,080	+	Upper Galena-Platteville
AR-4	11/21/2006	2,980	+	Upper Galena-Platteville
AR-4	11/21/2006	2,440	+	Upper Galena-Platteville
AR-4	11/21/2006	2,610	+	Upper Galena-Platteville
AR-4	11/21/2006	2,880	+	Upper Galena-Platteville
AR-4	5/1/2007	3,050	+	Upper Galena-Platteville
AR-4	10/10/2007	2,890	+	Upper Galena-Platteville
AR-4	5/28/2008	2,150	+	Upper Galena-Platteville
AR-4	10/1/2008	1,910	+	Upper Galena-Platteville
AR-4	4/29/2009	1,350	+	Upper Galena-Platteville
AR-4	10/15/2009	1,360	+	Upper Galena-Platteville
AR-4	5/19/2010	1,250	+	Upper Galena-Platteville
AR-4	10/21/2010	1,170	+	Upper Galena-Platteville
AR-4	3/7/2011	875	+	Upper Galena-Platteville
AR-4	5/9/2011	818	+	Upper Galena-Platteville
AR-4	7/20/2011	777	+	Upper Galena-Platteville
AR-4	11/2/2011	912	+	Upper Galena-Platteville
AR-4	3/7/2012	861	+	Upper Galena-Platteville
AR-4	5/16/2012	802	+	Upper Galena-Platteville
AR-4	8/15/2012	872	+	Upper Galena-Platteville
AR-4	10/17/2012	830	+	Upper Galena-Platteville
AR-4	3/20/2013	818	+	Upper Galena-Platteville
AR-4	5/22/2013	523	+	Upper Galena-Platteville
AR-5	4/27/2006	151	U	Upper Galena-Platteville
AR-5	11/21/2006	188	U	Upper Galena-Platteville
AR-5	4/21/2007	170	U	Upper Galena-Platteville
AR-5	10/10/2007	178	U	Upper Galena-Platteville
AR-5	5/28/2008	184	U	Upper Galena-Platteville
AR-5	10/1/2008	166	U	Upper Galena-Platteville
AR-5	4/29/2009	NA	U	Upper Galena-Platteville
AR-6	4/27/2006	153	U	Upper Galena-Platteville
AR-6	11/21/2006	190	U	Upper Galena-Platteville
AR-6	4/21/2007	169	U	Upper Galena-Platteville
AR-6	10/10/2007	179	U	Upper Galena-Platteville
AR-6	5/28/2008	188	U	Upper Galena-Platteville
AR-6	10/1/2008	171	U	Upper Galena-Platteville
AR-6	4/29/2009	NA	U	Upper Galena-Platteville
AR-7	4/27/2006	160	U	Upper Galena-Platteville
AR-7	10/30/2006	187	U	Upper Galena-Platteville
AR-7	4/15/2007	151	U	Upper Galena-Platteville
AR-7	10/8/2007	179	U	Upper Galena-Platteville
AR-7	6/2/2008	228	+	Upper Galena-Platteville
AR-7	9/30/2008	161	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-7	4/27/2009	157	U	Upper Galena-Platteville
AR-7	10/13/2009	170	U	Upper Galena-Platteville
AR-7	5/17/2010	179	+	Upper Galena-Platteville
AR-7	10/21/2010	171	U	Upper Galena-Platteville
AR-7	3/7/2011	166	U	Upper Galena-Platteville
AR-7	5/3/2011	199	+	Upper Galena-Platteville
AR-7	7/19/2011	291	+	Upper Galena-Platteville
AR-7	11/2/2011	318	+	Upper Galena-Platteville
AR-7	1/6/2012	234	+	Upper Galena-Platteville
AR-7	3/2/2012	175	U	Upper Galena-Platteville
AR-7	5/14/2012	200	U	Upper Galena-Platteville
AR-7	8/20/2012	182	+	Upper Galena-Platteville
AR-7	10/16/2012	191	+	Upper Galena-Platteville
AR-7	3/18/2013	245	+	Upper Galena-Platteville
AR-7	5/20/2013	351	+	Upper Galena-Platteville
AR-8	4/27/2006	161	U	Upper Galena-Platteville
AR-8	10/30/2006	192	U	Upper Galena-Platteville
AR-8	4/15/2007	152	U	Upper Galena-Platteville
AR-8	10/8/2007	180	U	Upper Galena-Platteville
AR-8	6/2/2008	185	U	Upper Galena-Platteville
AR-8	9/30/2008	169	U	Upper Galena-Platteville
AR-8	4/27/2009	151	U	Upper Galena-Platteville
AR-8	10/13/2009	163	U	Upper Galena-Platteville
AR-8	5/17/2010	150	U	Upper Galena-Platteville
AR-8	10/21/2010	163	U	Upper Galena-Platteville
AR-8	3/7/2011	155	U	Upper Galena-Platteville
AR-8	5/3/2011	187	U	Upper Galena-Platteville
AR-8	7/19/2011	173	U	Upper Galena-Platteville
AR-8	11/2/2011	185	U	Upper Galena-Platteville
AR-8	3/6/2012	171	U	Upper Galena-Platteville
AR-8	5/14/2012	172	U	Upper Galena-Platteville
AR-8	8/20/2012	173	U	Upper Galena-Platteville
AR-8	10/16/2012	174	U	Upper Galena-Platteville
AR-8	3/18/2013	189	U	Upper Galena-Platteville
AR-8	5/20/2013	178	U	Upper Galena-Platteville
AR-9	4/27/2006	155	U	Upper Galena-Platteville
AR-9	10/30/2006	191	U	Upper Galena-Platteville
AR-9	4/20/2007	155	U	Upper Galena-Platteville
AR-9	10/8/2007	178	U	Upper Galena-Platteville
AR-9	6/2/2008	189	U	Upper Galena-Platteville
AR-9	9/30/2008	164	U	Upper Galena-Platteville
AR-9	4/27/2009	153	U	Upper Galena-Platteville
AR-9	10/13/2009	182	U	Upper Galena-Platteville
AR-9	5/17/2010	150	U	Upper Galena-Platteville
AR-9	10/22/2010	161	U	Upper Galena-Platteville
AR-9	3/7/2011	182	U	Upper Galena-Platteville
AR-9	5/3/2011	184	U	Upper Galena-Platteville
AR-9	7/19/2011	171	U	Upper Galena-Platteville
AR-9	11/2/2011	189	U	Upper Galena-Platteville
AR-9	3/6/2012	172	U	Upper Galena-Platteville
AR-9	5/14/2012	173	U	Upper Galena-Platteville
AR-9	8/20/2012	171	U	Upper Galena-Platteville
AR-9	10/16/2012	171	U	Upper Galena-Platteville
AR-9	3/18/2013	192	U	Upper Galena-Platteville
AR-9	5/21/2013	177	U	Upper Galena-Platteville
CAR-2	4/27/2006	159	U	Upper Galena-Platteville
CAR-2	11/2/2006	187	U	Upper Galena-Platteville
CAR-2	4/20/2007	152	U	Upper Galena-Platteville
CAR-2	10/8/2007	175	U	Upper Galena-Platteville
CAR-2	5/28/2008	191	U	Upper Galena-Platteville
CAR-2	10/1/2008	158	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
CAR-2	4/29/2009	NA	U	Upper Galena-Platteville
CAR-3	4/27/2006	150	U	Upper Galena-Platteville
CAR-3	10/30/2006	198	U	Upper Galena-Platteville
CAR-3	4/15/2007	157	U	Upper Galena-Platteville
CAR-3	10/8/2007	178	U	Upper Galena-Platteville
CAR-3	6/2/2008	185	U	Upper Galena-Platteville
CAR-3	9/30/2008	167	U	Upper Galena-Platteville
CAR-3	4/27/2009	153	U	Upper Galena-Platteville
CAR-3	10/13/2009	191	U	Upper Galena-Platteville
CAR-3	5/17/2010	158	U	Upper Galena-Platteville
CAR-3	10/21/2010	160	U	Upper Galena-Platteville
CAR-3	3/7/2011	151	U	Upper Galena-Platteville
CAR-3	5/3/2011	184	U	Upper Galena-Platteville
CAR-3	7/19/2011	170	U	Upper Galena-Platteville
CAR-3	11/2/2011	166	U	Upper Galena-Platteville
CAR-3	3/6/2012	171	U	Upper Galena-Platteville
CAR-3	5/14/2012	174	U	Upper Galena-Platteville
CAR-3	8/20/2012	172	U	Upper Galena-Platteville
CAR-3	10/16/2012	175	U	Upper Galena-Platteville
CAR-3	3/18/2013	188	U	Upper Galena-Platteville
CAR-3	5/20/2013	171	U	Upper Galena-Platteville
DF-13	4/26/2006	158	U	Upper Galena-Platteville
DF-19	4/25/2006	187	U	Upper Galena-Platteville
DF-1S	4/25/2006	185	U	Upper Galena-Platteville
DF-24	4/26/2006	162	U	Upper Galena-Platteville
DF-24	11/21/2006	191	U	Upper Galena-Platteville
DF-24	4/19/2007	170	U	Upper Galena-Platteville
DF-24	10/10/2007	179	U	Upper Galena-Platteville
DF-24	5/28/2008	188	U	Upper Galena-Platteville
DF-24	10/1/2008	167	U	Upper Galena-Platteville
DF-24	4/29/2009	154	U	Upper Galena-Platteville
DF-24	10/14/2009	170	U	Upper Galena-Platteville
DF-24	5/19/2010	157	U	Upper Galena-Platteville
DF-24	10/21/2010	157	U	Upper Galena-Platteville
DF-24	3/7/2011	152	U	Upper Galena-Platteville
DF-24	5/9/2011	185	U	Upper Galena-Platteville
DF-24	7/20/2011	170	U	Upper Galena-Platteville
DF-24	11/2/2011	184	U	Upper Galena-Platteville
DF-24	3/7/2012	173	U	Upper Galena-Platteville
DF-24	5/16/2012	167	U	Upper Galena-Platteville
DF-24	8/15/2012	194	U	Upper Galena-Platteville
DF-24	10/17/2012	158	U	Upper Galena-Platteville
DF-24	3/20/2013	187	U	Upper Galena-Platteville
DF-24	5/22/2013	178	U	Upper Galena-Platteville
DF-2S	4/25/2006	186	U	Upper Galena-Platteville
DF-3S	4/25/2006	190	U	Upper Galena-Platteville
DF-4DS	4/25/2006	191	U	Upper Galena-Platteville
GW-9	4/28/2006	159	U	Upper Galena-Platteville
GW-9	11/21/2006	190	U	Upper Galena-Platteville
GW-9	4/21/2007	168	U	Upper Galena-Platteville
GW-9	10/10/2007	175	U	Upper Galena-Platteville
GW-9	5/29/2008	181	U	Upper Galena-Platteville
GW-9	10/2/2008	163	U	Upper Galena-Platteville
GW-9	4/29/2009	NA	U	Upper Galena-Platteville
MW-1	4/26/2006	189	U	Upper Galena-Platteville
MW-1	11/1/2006	186	U	Upper Galena-Platteville
MW-1	4/19/2007	149	U	Upper Galena-Platteville
MW-1	10/8/2007	176	U	Upper Galena-Platteville
MW-1	5/29/2008	186	U	Upper Galena-Platteville
MW-1	10/1/2008	172	U	Upper Galena-Platteville
MW-1	4/29/2009	NA	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
MW-1	5/16/2012	167	U	Upper Galena-Platteville
MW-1	10/17/2012	160	U	Upper Galena-Platteville
MW-1	5/22/2013	181	U	Upper Galena-Platteville
MW-3	4/26/2006	182	U	Upper Galena-Platteville
MW-3	11/1/2006	186	U	Upper Galena-Platteville
MW-3	4/19/2007	158	U	Upper Galena-Platteville
MW-3	10/8/2007	177	U	Upper Galena-Platteville
MW-3	5/29/2008	186	U	Upper Galena-Platteville
MW-3	10/1/2008	Dry		Upper Galena-Platteville
MW-3	5/16/2012	163	U	Upper Galena-Platteville
MW-3	10/17/2012	157	U	Upper Galena-Platteville
MW-3	5/22/2013	180	U	Upper Galena-Platteville
MW-30	4/28/2006	160	U	Upper Galena-Platteville
PC-1B	4/26/2006	161	U	Upper Galena-Platteville
PC-2B	4/25/2006	175	U	Upper Galena-Platteville
PC-5B	4/26/2006	165	U	Upper Galena-Platteville
PC-6B	4/26/2006	165	U	Upper Galena-Platteville
WELL-7	4/27/2006	164	U	Upper Galena-Platteville
WELL-7	4/27/2006	159	U	Upper Galena-Platteville
WELL-7	10/10/2007	189	U	Upper Galena-Platteville
WELL-7	5/29/2008	186	U	Upper Galena-Platteville
WELL-7	10/2/2008	150	U	Upper Galena-Platteville
WELL-7	4/29/2009	NA	U	Upper Galena-Platteville
AR-11	4/26/2006	2,340	+	Lower Galena-Platteville
AR-11	11/21/2006	1,780	+	Lower Galena-Platteville
AR-11	11/21/2006	1,710	+	Lower Galena-Platteville
AR-11	11/21/2006	2,070	+	Lower Galena-Platteville
AR-11	11/21/2006	1,860	+	Lower Galena-Platteville
AR-11	4/23/2007	1,820	+	Lower Galena-Platteville
AR-11	10/10/2007	1,300	+	Lower Galena-Platteville
AR-11	5/28/2008	1,220	+	Lower Galena-Platteville
AR-11	10/1/2008	1,280	+	Lower Galena-Platteville
AR-11	4/29/2009	1,110	+	Lower Galena-Platteville
AR-11	10/15/2009	1,010	+	Lower Galena-Platteville
AR-11	5/20/2010	1,120	+	Lower Galena-Platteville
AR-11	10/21/2010	947	+	Lower Galena-Platteville
AR-11	3/7/2011	827	+	Lower Galena-Platteville
AR-11	5/9/2011	919	+	Lower Galena-Platteville
AR-11	7/20/2011	1,150	+	Lower Galena-Platteville
AR-11	11/2/2011	894	+	Lower Galena-Platteville
AR-11	3/7/2012	1,100	+	Lower Galena-Platteville
AR-11	5/16/2012	1,110	+	Lower Galena-Platteville
AR-11	8/15/2012	1,210	+	Lower Galena-Platteville
AR-11	10/17/2012	994	+	Lower Galena-Platteville
AR-11	3/20/2013	850	+	Lower Galena-Platteville
AR-11	5/22/2013	933	+	Lower Galena-Platteville
DF-12	4/25/2006	175	U	Lower Galena-Platteville
DF-1D	4/25/2006	176	U	Lower Galena-Platteville
DF-6	4/25/2006	176	U	Lower Galena-Platteville
MW-36	4/25/2006	176	U	Lower Galena-Platteville
MW-2	4/27/2006	157	U	St. Peter Sandstone
MW-37	4/26/2006	158	U	St. Peter Sandstone
MW-39	4/26/2006	158	U	St. Peter Sandstone
PC-1C	4/26/2006	164	U	St. Peter Sandstone

All concentrations presented in pico-curies per liter.

Explanation:

2,340 - Bold concentrations represent exceedences of the Lower Limit of Detection of 200 pico-curies per liter.

U - Tritium not detected above the laboratory detection limit.

+- Tritium detected above the laboratory detection limit.

Sample Location	Sample Date	Groundwater Elevation	Aquifer
DF-7S	4/24/2006	Not Measured	Shallow Overburden
TW-13	4/27/2006	683.36	Shallow Overburden
TW-13	11/1/2006	683.05	Shallow Overburden
TW-13	4/20/2007	Not Measured	Shallow Overburden
TW-13	10/8/2007	682.84	Shallow Overburden
TW-13	5/28/2008	683.86	Shallow Overburden
TW-13	9/29/2008	683.57	Shallow Overburden
TW-13	4/29/2009	684.26	Shallow Overburden
TW-13	10/14/2009	683.38	Shallow Overburden
TW-13	5/17/2010	684.22	Shallow Overburden
TW-13	10/21/2010	683.27	Shallow Overburden
TW-13	3/8/2011	683.70	Shallow Overburden
TW-13	5/9/2011	682.83	Shallow Overburden
TW-13	7/20/2011	683.26	Shallow Overburden
TW-13	11/2/2011	682.97	Shallow Overburden
TW-13	3/7/2012	683.20	Shallow Overburden
TW-13	5/16/2012	683.26	Shallow Overburden
TW-13	8/15/2012	682.86	Shallow Overburden
TW-13	10/17/2012	682.86	Shallow Overburden
TW-13	3/18/2013	683.19	Shallow Overburden
TW-13	5/22/2013	683.72	Shallow Overburden
TW-14	4/27/2006	672.93	Shallow Overburden
TW-14	11/1/2006	672.11	Shallow Overburden
TW-14	4/20/2007	Not Measured	Shallow Overburden
TW-14	10/8/2007	672.41	Shallow Overburden
TW-14	5/28/2008	674.46	Shallow Overburden
TW-14	9/29/2008	672.71	Shallow Overburden
TW-14	4/29/2009	677.15	Shallow Overburden
TW-14	10/14/2009	672.39	Shallow Overburden
TW-14	5/17/2010	676.96	Shallow Overburden
TW-14	10/21/2010	672.05	Shallow Overburden
TW-14	3/8/2011	674.55	Shallow Overburden
TW-14	5/7/2011	675.10	Shallow Overburden
TW-14	7/20/2011	672.00	Shallow Overburden
TW-14	11/2/2011	671.66	Shallow Overburden
TW-15	4/27/2006	672.89	Shallow Overburden
TW-15	11/1/2006	672.01	Shallow Overburden
TW-15	4/20/2007	Not Measured	Shallow Overburden
TW-15	10/8/2007	672.48	Shallow Overburden
TW-15	5/28/2008	674.46	Shallow Overburden
TW-15	9/29/2008	672.73	Shallow Overburden
TW-15	4/29/2009	677.12	Shallow Overburden
TW-15	10/14/2009	672.38	Shallow Overburden
TW-15	5/17/2010	676.93	Shallow Overburden
TW-15	10/21/2010	672.03	Shallow Overburden
TW-15	3/8/2011	674.53	Shallow Overburden
TW-15	5/7/2011	675.05	Shallow Overburden
TW-15	7/20/2011	671.97	Shallow Overburden
TW-15	11/2/2011	671.63	Shallow Overburden
DF-7D	4/24/2006	675.08	Middle Unconsolidated
CAR-1	3/23/2006	672.22	Upper Unconsolidated
CAR-1	4/4/2006	672.20	Upper Unconsolidated
CAR-1	4/27/2006	672.63	Upper Unconsolidated
CAR-1	11/1/2006	671.92	Upper Unconsolidated
CAR-1	4/20/2007	Not Measured	Upper Unconsolidated
CAR-1	10/8/2007	667.37	Upper Unconsolidated
CAR-1	5/28/2008	673.79	Upper Unconsolidated
CAR-1	9/29/2008	672.37	Upper Unconsolidated
CAR-1	4/29/2009	675.99	Upper Unconsolidated

Sample Location	Sample Date	Groundwater Elevation	Aquifer
CAR-1	10/14/2009	672.00	Upper Unconsolidated
CAR-1	5/17/2010	675.82	Upper Unconsolidated
CAR-1	10/20/2010	671.70	Upper Unconsolidated
CAR-1	3/8/2011	674.06	Upper Unconsolidated
CAR-1	5/9/2011	674.10	Upper Unconsolidated
CAR-1	7/20/2011	671.60	Upper Unconsolidated
CAR-1	11/2/2011	671.41	Upper Unconsolidated
CAR-1	3/7/2012	672.48	Upper Unconsolidated
CAR-1	5/16/2012	672.40	Upper Unconsolidated
CAR-1	8/15/2012	670.69	Upper Unconsolidated
CAR-1	10/17/2012	670.70	Upper Unconsolidated
CAR-1	3/18/2013	674.55	Upper Unconsolidated
CAR-1	5/22/2013	673.92	Upper Unconsolidated
AR-1	3/23/2006	831.40	Upper Galena-Platteville
AR-1	4/4/2006	831.38	Upper Galena-Platteville
AR-1	4/26/2006	835.94	Upper Galena-Platteville
AR-1	11/1/2006	833.22	Upper Galena-Platteville
AR-1	4/20/2007	Not Measured	Upper Galena-Platteville
AR-1	6/2/2008	837.43	Upper Galena-Platteville
AR-1	9/29/2008	838.69	Upper Galena-Platteville
AR-1	4/29/2009	837.55	Upper Galena-Platteville
AR-1	10/13/2009	836.24	Upper Galena-Platteville
AR-1	5/17/2010	834.98	Upper Galena-Platteville
AR-1	10/22/2010	832.90	Upper Galena-Platteville
AR-1	3/7/2011	832.92	Upper Galena-Platteville
AR-1	5/9/2011	835.71	Upper Galena-Platteville
AR-1	7/19/2011	834.28	Upper Galena-Platteville
AR-1	11/2/2011	834.07	Upper Galena-Platteville
AR-1	3/6/2012	830.95	Upper Galena-Platteville
AR-1	5/14/2012	832.14	Upper Galena-Platteville
AR-1	8/20/2012	829.59	Upper Galena-Platteville
AR-1	10/16/2012	828.57	Upper Galena-Platteville
AR-1	3/18/2013	831.09	Upper Galena-Platteville
AR-1	5/22/2013	835.99	Upper Galena-Platteville
AR-10	4/26/2006	837.66	Upper Galena-Platteville
AR-10	11/1/2006	837.45	Upper Galena-Platteville
AR-10	4/15/2007	Not Measured	Upper Galena-Platteville
AR-10	6/2/2008	842.97	Upper Galena-Platteville
AR-10	9/29/2008	842.13	Upper Galena-Platteville
AR-10	10/1/2008	842.13	Upper Galena-Platteville
AR-10	4/29/2009	843.90	Upper Galena-Platteville
AR-10	10/13/2009	842.30	Upper Galena-Platteville
AR-10	5/17/2010	843.01	Upper Galena-Platteville
AR-10	10/22/2010	841.06	Upper Galena-Platteville
AR-10	3/7/2011	839.44	Upper Galena-Platteville
AR-10	5/9/2011	841.10	Upper Galena-Platteville
AR-10	7/19/2011	840.75	Upper Galena-Platteville
AR-10	11/2/2011	839.52	Upper Galena-Platteville
AR-10	3/6/2012	838.61	Upper Galena-Platteville
AR-10	5/14/2012	838.90	Upper Galena-Platteville
AR-10	8/20/2012	837.04	Upper Galena-Platteville
AR-10	10/16/2012	836.40	Upper Galena-Platteville
AR-10	3/18/2013	835.76	Upper Galena-Platteville
AR-10	5/22/2013	840.64	Upper Galena-Platteville
AR-2	3/23/2006	798.68	Upper Galena-Platteville
AR-2	4/4/2006	798.31	Upper Galena-Platteville
AR-2	4/26/2006	798.50	Upper Galena-Platteville
AR-2	11/1/2006	797.48	Upper Galena-Platteville
AR-2	4/18/2007	Not Measured	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-2	10/8/2007	803.96	Upper Galena-Platteville
AR-2	5/29/2008	812.58	Upper Galena-Platteville
AR-2	9/29/2008	811.18	Upper Galena-Platteville
AR-2	4/29/2009	818.53	Upper Galena-Platteville
AR-2	10/13/2009	812.98	Upper Galena-Platteville
AR-2	5/17/2010	818.47	Upper Galena-Platteville
AR-2	10/20/2010	815.67	Upper Galena-Platteville
AR-2	3/7/2011	809.56	Upper Galena-Platteville
AR-2	5/9/2011	817.03	Upper Galena-Platteville
AR-2	7/20/2011	828.53	Upper Galena-Platteville
AR-2	11/2/2011	813.87	Upper Galena-Platteville
AR-2	3/7/2012	809.18	Upper Galena-Platteville
AR-2	5/16/2012	824.77	Upper Galena-Platteville
AR-2	8/15/2012	816.79	Upper Galena-Platteville
AR-2	10/17/2012	817.16	Upper Galena-Platteville
AR-2	3/18/2013	808.18	Upper Galena-Platteville
AR-2	5/22/2013	812.10	Upper Galena-Platteville
AR-3	3/23/2006	798.16	Upper Galena-Platteville
AR-3	4/4/2006	797.49	Upper Galena-Platteville
AR-3	4/26/2006	796.87	Upper Galena-Platteville
AR-3	11/1/2006	796.14	Upper Galena-Platteville
AR-3	4/18/2007	Not Measured	Upper Galena-Platteville
AR-3	10/8/2007	802.31	Upper Galena-Platteville
AR-3	5/29/2008	804.84	Upper Galena-Platteville
AR-3	9/29/2008	803.14	Upper Galena-Platteville
AR-3	4/29/2009	806.32	Upper Galena-Platteville
AR-3	10/14/2009	804.10	Upper Galena-Platteville
AR-3	5/17/2010	805.29	Upper Galena-Platteville
AR-3	10/20/2010	804.62	Upper Galena-Platteville
AR-3	3/7/2011	807.64	Upper Galena-Platteville
AR-3	5/9/2011	804.49	Upper Galena-Platteville
AR-3	7/20/2011	805.32	Upper Galena-Platteville
AR-3	11/2/2011	803.72	Upper Galena-Platteville
AR-3	3/7/2012	803.41	Upper Galena-Platteville
AR-3	5/16/2012	803.73	Upper Galena-Platteville
AR-3	8/15/2012	803.14	Upper Galena-Platteville
AR-3	10/17/2012	802.79	Upper Galena-Platteville
AR-3	3/18/2013	802.38	Upper Galena-Platteville
AR-3	5/22/2013	804.10	Upper Galena-Platteville
AR-4	4/27/2006	742.74	Upper Galena-Platteville
AR-4	11/21/2006	740.67	Upper Galena-Platteville
AR-4	4/23/2007	Not Measured	Upper Galena-Platteville
AR-4	10/10/2007	744.24	Upper Galena-Platteville
AR-4	5/28/2008	748.14	Upper Galena-Platteville
AR-4	9/29/2008	744.64	Upper Galena-Platteville
AR-4	4/29/2009	753.48	Upper Galena-Platteville
AR-4	10/15/2009	745.02	Upper Galena-Platteville
AR-4	5/17/2010	751.73	Upper Galena-Platteville
AR-4	10/21/2010	743.84	Upper Galena-Platteville
AR-4	3/7/2011	743.54	Upper Galena-Platteville
AR-4	5/9/2011	749.44	Upper Galena-Platteville
AR-4	7/20/2011	745.27	Upper Galena-Platteville
AR-4	11/2/2011	743.37	Upper Galena-Platteville
AR-4	3/7/2012	743.47	Upper Galena-Platteville
AR-4	5/16/2012	744.84	Upper Galena-Platteville
AR-4	8/15/2012	741.62	Upper Galena-Platteville
AR-4	10/17/2012	740.53	Upper Galena-Platteville
AR-4	3/18/2013	740.94	Upper Galena-Platteville
AR-4	5/22/2013	746.57	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-5	3/23/2006	687.90	Upper Galena-Platteville
AR-5	4/4/2006	689.06	Upper Galena-Platteville
AR-5	4/27/2006	688.08	Upper Galena-Platteville
AR-5	11/21/2006	687.75	Upper Galena-Platteville
AR-5	4/21/2007	Not Measured	Upper Galena-Platteville
AR-5	10/10/2007	687.42	Upper Galena-Platteville
AR-5	5/28/2008	689.00	Upper Galena-Platteville
AR-5	9/29/2008	688.20	Upper Galena-Platteville
AR-5	4/28/2009	690.95	Upper Galena-Platteville
AR-5	10/14/2009	688.48	Upper Galena-Platteville
AR-5	5/17/2010	690.67	Upper Galena-Platteville
AR-5	10/20/2010	688.29	Upper Galena-Platteville
AR-5	3/7/2011	689.40	Upper Galena-Platteville
AR-5	5/7/2011	690.12	Upper Galena-Platteville
AR-5	7/20/2011	688.35	Upper Galena-Platteville
AR-5	11/2/2011	687.94	Upper Galena-Platteville
AR-6	3/23/2006	674.47	Upper Galena-Platteville
AR-6	4/4/2006	674.68	Upper Galena-Platteville
AR-6	4/27/2006	675.00	Upper Galena-Platteville
AR-6	11/21/2006	674.75	Upper Galena-Platteville
AR-6	4/21/2007	Not Measured	Upper Galena-Platteville
AR-6	10/10/2007	675.22	Upper Galena-Platteville
AR-6	5/28/2008	676.65	Upper Galena-Platteville
AR-6	9/29/2008	675.70	Upper Galena-Platteville
AR-6	4/28/2009	678.55	Upper Galena-Platteville
AR-6	10/14/2009	675.45	Upper Galena-Platteville
AR-6	5/17/2010	679.35	Upper Galena-Platteville
AR-6	10/20/2010	675.29	Upper Galena-Platteville
AR-6	3/7/2011	676.60	Upper Galena-Platteville
AR-6	5/7/2011	677.34	Upper Galena-Platteville
AR-6	7/20/2011	675.26	Upper Galena-Platteville
AR-6	11/2/2011	674.87	Upper Galena-Platteville
AR-7	4/4/2006	765.96	Upper Galena-Platteville
AR-7	4/27/2006	766.74	Upper Galena-Platteville
AR-7	10/30/2006	768.42	Upper Galena-Platteville
AR-7	4/15/2007	Not Measured	Upper Galena-Platteville
AR-7	6/2/2008	787.88	Upper Galena-Platteville
AR-7	9/29/2008	786.38	Upper Galena-Platteville
AR-7	10/1/2008	786.38	Upper Galena-Platteville
AR-7	4/29/2009	793.61	Upper Galena-Platteville
AR-7	10/13/2009	790.87	Upper Galena-Platteville
AR-7	5/17/2010	791.71	Upper Galena-Platteville
AR-7	10/21/2010	790.58	Upper Galena-Platteville
AR-7	3/7/2011	781.11	Upper Galena-Platteville
AR-7	5/9/2011	784.63	Upper Galena-Platteville
AR-7	7/19/2011	787.14	Upper Galena-Platteville
AR-7	11/2/2011	788.26	Upper Galena-Platteville
AR-7	3/2/2012	781.82	Upper Galena-Platteville
AR-7	5/14/2012	782.14	Upper Galena-Platteville
AR-7	8/20/2012	778.32	Upper Galena-Platteville
AR-7	10/16/2012	776.00	Upper Galena-Platteville
AR-7	3/18/2013	775.88	Upper Galena-Platteville
AR-7	5/22/2013	785.43	Upper Galena-Platteville
AR-8	4/4/2006	816.14	Upper Galena-Platteville
AR-8	4/27/2006	838.55	Upper Galena-Platteville
AR-8	10/30/2006	836.86	Upper Galena-Platteville
AR-8	4/15/2007	Not Measured	Upper Galena-Platteville
AR-8	6/2/2008	848.56	Upper Galena-Platteville
AR-8	9/29/2008	851.66	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-8	4/29/2009	Not Measured	Upper Galena-Platteville
AR-8	10/13/2009	851.76	Upper Galena-Platteville
AR-8	5/17/2010	847.98	Upper Galena-Platteville
AR-8	10/21/2010	847.71	Upper Galena-Platteville
AR-8	3/7/2011	840.64	Upper Galena-Platteville
AR-8	5/9/2011	842.76	Upper Galena-Platteville
AR-8	7/19/2011	844.45	Upper Galena-Platteville
AR-8	11/2/2011	845.01	Upper Galena-Platteville
AR-8	3/6/2012	839.10	Upper Galena-Platteville
AR-8	5/14/2012	839.24	Upper Galena-Platteville
AR-8	8/20/2012	835.79	Upper Galena-Platteville
AR-8	10/16/2012	833.30	Upper Galena-Platteville
AR-8	3/18/2013	835.11	Upper Galena-Platteville
AR-8	5/22/2013	843.20	Upper Galena-Platteville
AR-9	4/27/2006	850.40	Upper Galena-Platteville
AR-9	10/30/2006	819.21	Upper Galena-Platteville
AR-9	4/20/2007	Not Measured	Upper Galena-Platteville
AR-9	6/2/2008	830.88	Upper Galena-Platteville
AR-9	9/29/2008	831.12	Upper Galena-Platteville
AR-9	10/1/2008	831.12	Upper Galena-Platteville
AR-9	4/29/2009	832.26	Upper Galena-Platteville
AR-9	10/13/2009	833.11	Upper Galena-Platteville
AR-9	5/17/2010	832.42	Upper Galena-Platteville
AR-9	10/22/2010	832.63	Upper Galena-Platteville
AR-9	3/7/2011	827.92	Upper Galena-Platteville
AR-9	5/9/2011	830.39	Upper Galena-Platteville
AR-9	7/19/2011	832.94	Upper Galena-Platteville
AR-9	11/2/2011	829.95	Upper Galena-Platteville
AR-9	3/6/2012	828.75	Upper Galena-Platteville
AR-9	5/14/2012	828.95	Upper Galena-Platteville
AR-9	8/20/2012	826.91	Upper Galena-Platteville
AR-9	10/16/2012	825.42	Upper Galena-Platteville
AR-9	3/18/2013	837.15	Upper Galena-Platteville
AR-9	5/22/2013	833.55	Upper Galena-Platteville
CAR-2	3/23/2006	736.50	Upper Galena-Platteville
CAR-2	4/4/2006	742.56	Upper Galena-Platteville
CAR-2	4/27/2006	736.89	Upper Galena-Platteville
CAR-2	11/2/2006	736.69	Upper Galena-Platteville
CAR-2	4/20/2007	Not Measured	Upper Galena-Platteville
CAR-2	10/8/2007	735.43	Upper Galena-Platteville
CAR-2	5/28/2008	736.81	Upper Galena-Platteville
CAR-2	9/29/2008	736.61	Upper Galena-Platteville
CAR-2	4/28/2009	743.39	Upper Galena-Platteville
CAR-2	10/14/2009	737.05	Upper Galena-Platteville
CAR-2	5/17/2010	742.61	Upper Galena-Platteville
CAR-2	10/21/2010	734.90	Upper Galena-Platteville
CAR-2	3/7/2011	742.66	Upper Galena-Platteville
CAR-2	5/7/2011	740.87	Upper Galena-Platteville
CAR-2	7/20/2011	735.51	Upper Galena-Platteville
CAR-2	11/2/2011	735.17	Upper Galena-Platteville
CAR-3	4/4/2006	824.62	Upper Galena-Platteville
CAR-3	4/27/2006	826.52	Upper Galena-Platteville
CAR-3	10/30/2006	828.33	Upper Galena-Platteville
CAR-3	4/15/2007	Not Measured	Upper Galena-Platteville
CAR-3	6/2/2008	838.21	Upper Galena-Platteville
CAR-3	9/29/2008	840.95	Upper Galena-Platteville
CAR-3	10/1/2008	840.95	Upper Galena-Platteville
CAR-3	4/29/2009	841.96	Upper Galena-Platteville
CAR-3	10/13/2009	845.69	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
CAR-3	5/17/2010	837.87	Upper Galena-Platteville
CAR-3	10/21/2010	837.36	Upper Galena-Platteville
CAR-3	3/7/2011	834.92	Upper Galena-Platteville
CAR-3	5/9/2011	844.36	Upper Galena-Platteville
CAR-3	7/19/2011	834.20	Upper Galena-Platteville
CAR-3	11/2/2011	835.29	Upper Galena-Platteville
CAR-3	3/6/2012	833.94	Upper Galena-Platteville
CAR-3	5/14/2012	833.11	Upper Galena-Platteville
CAR-3	8/20/2012	828.57	Upper Galena-Platteville
CAR-3	10/16/2012	831.07	Upper Galena-Platteville
CAR-3	3/18/2013	850.75	Upper Galena-Platteville
CAR-3	5/22/2013	842.24	Upper Galena-Platteville
DF-10	4/24/2006	Not Measured	Upper Galena-Platteville
DF-11	4/24/2006	749.00	Upper Galena-Platteville
DF-15	3/23/2006	745.49	Upper Galena-Platteville
DF-15	4/4/2006	740.47	Upper Galena-Platteville
DF-15	4/24/2006	740.98	Upper Galena-Platteville
DF-18	3/23/2006	724.68	Upper Galena-Platteville
DF-18	4/4/2006	724.80	Upper Galena-Platteville
DF-18	4/24/2006	725.72	Upper Galena-Platteville
DF-19	3/23/2006	724.51	Upper Galena-Platteville
DF-19	4/4/2006	724.63	Upper Galena-Platteville
DF-19	4/25/2006	725.60	Upper Galena-Platteville
DF-1S	3/23/2006	724.97	Upper Galena-Platteville
DF-1S	4/4/2006	725.09	Upper Galena-Platteville
DF-1S	4/25/2006	726.04	Upper Galena-Platteville
DF-22S	3/23/2006	735.86	Upper Galena-Platteville
DF-22S	4/4/2006	725.99	Upper Galena-Platteville
DF-22S	4/24/2006	726.34	Upper Galena-Platteville
DF-24	3/23/2006	722.40	Upper Galena-Platteville
DF-24	4/4/2006	722.57	Upper Galena-Platteville
DF-24	4/26/2006	723.79	Upper Galena-Platteville
DF-24	11/21/2006	721.58	Upper Galena-Platteville
DF-24	4/19/2007	Not Measured	Upper Galena-Platteville
DF-24	10/10/2007	724.51	Upper Galena-Platteville
DF-24	5/28/2008	732.78	Upper Galena-Platteville
DF-24	9/29/2008	726.33	Upper Galena-Platteville
DF-24	4/29/2009	739.28	Upper Galena-Platteville
DF-24	10/14/2009	728.22	Upper Galena-Platteville
DF-24	5/17/2010	733.98	Upper Galena-Platteville
DF-24	10/21/2010	728.28	Upper Galena-Platteville
DF-24	3/7/2011	726.35	Upper Galena-Platteville
DF-24	5/9/2011	730.36	Upper Galena-Platteville
DF-24	7/20/2011	726.98	Upper Galena-Platteville
DF-24	11/2/2011	724.86	Upper Galena-Platteville
DF-24	3/7/2012	724.71	Upper Galena-Platteville
DF-24	5/16/2012	724.95	Upper Galena-Platteville
DF-24	8/15/2012	724.42	Upper Galena-Platteville
DF-24	10/17/2012	722.54	Upper Galena-Platteville
DF-24	3/18/2013	725.17	Upper Galena-Platteville
DF-24	5/22/2013	729.26	Upper Galena-Platteville
DF-2S	3/23/2006	725.48	Upper Galena-Platteville
DF-2S	4/4/2006	725.96	Upper Galena-Platteville
DF-2S	4/25/2006	727.08	Upper Galena-Platteville
DF-3S	3/23/2006	726.28	Upper Galena-Platteville
DF-3S	4/4/2006	726.36	Upper Galena-Platteville
DF-3S	4/25/2006	727.33	Upper Galena-Platteville
DF-4DS	4/25/2006	765.82	Upper Galena-Platteville
DF-5S	4/24/2006	799.77	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
GW-9	4/28/2006	745.46	Upper Galena-Platteville
GW-9	11/21/2006	749.73	Upper Galena-Platteville
GW-9	4/21/2007	Not Measured	Upper Galena-Platteville
GW-9	10/10/2007	752.23	Upper Galena-Platteville
GW-9	5/29/2008	761.88	Upper Galena-Platteville
GW-9	5/29/2008	761.88	Upper Galena-Platteville
GW-9	9/29/2008	748.23	Upper Galena-Platteville
GW-9	4/28/2009	758.93	Upper Galena-Platteville
GW-9	10/14/2009	760.63	Upper Galena-Platteville
GW-9	5/17/2010	760.33	Upper Galena-Platteville
GW-9	10/21/2010	743.58	Upper Galena-Platteville
GW-9	3/9/2011	754.81	Upper Galena-Platteville
GW-9	5/10/2011	755.97	Upper Galena-Platteville
GW-9	7/20/2011	753.17	Upper Galena-Platteville
GW-9	11/2/2011	754.86	Upper Galena-Platteville
MW-1	3/23/2006	799.95	Upper Galena-Platteville
MW-1	4/4/2006	800.76	Upper Galena-Platteville
MW-1	4/26/2006	799.63	Upper Galena-Platteville
MW-1	11/1/2006	798.62	Upper Galena-Platteville
MW-1	4/19/2007	Not Measured	Upper Galena-Platteville
MW-1	10/8/2007	804.27	Upper Galena-Platteville
MW-1	5/29/2008	812.12	Upper Galena-Platteville
MW-1	9/29/2008	808.42	Upper Galena-Platteville
MW-1	4/28/2009	819.37	Upper Galena-Platteville
MW-1	10/14/2009	812.05	Upper Galena-Platteville
MW-1	5/17/2010	Not Measured	Upper Galena-Platteville
MW-1	10/21/2010	814.17	Upper Galena-Platteville
MW-1	3/7/2011	807.40	Upper Galena-Platteville
MW-1	5/7/2011	808.37	Upper Galena-Platteville
MW-1	7/20/2011	Not Accessible	Upper Galena-Platteville
MW-1	11/2/2011	Not Measured	Upper Galena-Platteville
MW-1	3/7/2012	806.45	Upper Galena-Platteville
MW-1	5/16/2012	806.57	Upper Galena-Platteville
MW-1	8/15/2012	807.70	Upper Galena-Platteville
MW-1	10/17/2012	807.66	Upper Galena-Platteville
MW-1	3/18/2013	803.34	Upper Galena-Platteville
MW-1	5/22/2013	805.50	Upper Galena-Platteville
MW-15	3/23/2006	743.98	Upper Galena-Platteville
MW-15	4/4/2006	744.21	Upper Galena-Platteville
MW-15	4/24/2006	745.56	Upper Galena-Platteville
MW-3	4/26/2006	787.51	Upper Galena-Platteville
MW-3	11/1/2006	786.00	Upper Galena-Platteville
MW-3	4/19/2007	Not Measured	Upper Galena-Platteville
MW-3	10/8/2007	789.27	Upper Galena-Platteville
MW-3	5/29/2008	790.45	Upper Galena-Platteville
MW-3	9/29/2008	Dry	Upper Galena-Platteville
MW-3	4/28/2009	791.15	Upper Galena-Platteville
MW-3	10/14/2009	798.65	Upper Galena-Platteville
MW-3	5/17/2010	Not Measured	Upper Galena-Platteville
MW-3	10/21/2010	789.74	Upper Galena-Platteville
MW-3	3/7/2011	788.99	Upper Galena-Platteville
MW-3	5/7/2011	790.19	Upper Galena-Platteville
MW-3	7/20/2011	790.08	Upper Galena-Platteville
MW-3	11/2/2011	789.15	Upper Galena-Platteville
MW-3	3/7/2012	788.48	Upper Galena-Platteville
MW-3	5/16/2012	788.51	Upper Galena-Platteville
MW-3	8/15/2012	788.74	Upper Galena-Platteville
MW-3	10/17/2012	788.55	Upper Galena-Platteville
MW-3	3/18/2013	786.48	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
MW-3	5/22/2013	786.74	Upper Galena-Platteville
MW-30	3/23/2006	720.41	Upper Galena-Platteville
MW-30	4/28/2006	720.26	Upper Galena-Platteville
PC-1B	3/23/2006	717.21	Upper Galena-Platteville
PC-1B	4/4/2006	717.25	Upper Galena-Platteville
PC-1B	4/26/2006	718.01	Upper Galena-Platteville
PC-2B	4/4/2006	756.28	Upper Galena-Platteville
PC-2B	4/25/2006	756.23	Upper Galena-Platteville
PC-3B	4/24/2006	760.58	Upper Galena-Platteville
PC-4B	3/23/2006	726.15	Upper Galena-Platteville
PC-4B	4/4/2006	726.27	Upper Galena-Platteville
PC-4B	4/24/2006	726.49	Upper Galena-Platteville
PC-5B	3/23/2006	722.91	Upper Galena-Platteville
PC-5B	4/4/2006	722.47	Upper Galena-Platteville
PC-5B	4/26/2006	723.60	Upper Galena-Platteville
PC-6B	3/23/2006	749.82	Upper Galena-Platteville
PC-6B	4/4/2006	740.58	Upper Galena-Platteville
PC-6B	4/26/2006	743.18	Upper Galena-Platteville
WELL-7	4/27/2006	775.47	Upper Galena-Platteville
WELL-7	11/21/2006	784.24	Upper Galena-Platteville
WELL-7	10/10/2007	789.24	Upper Galena-Platteville
WELL-7	5/29/2008	803.94	Upper Galena-Platteville
WELL-7	9/29/2008	784.74	Upper Galena-Platteville
WELL-7	4/28/2009	805.04	Upper Galena-Platteville
WELL-7	10/14/2009	809.92	Upper Galena-Platteville
WELL-7	5/17/2010	808.64	Upper Galena-Platteville
WELL-7	10/21/2010	803.79	Upper Galena-Platteville
WELL-7	3/7/2011	810.34	Upper Galena-Platteville
WELL-7	5/7/2011	810.09	Upper Galena-Platteville
WELL-7	7/20/2011	805.48	Upper Galena-Platteville
WELL-7	11/2/2011	801.82	Upper Galena-Platteville
WELL-7	3/7/2012	793.58	Upper Galena-Platteville
WELL-7	5/16/2012	801.59	Upper Galena-Platteville
WELL-7	8/15/2012	790.65	Upper Galena-Platteville
WELL-7	10/17/2012	808.52	Upper Galena-Platteville
WELL-7	3/18/2013	809.81	Upper Galena-Platteville
WELL-7	5/22/2013	794.95	Upper Galena-Platteville
AR-11	4/26/2006	742.41	Lower Galena-Platteville
AR-11	11/21/2006	732.75	Lower Galena-Platteville
AR-11	4/23/2007	Not Measured	Lower Galena-Platteville
AR-11	10/10/2007	721.23	Lower Galena-Platteville
AR-11	5/28/2008	744.80	Lower Galena-Platteville
AR-11	9/29/2008	741.70	Lower Galena-Platteville
AR-11	4/29/2009	748.59	Lower Galena-Platteville
AR-11	10/15/2009	742.47	Lower Galena-Platteville
AR-11	5/17/2010	747.35	Lower Galena-Platteville
AR-11	10/21/2010	743.30	Lower Galena-Platteville
AR-11	3/7/2011	742.80	Lower Galena-Platteville
AR-11	5/9/2011	747.64	Lower Galena-Platteville
AR-11	7/20/2011	744.43	Lower Galena-Platteville
AR-11	11/2/2011	744.78	Lower Galena-Platteville
AR-11	3/7/2012	744.88	Lower Galena-Platteville
AR-11	5/16/2012	745.74	Lower Galena-Platteville
AR-11	8/15/2012	743.05	Lower Galena-Platteville
AR-11	10/17/2012	742.03	Lower Galena-Platteville
AR-11	3/18/2013	742.34	Lower Galena-Platteville
AR-11	5/22/2013	747.47	Lower Galena-Platteville
DF-12	3/23/2006	744.35	Lower Galena-Platteville
DF-12	4/25/2006	746.06	Lower Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
DF-13	3/23/2006	744.39	Lower Galena-Platteville
DF-13	4/4/2006	744.68	Lower Galena-Platteville
DF-13	4/26/2006	746.06	Lower Galena-Platteville
DF-17	3/23/2006	729.14	Lower Galena-Platteville
DF-17	4/4/2006	729.27	Lower Galena-Platteville
DF-17	4/24/2006	729.76	Lower Galena-Platteville
DF-1D	3/23/2006	724.56	Lower Galena-Platteville
DF-1D	4/4/2006	724.73	Lower Galena-Platteville
DF-1D	4/25/2006	725.67	Lower Galena-Platteville
DF-22D	3/23/2006	725.78	Lower Galena-Platteville
DF-22D	4/24/2006	726.34	Lower Galena-Platteville
DF-23	3/23/2006	726.66	Lower Galena-Platteville
DF-23	4/4/2006	695.37	Lower Galena-Platteville
DF-23	4/24/2006	717.17	Lower Galena-Platteville
DF-4DD	3/23/2006	744.49	Lower Galena-Platteville
DF-4DD	4/4/2006	744.78	Lower Galena-Platteville
DF-4DD	4/24/2006	746.17	Lower Galena-Platteville
DF-6	3/23/2006	737.18	Lower Galena-Platteville
DF-6	4/4/2006	738.17	Lower Galena-Platteville
DF-6	4/25/2006	739.20	Lower Galena-Platteville
DF-8	3/23/2006	716.90	Lower Galena-Platteville
DF-8	4/4/2006	717.00	Lower Galena-Platteville
DF-8	4/24/2006	717.60	Lower Galena-Platteville
MW-16	3/23/2006	743.93	Lower Galena-Platteville
MW-16	4/4/2006	744.19	Lower Galena-Platteville
MW-16	4/24/2006	745.56	Lower Galena-Platteville
MW-36	3/23/2006	744.47	Lower Galena-Platteville
MW-36	4/4/2006	744.73	Lower Galena-Platteville
MW-36	4/25/2006	746.14	Lower Galena-Platteville
MW-41	3/23/2006	743.85	Lower Galena-Platteville
MW-41	4/4/2006	744.13	Lower Galena-Platteville
MW-41	4/24/2006	745.49	Lower Galena-Platteville
MW-42	3/23/2006	744.14	Lower Galena-Platteville
MW-42	4/4/2006	744.47	Lower Galena-Platteville
MW-42	4/24/2006	745.85	Lower Galena-Platteville
MW-2	3/23/2006	683.62	St. Peter Sandstone
MW-2	4/4/2006	684.18	St. Peter Sandstone
MW-2	4/27/2006	684.22	St. Peter Sandstone
MW-20R	3/23/2006	680.65	St. Peter Sandstone
MW-20R	4/4/2006	680.73	St. Peter Sandstone
MW-20R	4/24/2006	681.19	St. Peter Sandstone
MW-21	3/23/2006	680.58	St. Peter Sandstone
MW-21	4/4/2006	680.70	St. Peter Sandstone
MW-21	4/24/2006	681.16	St. Peter Sandstone
MW-37	3/23/2006	681.61	St. Peter Sandstone
MW-37	4/4/2006	681.73	St. Peter Sandstone
MW-37	4/26/2006	682.15	St. Peter Sandstone
MW-39	3/23/2006	680.94	St. Peter Sandstone
MW-39	4/4/2006	681.06	St. Peter Sandstone
MW-39	4/26/2006	681.49	St. Peter Sandstone
PC-1C	3/23/2006	678.99	St. Peter Sandstone
PC-1C	4/4/2006	678.99	St. Peter Sandstone
PC-1C	4/26/2006	679.53	St. Peter Sandstone
DF-25	4/24/2006	769.11	Unknown
DF-9S	3/23/2006	685.80	Unknown
DF-9S	4/4/2006	686.08	Unknown
MS-1	3/23/2006	694.03	Unknown
MS-1	4/4/2006	693.34	Unknown
MS-2	3/23/2006	676.91	Unknown

Sample Location	Sample Date	Groundwater Elevation	Aquifer
MS-2	4/4/2006	676.78	Unknown
MW-11	4/4/2006	713.67	Unknown
MW-12I	3/23/2006	704.92	Unknown
MW-12I	4/4/2006	704.90	Unknown
MW12S	3/23/2006	704.45	Unknown
MW12S	4/4/2006	706.29	Unknown
OS-NW-1D	3/23/2006	676.20	Unknown
OS-NW-1D	4/4/2006	743.12	Unknown
OS-NW-1S	3/23/2006	742.60	Unknown
OS-NW-1S	4/4/2006	774.16	Unknown
OS-SW-1	3/23/2006	669.94	Unknown
OS-SW-1	4/4/2006	678.43	Unknown
OS-SW-2D	3/23/2006	679.76	Unknown
OS-SW-2D	4/4/2006	679.89	Unknown
OS-SW-2I	3/23/2006	679.88	Unknown
OS-SW-2I	4/4/2006	680.00	Unknown
OS-SW-2S	3/23/2006	684.51	Unknown
OS-SW-2S	4/4/2006	685.06	Unknown
OS-SW-3D	3/23/2006	682.52	Unknown
OS-SW-3D	4/4/2006	659.12	Unknown
OS-SW-3S	3/23/2006	695.82	Unknown
OS-SW-3S	4/4/2006	673.83	Unknown
RR-10	4/4/2006	672.17	Unknown
RR-9	3/23/2006	670.92	Unknown
RR-9	4/4/2006	671.05	Unknown

All Elevations Presented in Feet Above Mean Sea Level

September 10, 2013

Byron Generating Station
Chemistry Manager/RGPP Coordinator
4450 North German Church Road
Byron, Illinois

Subject: August 2013 RGPP Summary Monitoring Report (3rd Quarter 2013)

AMO has interpreted the analytical data and field data for the August 2013 Radiological Groundwater Protection Program (RGPP) sampling round, which was completed by EIML (a third party vendor under contract with Exelon Corporation) between August 12, 2013 and August 14, 2013. Exelon's RGPP (EN-AA-408-4000 and EN-BY-408-4160) incorporates guidance as detailed in NEI 07-07, ANI 07-01, and EPRI 1015118. All laboratory and field data from this sampling round has been uploaded to the Exelon RGPP Database maintained by Locus Technologies.

The attached tables, graphs, and figures summarize the findings of the August 2013 sampling round. Overall, tritium concentrations have been decreasing at the Station since the 2006. Based on our review of the August 2013 sampling round and available historic data, there does not appear to be ongoing tritium leak at the site.

The Station conformed with its RGPP during the 3rd quarter 2013 with respect to sampling protocol.

Please call me at 215-230-8282 if you have questions.

Respectfully,

AMO Environmental Decisions

Ralph T. Golia, P.G.
Principal
Hydrogeologist

attachments

File

Station: Byron Generating Station
Monitoring Round: Completed August 12 through August 14, 2013

Compliance Evaluation

Evaluation Checklist		Yes or No	Explanation	P.I.
1 -	Was depth to water collected at all monitoring locations?	YES		1
2 -	Were all required field data measurements collected?	YES		1
3 -	Were all required sampling points sampled?	YES	See the attached Figures 1a and 1b for sample locations.	1
4 -	Were all required analyses performed?	YES		1
5 -	Should there be changes to sampling frequency based on analytical data?	NO		NA
6 -	Should there be a well designation change based on analytical data?	NO		NA
			Total P.I. Score for the Quarter	4

Data Evaluation

Data Evaluation		Yes or No	Explanation
1 -	Are there tritium concentrations >2,000 pCi/L, but <20,000 pCi/L?	NO	
2 -	Are there tritium concentrations >20,000 pCi/L, but <100,000 pCi/L?	NO	
3 -	Are there tritium concentrations >100,000 pCi/L?	NO	
4 -	Are there increasing tritium concentration trends?	NO	
5 -	Are there decreasing tritium concentration trends?	YES	The attached graphs for AR-4 and AR-11 show an overall decreasing tritium concentration trend since 2006.
6 -	Are non-tritium analytes detected greater than MDL?	NA	
7 -	Are there increasing non-tritium concentration trends?	NA	
8 -	Are there decreasing non-tritium concentration trends?	NA	
9 -	Are there increasing groundwater elevation trends?	NO	
10 -	Are there decreasing groundwater elevation trends?	NO	
11 -	Are there significant changes to groundwater flow directions?	NO	

Notes:

1. P.I. – RGPP Performance Indicator. A score of 0 indicates that the RGPP guidance was not followed. A score of 1 indicates the RGPP guidance was followed.

**Table 2 - 2nd Quarter 2013 and 3rd Quarter 2013
Groundwater Tritium Concentrations
and Change in Tritium Concentrations**

Sample ID	Sample Round	Result (pC/L)	Qual	Sample Round	Result (pC/L)	Qual	Change in Concentration (pC/L)	Change in Concentration (%)	Aquifer
AR-7	2nd Qtr. 2013	351	+	3rd Qtr. 2013	306	+	-45	-14	Upper Galena-Platteville
AR-1	2nd Qtr. 2013	170	U	3rd Qtr. 2013	188	U	0	0	Upper Galena-Platteville
AR-10	2nd Qtr. 2013	173	U	3rd Qtr. 2013	190	U	0	0	Upper Galena-Platteville
AR-3	2nd Qtr. 2013	173	U	3rd Qtr. 2013	188	U	0	0	Upper Galena-Platteville
AR-8	2nd Qtr. 2013	178	U	3rd Qtr. 2013	190	U	0	0	Upper Galena-Platteville
AR-9	2nd Qtr. 2013	177	U	3rd Qtr. 2013	187	U	0	0	Upper Galena-Platteville
CAR-3	2nd Qtr. 2013	171	U	3rd Qtr. 2013	185	U	0	0	Upper Galena-Platteville
DF-24	2nd Qtr. 2013	178	U	3rd Qtr. 2013	190	U	0	0	Upper Galena-Platteville
AR-4	2nd Qtr. 2013	523	+	3rd Qtr. 2013	746	+	223	35	Upper Galena-Platteville
AR-11	2nd Qtr. 2013	933	+	3rd Qtr. 2013	945	+	12	1	Lower Galena-Platteville

Notes:

- 1) Change in concentration (pC/l) represents the difference in concentrations between the 2nd quarter 2013 and the 3rd quarter 2013 monitoring rounds unless otherwise noted. Positive numbers represent an increase in concentration; negative numbers represent a decrease in concentration.
- 2) All detections and detection limits less than 200 pico-curies per liter are considered equal to 200 pico-curies per liter for the purposes of this report.
- 3) Change in concentration (%) is equal to the change in concentration between the two sampling rounds divided by the average of the analytical results for the two sampling rounds.
- 4) Data reported in the tables and figures does not include the results of re-analyses completed by the laboratory. Only the highest analyte concentration per sample location is presented.

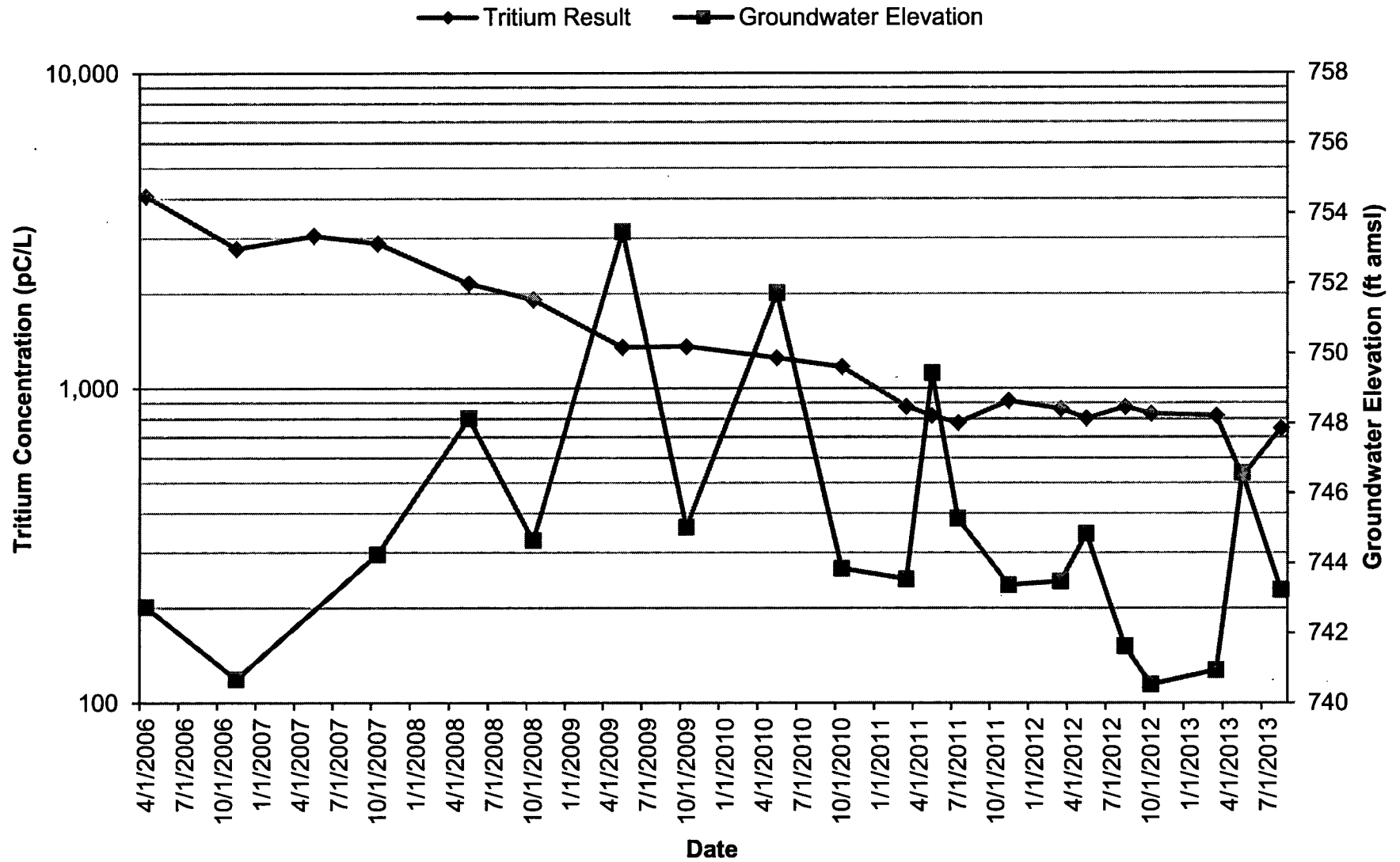
**Table 3 - 3rd Quarter 2012 and 3rd Quarter 2013
Groundwater Elevations and
Groundwater Elevation Changes**

Monitoring Well ID	3rd Quarter 2012 Groundwater Elevation	3rd Quarter 2013 Groundwater Elevation	Change in Groundwater Elevation (ft)	Aquifer
TW-13	682.86	682.98	0.12	Shallow Overburden
CAR-1	670.69	671.67	0.98	Upper Unconsolidated
AR-2 ²	816.79	810.88	-5.91	Upper Galena-Platteville
MW-1	807.70	804.74	-2.96	Upper Galena-Platteville
MW-3	788.74	788.18	-0.56	Upper Galena-Platteville
AR-3	803.14	803.18	0.04	Upper Galena-Platteville
AR-4	741.62	743.23	1.61	Upper Galena-Platteville
DF-24	724.42	726.07	1.65	Upper Galena-Platteville
AR-10	837.04	839.87	2.83	Upper Galena-Platteville
WELL-7	790.65	793.56	2.91	Upper Galena-Platteville
AR-9	826.91	830.44	3.53	Upper Galena-Platteville
AR-1	829.59	833.30	3.71	Upper Galena-Platteville
AR-7 ¹	778.32	782.48	4.16	Upper Galena-Platteville
AR-8	835.79	840.61	4.82	Upper Galena-Platteville
CAR-3	828.57	835.16	6.59	Upper Galena-Platteville
AR-11	743.05	744.62	1.57	Lower Galena-Platteville

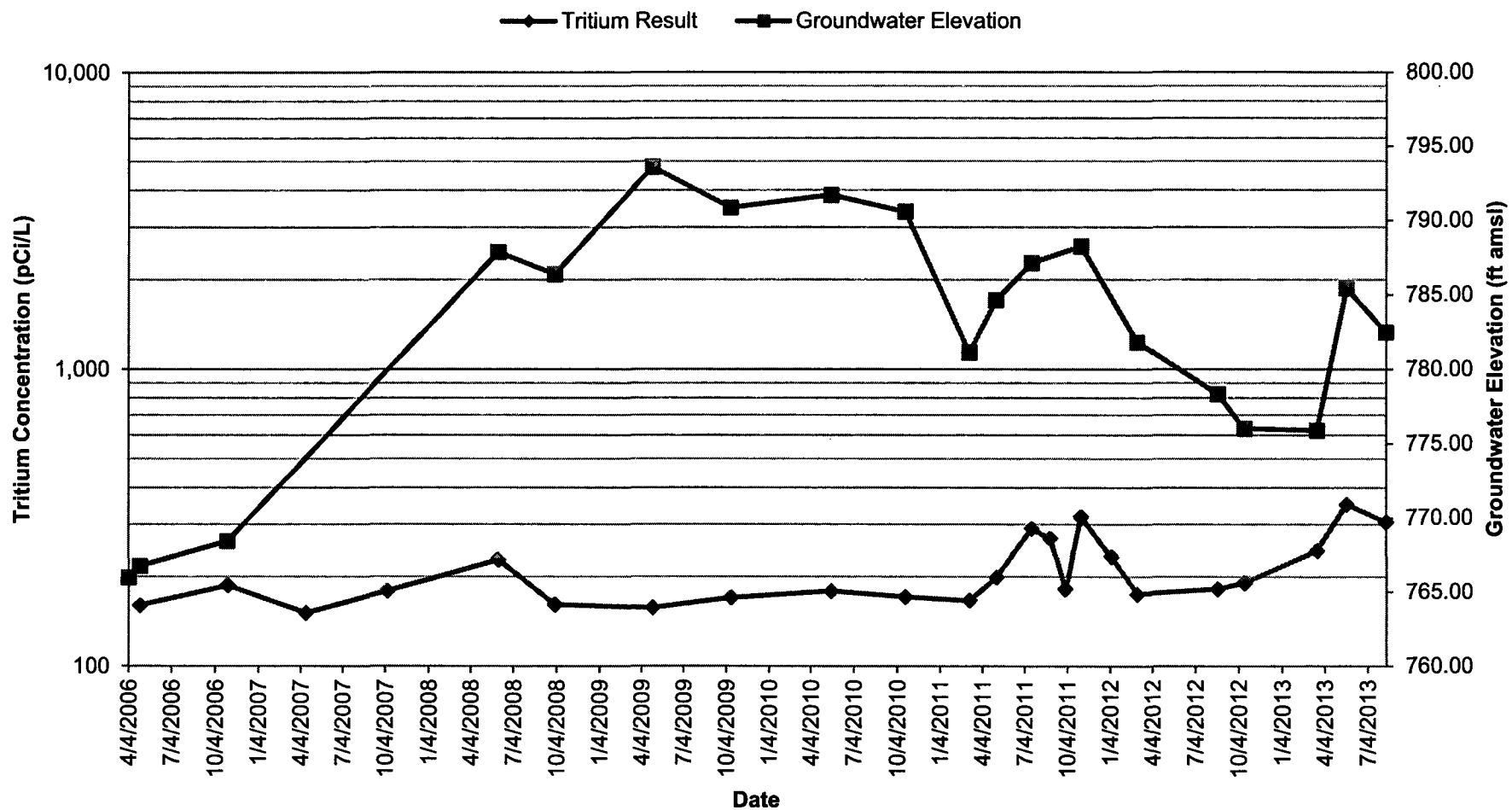
Explanation:

- 1 - Groundwater fluctuations in AR-7 have ranged between 765.96 feet amsl (April 2006) and 793.61 feet amsl (April 2009).
- 2 - Groundwater fluctuations in AR-2 have ranged between 797.48 feet amsl (November 2006) and 828.53 feet amsl (July 2011).
- 3 - Groundwater fluctuations in AR-8 have ranged between 816.14 feet amsl (April 2006) and 851.76 feet amsl (September 2008).
- 4 - The elevated groundwater fluctuations in Well-7, CAR-3, and AR-9 are due to the Circulating Water System piping leak near Cooling Tower 1.

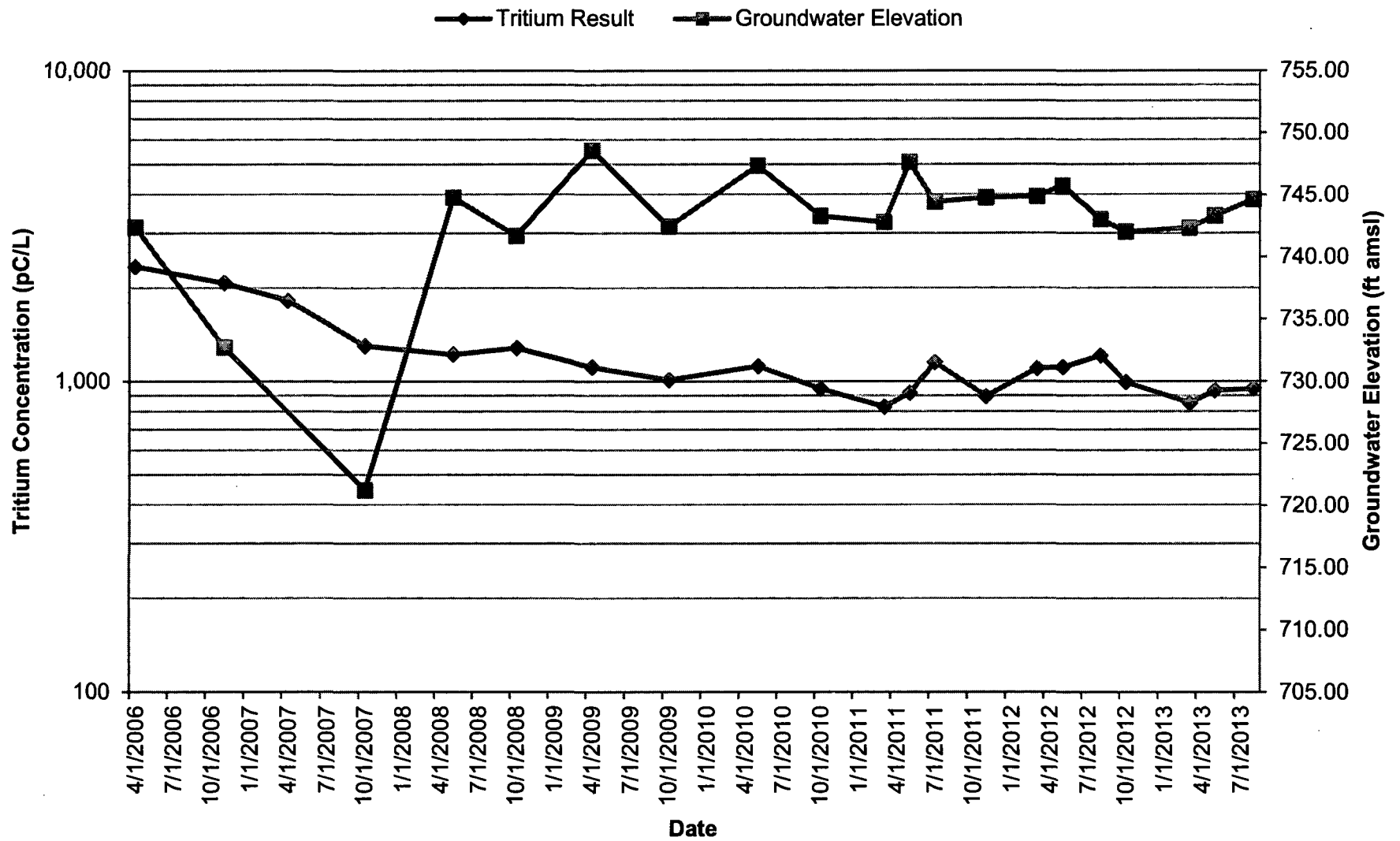
AR-4 Tritium Result vs. Groundwater Elevation

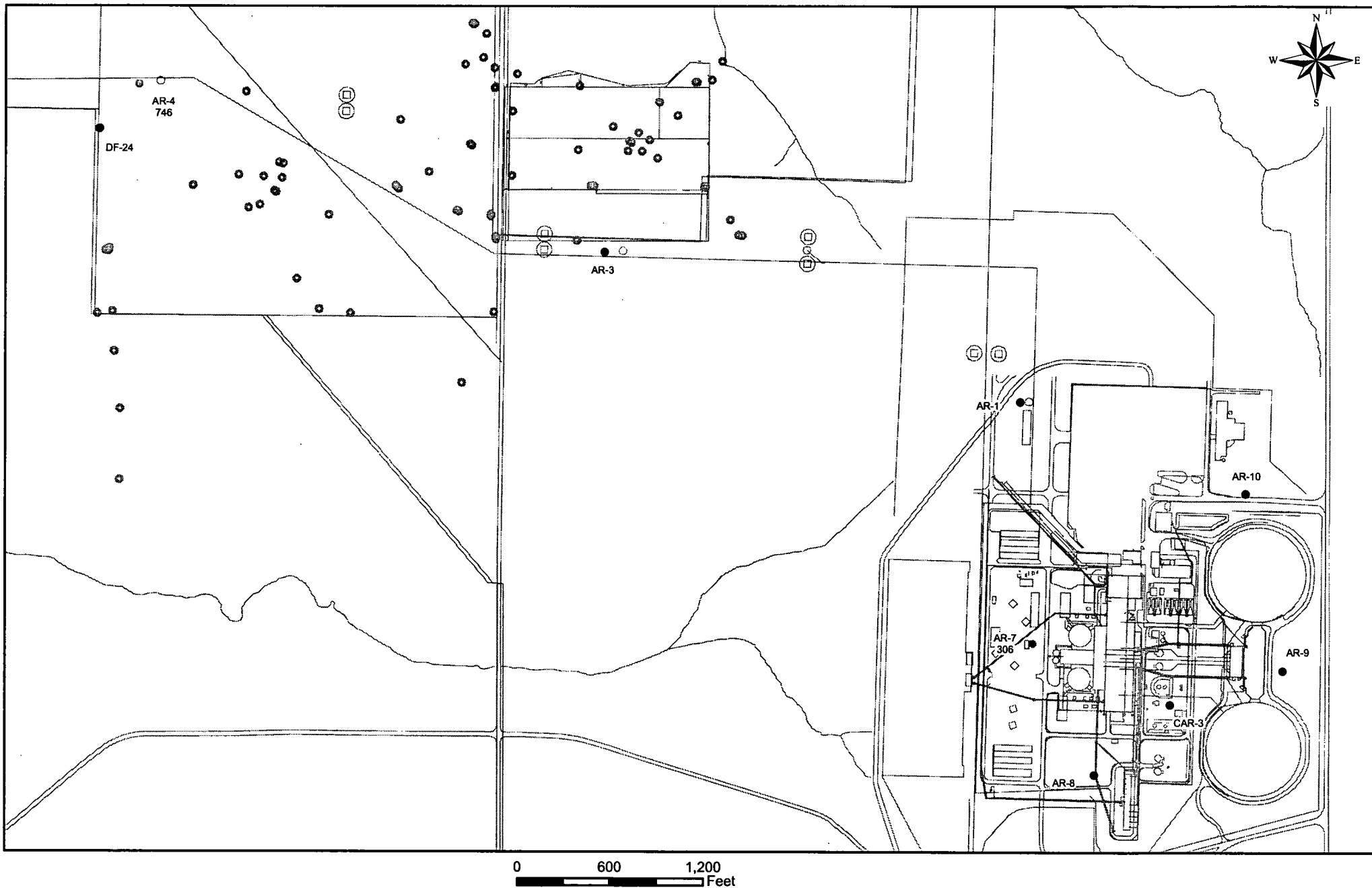


AR-7 Tritium Result vs. Groundwater Elevation Trend



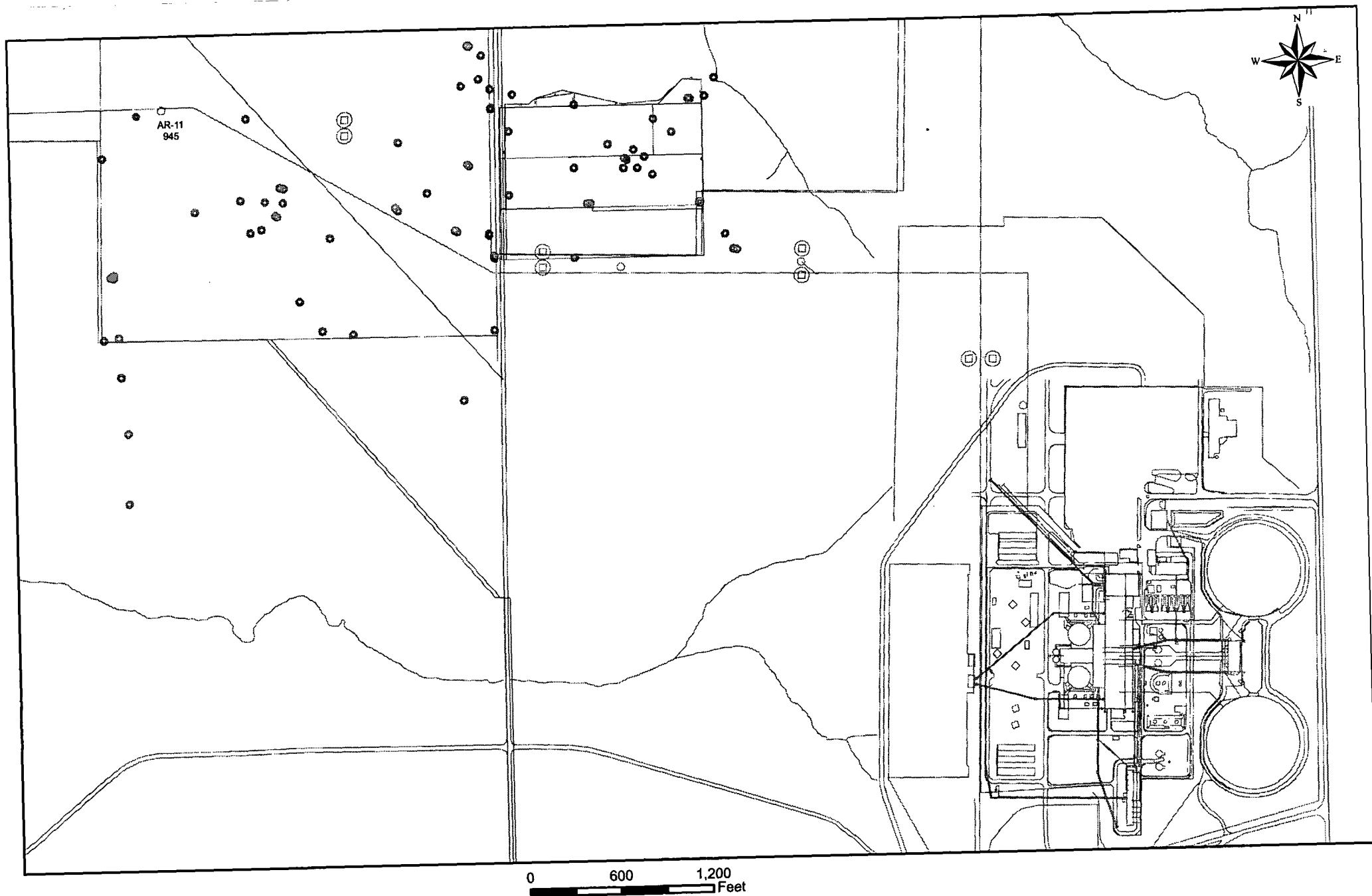
AR-11 Tritium Result vs. Groundwater Elevation





Explanation:
3rd Qtr. 2013 Upper Galena Formation Tritium Sample Location
 ● Result 200 to 2,000 pCi/L
 ● Result < 200 pCi/L

Figure 1a
3rd Qtr. 2013 RGPP
Tritium Sample Locations
Upper Galena-Platteville Formation
Exelon Corporation
Byron Generating Station



Explanation:

3rd Qtr. 2013 Lower Galena Formation Tritium Sample Location

● Result 200 to 2,000 pCi/L

- AR-11 was the only Lower Galena-Platteville Formation well sampled during the 3rd quarter 2013 RGPP sampling round

Figure 1b
3rd Qtr. 2013 RGPP
Tritium Sample Locations
Lower Galena-Platteville Formation
Exelon Corporation
Byron Generating Station



Explanation:
3rd Qtr. 2013 Upper Galena Formation Tritium Concentration Change

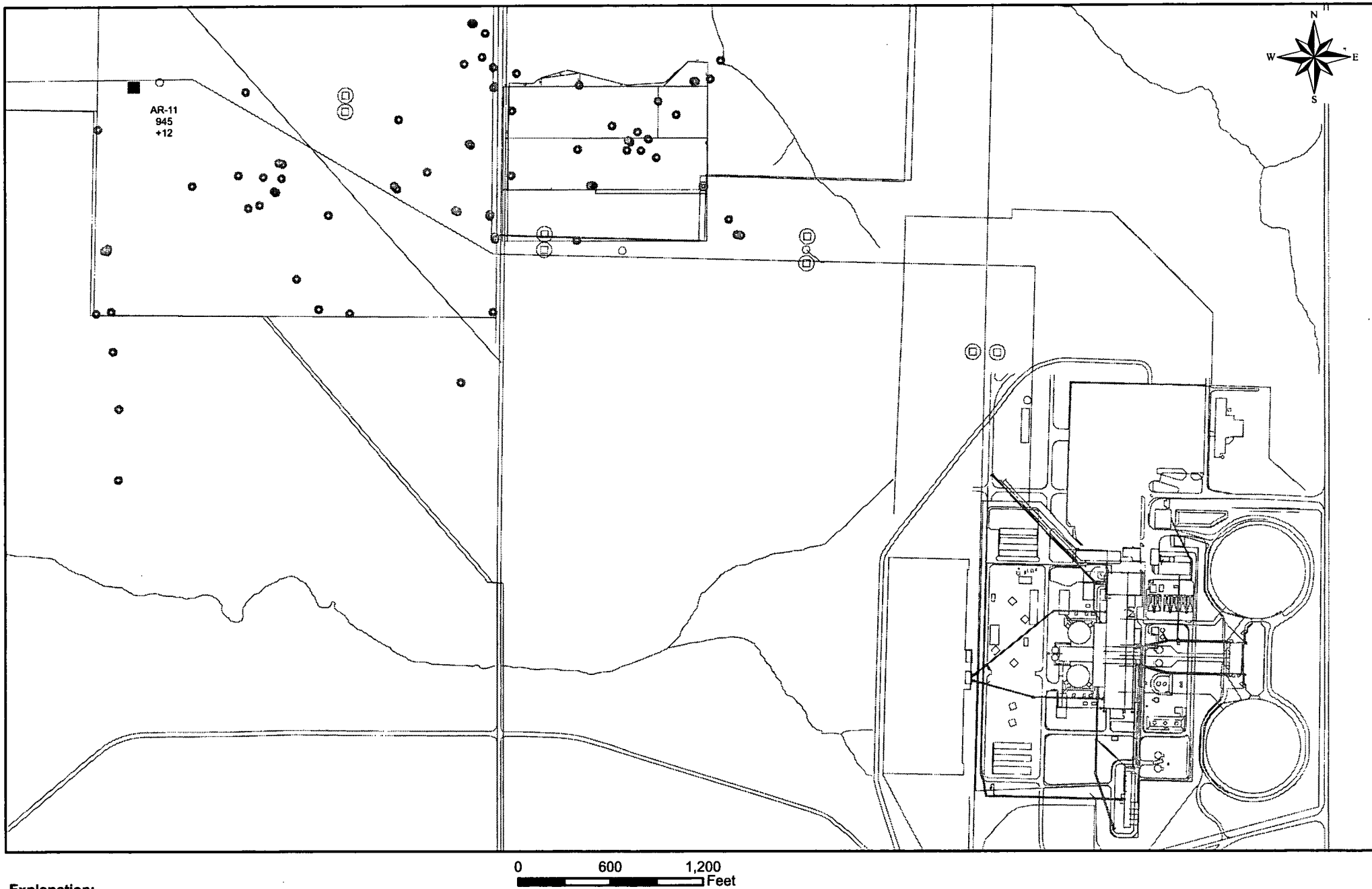
- Increase in Tritium Concentration
- Decrease in Tritium Concentration

306 - Tritium concentration presented in pico-curies per liter (pCi/L)

-45 - Difference in tritium concentration between the 2nd qtr. 2013 and 3rd qtr. 2013 RGPP sampling rounds.

- Only sample locations with detected tritium concentrations during the 2nd qtr. 2013 or 3rd qtr. 2013 RGPP sampling rounds are depicted.

Figure 2a
3rd Qtr. 2013 RGPP
Tritium Concentration Change
Upper Galena-Platteville Formation
Exelon Corporation
Byron Generating Station



Explanation:

3rd Qtr. 2013 Lower Galena Formation Tritium Concentration Change

■ Increase in Tritium Concentration

945 - Tritium concentration presented in pico-curies per liter (pCi/L)

+12 - Difference in tritium concentration between the 2nd qtr. 2013 and 3rd qtr. 2013 RGPP sampling rounds.

- Only sample locations with detected tritium concentrations during the 2nd qtr. 2013 or 3rd qtr. 2013 RGPP sampling rounds are depicted.

Figure 2b
3rd Qtr. 2013 RGPP
Tritium Concentration Change
Lower Galena-Platteville Formation
Exelon Corporation
Byron Generating Station

Sample ID	Sample Date	Result	Qual	Aquifer
TW-13	4/27/2006	157	U	Shallow Overburden
TW-13	4/27/2006	201	+	Shallow Overburden
TW-13	11/1/2006	186	U	Shallow Overburden
TW-13	4/20/2007	152	U	Shallow Overburden
TW-13	10/8/2007	171	U	Shallow Overburden
TW-13	5/28/2008	188	U	Shallow Overburden
TW-13	10/2/2008	164	U	Shallow Overburden
TW-13	4/29/2009	152	U	Shallow Overburden
TW-13	10/14/2009	151	U	Shallow Overburden
TW-13	5/19/2010	153	U	Shallow Overburden
TW-13	10/21/2010	161	U	Shallow Overburden
TW-13	5/9/2011	185	U	Shallow Overburden
TW-13	11/2/2011	181	U	Shallow Overburden
TW-13	5/16/2012	164	U	Shallow Overburden
TW-13	10/17/2012	159	U	Shallow Overburden
TW-13	5/22/2013	175	U	Shallow Overburden
TW-14	4/27/2006	153	U	Shallow Overburden
TW-14	11/1/2006	189	U	Shallow Overburden
TW-14	4/20/2007	154	U	Shallow Overburden
TW-14	10/8/2007	176	U	Shallow Overburden
TW-14	5/28/2008	186	U	Shallow Overburden
TW-14	10/2/2008	168	U	Shallow Overburden
TW-14	4/29/2009	Not Sampled	U	Shallow Overburden
TW-15	4/27/2006	159	U	Shallow Overburden
TW-15	11/1/2006	185	U	Shallow Overburden
TW-15	4/20/2007	156	U	Shallow Overburden
TW-15	10/8/2007	176	U	Shallow Overburden
TW-15	5/28/2008	186	U	Shallow Overburden
TW-15	10/2/2008	164	U	Shallow Overburden
TW-15	4/29/2009	Not Sampled	U	Shallow Overburden
CAR-1	4/27/2006	154	U	Upper Unconsolidated
CAR-1	11/1/2006	190	U	Upper Unconsolidated
CAR-1	4/20/2007	155	U	Upper Unconsolidated
CAR-1	10/8/2007	174	U	Upper Unconsolidated
CAR-1	5/28/2008	187	U	Upper Unconsolidated
CAR-1	10/1/2008	166	U	Upper Unconsolidated
CAR-1	4/29/2009	152	U	Upper Unconsolidated
CAR-1	10/14/2009	149	U	Upper Unconsolidated
CAR-1	5/17/2010	Not Sampled	U	Upper Unconsolidated
CAR-1	10/20/2010	157	U	Upper Unconsolidated
CAR-1	5/9/2011	191	U	Upper Unconsolidated
CAR-1	11/2/2011	184	U	Upper Unconsolidated
CAR-1	5/16/2012	168	U	Upper Unconsolidated
CAR-1	10/17/2012	159	U	Upper Unconsolidated
CAR-1	5/22/2013	179	U	Upper Unconsolidated
AR-1	4/26/2006	165	U	Upper Galena-Platteville
AR-1	11/1/2006	185	U	Upper Galena-Platteville
AR-1	4/20/2007	153	U	Upper Galena-Platteville
AR-1	10/8/2007	180	U	Upper Galena-Platteville
AR-1	6/2/2008	187	U	Upper Galena-Platteville
AR-1	9/30/2008	163	U	Upper Galena-Platteville
AR-1	4/27/2009	157	U	Upper Galena-Platteville
AR-1	10/15/2009	165	U	Upper Galena-Platteville
AR-1	5/17/2010	154	U	Upper Galena-Platteville
AR-1	10/22/2010	159	U	Upper Galena-Platteville
AR-1	3/7/2011	139	U	Upper Galena-Platteville
AR-1	5/3/2011	184	U	Upper Galena-Platteville
AR-1	7/19/2011	172	U	Upper Galena-Platteville
AR-1	11/2/2011	181	U	Upper Galena-Platteville
AR-1	3/6/2012	174	U	Upper Galena-Platteville
AR-1	5/14/2012	175	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-1	8/20/2012	170	U	Upper Galena-Platteville
AR-1	10/16/2012	173	U	Upper Galena-Platteville
AR-1	3/18/2013	191	U	Upper Galena-Platteville
AR-1	5/21/2013	170	U	Upper Galena-Platteville
AR-1	8/13/2013	188	U	Upper Galena-Platteville
AR-10	4/26/2006	185	U	Upper Galena-Platteville
AR-10	11/1/2006	188	U	Upper Galena-Platteville
AR-10	4/15/2007	156	U	Upper Galena-Platteville
AR-10	10/8/2007	178	+	Upper Galena-Platteville
AR-10	6/2/2008	189	U	Upper Galena-Platteville
AR-10	9/30/2008	160	U	Upper Galena-Platteville
AR-10	4/27/2009	155	U	Upper Galena-Platteville
AR-10	10/15/2009	194	U	Upper Galena-Platteville
AR-10	5/17/2010	157	U	Upper Galena-Platteville
AR-10	10/22/2010	160	U	Upper Galena-Platteville
AR-10	3/7/2011	174	U	Upper Galena-Platteville
AR-10	5/3/2011	184	U	Upper Galena-Platteville
AR-10	7/19/2011	171	U	Upper Galena-Platteville
AR-10	11/2/2011	189	U	Upper Galena-Platteville
AR-10	3/6/2012	173	U	Upper Galena-Platteville
AR-10	5/14/2012	174	U	Upper Galena-Platteville
AR-10	8/20/2012	173	U	Upper Galena-Platteville
AR-10	10/16/2012	172	U	Upper Galena-Platteville
AR-10	3/18/2013	187	U	Upper Galena-Platteville
AR-10	5/20/2013	173	U	Upper Galena-Platteville
AR-10	8/13/2013	190	U	Upper Galena-Platteville
AR-2	4/26/2006	432	+	Upper Galena-Platteville
AR-2	4/26/2006	527	+	Upper Galena-Platteville
AR-2	11/1/2006	492	+	Upper Galena-Platteville
AR-2	11/1/2006	413	+	Upper Galena-Platteville
AR-2	4/18/2007	548	+	Upper Galena-Platteville
AR-2	10/8/2007	383	+	Upper Galena-Platteville
AR-2	5/29/2008	186	U	Upper Galena-Platteville
AR-2	10/1/2008	169	U	Upper Galena-Platteville
AR-2	4/29/2009	152	U	Upper Galena-Platteville
AR-2	10/15/2009	152	U	Upper Galena-Platteville
AR-2	5/19/2010	160	U	Upper Galena-Platteville
AR-2	10/20/2010	163	U	Upper Galena-Platteville
AR-2	5/9/2011	183	U	Upper Galena-Platteville
AR-2	11/2/2011	183	U	Upper Galena-Platteville
AR-2	5/16/2012	169	U	Upper Galena-Platteville
AR-2	10/17/2012	157	U	Upper Galena-Platteville
AR-2	5/22/2013	166	U	Upper Galena-Platteville
AR-3	3/24/2006	214	+	Upper Galena-Platteville
AR-3	3/24/2006	160		Upper Galena-Platteville
AR-3	3/24/2006	271	+	Upper Galena-Platteville
AR-3	3/24/2006	198		Upper Galena-Platteville
AR-3	3/24/2006	207	+	Upper Galena-Platteville
AR-3	3/27/2006	459	+	Upper Galena-Platteville
AR-3	3/27/2006	346	+	Upper Galena-Platteville
AR-3	3/29/2006	372	+	Upper Galena-Platteville
AR-3	4/3/2006	489	+	Upper Galena-Platteville
AR-3	4/10/2006	351	+	Upper Galena-Platteville
AR-3	4/26/2006	389	+	Upper Galena-Platteville
AR-3	4/26/2006	234	+	Upper Galena-Platteville
AR-3	6/22/2006	224	+	Upper Galena-Platteville
AR-3	7/20/2006	225	+	Upper Galena-Platteville
AR-3	11/1/2006	253	+	Upper Galena-Platteville
AR-3	11/1/2006	190	U	Upper Galena-Platteville
AR-3	4/18/2007	327	+	Upper Galena-Platteville
AR-3	10/8/2007	965	+	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-3	10/8/2007	1,110	+	Upper Galena-Platteville
AR-3	11/27/2007	1,180	+	Upper Galena-Platteville
AR-3	1/8/2008	757	+	Upper Galena-Platteville
AR-3	5/29/2008	186	U	Upper Galena-Platteville
AR-3	10/1/2008	163	U	Upper Galena-Platteville
AR-3	4/29/2009	155	U	Upper Galena-Platteville
AR-3	10/14/2009	149	U	Upper Galena-Platteville
AR-3	5/19/2010	156	U	Upper Galena-Platteville
AR-3	10/20/2010	162	U	Upper Galena-Platteville
AR-3	3/7/2011	149	U	Upper Galena-Platteville
AR-3	5/9/2011	188	U	Upper Galena-Platteville
AR-3	7/20/2011	170	U	Upper Galena-Platteville
AR-3	11/2/2011	181	U	Upper Galena-Platteville
AR-3	3/7/2012	169	U	Upper Galena-Platteville
AR-3	5/16/2012	172	U	Upper Galena-Platteville
AR-3	8/15/2012	193	U	Upper Galena-Platteville
AR-3	10/17/2012	158	U	Upper Galena-Platteville
AR-3	3/20/2013	190	U	Upper Galena-Platteville
AR-3	5/22/2013	173	U	Upper Galena-Platteville
AR-3	8/14/2013	188	U	Upper Galena-Platteville
AR-4	4/27/2006	3,260	+	Upper Galena-Platteville
AR-4	4/27/2006	4,080	+	Upper Galena-Platteville
AR-4	11/21/2006	2,980	+	Upper Galena-Platteville
AR-4	11/21/2006	2,440	+	Upper Galena-Platteville
AR-4	11/21/2006	2,610	+	Upper Galena-Platteville
AR-4	11/21/2006	2,880	+	Upper Galena-Platteville
AR-4	5/1/2007	3,050	+	Upper Galena-Platteville
AR-4	10/10/2007	2,890	+	Upper Galena-Platteville
AR-4	5/28/2008	2,150	+	Upper Galena-Platteville
AR-4	10/1/2008	1,910	+	Upper Galena-Platteville
AR-4	4/29/2009	1,350	+	Upper Galena-Platteville
AR-4	10/15/2009	1,360	+	Upper Galena-Platteville
AR-4	5/19/2010	1,250	+	Upper Galena-Platteville
AR-4	10/21/2010	1,170	+	Upper Galena-Platteville
AR-4	3/7/2011	875	+	Upper Galena-Platteville
AR-4	5/9/2011	818	+	Upper Galena-Platteville
AR-4	7/20/2011	777	+	Upper Galena-Platteville
AR-4	11/2/2011	912	+	Upper Galena-Platteville
AR-4	3/7/2012	861	+	Upper Galena-Platteville
AR-4	5/16/2012	802	+	Upper Galena-Platteville
AR-4	8/15/2012	872	+	Upper Galena-Platteville
AR-4	10/17/2012	830	+	Upper Galena-Platteville
AR-4	3/20/2013	818	+	Upper Galena-Platteville
AR-4	5/22/2013	523	+	Upper Galena-Platteville
AR-4	8/14/2013	746	+	Upper Galena-Platteville
AR-5	4/27/2006	151	U	Upper Galena-Platteville
AR-5	11/21/2006	188	U	Upper Galena-Platteville
AR-5	4/21/2007	170	U	Upper Galena-Platteville
AR-5	10/10/2007	178	U	Upper Galena-Platteville
AR-5	5/28/2008	184	U	Upper Galena-Platteville
AR-5	10/1/2008	166	U	Upper Galena-Platteville
AR-5	4/29/2009	NA	U	Upper Galena-Platteville
AR-6	4/27/2006	153	U	Upper Galena-Platteville
AR-6	11/21/2006	190	U	Upper Galena-Platteville
AR-6	4/21/2007	169	U	Upper Galena-Platteville
AR-6	10/10/2007	179	U	Upper Galena-Platteville
AR-6	5/28/2008	188	U	Upper Galena-Platteville
AR-6	10/1/2008	171	U	Upper Galena-Platteville
AR-6	4/29/2009	NA	U	Upper Galena-Platteville
AR-7	4/27/2006	160	U	Upper Galena-Platteville
AR-7	10/30/2006	187	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-7	4/15/2007	151	U	Upper Galena-Platteville
AR-7	10/8/2007	179	U	Upper Galena-Platteville
AR-7	6/2/2008	228	+	Upper Galena-Platteville
AR-7	9/30/2008	161	U	Upper Galena-Platteville
AR-7	4/27/2009	157	U	Upper Galena-Platteville
AR-7	10/13/2009	170	U	Upper Galena-Platteville
AR-7	5/17/2010	179	+	Upper Galena-Platteville
AR-7	10/21/2010	171	U	Upper Galena-Platteville
AR-7	3/7/2011	166	U	Upper Galena-Platteville
AR-7	5/3/2011	199	+	Upper Galena-Platteville
AR-7	7/19/2011	291	+	Upper Galena-Platteville
AR-7	11/2/2011	318	+	Upper Galena-Platteville
AR-7	1/6/2012	234	+	Upper Galena-Platteville
AR-7	3/2/2012	175	U	Upper Galena-Platteville
AR-7	5/14/2012	200	U	Upper Galena-Platteville
AR-7	8/20/2012	182	+	Upper Galena-Platteville
AR-7	10/16/2012	191	+	Upper Galena-Platteville
AR-7	3/18/2013	245	+	Upper Galena-Platteville
AR-7	5/20/2013	351	+	Upper Galena-Platteville
AR-7	8/12/2013	306	+	Upper Galena-Platteville
AR-8	4/27/2006	161	U	Upper Galena-Platteville
AR-8	10/30/2006	192	U	Upper Galena-Platteville
AR-8	4/15/2007	152	U	Upper Galena-Platteville
AR-8	10/8/2007	180	U	Upper Galena-Platteville
AR-8	6/2/2008	185	U	Upper Galena-Platteville
AR-8	9/30/2008	169	U	Upper Galena-Platteville
AR-8	4/27/2009	151	U	Upper Galena-Platteville
AR-8	10/13/2009	163	U	Upper Galena-Platteville
AR-8	5/17/2010	150	U	Upper Galena-Platteville
AR-8	10/21/2010	163	U	Upper Galena-Platteville
AR-8	3/7/2011	155	U	Upper Galena-Platteville
AR-8	5/3/2011	187	U	Upper Galena-Platteville
AR-8	7/19/2011	173	U	Upper Galena-Platteville
AR-8	11/2/2011	185	U	Upper Galena-Platteville
AR-8	3/6/2012	171	U	Upper Galena-Platteville
AR-8	5/14/2012	172	U	Upper Galena-Platteville
AR-8	8/20/2012	173	U	Upper Galena-Platteville
AR-8	10/16/2012	174	U	Upper Galena-Platteville
AR-8	3/18/2013	189	U	Upper Galena-Platteville
AR-8	5/20/2013	178	U	Upper Galena-Platteville
AR-8	8/12/2013	190	U	Upper Galena-Platteville
AR-9	4/27/2006	155	U	Upper Galena-Platteville
AR-9	10/30/2006	191	U	Upper Galena-Platteville
AR-9	4/20/2007	155	U	Upper Galena-Platteville
AR-9	10/8/2007	178	U	Upper Galena-Platteville
AR-9	6/2/2008	189	U	Upper Galena-Platteville
AR-9	9/30/2008	164	U	Upper Galena-Platteville
AR-9	4/27/2009	153	U	Upper Galena-Platteville
AR-9	10/13/2009	182	U	Upper Galena-Platteville
AR-9	5/17/2010	150	U	Upper Galena-Platteville
AR-9	10/22/2010	161	U	Upper Galena-Platteville
AR-9	3/7/2011	182	U	Upper Galena-Platteville
AR-9	5/3/2011	184	U	Upper Galena-Platteville
AR-9	7/19/2011	171	U	Upper Galena-Platteville
AR-9	11/2/2011	189	U	Upper Galena-Platteville
AR-9	3/6/2012	172	U	Upper Galena-Platteville
AR-9	5/14/2012	173	U	Upper Galena-Platteville
AR-9	8/20/2012	171	U	Upper Galena-Platteville
AR-9	10/16/2012	171	U	Upper Galena-Platteville
AR-9	3/18/2013	192	U	Upper Galena-Platteville
AR-9	5/21/2013	177	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
AR-9	8/12/2013	187	U	Upper Galena-Platteville
CAR-2	4/27/2006	159	U	Upper Galena-Platteville
CAR-2	11/2/2006	187	U	Upper Galena-Platteville
CAR-2	4/20/2007	152	U	Upper Galena-Platteville
CAR-2	10/8/2007	175	U	Upper Galena-Platteville
CAR-2	5/28/2008	191	U	Upper Galena-Platteville
CAR-2	10/1/2008	158	U	Upper Galena-Platteville
CAR-2	4/29/2009	NA	U	Upper Galena-Platteville
CAR-3	4/27/2006	150	U	Upper Galena-Platteville
CAR-3	10/30/2006	198	U	Upper Galena-Platteville
CAR-3	4/15/2007	157	U	Upper Galena-Platteville
CAR-3	10/8/2007	178	U	Upper Galena-Platteville
CAR-3	6/2/2008	185	U	Upper Galena-Platteville
CAR-3	9/30/2008	167	U	Upper Galena-Platteville
CAR-3	4/27/2009	153	U	Upper Galena-Platteville
CAR-3	10/13/2009	191	U	Upper Galena-Platteville
CAR-3	5/17/2010	158	U	Upper Galena-Platteville
CAR-3	10/21/2010	160	U	Upper Galena-Platteville
CAR-3	3/7/2011	151	U	Upper Galena-Platteville
CAR-3	5/3/2011	184	U	Upper Galena-Platteville
CAR-3	7/19/2011	170	U	Upper Galena-Platteville
CAR-3	11/2/2011	166	U	Upper Galena-Platteville
CAR-3	3/6/2012	171	U	Upper Galena-Platteville
CAR-3	5/14/2012	174	U	Upper Galena-Platteville
CAR-3	8/20/2012	172	U	Upper Galena-Platteville
CAR-3	10/16/2012	175	U	Upper Galena-Platteville
CAR-3	3/18/2013	188	U	Upper Galena-Platteville
CAR-3	5/20/2013	171	U	Upper Galena-Platteville
CAR-3	8/12/2013	185	U	Upper Galena-Platteville
DF-13	4/26/2006	158	U	Upper Galena-Platteville
DF-19	4/25/2006	187	U	Upper Galena-Platteville
DF-1S	4/25/2006	185	U	Upper Galena-Platteville
DF-24	4/26/2006	162	U	Upper Galena-Platteville
DF-24	11/21/2006	191	U	Upper Galena-Platteville
DF-24	4/19/2007	170	U	Upper Galena-Platteville
DF-24	10/10/2007	179	U	Upper Galena-Platteville
DF-24	5/28/2008	188	U	Upper Galena-Platteville
DF-24	10/1/2008	167	U	Upper Galena-Platteville
DF-24	4/29/2009	154	U	Upper Galena-Platteville
DF-24	10/14/2009	170	U	Upper Galena-Platteville
DF-24	5/19/2010	157	U	Upper Galena-Platteville
DF-24	10/21/2010	157	U	Upper Galena-Platteville
DF-24	3/7/2011	152	U	Upper Galena-Platteville
DF-24	5/9/2011	185	U	Upper Galena-Platteville
DF-24	7/20/2011	170	U	Upper Galena-Platteville
DF-24	11/2/2011	184	U	Upper Galena-Platteville
DF-24	3/7/2012	173	U	Upper Galena-Platteville
DF-24	5/16/2012	167	U	Upper Galena-Platteville
DF-24	8/15/2012	194	U	Upper Galena-Platteville
DF-24	10/17/2012	158	U	Upper Galena-Platteville
DF-24	3/20/2013	187	U	Upper Galena-Platteville
DF-24	5/22/2013	178	U	Upper Galena-Platteville
DF-24	8/14/2013	190	U	Upper Galena-Platteville
DF-2S	4/25/2006	186	U	Upper Galena-Platteville
DF-3S	4/25/2006	190	U	Upper Galena-Platteville
DF-4DS	4/25/2006	191	U	Upper Galena-Platteville
GW-9	4/28/2006	159	U	Upper Galena-Platteville
GW-9	11/21/2006	190	U	Upper Galena-Platteville
GW-9	4/21/2007	168	U	Upper Galena-Platteville
GW-9	10/10/2007	175	U	Upper Galena-Platteville
GW-9	5/29/2008	181	U	Upper Galena-Platteville

Sample ID	Sample Date	Result	Qual	Aquifer
GW-9	10/2/2008	163	U	Upper Galena-Platteville
GW-9	4/29/2009	NA	U	Upper Galena-Platteville
MW-1	4/26/2006	189	U	Upper Galena-Platteville
MW-1	11/1/2006	186	U	Upper Galena-Platteville
MW-1	4/19/2007	149	U	Upper Galena-Platteville
MW-1	10/8/2007	176	U	Upper Galena-Platteville
MW-1	5/29/2008	186	U	Upper Galena-Platteville
MW-1	10/1/2008	172	U	Upper Galena-Platteville
MW-1	4/29/2009	NA	U	Upper Galena-Platteville
MW-1	5/16/2012	167	U	Upper Galena-Platteville
MW-1	10/17/2012	160	U	Upper Galena-Platteville
MW-1	5/22/2013	181	U	Upper Galena-Platteville
MW-3	4/26/2006	182	U	Upper Galena-Platteville
MW-3	11/1/2006	186	U	Upper Galena-Platteville
MW-3	4/19/2007	158	U	Upper Galena-Platteville
MW-3	10/8/2007	177	U	Upper Galena-Platteville
MW-3	5/29/2008	186	U	Upper Galena-Platteville
MW-3	10/1/2008	Dry		Upper Galena-Platteville
MW-3	5/16/2012	163	U	Upper Galena-Platteville
MW-3	10/17/2012	157	U	Upper Galena-Platteville
MW-3	5/22/2013	180	U	Upper Galena-Platteville
MW-30	4/28/2006	160	U	Upper Galena-Platteville
PC-1B	4/26/2006	161	U	Upper Galena-Platteville
PC-2B	4/25/2006	175	U	Upper Galena-Platteville
PC-5B	4/26/2006	165	U	Upper Galena-Platteville
PC-6B	4/26/2006	165	U	Upper Galena-Platteville
WELL-7	4/27/2006	164	U	Upper Galena-Platteville
WELL-7	4/27/2006	159	U	Upper Galena-Platteville
WELL-7	10/10/2007	189	U	Upper Galena-Platteville
WELL-7	5/29/2008	186	U	Upper Galena-Platteville
WELL-7	10/2/2008	150	U	Upper Galena-Platteville
WELL-7	4/29/2009	NA	U	Upper Galena-Platteville
AR-11	4/26/2006	2,340	+	Lower Galena-Platteville
AR-11	11/21/2006	1,780	+	Lower Galena-Platteville
AR-11	11/21/2006	1,710	+	Lower Galena-Platteville
AR-11	11/21/2006	2,070	+	Lower Galena-Platteville
AR-11	11/21/2006	1,860	+	Lower Galena-Platteville
AR-11	4/23/2007	1,820	+	Lower Galena-Platteville
AR-11	10/10/2007	1,300	+	Lower Galena-Platteville
AR-11	5/28/2008	1,220	+	Lower Galena-Platteville
AR-11	10/1/2008	1,280	+	Lower Galena-Platteville
AR-11	4/29/2009	1,110	+	Lower Galena-Platteville
AR-11	10/15/2009	1,010	+	Lower Galena-Platteville
AR-11	5/20/2010	1,120	+	Lower Galena-Platteville
AR-11	10/21/2010	947	+	Lower Galena-Platteville
AR-11	3/7/2011	827	+	Lower Galena-Platteville
AR-11	5/9/2011	919	+	Lower Galena-Platteville
AR-11	7/20/2011	1,150	+	Lower Galena-Platteville
AR-11	11/2/2011	894	+	Lower Galena-Platteville
AR-11	3/7/2012	1,100	+	Lower Galena-Platteville
AR-11	5/16/2012	1,110	+	Lower Galena-Platteville
AR-11	8/15/2012	1,210	+	Lower Galena-Platteville
AR-11	10/17/2012	994	+	Lower Galena-Platteville
AR-11	3/20/2013	850	+	Lower Galena-Platteville
AR-11	5/22/2013	933	+	Lower Galena-Platteville
AR-11	8/14/2013	945	+	Lower Galena-Platteville
DF-12	4/25/2006	175	U	Lower Galena-Platteville
DF-1D	4/25/2006	176	U	Lower Galena-Platteville
DF-6	4/25/2006	176	U	Lower Galena-Platteville
MW-36	4/25/2006	176	U	Lower Galena-Platteville
MW-2	4/27/2006	157	U	St. Peter Sandstone

Sample ID	Sample Date	Result	Qual	Aquifer
MW-37	4/26/2006	158	U	St. Peter Sandstone
MW-39	4/26/2006	158	U	St. Peter Sandstone
PC-1C	4/26/2006	164	U	St. Peter Sandstone

All concentrations presented in pico-curies per liter.

Explanation:

2,340 - Bold concentrations represent exceedences of the Lower Limit of Detection of 200 pico-curies per liter.

U - Tritium not detected above the laboratory detection limit.

+ - Tritium detected above the laboratory detection limit.

Sample Location	Sample Date	Groundwater Elevation	Aquifer
DF-7S	4/24/2006	Not Measured	Shallow Overburden
TW-13	4/27/2006	683.36	Shallow Overburden
TW-13	11/1/2006	683.05	Shallow Overburden
TW-13	4/20/2007	Not Measured	Shallow Overburden
TW-13	10/8/2007	682.84	Shallow Overburden
TW-13	5/28/2008	683.86	Shallow Overburden
TW-13	9/29/2008	683.57	Shallow Overburden
TW-13	4/29/2009	684.26	Shallow Overburden
TW-13	10/14/2009	683.38	Shallow Overburden
TW-13	5/17/2010	684.22	Shallow Overburden
TW-13	10/21/2010	683.27	Shallow Overburden
TW-13	3/8/2011	683.70	Shallow Overburden
TW-13	5/9/2011	682.83	Shallow Overburden
TW-13	7/20/2011	683.26	Shallow Overburden
TW-13	11/2/2011	682.97	Shallow Overburden
TW-13	3/7/2012	683.20	Shallow Overburden
TW-13	5/16/2012	683.26	Shallow Overburden
TW-13	8/15/2012	682.86	Shallow Overburden
TW-13	10/17/2012	682.86	Shallow Overburden
TW-13	3/18/2013	683.19	Shallow Overburden
TW-13	5/22/2013	683.72	Shallow Overburden
TW-13	8/14/2013	682.98	Shallow Overburden
TW-14	4/27/2006	672.93	Shallow Overburden
TW-14	11/1/2006	672.11	Shallow Overburden
TW-14	4/20/2007	Not Measured	Shallow Overburden
TW-14	10/8/2007	672.41	Shallow Overburden
TW-14	5/28/2008	674.46	Shallow Overburden
TW-14	9/29/2008	672.71	Shallow Overburden
TW-14	4/29/2009	677.15	Shallow Overburden
TW-14	10/14/2009	672.39	Shallow Overburden
TW-14	5/17/2010	676.96	Shallow Overburden
TW-14	10/21/2010	672.05	Shallow Overburden
TW-14	3/8/2011	674.55	Shallow Overburden
TW-14	5/7/2011	675.10	Shallow Overburden
TW-14	7/20/2011	672.00	Shallow Overburden
TW-14	11/2/2011	671.66	Shallow Overburden
TW-15	4/27/2006	672.89	Shallow Overburden
TW-15	11/1/2006	672.01	Shallow Overburden
TW-15	4/20/2007	Not Measured	Shallow Overburden
TW-15	10/8/2007	672.48	Shallow Overburden
TW-15	5/28/2008	674.46	Shallow Overburden
TW-15	9/29/2008	672.73	Shallow Overburden
TW-15	4/29/2009	677.12	Shallow Overburden
TW-15	10/14/2009	672.38	Shallow Overburden
TW-15	5/17/2010	676.93	Shallow Overburden
TW-15	10/21/2010	672.03	Shallow Overburden
TW-15	3/8/2011	674.53	Shallow Overburden
TW-15	5/7/2011	675.05	Shallow Overburden
TW-15	7/20/2011	671.97	Shallow Overburden
TW-15	11/2/2011	671.63	Shallow Overburden
CAR-1	3/23/2006	672.22	Upper Unconsolidated
CAR-1	4/4/2006	672.20	Upper Unconsolidated
CAR-1	4/27/2006	672.63	Upper Unconsolidated
CAR-1	11/1/2006	671.92	Upper Unconsolidated
CAR-1	4/20/2007	Not Measured	Upper Unconsolidated
CAR-1	10/8/2007	667.37	Upper Unconsolidated
CAR-1	5/28/2008	673.79	Upper Unconsolidated
CAR-1	9/29/2008	672.37	Upper Unconsolidated
CAR-1	4/29/2009	675.99	Upper Unconsolidated

Sample Location	Sample Date	Groundwater Elevation	Aquifer
CAR-1	10/14/2009	672.00	Upper Unconsolidated
CAR-1	5/17/2010	675.82	Upper Unconsolidated
CAR-1	10/20/2010	671.70	Upper Unconsolidated
CAR-1	3/8/2011	674.06	Upper Unconsolidated
CAR-1	5/9/2011	674.10	Upper Unconsolidated
CAR-1	7/20/2011	671.60	Upper Unconsolidated
CAR-1	11/2/2011	671.41	Upper Unconsolidated
CAR-1	3/7/2012	672.48	Upper Unconsolidated
CAR-1	5/16/2012	672.40	Upper Unconsolidated
CAR-1	8/15/2012	670.69	Upper Unconsolidated
CAR-1	10/17/2012	670.70	Upper Unconsolidated
CAR-1	3/18/2013	674.55	Upper Unconsolidated
CAR-1	5/22/2013	673.92	Upper Unconsolidated
CAR-1	8/14/2013	671.67	Upper Unconsolidated
DF-7D	4/24/2006	675.08	Middle Unconsolidated
AR-1	3/23/2006	831.40	Upper Galena-Platteville
AR-1	4/4/2006	831.38	Upper Galena-Platteville
AR-1	4/26/2006	835.94	Upper Galena-Platteville
AR-1	11/1/2006	833.22	Upper Galena-Platteville
AR-1	4/20/2007	Not Measured	Upper Galena-Platteville
AR-1	6/2/2008	837.43	Upper Galena-Platteville
AR-1	9/29/2008	838.69	Upper Galena-Platteville
AR-1	4/29/2009	837.55	Upper Galena-Platteville
AR-1	10/13/2009	836.24	Upper Galena-Platteville
AR-1	5/17/2010	834.98	Upper Galena-Platteville
AR-1	10/22/2010	832.90	Upper Galena-Platteville
AR-1	3/7/2011	832.92	Upper Galena-Platteville
AR-1	5/9/2011	835.71	Upper Galena-Platteville
AR-1	7/19/2011	834.28	Upper Galena-Platteville
AR-1	11/2/2011	834.07	Upper Galena-Platteville
AR-1	3/6/2012	830.95	Upper Galena-Platteville
AR-1	5/14/2012	832.14	Upper Galena-Platteville
AR-1	8/20/2012	829.59	Upper Galena-Platteville
AR-1	10/16/2012	828.57	Upper Galena-Platteville
AR-1	3/18/2013	831.09	Upper Galena-Platteville
AR-1	5/22/2013	835.99	Upper Galena-Platteville
AR-1	8/14/2013	833.30	Upper Galena-Platteville
AR-10	4/26/2006	837.66	Upper Galena-Platteville
AR-10	11/1/2006	837.45	Upper Galena-Platteville
AR-10	4/15/2007	Not Measured	Upper Galena-Platteville
AR-10	6/2/2008	842.97	Upper Galena-Platteville
AR-10	9/29/2008	842.13	Upper Galena-Platteville
AR-10	10/1/2008	842.13	Upper Galena-Platteville
AR-10	4/29/2009	843.90	Upper Galena-Platteville
AR-10	10/13/2009	842.30	Upper Galena-Platteville
AR-10	5/17/2010	843.01	Upper Galena-Platteville
AR-10	10/22/2010	841.06	Upper Galena-Platteville
AR-10	3/7/2011	839.44	Upper Galena-Platteville
AR-10	5/9/2011	841.10	Upper Galena-Platteville
AR-10	7/19/2011	840.75	Upper Galena-Platteville
AR-10	11/2/2011	839.52	Upper Galena-Platteville
AR-10	3/6/2012	838.61	Upper Galena-Platteville
AR-10	5/14/2012	838.90	Upper Galena-Platteville
AR-10	8/20/2012	837.04	Upper Galena-Platteville
AR-10	10/16/2012	836.40	Upper Galena-Platteville
AR-10	3/18/2013	835.76	Upper Galena-Platteville
AR-10	5/22/2013	840.64	Upper Galena-Platteville
AR-10	8/14/2013	839.87	Upper Galena-Platteville
AR-2	3/23/2006	798.68	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-2	4/4/2006	798.31	Upper Galena-Platteville
AR-2	4/26/2006	798.50	Upper Galena-Platteville
AR-2	11/1/2006	797.48	Upper Galena-Platteville
AR-2	4/18/2007	Not Measured	Upper Galena-Platteville
AR-2	10/8/2007	803.96	Upper Galena-Platteville
AR-2	5/29/2008	812.58	Upper Galena-Platteville
AR-2	9/29/2008	811.18	Upper Galena-Platteville
AR-2	4/29/2009	818.53	Upper Galena-Platteville
AR-2	10/13/2009	812.98	Upper Galena-Platteville
AR-2	5/17/2010	818.47	Upper Galena-Platteville
AR-2	10/20/2010	815.67	Upper Galena-Platteville
AR-2	3/7/2011	809.56	Upper Galena-Platteville
AR-2	5/9/2011	817.03	Upper Galena-Platteville
AR-2	7/20/2011	828.53	Upper Galena-Platteville
AR-2	11/2/2011	813.87	Upper Galena-Platteville
AR-2	3/7/2012	809.18	Upper Galena-Platteville
AR-2	5/16/2012	824.77	Upper Galena-Platteville
AR-2	8/15/2012	816.79	Upper Galena-Platteville
AR-2	10/17/2012	817.16	Upper Galena-Platteville
AR-2	3/18/2013	808.18	Upper Galena-Platteville
AR-2	5/22/2013	812.10	Upper Galena-Platteville
AR-2	8/14/2013	810.88	Upper Galena-Platteville
AR-3	3/23/2006	798.16	Upper Galena-Platteville
AR-3	4/4/2006	797.49	Upper Galena-Platteville
AR-3	4/26/2006	796.87	Upper Galena-Platteville
AR-3	11/1/2006	796.14	Upper Galena-Platteville
AR-3	4/18/2007	Not Measured	Upper Galena-Platteville
AR-3	10/8/2007	802.31	Upper Galena-Platteville
AR-3	5/29/2008	804.84	Upper Galena-Platteville
AR-3	9/29/2008	803.14	Upper Galena-Platteville
AR-3	4/29/2009	806.32	Upper Galena-Platteville
AR-3	10/14/2009	804.10	Upper Galena-Platteville
AR-3	5/17/2010	805.29	Upper Galena-Platteville
AR-3	10/20/2010	804.62	Upper Galena-Platteville
AR-3	3/7/2011	807.64	Upper Galena-Platteville
AR-3	5/9/2011	804.49	Upper Galena-Platteville
AR-3	7/20/2011	805.32	Upper Galena-Platteville
AR-3	11/2/2011	803.72	Upper Galena-Platteville
AR-3	3/7/2012	803.41	Upper Galena-Platteville
AR-3	5/16/2012	803.73	Upper Galena-Platteville
AR-3	8/15/2012	803.14	Upper Galena-Platteville
AR-3	10/17/2012	802.79	Upper Galena-Platteville
AR-3	3/18/2013	802.38	Upper Galena-Platteville
AR-3	5/22/2013	804.10	Upper Galena-Platteville
AR-3	8/14/2013	803.18	Upper Galena-Platteville
AR-4	4/27/2006	742.74	Upper Galena-Platteville
AR-4	11/21/2006	740.67	Upper Galena-Platteville
AR-4	4/23/2007	Not Measured	Upper Galena-Platteville
AR-4	10/10/2007	744.24	Upper Galena-Platteville
AR-4	5/28/2008	748.14	Upper Galena-Platteville
AR-4	9/29/2008	744.64	Upper Galena-Platteville
AR-4	4/29/2009	753.48	Upper Galena-Platteville
AR-4	10/15/2009	745.02	Upper Galena-Platteville
AR-4	5/17/2010	751.73	Upper Galena-Platteville
AR-4	10/21/2010	743.84	Upper Galena-Platteville
AR-4	3/7/2011	743.54	Upper Galena-Platteville
AR-4	5/9/2011	749.44	Upper Galena-Platteville
AR-4	7/20/2011	745.27	Upper Galena-Platteville
AR-4	11/2/2011	743.37	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-4	3/7/2012	743.47	Upper Galena-Platteville
AR-4	5/16/2012	744.84	Upper Galena-Platteville
AR-4	8/15/2012	741.62	Upper Galena-Platteville
AR-4	10/17/2012	740.53	Upper Galena-Platteville
AR-4	3/18/2013	740.94	Upper Galena-Platteville
AR-4	5/22/2013	746.57	Upper Galena-Platteville
AR-4	8/14/2013	743.23	Upper Galena-Platteville
AR-5	3/23/2006	687.90	Upper Galena-Platteville
AR-5	4/4/2006	689.06	Upper Galena-Platteville
AR-5	4/27/2006	688.08	Upper Galena-Platteville
AR-5	11/21/2006	687.75	Upper Galena-Platteville
AR-5	4/21/2007	Not Measured	Upper Galena-Platteville
AR-5	10/10/2007	687.42	Upper Galena-Platteville
AR-5	5/28/2008	689.00	Upper Galena-Platteville
AR-5	9/29/2008	688.20	Upper Galena-Platteville
AR-5	4/28/2009	690.95	Upper Galena-Platteville
AR-5	10/14/2009	688.48	Upper Galena-Platteville
AR-5	5/17/2010	690.67	Upper Galena-Platteville
AR-5	10/20/2010	688.29	Upper Galena-Platteville
AR-5	3/7/2011	689.40	Upper Galena-Platteville
AR-5	5/7/2011	690.12	Upper Galena-Platteville
AR-5	7/20/2011	688.35	Upper Galena-Platteville
AR-5	11/2/2011	687.94	Upper Galena-Platteville
AR-6	3/23/2006	674.47	Upper Galena-Platteville
AR-6	4/4/2006	674.68	Upper Galena-Platteville
AR-6	4/27/2006	675.00	Upper Galena-Platteville
AR-6	11/21/2006	674.75	Upper Galena-Platteville
AR-6	4/21/2007	Not Measured	Upper Galena-Platteville
AR-6	10/10/2007	675.22	Upper Galena-Platteville
AR-6	5/28/2008	676.65	Upper Galena-Platteville
AR-6	9/29/2008	675.70	Upper Galena-Platteville
AR-6	4/28/2009	678.55	Upper Galena-Platteville
AR-6	10/14/2009	675.45	Upper Galena-Platteville
AR-6	5/17/2010	679.35	Upper Galena-Platteville
AR-6	10/20/2010	675.29	Upper Galena-Platteville
AR-6	3/7/2011	676.60	Upper Galena-Platteville
AR-6	5/7/2011	677.34	Upper Galena-Platteville
AR-6	7/20/2011	675.26	Upper Galena-Platteville
AR-6	11/2/2011	674.87	Upper Galena-Platteville
AR-7	4/4/2006	765.96	Upper Galena-Platteville
AR-7	4/27/2006	766.74	Upper Galena-Platteville
AR-7	10/30/2006	768.42	Upper Galena-Platteville
AR-7	4/15/2007	Not Measured	Upper Galena-Platteville
AR-7	6/2/2008	787.88	Upper Galena-Platteville
AR-7	9/29/2008	786.38	Upper Galena-Platteville
AR-7	10/1/2008	786.38	Upper Galena-Platteville
AR-7	4/29/2009	793.61	Upper Galena-Platteville
AR-7	10/13/2009	790.87	Upper Galena-Platteville
AR-7	5/17/2010	791.71	Upper Galena-Platteville
AR-7	10/21/2010	790.58	Upper Galena-Platteville
AR-7	3/7/2011	781.11	Upper Galena-Platteville
AR-7	5/9/2011	784.63	Upper Galena-Platteville
AR-7	7/19/2011	787.14	Upper Galena-Platteville
AR-7	11/2/2011	788.26	Upper Galena-Platteville
AR-7	3/2/2012	781.82	Upper Galena-Platteville
AR-7	5/14/2012	782.14	Upper Galena-Platteville
AR-7	8/20/2012	778.32	Upper Galena-Platteville
AR-7	10/16/2012	776.00	Upper Galena-Platteville
AR-7	3/18/2013	775.88	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-7	5/22/2013	785.43	Upper Galena-Platteville
AR-7	8/14/2013	782.48	Upper Galena-Platteville
AR-8	4/4/2006	816.14	Upper Galena-Platteville
AR-8	4/27/2006	838.55	Upper Galena-Platteville
AR-8	10/30/2006	836.86	Upper Galena-Platteville
AR-8	4/15/2007	Not Measured	Upper Galena-Platteville
AR-8	6/2/2008	848.56	Upper Galena-Platteville
AR-8	9/29/2008	851.66	Upper Galena-Platteville
AR-8	4/29/2009	Not Measured	Upper Galena-Platteville
AR-8	10/13/2009	851.76	Upper Galena-Platteville
AR-8	5/17/2010	847.98	Upper Galena-Platteville
AR-8	10/21/2010	847.71	Upper Galena-Platteville
AR-8	3/7/2011	840.64	Upper Galena-Platteville
AR-8	5/9/2011	842.76	Upper Galena-Platteville
AR-8	7/19/2011	844.45	Upper Galena-Platteville
AR-8	11/2/2011	845.01	Upper Galena-Platteville
AR-8	3/6/2012	839.10	Upper Galena-Platteville
AR-8	5/14/2012	839.24	Upper Galena-Platteville
AR-8	8/20/2012	835.79	Upper Galena-Platteville
AR-8	10/16/2012	833.30	Upper Galena-Platteville
AR-8	3/18/2013	835.11	Upper Galena-Platteville
AR-8	5/22/2013	843.20	Upper Galena-Platteville
AR-8	8/14/2013	840.61	Upper Galena-Platteville
AR-9	4/27/2006	850.40	Upper Galena-Platteville
AR-9	10/30/2006	819.21	Upper Galena-Platteville
AR-9	4/20/2007	Not Measured	Upper Galena-Platteville
AR-9	6/2/2008	830.88	Upper Galena-Platteville
AR-9	9/29/2008	831.12	Upper Galena-Platteville
AR-9	10/1/2008	831.12	Upper Galena-Platteville
AR-9	4/29/2009	832.26	Upper Galena-Platteville
AR-9	10/13/2009	833.11	Upper Galena-Platteville
AR-9	5/17/2010	832.42	Upper Galena-Platteville
AR-9	10/22/2010	832.63	Upper Galena-Platteville
AR-9	3/7/2011	827.92	Upper Galena-Platteville
AR-9	5/9/2011	830.39	Upper Galena-Platteville
AR-9	7/19/2011	832.94	Upper Galena-Platteville
AR-9	11/2/2011	829.95	Upper Galena-Platteville
AR-9	3/6/2012	828.75	Upper Galena-Platteville
AR-9	5/14/2012	828.95	Upper Galena-Platteville
AR-9	8/20/2012	826.91	Upper Galena-Platteville
AR-9	10/16/2012	825.42	Upper Galena-Platteville
AR-9	3/18/2013	837.15	Upper Galena-Platteville
AR-9	5/22/2013	833.55	Upper Galena-Platteville
AR-9	8/14/2013	830.44	Upper Galena-Platteville
CAR-2	3/23/2006	736.50	Upper Galena-Platteville
CAR-2	4/4/2006	742.56	Upper Galena-Platteville
CAR-2	4/27/2006	736.89	Upper Galena-Platteville
CAR-2	11/2/2006	736.69	Upper Galena-Platteville
CAR-2	4/20/2007	Not Measured	Upper Galena-Platteville
CAR-2	10/8/2007	735.43	Upper Galena-Platteville
CAR-2	5/28/2008	736.81	Upper Galena-Platteville
CAR-2	9/29/2008	736.61	Upper Galena-Platteville
CAR-2	4/28/2009	743.39	Upper Galena-Platteville
CAR-2	10/14/2009	737.05	Upper Galena-Platteville
CAR-2	5/17/2010	742.61	Upper Galena-Platteville
CAR-2	10/21/2010	734.90	Upper Galena-Platteville
CAR-2	3/7/2011	742.66	Upper Galena-Platteville
CAR-2	5/7/2011	740.87	Upper Galena-Platteville
CAR-2	7/20/2011	735.51	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
CAR-2	11/2/2011	735.17	Upper Galena-Platteville
CAR-3	4/4/2006	824.62	Upper Galena-Platteville
CAR-3	4/27/2006	826.52	Upper Galena-Platteville
CAR-3	10/30/2006	828.33	Upper Galena-Platteville
CAR-3	4/15/2007	Not Measured	Upper Galena-Platteville
CAR-3	6/2/2008	838.21	Upper Galena-Platteville
CAR-3	9/29/2008	840.95	Upper Galena-Platteville
CAR-3	10/1/2008	840.95	Upper Galena-Platteville
CAR-3	4/29/2009	841.96	Upper Galena-Platteville
CAR-3	10/13/2009	845.69	Upper Galena-Platteville
CAR-3	5/17/2010	837.87	Upper Galena-Platteville
CAR-3	10/21/2010	837.36	Upper Galena-Platteville
CAR-3	3/7/2011	834.92	Upper Galena-Platteville
CAR-3	5/9/2011	844.36	Upper Galena-Platteville
CAR-3	7/19/2011	834.20	Upper Galena-Platteville
CAR-3	11/2/2011	835.29	Upper Galena-Platteville
CAR-3	3/6/2012	833.94	Upper Galena-Platteville
CAR-3	5/14/2012	833.11	Upper Galena-Platteville
CAR-3	8/20/2012	828.57	Upper Galena-Platteville
CAR-3	10/16/2012	831.07	Upper Galena-Platteville
CAR-3	3/18/2013	850.75	Upper Galena-Platteville
CAR-3	5/22/2013	842.24	Upper Galena-Platteville
CAR-3	8/14/2013	835.16	Upper Galena-Platteville
DF-10	4/24/2006	Not Measured	Upper Galena-Platteville
DF-11	4/24/2006	749.00	Upper Galena-Platteville
DF-15	3/23/2006	745.49	Upper Galena-Platteville
DF-15	4/4/2006	740.47	Upper Galena-Platteville
DF-15	4/24/2006	740.98	Upper Galena-Platteville
DF-18	3/23/2006	724.68	Upper Galena-Platteville
DF-18	4/4/2006	724.80	Upper Galena-Platteville
DF-18	4/24/2006	725.72	Upper Galena-Platteville
DF-19	3/23/2006	724.51	Upper Galena-Platteville
DF-19	4/4/2006	724.63	Upper Galena-Platteville
DF-19	4/25/2006	725.60	Upper Galena-Platteville
DF-1S	3/23/2006	724.97	Upper Galena-Platteville
DF-1S	4/4/2006	725.09	Upper Galena-Platteville
DF-1S	4/25/2006	726.04	Upper Galena-Platteville
DF-22S	3/23/2006	735.86	Upper Galena-Platteville
DF-22S	4/4/2006	725.99	Upper Galena-Platteville
DF-22S	4/24/2006	726.34	Upper Galena-Platteville
DF-24	3/23/2006	722.40	Upper Galena-Platteville
DF-24	4/4/2006	722.57	Upper Galena-Platteville
DF-24	4/26/2006	723.79	Upper Galena-Platteville
DF-24	11/21/2006	721.58	Upper Galena-Platteville
DF-24	4/19/2007	Not Measured	Upper Galena-Platteville
DF-24	10/10/2007	724.51	Upper Galena-Platteville
DF-24	5/28/2008	732.78	Upper Galena-Platteville
DF-24	9/29/2008	726.33	Upper Galena-Platteville
DF-24	4/29/2009	739.28	Upper Galena-Platteville
DF-24	10/14/2009	728.22	Upper Galena-Platteville
DF-24	5/17/2010	733.98	Upper Galena-Platteville
DF-24	10/21/2010	728.28	Upper Galena-Platteville
DF-24	3/7/2011	726.35	Upper Galena-Platteville
DF-24	5/9/2011	730.36	Upper Galena-Platteville
DF-24	7/20/2011	726.98	Upper Galena-Platteville
DF-24	11/2/2011	724.86	Upper Galena-Platteville
DF-24	3/7/2012	724.71	Upper Galena-Platteville
DF-24	5/16/2012	724.95	Upper Galena-Platteville
DF-24	8/15/2012	724.42	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
DF-24	10/17/2012	722.54	Upper Galena-Platteville
DF-24	3/18/2013	725.17	Upper Galena-Platteville
DF-24	5/22/2013	729.26	Upper Galena-Platteville
DF-24	8/14/2013	726.07	Upper Galena-Platteville
DF-2S	3/23/2006	725.48	Upper Galena-Platteville
DF-2S	4/4/2006	725.96	Upper Galena-Platteville
DF-2S	4/25/2006	727.08	Upper Galena-Platteville
DF-3S	3/23/2006	726.28	Upper Galena-Platteville
DF-3S	4/4/2006	726.36	Upper Galena-Platteville
DF-3S	4/25/2006	727.33	Upper Galena-Platteville
DF-4DS	4/25/2006	765.82	Upper Galena-Platteville
DF-5S	4/24/2006	799.77	Upper Galena-Platteville
GW-9	4/28/2006	745.46	Upper Galena-Platteville
GW-9	11/21/2006	749.73	Upper Galena-Platteville
GW-9	4/21/2007	Not Measured	Upper Galena-Platteville
GW-9	10/10/2007	752.23	Upper Galena-Platteville
GW-9	5/29/2008	761.88	Upper Galena-Platteville
GW-9	5/29/2008	761.88	Upper Galena-Platteville
GW-9	9/29/2008	748.23	Upper Galena-Platteville
GW-9	4/28/2009	758.93	Upper Galena-Platteville
GW-9	10/14/2009	760.63	Upper Galena-Platteville
GW-9	5/17/2010	760.33	Upper Galena-Platteville
GW-9	10/21/2010	743.58	Upper Galena-Platteville
GW-9	3/9/2011	754.81	Upper Galena-Platteville
GW-9	5/10/2011	755.97	Upper Galena-Platteville
GW-9	7/20/2011	753.17	Upper Galena-Platteville
GW-9	11/2/2011	754.86	Upper Galena-Platteville
MW-1	3/23/2006	799.95	Upper Galena-Platteville
MW-1	4/4/2006	800.76	Upper Galena-Platteville
MW-1	4/26/2006	799.63	Upper Galena-Platteville
MW-1	11/1/2006	798.62	Upper Galena-Platteville
MW-1	4/19/2007	Not Measured	Upper Galena-Platteville
MW-1	10/8/2007	804.27	Upper Galena-Platteville
MW-1	5/29/2008	812.12	Upper Galena-Platteville
MW-1	9/29/2008	808.42	Upper Galena-Platteville
MW-1	4/28/2009	819.37	Upper Galena-Platteville
MW-1	10/14/2009	812.05	Upper Galena-Platteville
MW-1	5/17/2010	Not Measured	Upper Galena-Platteville
MW-1	10/21/2010	814.17	Upper Galena-Platteville
MW-1	3/7/2011	807.40	Upper Galena-Platteville
MW-1	5/7/2011	808.37	Upper Galena-Platteville
MW-1	7/20/2011	Not Accessible	Upper Galena-Platteville
MW-1	11/2/2011	Not Measured	Upper Galena-Platteville
MW-1	3/7/2012	806.45	Upper Galena-Platteville
MW-1	5/16/2012	806.57	Upper Galena-Platteville
MW-1	8/15/2012	807.70	Upper Galena-Platteville
MW-1	10/17/2012	807.66	Upper Galena-Platteville
MW-1	3/18/2013	803.34	Upper Galena-Platteville
MW-1	5/22/2013	805.50	Upper Galena-Platteville
MW-1	8/14/2013	804.74	Upper Galena-Platteville
MW-15	3/23/2006	743.98	Upper Galena-Platteville
MW-15	4/4/2006	744.21	Upper Galena-Platteville
MW-15	4/24/2006	745.56	Upper Galena-Platteville
MW-3	4/26/2006	787.51	Upper Galena-Platteville
MW-3	11/1/2006	786.00	Upper Galena-Platteville
MW-3	4/19/2007	Not Measured	Upper Galena-Platteville
MW-3	10/8/2007	789.27	Upper Galena-Platteville
MW-3	5/29/2008	790.45	Upper Galena-Platteville
MW-3	9/29/2008	Dry	Upper Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
MW-3	4/28/2009	791.15	Upper Galena-Platteville
MW-3	10/14/2009	798.65	Upper Galena-Platteville
MW-3	5/17/2010	Not Measured	Upper Galena-Platteville
MW-3	10/21/2010	789.74	Upper Galena-Platteville
MW-3	3/7/2011	788.99	Upper Galena-Platteville
MW-3	5/7/2011	790.19	Upper Galena-Platteville
MW-3	7/20/2011	790.08	Upper Galena-Platteville
MW-3	11/2/2011	789.15	Upper Galena-Platteville
MW-3	3/7/2012	788.48	Upper Galena-Platteville
MW-3	5/16/2012	788.51	Upper Galena-Platteville
MW-3	8/15/2012	788.74	Upper Galena-Platteville
MW-3	10/17/2012	788.55	Upper Galena-Platteville
MW-3	3/18/2013	786.48	Upper Galena-Platteville
MW-3	5/22/2013	786.74	Upper Galena-Platteville
MW-3	8/14/2013	788.18	Upper Galena-Platteville
MW-30	3/23/2006	720.41	Upper Galena-Platteville
MW-30	4/28/2006	720.26	Upper Galena-Platteville
PC-1B	3/23/2006	717.21	Upper Galena-Platteville
PC-1B	4/4/2006	717.25	Upper Galena-Platteville
PC-1B	4/26/2006	718.01	Upper Galena-Platteville
PC-2B	4/4/2006	756.28	Upper Galena-Platteville
PC-2B	4/25/2006	756.23	Upper Galena-Platteville
PC-3B	4/24/2006	760.58	Upper Galena-Platteville
PC-4B	3/23/2006	726.15	Upper Galena-Platteville
PC-4B	4/4/2006	726.27	Upper Galena-Platteville
PC-4B	4/24/2006	726.49	Upper Galena-Platteville
PC-5B	3/23/2006	722.91	Upper Galena-Platteville
PC-5B	4/4/2006	722.47	Upper Galena-Platteville
PC-5B	4/26/2006	723.60	Upper Galena-Platteville
PC-6B	3/23/2006	749.82	Upper Galena-Platteville
PC-6B	4/4/2006	740.58	Upper Galena-Platteville
PC-6B	4/26/2006	743.18	Upper Galena-Platteville
WELL-7	4/27/2006	775.47	Upper Galena-Platteville
WELL-7	11/21/2006	784.24	Upper Galena-Platteville
WELL-7	10/10/2007	789.24	Upper Galena-Platteville
WELL-7	5/29/2008	803.94	Upper Galena-Platteville
WELL-7	9/29/2008	784.74	Upper Galena-Platteville
WELL-7	4/28/2009	805.04	Upper Galena-Platteville
WELL-7	10/14/2009	809.92	Upper Galena-Platteville
WELL-7	5/17/2010	808.64	Upper Galena-Platteville
WELL-7	10/21/2010	803.79	Upper Galena-Platteville
WELL-7	3/7/2011	810.34	Upper Galena-Platteville
WELL-7	5/7/2011	810.09	Upper Galena-Platteville
WELL-7	7/20/2011	805.48	Upper Galena-Platteville
WELL-7	11/2/2011	801.82	Upper Galena-Platteville
WELL-7	3/7/2012	793.58	Upper Galena-Platteville
WELL-7	5/16/2012	801.59	Upper Galena-Platteville
WELL-7	8/15/2012	790.65	Upper Galena-Platteville
WELL-7	10/17/2012	808.52	Upper Galena-Platteville
WELL-7	3/18/2013	809.81	Upper Galena-Platteville
WELL-7	5/22/2013	794.95	Upper Galena-Platteville
WELL-7	8/14/2013	793.56	Upper Galena-Platteville
AR-11	4/26/2006	742.41	Lower Galena-Platteville
AR-11	11/21/2006	732.75	Lower Galena-Platteville
AR-11	4/23/2007	Not Measured	Lower Galena-Platteville
AR-11	10/10/2007	721.23	Lower Galena-Platteville
AR-11	5/28/2008	744.80	Lower Galena-Platteville
AR-11	9/29/2008	741.70	Lower Galena-Platteville
AR-11	4/29/2009	748.59	Lower Galena-Platteville

Sample Location	Sample Date	Groundwater Elevation	Aquifer
AR-11	10/15/2009	742.47	Lower Galena-Platteville
AR-11	5/17/2010	747.35	Lower Galena-Platteville
AR-11	10/21/2010	743.30	Lower Galena-Platteville
AR-11	3/7/2011	742.80	Lower Galena-Platteville
AR-11	5/9/2011	747.64	Lower Galena-Platteville
AR-11	7/20/2011	744.43	Lower Galena-Platteville
AR-11	11/2/2011	744.78	Lower Galena-Platteville
AR-11	3/7/2012	744.88	Lower Galena-Platteville
AR-11	5/16/2012	745.74	Lower Galena-Platteville
AR-11	8/15/2012	743.05	Lower Galena-Platteville
AR-11	10/17/2012	742.03	Lower Galena-Platteville
AR-11	3/18/2013	742.34	Lower Galena-Platteville
AR-11	5/22/2013	747.47	Lower Galena-Platteville
AR-11	8/14/2013	744.62	Lower Galena-Platteville
DF-12	3/23/2006	744.35	Lower Galena-Platteville
DF-12	4/25/2006	746.06	Lower Galena-Platteville
DF-13	3/23/2006	744.39	Lower Galena-Platteville
DF-13	4/4/2006	744.68	Lower Galena-Platteville
DF-13	4/26/2006	746.06	Lower Galena-Platteville
DF-17	3/23/2006	729.14	Lower Galena-Platteville
DF-17	4/4/2006	729.27	Lower Galena-Platteville
DF-17	4/24/2006	729.76	Lower Galena-Platteville
DF-1D	3/23/2006	724.56	Lower Galena-Platteville
DF-1D	4/4/2006	724.73	Lower Galena-Platteville
DF-1D	4/25/2006	725.67	Lower Galena-Platteville
DF-22D	3/23/2006	725.78	Lower Galena-Platteville
DF-22D	4/24/2006	726.34	Lower Galena-Platteville
DF-23	3/23/2006	726.66	Lower Galena-Platteville
DF-23	4/4/2006	695.37	Lower Galena-Platteville
DF-23	4/24/2006	717.17	Lower Galena-Platteville
DF-4DD	3/23/2006	744.49	Lower Galena-Platteville
DF-4DD	4/4/2006	744.78	Lower Galena-Platteville
DF-4DD	4/24/2006	746.17	Lower Galena-Platteville
DF-6	3/23/2006	737.18	Lower Galena-Platteville
DF-6	4/4/2006	738.17	Lower Galena-Platteville
DF-6	4/25/2006	739.20	Lower Galena-Platteville
DF-8	3/23/2006	716.90	Lower Galena-Platteville
DF-8	4/4/2006	717.00	Lower Galena-Platteville
DF-8	4/24/2006	717.60	Lower Galena-Platteville
MW-16	3/23/2006	743.93	Lower Galena-Platteville
MW-16	4/4/2006	744.19	Lower Galena-Platteville
MW-16	4/24/2006	745.56	Lower Galena-Platteville
MW-36	3/23/2006	744.47	Lower Galena-Platteville
MW-36	4/4/2006	744.73	Lower Galena-Platteville
MW-36	4/25/2006	746.14	Lower Galena-Platteville
MW-41	3/23/2006	743.85	Lower Galena-Platteville
MW-41	4/4/2006	744.13	Lower Galena-Platteville
MW-41	4/24/2006	745.49	Lower Galena-Platteville
MW-42	3/23/2006	744.14	Lower Galena-Platteville
MW-42	4/4/2006	744.47	Lower Galena-Platteville
MW-42	4/24/2006	745.85	Lower Galena-Platteville
MW-2	3/23/2006	683.62	St. Peter Sandstone
MW-2	4/4/2006	684.18	St. Peter Sandstone
MW-2	4/27/2006	684.22	St. Peter Sandstone
MW-20R	3/23/2006	680.65	St. Peter Sandstone
MW-20R	4/4/2006	680.73	St. Peter Sandstone
MW-20R	4/24/2006	681.19	St. Peter Sandstone
MW-21	3/23/2006	680.58	St. Peter Sandstone
MW-21	4/4/2006	680.70	St. Peter Sandstone

Sample Location	Sample Date	Groundwater Elevation	Aquifer
MW-21	4/24/2006	681.16	St. Peter Sandstone
MW-37	3/23/2006	681.61	St. Peter Sandstone
MW-37	4/4/2006	681.73	St. Peter Sandstone
MW-37	4/26/2006	682.15	St. Peter Sandstone
MW-39	3/23/2006	680.94	St. Peter Sandstone
MW-39	4/4/2006	681.06	St. Peter Sandstone
MW-39	4/26/2006	681.49	St. Peter Sandstone
PC-1C	3/23/2006	678.99	St. Peter Sandstone
PC-1C	4/4/2006	678.99	St. Peter Sandstone
PC-1C	4/26/2006	679.53	St. Peter Sandstone
DF-25	4/24/2006	769.11	Unknown
DF-9S	3/23/2006	685.80	Unknown
DF-9S	4/4/2006	686.08	Unknown
MS-1	3/23/2006	694.03	Unknown
MS-1	4/4/2006	693.34	Unknown
MS-2	3/23/2006	676.91	Unknown
MS-2	4/4/2006	676.78	Unknown
MW-11	4/4/2006	713.67	Unknown
MW-12I	3/23/2006	704.92	Unknown
MW-12I	4/4/2006	704.90	Unknown
MW12S	3/23/2006	704.45	Unknown
MW12S	4/4/2006	706.29	Unknown
OS-NW-1D	3/23/2006	676.20	Unknown
OS-NW-1D	4/4/2006	743.12	Unknown
OS-NW-1S	3/23/2006	742.60	Unknown
OS-NW-1S	4/4/2006	774.16	Unknown
OS-SW-1	3/23/2006	669.94	Unknown
OS-SW-1	4/4/2006	678.43	Unknown
OS-SW-2D	3/23/2006	679.76	Unknown
OS-SW-2D	4/4/2006	679.89	Unknown
OS-SW-2I	3/23/2006	679.88	Unknown
OS-SW-2I	4/4/2006	680.00	Unknown
OS-SW-2S	3/23/2006	684.51	Unknown
OS-SW-2S	4/4/2006	685.06	Unknown
OS-SW-3D	3/23/2006	682.52	Unknown
OS-SW-3D	4/4/2006	659.12	Unknown
OS-SW-3S	3/23/2006	695.82	Unknown
OS-SW-3S	4/4/2006	673.83	Unknown
RR-10	4/4/2006	672.17	Unknown
RR-9	3/23/2006	670.92	Unknown
RR-9	4/4/2006	671.05	Unknown

All Elevations Presented in Feet Above Mean Sea Level