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QUAD CITIES NUCLEAR POWER STATION UNITS 1 and 2

Annual Radiological
Environmental Operating Report

1 January Through 31 December 2008

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Table Of Contents

I. Summary and Conclusions 1

II. Introduction 3
- A. Objectives of the REMP 3
- B. Implementation of the Objectives 3

III. Program Description 3
- A. Sample Collection 3
- B. Sample Analysis 5
- C. Data Interpretation 6
- D. Program Exceptions 7
- E. Program Changes 10

IV. Results and Discussion 10
- A. Aquatic Environment 10
  - 1. Surface Water 10
  - 2. Ground Water 11
  - 3. Fish 11
  - 4. Sediment 12
- B. Atmospheric Environment 12
  - 1. Airborne 12
    - a. Air Particulates 12
    - b. Airborne Iodine 13
  - 2. Terrestrial 13
    - a. Milk 13
    - b. Food Products 13
- C. Ambient Gamma Radiation 14
- D. Interim Spent Fuel Storage 14
- E. Land Use Survey 14
- F. Errata Data 15
- G. Summary of Results – Inter-laboratory Comparison Program 16

Appendices

Appendix A Radiological Environmental Monitoring Report Summary

Tables

Table A-1 Radiological Environmental Monitoring Program for Quad Cities Nuclear Power Station, 2008

Appendix B Location Designation, Distance & Direction, and Sample Collection & Analytical Methods

Tables

Table B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Quad Cities Nuclear Power Station, 2008

Table B-2: Radiological Environmental Monitoring Program - Summary of Sample Collection and Analytical Methods, Quad Cities Nuclear Power Station, 2008

Figures

Figure B-1: Quad Cities REMP Sampling Locations – 2 Mile Radius, 2008

Figure B-2: Quad Cities REMP Sampling Locations – 9.3 Mile Radius, 2008

Appendix C Data Tables and Figures - Primary Laboratory

Tables

Table C-I.1 Concentrations of Gross Beta in Surface Water Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-I.2 Concentrations of Tritium in Surface Water Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-I.3 Concentrations of Gamma Emitters in Surface Water Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-II.1 Concentrations of Tritium in Ground Water Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-II.2 Concentrations of Gamma Emitters in Ground Water Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-III.1 Concentrations of Gamma Emitters in Fish Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-IV.1 Concentrations of Gamma Emitters in Sediment Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-V.1 Concentrations of Gross Beta in Air Particulate Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-V.2 Monthly and Yearly Mean Values of Gross Beta Concentrations (E-3 pCi/cu meter) in Air Particulate Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-V.3 Concentrations of Gamma Emitters in Air Particulate Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-VI.1 Concentrations of I-131 in Air Iodine Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-VII.1 Concentrations of I-131 in Milk Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-VII.2 Concentrations of Gamma Emitters in Milk Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-VIII.1 Concentrations of Gamma Emitters in Food Products Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table C-IX.1 Quarterly TLD Results for Quad Cities Nuclear Power Station, 2008.

Table C-IX.2 Mean Quarterly TLD Results for the Inner Ring, Outer Ring, Other and Control Locations for Quad Cities Nuclear Power Station, 2008.

Table C-IX.3 Summary of the Ambient Dosimetry Program for Quad Cities Nuclear Power Station, 2008.

Figures

Figure C-1 Surface Water - Gross Beta – Stations Q-33 and Q-34 (C) Collected in the Vicinity of QCNPS, 2000 - 2008.

Figure C-2 Surface Water - Tritium – Stations Q-33 and Q-34 (C) Collected in the Vicinity of QCNPS, 2000 - 2008.

Figure C-3 Ground Water - Tritium – Station Q-35 and Q-36 Collected in the Vicinity of QCNPS, 2000 - 2008.

Figure C-4 Air Particulates - Gross Beta – Stations Q-01 and Q-02 Collected in the Vicinity of QCNPS, 2000 - 2008.

Figure C-5 Air Particulates - Gross Beta – Stations Q-03 and Q-04 Collected in the Vicinity of QCNPS, 2000 - 2008.

Figure C-6 Air Particulates - Gross Beta – Station Q-07 (C) Collected in the Vicinity of QCNPS, 2000 - 2008.

Figure C-7 Air Particulates - Gross Beta – Stations Q-13 and Q-16 Collected in the Vicinity of QCNPS, 2008.

Figure C-8 Air Particulates - Gross Beta – Stations Q-37 and Q-38 Collected in the Vicinity of QCNPS, 2008.

Appendix D Inter-Laboratory Comparison Program

Tables

Table D-1 Analytics Environmental Radioactivity Cross Check Program Teledyne Brown Engineering, 2008

Table D-2 ERA Environmental Radioactivity Cross Check Program Teledyne Brown Engineering, 2008

Table D-3 DOE's Mixed Analyte Performance Evaluation Program (MAPEP) Teledyne Brown Engineering, 2008

Table D-4 ERA Statistical Summary Proficiency Testing Program Environmental, Inc., 2008

Table D-5 DOE's Mixed Analyte Performance Evaluation Program (MAPEP) Environmental, Inc., 2008

Appendix E Annual Radiological Groundwater Protection Program Report (ARGPPR)

I. Summary and Conclusions

In 2008 the Quad Cities Generating Station released to the environment through the radioactive effluent liquid and gaseous pathways approximately 171 curies of noble gas, fission and activation products and approximately 102 curies of tritium. The dose from both liquid and gaseous effluents was conservatively calculated for the Maximum Exposed Member of the Public. The results of those calculations and their comparison to the allowable limits were as follows:

Gaseous and liquid radiation doses to members of the public at locations								
Effluents	Applicable Organ	Estimated Dose	Age Group	Location		% of Applicable Limit	Site Limit	Unit
				Distance (meters)	Direction (toward)			
Noble Gas	Gamma - Air Dose	8.33E-04	All	1029	NNE	4.17E-03	20	mRad
Noble Gas	Beta – Air Dose	3.96E-04	All	1029	NNE	9.90E-04	40	mRad
Noble Gas	Total Body (Gamma)	6.06E-03	Child	1029	NNE	6.06E-02	10	mrem
Iodine, Particulate & Tritium	Thyroid	2.38E-01	Infant	1029	NNE	7.93E-01	30	mrem
Liquid	Total Body	2.07E-04	Adult	RDT via South Diffuser		3.45E-03	6	mrem
Liquid	Liver	3.29E-04	Teen	RDT via South Diffuser		1.65E-03	20	mrem
40CFR190*	Total Body - Direct Radiation	7.13E+00	All	800	N	2.85E+01	25	mrem

* Thyroid and Organ doses <1% of 40CFR190 Limits.

The doses as a result of the radiological effluents released from the Quad Cities Generating Station were a very small percentage of the allowable limits.

This report on the Radiological Environmental Monitoring Program (REMP) conducted for the Quad Cities Nuclear Power Station (QCNPS) by Exelon covers the period 1 January 2008 through 31 December 2008. During that time period, 1,442 analyses were performed on 1,350 samples. In assessing all the data gathered for this report and comparing these results with preoperational data, it was concluded that the operation of QCNPS had no adverse radiological impact on the environment.

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

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

activation products were detected in fish. A small concentration of Cs-137 was found in one sediment sample. No other fission products or activation products were found in sediment.

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

High sensitivity I-131 analyses were performed on air samples. No I-131 was detected.

Cow milk samples were analyzed for concentrations of I-131 and gamma emitting nuclides. No I-131 was detected. Concentrations of naturally occurring isotopes were consistent with those detected in previous years. No fission or activation products were detected.

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

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

II. Introduction

The Quad Cities Nuclear Power Station (QCNPS), consisting of two 2957 MWth boiling water reactor owned and operated by Exelon Corporation, is located in Cordova, Illinois along the Mississippi River. Unit No. 1 went critical on 16 March 1972. Unit No. 2 went critical on 02 December 1973. The site is located in northern Illinois, approximately 182 miles west of Chicago, Illinois.

This report covers those analyses performed by Teledyne Brown Engineering (TBE), Global Dosimetry, and Environmental Inc. (Midwest Labs) on samples collected during the period 1 January 2008 through 31 December 2008.

A. Objective of the REMP

The objectives of the REMP are to:

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

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

B. Implementation of the Objectives

The implementation of the objectives is accomplished by:

1. Identifying significant exposure pathways.

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

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

III. Program Description

A. Sample Collection

Samples for the QCNPS REMP were collected for Exelon Nuclear by Environmental Inc. (Midwest Labs). This section describes the general sampling methods used by Environmental Inc. to obtain environmental samples for the QCNPS REMP in 2008. Sample locations and

descriptions can be found in Table B–1 and Figures B–1 and B–2, Appendix B.

Aquatic Environment

The aquatic environment was evaluated by performing radiological analyses on samples of surface water, ground water, fish, and sediment. Surface water samples were collected weekly from two locations, Q-33 and Q-34 (Control). Ground water samples were collected quarterly from two locations, Q-35 and Q-36. All water samples were collected in new containers, which were rinsed with source water prior to collection.

Fish samples comprising the edible portions of commercially and recreationally important species were collected semiannually at two locations, Q-24 and Q-29 (Control). Sediment samples composed of recently deposited substrate were collected at one location semiannually, Q-39.

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on samples of air particulate, airborne iodine, and milk. Airborne iodine and particulate samples were collected and analyzed at nine locations (Q-01, Q-02, Q-03, Q-04, Q-07, Q-13, Q-16, Q-37 and Q-38). The control location was Q-07. Airborne iodine and particulate samples were obtained at each location, using a vacuum pump with charcoal and glass fiber filters attached. The pumps were run continuously and sampled air at the rate of approximately one cubic foot per minute. The air particulate filters and air iodine samples were replaced weekly and sent to the laboratory for analysis.

Milk samples were collected biweekly at one location (Q-26) from May through October, and monthly from November through April. All samples were collected in new plastic containers from the bulk tank, preserved with sodium bisulfite, and shipped promptly to the laboratory.

Food products were collected annually in July at five locations (Q-Quad 1 Control, Q-Quad 1, Q-Quad 2, Q-Quad 3, and Q-Quad 4). The control location was Q-Quad 1 - Control. Various types of broadleaf and root vegetables were collected and placed in new plastic bags, and sent to the laboratory for analysis.

Ambient Gamma Radiation

Direct radiation measurements were made using thermoluminescent

dosimeters (TLD). Each location consisted of 2 TLD sets. The TLD locations were placed on and around the QCNPS site as follows:

An inner ring consisting of 15 locations (Q-101, Q-102, Q-103, Q-104, Q-105, Q-106, Q-107, Q-108, Q-109, Q-111, Q-112, Q-113, Q-114, Q-115 and Q-116). These TLD are located in 15 of the 16 meteorological sectors in the general area of the site boundry (approximately 0.1 – 3 miles from the site). There are no TLDs located in the SSW sector because this sector is located over water.

An outer ring consisting of 16 locations (Q-201, Q-202, Q-203, Q-204, Q-205, Q-206, Q-207, Q-208, Q-209, Q-210, Q-211, Q-212, Q-213, Q-214, Q-215 and Q-216). These TLDs are located in each of the 16 meteorological sectors (approximately 3.7 – 5 miles from the site)

An other set consisting of eight locations (Q-01, Q-02, Q-03, Q-04, Q-13, Q-16, Q-37 and Q-38). The locations are at each of the air sample stations around the site.

The balance of one location (Q-07) is the control site.

The specific TLD locations were determined by the following criteria:

1. The presence of relatively dense population;

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

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

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

The TLDs were exchanged quarterly and sent to Global Dosimetry for analysis.

B. Sample Analysis

This section describes the general analytical methodologies used by TBE and Environmental Inc. (Midwest Labs) to analyze the environmental samples for radioactivity for the QCNPS REMP in 2008 and the type of analyses. The analytical procedures used by the laboratories are listed in

Table B-2.

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

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

2. Concentrations of gamma emitters in ground and surface water, air particulates, milk, fish, sediment and vegetation.

3. Concentrations of tritium in ground and surface water.

4. Concentrations of I-131 in air and milk.

5. Ambient gamma radiation levels at various site environs.

C. Data Interpretation

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

1. Lower Limit of Detection and Minimum Detectable Concentration

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

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

2. Net Activity Calculation and Reporting of Results

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

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

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

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

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

D. Program Exceptions

For 2008 the QCNPS REMP had a sample recovery rate in excess of 99%. Sample anomalies and missed samples are listed in the tables below:

Table D-1 LISTING OF SAMPLE ANOMALIES

Sample Type	Location Code	Collection Date	Reason
A/I	Q-02	01/11/08	Low reading of 26.3 hours due to bad timer; estimated run time = 167.6 hours; timer replaced
A/I	Q-37	01/25/08	No apparent reason for low reading of 164.5 hours
A/I	Q-38	01/25/08	No apparent reason for low reading of 164.6 hours

Table D-1 LISTING OF SAMPLE ANOMALIES (continued)

Sample Type	Location Code	Collection Date	Reason
A/I	Q-03	02/21/08	Collector unable to obtain readings due to frozen door; was able to collect samples. Estimated reading of 143.2 hours & 60 cfh flow rate given to TBE
A/I	Q-03	02/29/08	Door frozen; unable to take reading or field check pump; 193.4 hours & 60 cfh estimated readings given to TBE
A/I	Q-03	03/07/08	Three-week reading of 503.1 hours on timer due to frozen door; 166.5 hours estimated reading given to TBE
A/I	Q-37	05/17/08	Low timer reading of 180.2 possibly due to power outage
A/I	Q-38	05/17/08	Low timer reading of 180.2 possibly due to power outage
A/I	Q-02	05/30/08	Low reading of 47.4 due to faulty ground fault plug; collector replaced plug
A/I	Q-01	05/30/08	Low reading of 46.8 hours due to pump stoppage; collector reset pump
A/I	Q-37	06/13/08	Low reading of 159.6 hours possibly due to power outage
A/I	Q-38	06/13/08	Low reading of 159.6 hours possibly due to power outage
A/I	Q-13	06/13/08	Low reading of 179.7 hours due to blown circuit breaker; collector reset breaker
A/I	Q-03	07/04/08	Bird attempting to build nest; collector removed sticks from end of sampling train
TLD	Q-202-1	05/02/08	Unable to check TLD due to flood waters
TLD	Q-111-1 & Q-114-1	10/03/08	TLDs date from 04/01/08; not exchanged for 2nd quarter due to flooding

Table D-1 LISTING OF SAMPLE ANOMALIES (continued)

Sample Type	Location Code	Collection Date	Reason
TLD	Q-111-1 & Q-114-1	10/03/08	TLDs date from 04/01/08; not exchanged for 2nd quarter due to flooding
A/I	Q-37	10/17/08	Replacement pump malfunctioned – no vacuum; will remove pump 740 for annual maintenance when functioning pump is available – deadline for removal is 10/27/08
A/I	Q-37	12/19/08	No apparent reason for low reading of 164.7 hours
A/I	Q-38	12/19/08	No apparent reason for low reading of 164.6 hours
A/I	Q-02	12/19/08	Filter adhered to sampling train; partially torn
TLD	Q-215-1	01/02/09	Read >3 sigma outside of the trending band established with the 4th quarter TLD results. TLD Q-215-2 (a duplicate TLD to Q251-1) read within the normal band. The results of TLD Q-215-1 are considered anomalous.

Table D-2 LISTING OF MISSED SAMPLES

Sample Type	Location Code	Collection Date	Reason
SW	Q-33	01/04/08	No sample; water frozen
SW	Q-33	01/18/08-03/06/08	No sample; water frozen
SW	Q-34	01/04/08	No sample; water frozen
SW	Q-34	01/18/08 – 02/29/08	No sample; water frozen
SS	Q-39	05/30/08 – 07/03/08	Unable to collect due to high water
TLD	Q-111-1 & Q-114-1	06/27/08	Not exchanged due to high water

Table D-2 LISTING OF MISSED SAMPLES (continued)

Sample Type	Location Code	Collection Date	Reason
TLD	Q-215-2	06/27/08	Found missing during quarterly exchange; placed new 3rd quarter TLD
SW	Q-33	12/05/08 – 12/26/08	No sample; water frozen
SW	Q-34	12/05/08 – 12/26/08	No sample; water frozen

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

E. Program Changes

In reviewing the 2007 AREOR, Chemistry noted that the Food Product sample for Quadrant 1 had been obtained at a distance of 6.0 miles from the plant. Per ODCM Table 6-1 under Food Products, these samples are to be collected within 5.0 miles from the station. As a result, the Food Product location for Quadrant 1 has changed from the Janet Price location at 6.0 miles NE of the site to the Ken DeBaille location at 2.3 miles ENE of the site.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were taken weekly and composited monthly at two locations (Q-33 and Q-34). Of these locations only Q-33 located downstream, could be affected by Quad Cities' effluent releases. The following analyses were performed.

Gross Beta

Samples from all locations were analyzed for concentrations of gross beta (Table C–I.1, Appendix C). Gross beta activity was detected in 20 of 24 samples. The values ranged from 3.0 to 8.5 pCi/L. Concentrations detected were consistent with those detected in previous years and the control location (Figure C–1,

Appendix C). The required LLD was met.

Tritium

Quarterly composites of weekly collections were analyzed for tritium activity (Table C–I.2, Appendix C). No tritium activity was detected (Figure C–2, Appendix C). The 2000 pCi/L OCDM and contractually required 200 pCi/L LLDs were met.

Gamma Spectrometry

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

2. Ground Water

Quarterly grab samples were collected at two locations (Q-35 and Q-36). Both locations could be affected by Quad Cities' effluent releases. The following analyses were performed:

Tritium

Quarterly grab samples from the locations were analyzed for tritium activity (Table C–II.1, Appendix C). No tritium activity was detected (Figure C–3, Appendix C). The 2000 pCi/L OCDM and contractually required 200 pCi/L LLDs were met.

Gamma Spectrometry

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

3. Fish

Fish samples comprised of various commercially and recreationally important species were collected at two locations (Q-24 and Q-29) semiannually. Location Q-24 could be affected by Quad Cities' effluent releases. The following analysis was performed:

Gamma Spectrometry

The edible portion of fish samples from both locations was analyzed for gamma emitting nuclides (Table C–III.1, Appendix C). No nuclides were detected and all required LLDs were met.

4. Sediment

Aquatic sediment samples were collected at one location (Q-39) semiannually. The location, located downstream, could be affected by Quad Cities' effluent releases. The following analysis was performed:

Gamma Spectrometry

Sediment samples from Q-39 were analyzed for gamma emitting nuclides (Table C–IV.1, Appendix C). Cesium-137 was detected in one sample at a concentration of 92 pCi/kg dry. No other nuclides were detected and all required LLDs were met.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from nine locations on a weekly basis. The nine locations were separated into three groups: Near-field samplers within 4 km of the site (Q-01, Q-02, Q-03 and Q-04), far-field samplers between 4 and 10 km from the site (Q-13, Q-16, Q-37, Q-38) and the Control sampler between 10 and 30 km from the site (Q-07). The following analyses were performed:

Gross Beta

Weekly samples were analyzed for concentrations of beta emitters (Table C–V.1 and C–V.2, Appendix C).

Detectable gross beta activity was observed at all locations. Comparison of results among the four groups aid in determining the effects, if any, resulting from the operation of QCNPS. The results from the near-field locations (Group I) ranged from <5 to 43 E–3 pCi/m^3 with a mean of 20 E–3 pCi/m^3. The results from the far-field locations (Group II) ranged from 7 to 44 E–3 pCi/m^3 with a mean of 20 E–3 pCi/m^3. The results from the Control location (Group III) ranged from 9 to 44 E–3 pCi/m^3 with a mean of 21 E–3 pCi/m^3. Comparison of the 2008 air particulate data with previous years data indicate no effects from the operation of

QCNPS. In addition a comparison of the weekly mean values for 2008 indicate no notable differences among the three groups (Figures C–4 through C–6, Appendix C).

Gamma Spectrometry

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

b. Airborne Iodine

Continuous air samples were collected from nine locations (Q-01, Q-02, Q-03, Q-04, Q-07, Q-13, Q-16, Q-37, and Q-38) and analyzed weekly for I-131 (Table C–VI.1, Appendix C). All results were less than the MDC and the required LLD was met.

2. Terrestrial

a. Milk

Samples were collected from one location (Q-26) biweekly May through October and monthly November through April. The following analyses were performed:

Iodine-131

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

Gamma Spectrometry

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

b. Food Products

Food product samples were collected at four locations plus a control location (Q-Quad 1 - Control, Q-Quad 1, Q-Quad 2, Q-Quad 3, and Q-Quad 4) annually during growing season. Four locations, (Q-Quad 1, Q-Quad 2, Q-Quad 3 and

Q-Quad 4) could be affected by Quad Cities' effluent releases. The following analysis was performed:

Gamma Spectrometry

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

C. Ambient Gamma Radiation

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

All TLD measurements were below 30 mR/quarter, with a range of 17 to 28 mR/quarter. A comparison of the Inner Ring, Outer Ring and Other data to the Control Location data, indicate that the ambient gamma radiation levels from all the locations were comparable.

D. Independent Spent Fuel Storage Installation

QCNPS commenced use of an Independent Spent Fuel Storage Installation (ISFSI) in Dec 2005. There were no measurable changes in ambient gamma and radiation level as a result of ISFSI operations.

E. Land Use Survey

A Land Use Survey conducted during August 2008 around QCNPS was performed by Environmental Inc. (Midwest Labs) for Exelon Nuclear to comply with the Quad Cities' Offsite Dose Calculation Manual. The purpose of the survey was to document the nearest resident and milk producing animals in each of the sixteen 22 ½ degree sectors around the site. The results from the land use census have not identified any locations, which yield a calculated dose or dose commitment, via the same pathway, that is at least 20% greater than at a location from which samples are currently being obtained. The results of this survey are summarized below.

Sector	Distance in Miles from QCNPS		
	Residence Miles	Livestock Miles	Milk Farm Miles
N	0.6	2.7	-
NNE	3.8	5.4	-
NE	1.3	-	-
ENE	2.9	2.9	-
E	2.3	2.7	-
ESE	2.8	3.1	3.1
SE	2.5	3.2	-
SSE	1.1	3.6	6.6, 11.5
S	0.8	1.6	-
SSW	3.2	-	-
SW	2.9	3.3	-
WSW	2.2	2.2	-
W	2.6	4.3	4.6
WNW	2.7	3.8	-
NW	2.6	4.7	-
NNW	2.1	2.2	-

F. Errata Data

1. In reviewing the 2007 AREOR, Chemistry noted that the Food Product sample for Quadrant 1 had been obtained at a distance of 6.0 miles from the plant. Per ODCM Table 6-1 under Food Products, these samples are to be collected within 5.0 miles from the station. This is to be completed for all four quadrants when applicable during the calendar year. Further investigation revealed that the vendor had an older revision of the ODCM that required Food Product samples to be collected at a distance of 6.2 miles. The distance was amended in the 2006 ODCM revision; therefore, only the 2007 data has been affected. Corrective actions have been completed to ensure that each vendor that participates in the REM program is included in the distribution list as the ODCM is revised.

2. The voluntary communication made to the Illinois Environmental Protection Agency (IEPA) on 10/12/2007 of release to groundwater per NEI 07-07 Objective 2.2.a. was not included in the 2007 Annual Radiological Groundwater Protection Program Report as required per NEI 07-07 Objective 2.4.c.i.

   On October 12, 2007, Exelon voluntarily contacted the Illinois Environmental Protection Agency (IEPA) regarding the higher than expected concentrations of tritium in Site groundwater sampling points in the vicinity of the Service building and Turbine Building.

G. Summary of Results – Inter-Laboratory Comparison Program

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

1. Analytics Evaluation Criteria

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

2. ERA Evaluation Criteria

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

3. DOE Evaluation Criteria

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

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

For the primary laboratory, 16 out of 18 analytes met the specified acceptance criteria. Two samples did not meet the specified acceptance criteria for the following reasons:

1. Teledyne Brown Engineering's Analytics December 2008 Sr-89 in milk result of 18.0 pCi/L was higher than the known value of 12.6 pCi/L, resulting in a found to known ratio of 1.43. It appears the failure was due to the yttrium yield being on the low side of the acceptance range. The March, June and September 2008 Sr-89 milk results all met the acceptance criteria. Historically, TBE has met the acceptance criteria for Analytics' Sr-89 in milk inter-laboratory studies. TBE feels this failure was an anomaly (Table D-1). NCR 09-02

2. Teledyne Brown Engineering's Analytics' ERA Quik Response water sample January 2008 Sr-89 result of 37.33 pCi/L exceeded the upper acceptance limit of 25.2 pCi/L. No cause could be found for the failure. Studies bracketing these results, RAD 71 and RAD 72 had acceptable Sr-89 results (Table D-2). NCR 08-03

For the secondary laboratory, Environmental, Inc. all 15 analytes met the specified acceptance criteria.

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

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT SUMMARY

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR QUAD CITIES NUCLEAR POWER STATION, 2008

NAME OF FACILITY: QUAD CITIES **DOCKET NUMBER: 50-254 &50-265**

LOCATION OF FACILITY: CORDOVA IL **REPORTING PERIOD: ANNUAL 2008**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN(M) (F) RANGE	CONTROL LOCATION MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	GR-B	20	4	5.5 (10/10) (3.4/8.0)	5.7 (10/10) (3.0/8.5)	5.7 (10/10) (3.0/8.5)	Q-34 CONTROL CAMANCHE - UPSTREAM 4.4 MILES NNE OF SITE	0
	H-3	8	2000	<LLD	<LLD	-		0
	GAMMA	20						
	MN-54		15	<LLD	<LLD	-		0
	CO-58		15	<LLD	<LLD	-		0
	FE-59		30	<LLD	<LLD	-		0
	CO-60		15	<LLD	<LLD	-		0
	ZN-65		30	<LLD	<LLD	-		0
	NB-95		15	<LLD	<LLD	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

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LOCATION OF FACILITY: CORDOVA IL **REPORTING PERIOD: ANNUAL 2008**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN(M) (F) RANGE	CONTROL LOCATION MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) MEAN(M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	ZR-95		30	<LLD	<LLD	-		0
	I-131		15	<LLD	<LLD	-		0
	CS-134		15	<LLD	<LLD	-		0
	CS-137		18	<LLD	<LLD	-		0
	BA-140		60	<LLD	<LLD	-		0
	LA-140		15	<LLD	<LLD	-		0
GROUND WATER (PCI/LITER)	H-3	8	2000	<LLD	NA	-		0
	GAMMA	8						
	MN-54		15	<LLD	NA	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

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NAME OF FACILITY: QUAD CITIES **DOCKET NUMBER: 50-254 &50-265**

LOCATION OF FACILITY: CORDOVA IL **REPORTING PERIOD: ANNUAL 2008**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN(M) (F) RANGE	CONTROL LOCATION MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) MEAN(M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUND WATER (PCI/LITER)	CO-58		15	<LLD	NA	-		0
	FE-59		30	<LLD	NA	-		0
	CO-60		15	<LLD	NA	-		0
	ZN-65		30	<LLD	NA	-		0
	NB-95		15	<LLD	NA	-		0
	ZR-95		30	<LLD	NA	-		0
	I-131		15	<LLD	NA	-		0
	CS-134		15	<LLD	NA	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

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NAME OF FACILITY: QUAD CITIES **DOCKET NUMBER:** 50-254 &50-265
LOCATION OF FACILITY: CORDOVA IL **REPORTING PERIOD:** ANNUAL 2008

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN(M) (F) RANGE	CONTROL LOCATION MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) MEAN(M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUND WATER (PCI/LITER)	CS-137		18	<LLD	NA	-		0
	BA-140		60	<LLD	NA	-		0
	LA-140		15	<LLD	NA	-		0
FISH (PCI/KG WET)	GAMMA	8						
	MN-54		130	<LLD	<LLD	-		0
	CO-58		130	<LLD	<LLD	-		0
	FE-59		260	<LLD	<LLD	-		0
	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
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NAME OF FACILITY: QUAD CITIES **DOCKET NUMBER: 50-254 &50-265**

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MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN(M) (F) RANGE	CONTROL LOCATION MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) MEAN(M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
FISH (PCI/KG WET)	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	CS-134		130	<LLD	<LLD	-		0
	CS-137		150	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
SEDIMENT (PCI/KG DRY)	GAMMA	2						
	MN-54		NA	<LLD	NA	-		0
	CO-58		NA	<LLD	NA	-		0

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MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN(M) (F) RANGE	CONTROL LOCATION MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) MEAN(M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SEDIMENT (PCI/KG DRY)	FE-59		NA	<LLD	NA	-		0
	CO-60		NA	<LLD	NA	-		0
	ZN-65		NA	<LLD	NA	-		0
	NB-95		NA	<LLD	NA	-		0
	ZR-95		NA	<LLD	NA	-		0
	CS-134		150	<LLD	NA	-		0
	CS-137		180	92 (1/2)	NA	92 (1/2)	Q-39 INDICATOR CORDOVA - DOWNSTREAM MISSISSIPPI RIVER 0.8 MILES SSW OF SITE	0
	BA-140		NA	<LLD	NA	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

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NAME OF FACILITY: QUAD CITIES **DOCKET NUMBER: 50-254 &50-265**

LOCATION OF FACILITY: CORDOVA IL **REPORTING PERIOD: ANNUAL 2008**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	*INDICATOR* LOCATIONS MEAN(M) (F) RANGE	*CONTROL* LOCATION MEAN(M) (F) RANGE	*LOCATION WITH HIGHEST ANNUAL MEAN(M)* MEAN(M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SEDIMENT (PCI/KG DRY)	LA-140		NA	<LLD	NA	-		0
AIR PARTICULATE (E-3 PCI/CU.METER)	GR-B	477	10	20 (423/424) (6/44)	21 (53/53) (9/44)	22 (52/53) (7/43)	Q-04 INDICATOR NITRIN 1.7 MILES NE OF SITE	0
	GAMMA	36						
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	FE-59		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0
	ZN-65		NA	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0

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AIR PARTICULATE (E-3 PCI/CU.METER)	ZR-95		NA	<LLD	<LLD	-		0
	CS-134		50	<LLD	<LLD	-		0
	CS-137		60	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
AIR IODINE (E-3 PCI/CU.METER)	GAMMA I-131	477	70	<LLD	<LLD	-		0
MILK (PCI/LITER)	I-131	20	1	<LLD	NA	-		0
	GAMMA MN-54	20	NA	<LLD	NA	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
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MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN(M) (F) RANGE	CONTROL LOCATION MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) MEAN(M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
MILK (PCI/LITER)	CO-58		NA	<LLD	NA	-		0
	FE-59		NA	<LLD	NA	-		0
	CO-60		NA	<LLD	NA	-		0
	ZN-65		NA	<LLD	NA	-		0
	NB-95		NA	<LLD	NA	-		0
	ZR-95		NA	<LLD	NA	-		0
	CS-134		15	<LLD	NA	-		0
	CS-137		18	<LLD	NA	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
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MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN(M) (F) RANGE	CONTROL LOCATION MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) MEAN(M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
MILK (PCI/LITER)	BA-140		60	<LLD	NA	-		0
	LA-140		15	<LLD	NA	-		0
VEGETATION (PCI/KG WET)	GAMMA	15						
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	FE-59		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0
	ZN-65		NA	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
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LOCATION OF FACILITY: CORDOVA IL **REPORTING PERIOD:** ANNUAL 2008

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN(M) (F) RANGE	CONTROL LOCATION MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) MEAN(M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN(M) STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
VEGETATION (PCI/KG WET)	ZR-95		NA	<LLD	<LLD	-		0
	I-131		60	<LLD	<LLD	-		0
	CS-134		60	<LLD	<LLD	-		0
	CS-137		80	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
DIRECT RADIATION (MILLI-ROENTGEN/QTR.)	TLD-QUARTERLY	323	NA	22.6 (315/315) (17/28)	21.9 (8/8) (18/26)	26.3 (3/3) (24/28)	Q-215-2 INDICATOR 4.2 MILES NW	0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

APPENDIX B

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

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Quad Cities Nuclear Power Station, 2008

Location	Location Description	Distance & Direction From Site
A. Surface Water		
Q-33	Cordova (indicator)	3.1 miles SSW
Q-34	Camanche, Upstream (control)	4.4 miles NNE
B. Ground/Well Water		
Q-35	McMillan Well (indicator)	1.5 miles S
Q-36	Cordova Well (indicator)	3.3 miles SSW
C. Milk - bi-weekly / monthly		
Q-26	Bill Stanley Dairy (indicator)	3.5 miles ESE
D. Air Particulates / Air Iodine		
Q-01	Onsite 1 (indicator)	0.5 miles N
Q-02	Onsite 2 (indicator)	0.4 miles ENE
Q-03	Onsite 3 (indicator)	0.6 miles S
Q-04	Nitrin (indicator)	1.7 miles NE
Q-07	Clinton (control)	8.8 miles NE
Q-13	Princeton (indicator)	4.7 miles SW
Q-16	Low Moor (indicator)	5.7 miles NNW
Q-37	Meredosia Road (indicator)	4.4 miles ENE
Q-38	Fuller Road (indicator)	4.7 miles E
E. Fish		
Q-24	Pool #14 of Mississippi River, Downstream (indicator)	0.5 miles SW
Q-29	Mississippi River, Upstream (control)	1.0 miles N
F. Sediment		
Q-39	Cordova, Downstream on Mississippi River (indicator)	0.8 miles SSW
G. Food Products		
Quadrant 1	Ken DeBaille	2.3 miles ENE
Quadrant 2	Dale Nimmic	3.0 miles ESE
Quadrant 3	Amy Johnston	1.8 miles S
Quadrant 4	Mike Fawcett	4.5 miles NW
Control	Charles Leavens	9.5 miles NE
H. Environmental Dosimetry - TLD		
Inner Ring		
Q-101-1		0.6 miles N
Q-101-2		0.9 miles N
Q-102-1		1.3 miles NNE
Q-102-3		1.4 miles NNE
Q-103-1 and -2		1.2 miles NE
Q-104-1		1.1 miles ENE
Q-104-2		0.9 miles ENE
Q-105-1 and -2		0.8 miles E
Q-106-2 and -3		0.7 miles ESE
Q-107-2		0.7 miles SE
Q-107-3		0.8 miles SE
Q-108-1		1.0 miles SSE
Q-108-2		0.9 miles SSE

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Quad Cities Nuclear Power Station, 2008

Location	Location Description	Distance & Direction From Site
Inner Ring		
Q-109-1		0.9 miles S
Q-109-2		1.2 miles S
Q-111-1		2.6 miles SW
Q-111-2		2.5 miles SW
Q-112-1		2.5 miles WSW
Q-112-2		2.2 miles WSW
Q-113-1 and -2		2.5 miles W
Q-114-1		2.1 miles WNW
Q-114-2		2.5 miles WNW
Q-115-1		2.6 miles NW
Q-115-2		2.3 miles NW
Q-116-1		2.3 miles NNW
Q-116-3		2.4 miles NNW
Outer Ring		
Q-201-1 and -2		4.2 miles N
Q-202-1		4.4 miles NNE
Q-202-2		4.8 miles NNE
Q-203-1		4.7 miles NE
Q-203-2		5.0 miles NE
Q-204-1		4.7 miles ENE
Q-204-2		4.5 miles ENE
Q-205-1		4.7 miles E
Q-205-4		4.8 miles E
Q-206-1 and -2		4.8 miles ESE
Q-207-1 and -4		4.7 miles SE
Q-208-1		4.3 miles SSE
Q-208-2		4.9 miles SSE
Q-209-1 and -4		4.7 miles S
Q-210-1 and -4 *		4.1 miles SSW
Q-210-5		3.3 miles SSW
Q-211-1 and -2		4.5 miles SW
Q-212-1		5.4 miles WSW
Q-212-2		4.4 miles WSW
Q-213-1		4.3 miles W
Q-213-2		4.8 miles W
Q-214-1		4.7 miles WNW
Q-214-2		4.4 miles WNW
Q-215-1		5.0 miles NW
Q-215-2		4.2 miles NW
Q-216-1		4.6 miles NNW
Q-216-2		4.3 miles NNW
Other		
Q-01	Onsite 1 (indicator)	0.5 miles N
Q-02	Onsite 2 (indicator)	0.4 miles ENE
Q-03	Onsite 3 (indicator)	0.6 miles S
Q-04	Nitrin (indicator)	1.7 miles NE
Q-13	Princeton (indicator)	4.7 miles SW
Q-16	Low Moor (indicator)	5.7 miles NNW
Q-37	Meredosia Road (indicator)	4.4 miles ENE
Q-38	Fuller Road (indicator)	4.7 miles E
Control		
Q-07		8.9 miles NE

* Removed from ODCM in December 2006 and replaced by Q-210-5. Q-210-4 is for trending only.

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Quad Cities Nuclear Power Station, 2008

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

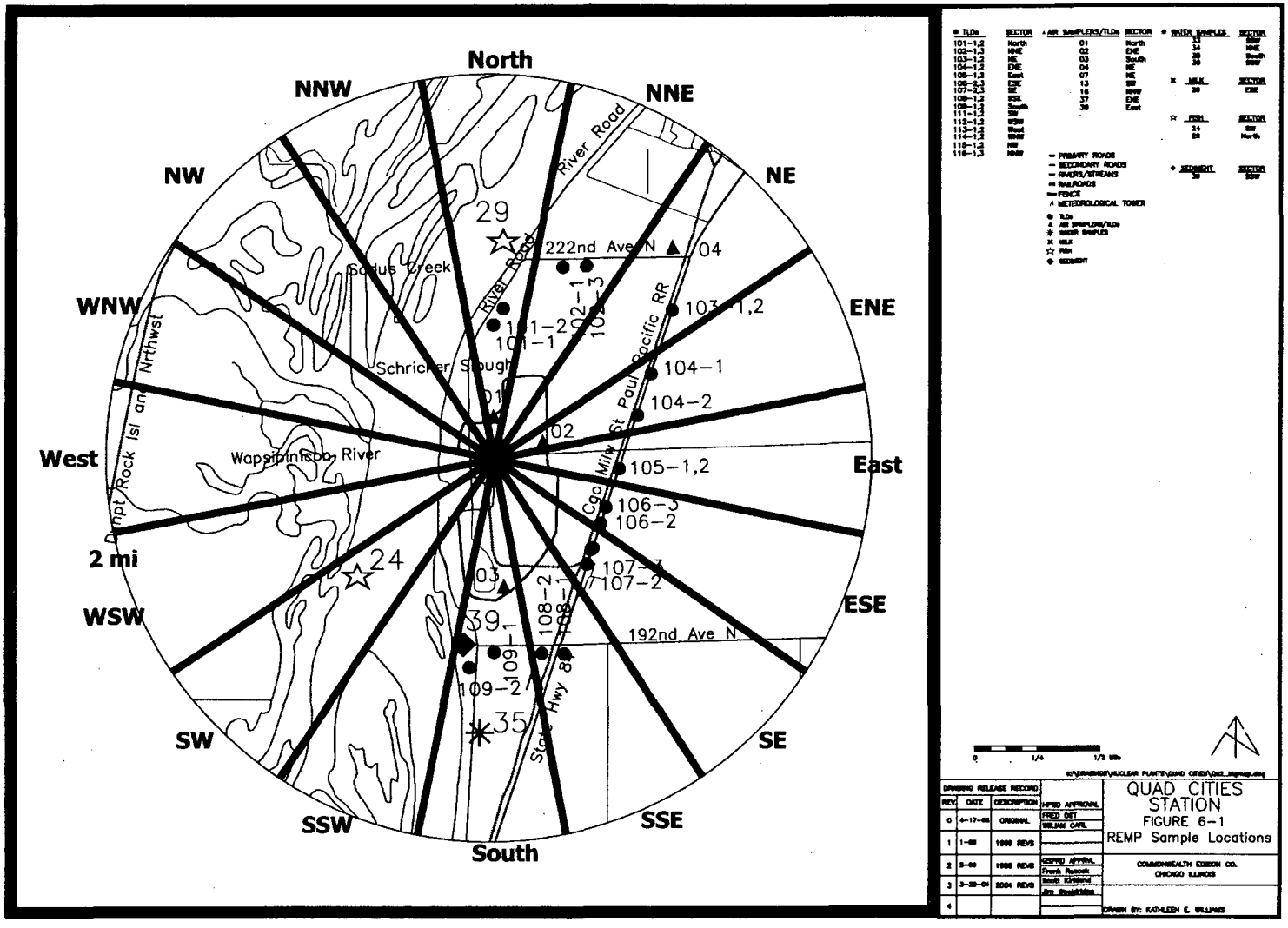


Figure B-1
Quad Cities REMP Sample Locations – 2 Mile Radius, 2008

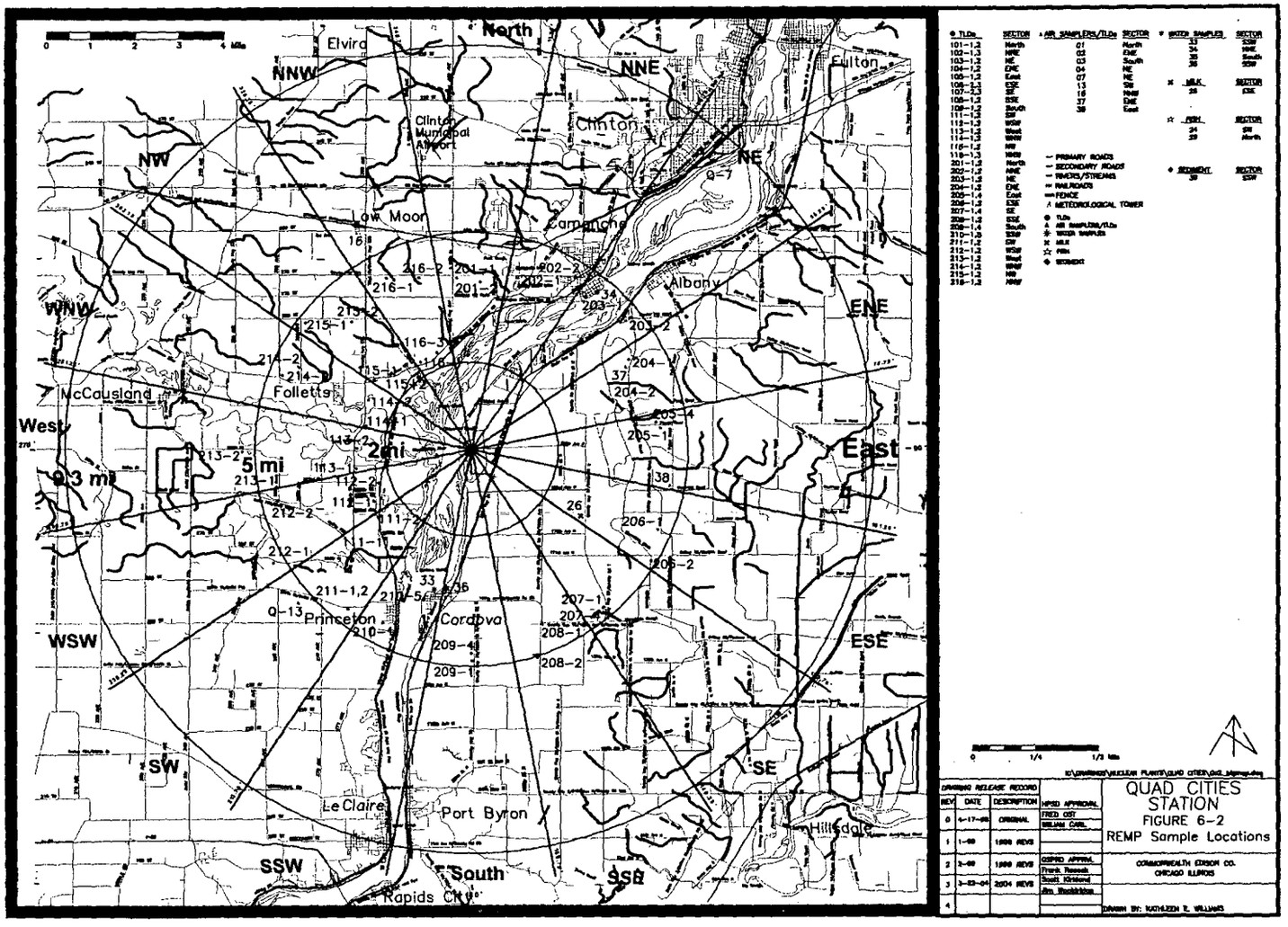


Figure B-2
Quad Cities REMP Sampling Locations – 9.3 Mile Radius, 2008

APPENDIX C

DATA TABLES AND FIGURES
PRIMARY LABORATORY

TABLE C-I.1 **CONCENTRATIONS OF GROSS BETA IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Q-33	Q-34
01/11/08 - 01/11/08 (1)	8.0 ± 1.9	6.8 ± 1.9
03/14/08 - 03/28/08	7.1 ± 1.9	6.2 ± 1.9
04/04/08 - 04/25/08	4.1 ± 1.7	3.6 ± 1.6
05/02/08 - 05/30/08	7.2 ± 2.0	8.5 ± 2.1
06/05/08 - 06/27/08	5.5 ± 1.9	7.0 ± 2.0
07/03/08 - 07/25/08	4.9 ± 2.0	3.0 ± 1.9
08/01/08 - 08/29/08	5.7 ± 2.0	5.1 ± 1.9
09/05/08 - 09/26/08	4.0 ± 1.7	6.3 ± 1.9
10/03/08 - 10/31/08	5.5 ± 2.1	5.3 ± 2.0
11/07/08 - 11/28/08 (1)	3.4 ± 1.9	5.0 ± 2.0
MEAN	5.5 ± 3.0	5.7 ± 3.3

TABLE C-I.2 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Q-33	Q-34
01/11/08 - 03/28/08	< 171	< 165
04/04/08 - 06/27/08	< 166	< 162
07/03/08 - 09/26/08	< 173	< 172
10/03/08 - 11/28/08 (1)	< 186	< 184
MEAN	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-I.3 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
Q-33	01/11/08 - 01/11/08 (1)	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 10	< 1	< 1	< 45	< 13
	03/14/08 - 03/28/08	< 4	< 4	< 9	< 4	< 6	< 4	< 7	< 9	< 4	< 4	< 21	< 5
	04/04/08 - 04/25/08	< 3	< 4	< 8	< 3	< 7	< 4	< 7	< 10	< 3	< 4	< 24	< 7
	05/02/08 - 05/30/08	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 6	< 2	< 2	< 13	< 4
	06/05/08 - 06/27/08	< 1	< 1	< 3	< 1	< 2	< 2	< 3	< 15	< 1	< 1	< 20	< 7
	07/03/08 - 07/25/08	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 8	< 2	< 2	< 17	< 6
	08/01/08 - 08/29/08	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 19	< 6
	09/05/08 - 09/26/08	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 15	< 1	< 1	< 18	< 5
	10/03/08 - 10/31/08	< 1	< 1	< 2	< 0	< 1	< 1	< 2	< 13	< 0	< 1	< 31	< 9
	11/07/08 - 11/28/08 (1)	< 2	< 2	< 4	< 2	< 4	< 3	< 4	< 15	< 2	< 2	< 23	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-34	01/11/08 - 01/11/08 (1)	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 12	< 1	< 1	< 55	< 15
	03/06/08 - 03/28/08	< 5	< 5	< 9	< 5	< 10	< 5	< 9	< 10	< 4	< 5	< 30	< 8
	04/04/08 - 04/25/08	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 7	< 3	< 3	< 19	< 5
	05/02/08 - 05/30/08	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 6	< 2	< 2	< 14	< 5
	06/05/08 - 06/27/08	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 14	< 1	< 1	< 16	< 5
	07/03/08 - 07/25/08	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 8	< 2	< 2	< 16	< 5
	08/01/08 - 08/29/08	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 8	< 1	< 1	< 14	< 5
	09/05/08 - 09/26/08	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 14	< 1	< 1	< 16	< 5
	10/03/08 - 10/31/08	< 1	< 1	< 3	< 1	< 1	< 1	< 2	< 12	< 1	< 1	< 38	< 11
	11/07/08 - 11/28/08 (1)	< 2	< 2	< 4	< 2	< 3	< 2	< 4	< 13	< 2	< 2	< 23	< 6
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-II.1 **CONCENTRATIONS OF TRITIUM IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Q-35	Q-36
01/11/08 - 01/11/08	< 151	< 153
04/11/08 - 04/11/08	< 173	< 175
07/11/08 - 07/11/08	< 174	< 162
10/10/08 - 10/10/08	< 173	< 174
MEAN	-	-

TABLE C-II.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
Q-35	01/11/08 - 01/11/08	< 6	< 8	< 14	< 6	< 11	< 7	< 14	< 13	< 6	< 7	< 35	< 12
	04/11/08 - 04/11/08	< 4	< 4	< 9	< 4	< 9	< 5	< 7	< 10	< 4	< 4	< 24	< 8
	07/11/08 - 07/11/08	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 9	< 2	< 2	< 16	< 4
	10/10/08 - 10/10/08	< 3	< 3	< 7	< 2	< 6	< 3	< 5	< 13	< 3	< 3	< 26	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-36	01/11/08 - 01/11/08	< 6	< 6	< 12	< 6	< 13	< 6	< 11	< 13	< 6	< 6	< 34	< 11
	04/11/08 - 04/11/08	< 6	< 6	< 13	< 6	< 14	< 6	< 11	< 13	< 7	< 6	< 35	< 13
	07/11/08 - 07/11/08	< 1	< 2	< 3	< 2	< 3	< 2	< 3	< 8	< 1	< 2	< 15	< 4
	10/10/08 - 10/10/08	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 13	< 2	< 3	< 23	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-III.1 **CONCENTRATIONS OF GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
Q-24												
Common Carp	05/20/08	< 57	< 65	< 175	< 46	< 121	< 64	< 122	< 49	< 54	< 1680	< 399
Freshwater Drum	05/20/08	< 45	< 42	< 119	< 36	< 85	< 54	< 112	< 36	< 35	< 1320	< 408
Common Carp	10/21/08	< 49	< 52	< 137	< 38	< 99	< 60	< 100	< 45	< 46	< 811	< 264
Largemouth Bass	10/21/08	< 52	< 59	< 140	< 49	< 115	< 54	< 125	< 48	< 47	< 759	< 193
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-29												
Common Carp	05/20/08	< 44	< 65	< 171	< 35	< 96	< 75	< 105	< 43	< 43	< 1610	< 545
Freshwater Drum	05/20/08	< 40	< 64	< 154	< 93	< 102	< 61	< 101	< 38	< 36	< 1470	< 384
Channel Catfish	10/21/08	< 53	< 52	< 125	< 47	< 79	< 67	< 112	< 45	< 42	< 607	< 275
Common Carp	10/21/08	< 41	< 65	< 179	< 42	< 98	< 49	< 96	< 37	< 33	< 783	< 158
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-IV.1 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008

RESULTS IN UNITS OF PCI/KG DRY ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
Q-39	07/11/08	< 46	< 54	< 132	< 58	< 114	< 63	< 100	< 48	92 ± 62	< 508	< 126
	10/12/08	< 46	< 47	< 114	< 39	< 94	< 55	< 85	< 36	< 47	< 491	< 154
	MEAN	-	-	-	-	-	-	-	-	92 ± 0	-	-

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

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008

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

COLLECTION PERIOD	GROUP I				GROUP II				GROUP III
	Q-01	Q-02	Q-03	Q-04	Q-13	Q-16	Q-37	Q-38	Q-07
12/28/07 - 01/04/08	39 ± 6	36 ± 6	39 ± 6	43 ± 6	39 ± 5	40 ± 5	36 ± 6	42 ± 6	39 ± 5
01/04/08 - 01/11/08	19 ± 5	22 ± 5	20 ± 5	25 ± 5	23 ± 5	26 ± 5	23 ± 5	20 ± 5	23 ± 5
01/11/08 - 01/18/08	39 ± 6	37 ± 5	31 ± 5	41 ± 6	42 ± 6	39 ± 6	36 ± 5	36 ± 6	38 ± 6
01/18/08 - 01/25/08	27 ± 5	28 ± 5	30 ± 5	31 ± 5	28 ± 5	31 ± 5	23 ± 5	34 ± 5	29 ± 5
01/25/08 - 02/01/08	31 ± 5	28 ± 5	31 ± 5	36 ± 5	31 ± 5	28 ± 5	29 ± 5	34 ± 5	32 ± 5
02/01/08 - 02/08/08	15 ± 4	16 ± 4	14 ± 4	17 ± 5	13 ± 4	18 ± 4	13 ± 4	21 ± 5	17 ± 4
02/08/08 - 02/15/08	32 ± 5	33 ± 5	31 ± 5	36 ± 5	32 ± 5	40 ± 5	36 ± 5	36 ± 5	39 ± 5
02/15/08 - 02/22/08	24 ± 5	24 ± 5	30 ± 5	33 ± 6	25 ± 5	25 ± 5	28 ± 5	27 ± 5	22 ± 4
02/22/08 - 02/29/08	19 ± 4	14 ± 4	20 ± 4	14 ± 4	16 ± 4	15 ± 4	16 ± 4	16 ± 4	21 ± 5
02/29/08 - 03/06/08	23 ± 5	25 ± 5	23 ± 5	25 ± 5	20 ± 5	23 ± 5	30 ± 5	25 ± 5	24 ± 5
03/06/08 - 03/14/08	25 ± 5	23 ± 4	25 ± 5	22 ± 4	24 ± 4	26 ± 4	21 ± 4	31 ± 5	21 ± 4
03/14/08 - 03/21/08	11 ± 4	14 ± 4	14 ± 4	11 ± 4	13 ± 4	16 ± 4	13 ± 4	14 ± 4	14 ± 4
03/21/08 - 03/28/08	12 ± 4	13 ± 4	14 ± 4	14 ± 4	13 ± 4	14 ± 4	13 ± 4	16 ± 4	18 ± 4
03/28/08 - 04/04/08	14 ± 4	10 ± 4	11 ± 4	14 ± 4	11 ± 4	9 ± 3	9 ± 4	15 ± 4	13 ± 4
04/04/08 - 04/11/08	16 ± 4	13 ± 4	17 ± 4	15 ± 4	18 ± 4	13 ± 4	17 ± 4	21 ± 4	16 ± 4
04/11/08 - 04/18/08	10 ± 3	12 ± 4	12 ± 4	12 ± 4	9 ± 4	14 ± 4	10 ± 3	11 ± 4	11 ± 4
04/18/08 - 04/25/08	20 ± 4	13 ± 4	16 ± 4	20 ± 5	20 ± 4	19 ± 4	16 ± 4	19 ± 4	15 ± 4
04/25/08 - 05/02/08	14 ± 5	16 ± 5	17 ± 5	17 ± 5	15 ± 4	19 ± 4	17 ± 5	16 ± 5	21 ± 5
05/02/08 - 05/09/08	16 ± 4	20 ± 4	18 ± 4	24 ± 5	19 ± 4	19 ± 4	18 ± 4	19 ± 4	20 ± 4
05/09/08 - 05/16/08	7 ± 3	8 ± 3	10 ± 4	11 ± 4	8 ± 4	11 ± 4	12 ± 4	15 ± 4	11 ± 4
05/16/08 - 05/23/08	9 ± 4	6 ± 4	8 ± 4	7 ± 4	9 ± 3	9 ± 3	10 ± 4	9 ± 4	9 ± 3
05/23/08 - 05/30/08	10 ± 5	11 ± 5	7 ± 4	< 5	10 ± 4	8 ± 4	7 ± 4	7 ± 4	10 ± 4
05/30/08 - 06/05/08	14 ± 4	11 ± 4	13 ± 4	13 ± 4	19 ± 5	17 ± 5	14 ± 4	19 ± 4	19 ± 5
06/05/08 - 06/13/08	10 ± 4	10 ± 4	12 ± 4	13 ± 4	15 ± 4	11 ± 3	10 ± 4	16 ± 4	13 ± 4
06/13/08 - 06/20/08	13 ± 4	14 ± 4	14 ± 4	15 ± 4	14 ± 4	12 ± 4	14 ± 4	13 ± 4	15 ± 4
06/20/08 - 06/27/08	18 ± 4	15 ± 4	10 ± 4	19 ± 4	17 ± 4	13 ± 4	12 ± 4	14 ± 4	16 ± 4
06/27/08 - 07/03/08	12 ± 4	11 ± 4	14 ± 4	13 ± 4	12 ± 4	15 ± 4	14 ± 4	10 ± 3	9 ± 4
07/03/08 - 07/11/08	11 ± 4	14 ± 4	14 ± 4	15 ± 4	10 ± 3	13 ± 4	13 ± 4	13 ± 4	12 ± 4
07/11/08 - 07/18/08	17 ± 4	14 ± 4	17 ± 4	19 ± 5	16 ± 4	13 ± 4	13 ± 4	15 ± 4	19 ± 5
07/18/08 - 07/25/08	16 ± 4	14 ± 4	15 ± 4	14 ± 4	20 ± 4	10 ± 4	13 ± 4	15 ± 4	17 ± 4
07/25/08 - 08/01/08	20 ± 4	21 ± 4	18 ± 4	22 ± 5	20 ± 4	21 ± 4	24 ± 5	18 ± 4	24 ± 4
08/01/08 - 08/08/08	17 ± 4	23 ± 7	21 ± 5	18 ± 4	22 ± 4	18 ± 4	19 ± 4	24 ± 5	20 ± 4
08/08/08 - 08/15/08	16 ± 4	14 ± 4	12 ± 4	14 ± 4	20 ± 4	15 ± 4	16 ± 4	15 ± 4	17 ± 4
08/15/08 - 08/22/08	28 ± 5	28 ± 5	25 ± 5	26 ± 5	30 ± 5	23 ± 4	24 ± 5	30 ± 5	28 ± 5
08/22/08 - 08/29/08	14 ± 4	19 ± 5	16 ± 4	15 ± 4	15 ± 4	15 ± 4	16 ± 4	15 ± 4	15 ± 4
08/29/08 - 09/05/08	21 ± 4	23 ± 4	22 ± 4	24 ± 4	24 ± 4	23 ± 4	21 ± 4	23 ± 4	25 ± 4
09/05/08 - 09/12/08	19 ± 4	24 ± 5	23 ± 5	17 ± 4	19 ± 4	20 ± 4	22 ± 5	23 ± 5	24 ± 5
09/12/08 - 09/19/08	15 ± 4	11 ± 4	12 ± 4	16 ± 4	16 ± 4	16 ± 4	15 ± 4	14 ± 4	15 ± 4
09/19/08 - 09/26/08	38 ± 5	39 ± 5	42 ± 5	41 ± 5	41 ± 5	40 ± 5	44 ± 5	38 ± 5	44 ± 6
09/26/08 - 10/03/08	22 ± 4	23 ± 4	26 ± 5	27 ± 5	24 ± 5	26 ± 5	23 ± 4	21 ± 4	26 ± 5
10/03/08 - 10/10/08	27 ± 5	26 ± 5	25 ± 5	22 ± 5	20 ± 4	21 ± 4	26 ± 5	22 ± 4	23 ± 5
10/10/08 - 10/17/08	20 ± 5	19 ± 5	21 ± 5	19 ± 5	17 ± 4	18 ± 4	20 ± 5	18 ± 5	19 ± 4
10/17/08 - 10/24/08	14 ± 4	14 ± 4	15 ± 4	18 ± 4	15 ± 4	13 ± 4	16 ± 4	17 ± 4	17 ± 4
10/24/08 - 10/31/08	19 ± 4	19 ± 4	22 ± 4	24 ± 4	16 ± 4	16 ± 4	26 ± 4	20 ± 4	21 ± 5
10/31/08 - 11/07/08	29 ± 5	26 ± 5	25 ± 4	34 ± 5	28 ± 5	32 ± 5	21 ± 4	26 ± 5	31 ± 5
11/07/08 - 11/14/08	17 ± 5	19 ± 5	19 ± 5	22 ± 5	16 ± 4	14 ± 4	20 ± 5	23 ± 5	19 ± 5
11/14/08 - 11/20/08	16 ± 4	16 ± 4	19 ± 4	20 ± 4	20 ± 5	17 ± 4	19 ± 4	20 ± 4	15 ± 4
11/20/08 - 11/28/08	24 ± 4	21 ± 4	20 ± 4	23 ± 4	22 ± 4	24 ± 4	25 ± 4	24 ± 4	21 ± 4
11/28/08 - 12/05/08	21 ± 5	20 ± 5	18 ± 5	19 ± 5	18 ± 4	19 ± 4	15 ± 5	19 ± 5	19 ± 4
12/05/08 - 12/12/08	25 ± 5	28 ± 5	30 ± 5	29 ± 5	29 ± 5	25 ± 5	24 ± 5	24 ± 5	23 ± 5
12/12/08 - 12/18/08	29 ± 5	22 ± 4	29 ± 5	29 ± 5	32 ± 5	29 ± 5	28 ± 5	29 ± 5	29 ± 5
12/18/08 - 12/26/08	31 ± 5	32 ± 5	29 ± 5	30 ± 5	32 ± 5	31 ± 5	29 ± 5	32 ± 5	30 ± 5
12/26/08 - 01/02/09	29 ± 4	29 ± 4	32 ± 5	34 ± 5	29 ± 5	29 ± 5	33 ± 5	33 ± 5	27 ± 5
MEAN	20 ± 16	20 ± 16	20 ± 16	22 ± 17	20 ± 16	20 ± 17	20 ± 16	21 ± 16	21 ± 16

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

TABLE C-V.2 **MONTHLY AND YEARLY MEAN VALUES OF GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

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

GROUP I - NEAR-SITE LOCATIONS				GROUP II - FAR-FIELD LOCATIONS				GROUP III - CONTROL LOCATIONS			
COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD
12/29/07 - 02/01/08	19	43	32 ± 14	12/28/07 - 02/01/08	20	42	32 ± 14	12/28/07 - 02/01/08	23	39	32 ± 13
02/01/08 - 02/29/08	14	36	23 ± 16	02/01/08 - 02/29/08	13	40	23 ± 18	02/01/08 - 02/29/08	17	39	25 ± 19
02/29/08 - 03/28/08	11	25	18 ± 12	02/29/08 - 03/28/08	13	31	20 ± 13	02/29/08 - 03/28/08	14	24	19 ± 8
03/28/08 - 05/02/08	10	20	15 ± 6	03/28/08 - 05/02/08	9	21	15 ± 8	03/28/08 - 05/02/08	11	21	15 ± 7
05/02/08 - 05/30/08	< 5	24	12 ± 11	05/02/08 - 05/30/08	7	19	12 ± 9	05/02/08 - 05/30/08	9	20	12 ± 11
05/30/08 - 07/04/08	10	19	13 ± 5	05/30/08 - 07/11/08	10	19	14 ± 5	05/30/08 - 07/11/08	9	19	14 ± 7
07/04/08 - 08/01/08	11	22	16 ± 6	07/04/08 - 08/01/08	10	24	16 ± 8	07/11/08 - 08/01/08	17	24	20 ± 8
08/01/08 - 08/29/08	12	28	19 ± 11	08/01/08 - 08/29/08	15	30	20 ± 11	08/01/08 - 08/29/08	15	28	20 ± 12
08/29/08 - 09/27/08	11	42	24 ± 20	08/29/08 - 10/03/08	14	44	25 ± 19	08/29/08 - 10/03/08	15	44	27 ± 21
09/27/08 - 11/01/08	14	27	21 ± 8	09/27/08 - 11/07/08	13	32	20 ± 10	10/03/08 - 11/07/08	17	31	22 ± 11
11/01/08 - 11/29/08	16	34	22 ± 10	11/01/08 - 12/05/08	14	26	21 ± 7	11/07/08 - 12/05/08	15	21	18 ± 6
11/29/08 - 01/03/09	18	34	27 ± 10	11/29/08 - 01/03/09	15	33	28 ± 10	12/05/08 - 01/02/09	23	30	27 ± 6
12/29/07 - 01/03/09	< 5	43	20 ± 16	12/28/07 - 01/03/09	7	44	20 ± 16	12/28/07 - 01/02/09	9	44	21 ± 16

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

TABLE C-V.3 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

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

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
Q-01	12/29/07 - 03/28/08	< 4	< 2	< 9	< 3	< 7	< 5	< 7	< 3	< 4	< 95	< 31
	03/28/08 - 06/27/08	< 4	< 5	< 13	< 3	< 7	< 5	< 10	< 3	< 2	< 149	< 60
	06/27/08 - 09/27/08	< 3	< 6	< 26	< 3	< 8	< 8	< 14	< 3	< 2	< 3180	< 812
	09/27/08 - 01/03/09	< 3	< 3	< 7	< 3	< 9	< 3	< 6	< 3	< 2	< 33	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-02	12/29/07 - 03/28/08	< 3	< 3	< 10	< 3	< 6	< 4	< 7	< 3	< 2	< 58	< 23
	03/28/08 - 06/27/08	< 2	< 4	< 9	< 2	< 5	< 3	< 6	< 2	< 2	< 119	< 47
	06/27/08 - 09/27/08	< 2	< 6	< 16	< 2	< 6	< 5	< 7	< 2	< 2	< 2330	< 455
	09/27/08 - 01/03/09	< 2	< 2	< 6	< 3	< 4	< 3	< 4	< 2	< 2	< 24	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-03	12/29/07 - 03/28/08	< 3	< 3	< 10	< 3	< 4	< 4	< 5	< 3	< 2	< 72	< 25
	03/28/08 - 06/27/08	< 3	< 6	< 15	< 3	< 5	< 5	< 9	< 3	< 3	< 151	< 96
	06/27/08 - 09/27/08	< 4	< 6	< 32	< 3	< 9	< 7	< 18	< 3	< 3	< 3550	< 1100
	09/27/08 - 01/03/09	< 3	< 4	< 10	< 4	< 7	< 4	< 5	< 3	< 3	< 29	< 14
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-04	12/29/07 - 03/28/08	< 4	< 4	< 9	< 5	< 7	< 4	< 7	< 3	< 3	< 87	< 27
	03/28/08 - 06/27/08	< 3	< 5	< 13	< 3	< 7	< 4	< 7	< 3	< 2	< 112	< 52
	06/27/08 - 09/27/08	< 2	< 5	< 20	< 2	< 9	< 7	< 12	< 3	< 2	< 2970	< 863
	09/27/08 - 01/03/09	< 2	< 1	< 7	< 2	< 6	< 2	< 5	< 2	< 3	< 25	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-07	12/28/07 - 03/28/08	< 3	< 4	< 9	< 3	< 7	< 4	< 5	< 2	< 2	< 64	< 33
	03/28/08 - 06/27/08	< 3	< 4	< 8	< 3	< 7	< 4	< 7	< 3	< 3	< 154	< 49
	06/27/08 - 09/26/08	< 4	< 8	< 32	< 3	< 10	< 10	< 20	< 4	< 3	< 3860	< 1740
	09/26/08 - 01/02/09	< 3	< 3	< 4	< 2	< 3	< 2	< 4	< 2	< 2	< 32	< 11
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-V.3 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

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

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
Q-13	12/28/07 - 03/28/08	< 2	< 3	< 10	< 3	< 2	< 3	< 5	< 2	< 2	< 50	< 28
	03/28/08 - 06/27/08	< 3	< 4	< 14	< 3	< 7	< 5	< 7	< 3	< 3	< 182	< 45
	06/27/08 - 09/26/08	< 4	< 5	< 25	< 1	< 7	< 6	< 13	< 2	< 2	< 3740	< 1640
	09/26/08 - 01/02/09	< 3	< 3	< 7	< 2	< 7	< 3	< 3	< 3	< 2	< 30	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-16	12/28/07 - 03/28/08	< 4	< 4	< 7	< 3	< 9	< 4	< 7	< 4	< 4	< 92	< 34
	03/28/08 - 06/27/08	< 2	< 4	< 7	< 2	< 8	< 3	< 6	< 3	< 2	< 144	< 49
	06/27/08 - 09/26/08	< 4	< 9	< 30	< 3	< 10	< 10	< 12	< 3	< 3	< 3000	< 1310
	09/26/08 - 01/02/09	< 2	< 3	< 3	< 2	< 5	< 2	< 5	< 2	< 2	< 22	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-37	12/29/07 - 03/28/08	< 2	< 3	< 4	< 2	< 5	< 3	< 6	< 2	< 2	< 74	< 10
	03/28/08 - 06/27/08	< 2	< 4	< 11	< 4	< 5	< 3	< 7	< 2	< 2	< 139	< 43
	06/27/08 - 09/27/08	< 3	< 5	< 23	< 3	< 8	< 6	< 10	< 3	< 3	< 2740	< 839
	09/27/08 - 01/03/09	< 3	< 4	< 7	< 2	< 6	< 3	< 6	< 3	< 3	< 39	< 19
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-38	12/29/07 - 03/28/08	< 3	< 3	< 12	< 3	< 8	< 4	< 9	< 3	< 3	< 79	< 33
	03/28/08 - 06/27/08	< 3	< 4	< 13	< 4	< 7	< 4	< 6	< 2	< 2	< 127	< 36
	06/27/08 - 09/27/08	< 3	< 7	< 27	< 5	< 6	< 9	< 14	< 3	< 3	< 3400	< 1140
	09/27/08 - 01/03/09	< 2	< 2	< 6	< 2	< 6	< 3	< 5	< 3	< 2	< 25	< 11
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-VI-.1 CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008

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

COLLECTION PERIOD	GROUP I				GROUP II				GROUP III
	Q-01	Q-02	Q-03	Q-04	Q-13	Q-16	Q-37	Q-38	Q-07
12/28/07 - 01/04/08	< 16	< 26	< 27	< 27	< 26	< 25	< 31	< 32	< 22
01/04/08 - 01/11/08	< 24	< 42	< 43	< 43	< 34	< 34	< 35	< 37	< 42
01/11/08 - 01/18/08	< 22	< 43	< 45	< 45	< 38	< 37	< 39	< 40	< 43
01/18/08 - 01/25/08	< 15	< 24	< 25	< 25	< 26	< 26	< 27	< 28	< 25
01/25/08 - 02/01/08	< 19	< 35	< 36	< 36	< 34	< 34	< 32	< 34	< 37
02/01/08 - 02/08/08	< 43	< 33	< 46	< 46	< 40	< 41	< 43	< 45	< 43
02/08/08 - 02/15/08	< 36	< 54	< 55	< 55	< 65	< 65	< 65	< 67	< 55
02/15/08 - 02/22/08	< 12	< 20	< 21	< 21	< 16	< 15	< 19	< 20	< 16
02/22/08 - 02/29/08	< 12	< 21	< 21	< 21	< 29	< 29	< 27	< 28	< 23
02/29/08 - 03/06/08	< 39	< 52	< 54	< 54	< 52	< 52	< 42	< 44	< 66
03/06/08 - 03/14/08	< 58	< 58	< 37	< 60	< 42	< 42	< 49	< 51	< 52
03/14/08 - 03/21/08	< 40	< 40	< 41	< 41	< 39	< 39	< 37	< 38	< 26
03/21/08 - 03/28/08	< 29	< 54	< 55	< 55	< 54	< 53	< 56	< 58	< 52
03/28/08 - 04/04/08	< 19	< 19	< 19	< 19	< 6	< 11	< 12	< 12	< 12
04/04/08 - 04/11/08	< 29	< 43	< 45	< 45	< 44	< 44	< 44	< 45	< 45
04/11/08 - 04/18/08	< 67	< 69	< 69	< 69	< 49	< 27	< 40	< 41	< 50
04/18/08 - 04/25/08	< 37	< 56	< 58	< 58	< 53	< 53	< 51	< 53	< 63
04/25/08 - 05/02/08	< 47	< 47	< 48	< 48	< 38	< 37	< 36	< 46	< 38
05/02/08 - 05/09/08	< 25	< 58	< 60	< 60	< 37	< 37	< 36	< 37	< 60
05/09/08 - 05/16/08	< 16	< 29	< 30	< 30	< 25	< 25	< 22	< 22	< 36
05/16/08 - 05/23/08	< 15	< 35	< 36	< 36	< 23	< 23	< 27	< 28	< 30
05/23/08 - 05/30/08	< 43	< 64	< 23	< 23	< 24	< 24	< 24	< 25	< 23
05/30/08 - 06/05/08	< 22	< 40	< 41	< 41	< 53	< 53	< 40	< 42	< 55
06/05/08 - 06/13/08	< 25	< 41	< 42	< 42	< 42	< 38	< 48	< 50	< 35
06/13/08 - 06/20/08	< 33	< 56	< 58	< 57	< 64	< 63	< 60	< 60	< 61
06/20/08 - 06/27/08	< 27	< 49	< 51	< 51	< 50	< 48	< 49	< 49	< 49
06/27/08 - 07/03/08	< 38	< 50	< 52	< 52	< 65	< 65	< 50	< 50	< 65
07/03/08 - 07/11/08	< 19	< 31	< 32	< 32	< 30	< 29	< 34	< 34	< 28
07/11/08 - 07/18/08	< 26	< 43	< 44	< 44	< 40	< 40	< 40	< 40	< 44
07/18/08 - 07/25/08	< 37	< 46	< 47	< 47	< 68	< 68	< 57	< 57	< 56
07/25/08 - 08/01/08	< 31	< 56	< 58	< 58	< 60	< 60	< 67	< 67	< 52
08/01/08 - 08/08/08	< 21	< 59	< 32	< 32	< 53	< 52	< 53	< 53	< 32
08/08/08 - 08/15/08	< 24	< 44	< 44	< 45	< 34	< 34	< 36	< 35	< 43
08/15/08 - 08/22/08	< 30	< 54	< 56	< 56	< 43	< 44	< 46	< 46	< 54
08/22/08 - 08/29/08	< 28	< 51	< 51	< 52	< 53	< 51	< 51	< 51	< 52
08/29/08 - 09/05/08	< 29	< 36	< 36	< 38	< 58	< 58	< 60	< 60	< 37
09/05/08 - 09/12/08	< 29	< 53	< 53	< 55	< 19	< 19	< 20	< 20	< 53
09/12/08 - 09/19/08	< 36	< 65	< 65	< 67	< 45	< 45	< 46	< 46	< 66
09/19/08 - 09/26/08	< 42	< 63	< 63	< 65	< 63	< 63	< 59	< 59	< 68
09/26/08 - 10/03/08	< 34	< 62	< 62	< 64	< 69	< 69	< 63	< 64	< 70
10/03/08 - 10/10/08	< 44	< 56	< 56	< 58	< 67	< 65	< 65	< 65	< 64
10/10/08 - 10/17/08	< 69	< 69	< 69	< 39	< 57	< 57	< 68	< 67	< 60
10/17/08 - 10/24/08	< 28	< 65	< 65	< 67	< 68	< 68	< 67	< 67	< 67
10/24/08 - 10/31/08	< 29	< 52	< 52	< 54	< 53	< 53	< 43	< 43	< 69
10/31/08 - 11/07/08	< 27	< 50	< 50	< 51	< 54	< 55	< 49	< 49	< 55
11/07/08 - 11/14/08	< 31	< 51	< 51	< 53	< 49	< 51	< 59	< 59	< 45
11/14/08 - 11/20/08	< 34	< 45	< 45	< 47	< 65	< 65	< 50	< 50	< 60
11/20/08 - 11/28/08	< 31	< 31	< 31	< 32	< 34	< 35	< 30	< 30	< 28
11/28/08 - 12/05/08	< 38	< 62	< 61	< 63	< 55	< 57	< 68	< 68	< 52
12/05/08 - 12/12/08	< 31	< 56	< 56	< 58	< 57	< 59	< 60	< 60	< 56
12/12/08 - 12/18/08	< 28	< 47	< 46	< 48	< 43	< 45	< 35	< 35	< 61
12/18/08 - 12/26/08	< 38	< 62	< 61	< 63	< 61	< 62	< 67	< 67	< 59
12/26/08 - 01/02/09	< 16	< 38	< 38	< 40	< 38	< 69	< 53	< 53	< 50
MEAN	-	-	-	-	-	-	-	-	-

TABLE C-VII.1 **CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

	INDICATOR FARM
COLLECTION PERIOD	Q-26
01/04/08	< 0.8
02/01/08	< 0.9
03/07/08	< 0.9
04/04/08	< 0.9
05/02/08	< 0.7
05/17/08	< 0.7
05/30/08	< 0.9
06/13/08	< 0.9
06/27/08	< 0.8
07/11/08	< 0.8
07/25/08	< 0.6
08/08/08	< 0.9
08/22/08	< 0.9
09/05/08	< 0.7
09/19/08	< 0.9
10/04/08	< 0.7
10/17/08	< 0.9
11/01/08	< 0.6
11/14/08	< 0.7
12/05/08	< 0.8
MEAN	-

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
Q-26	01/04/08	< 6	< 6	< 16	< 6	< 15	< 7	< 11	< 5	< 6	< 31	< 8
	02/01/08	< 5	< 6	< 11	< 5	< 12	< 5	< 9	< 5	< 5	< 29	< 9
	03/07/08	< 7	< 7	< 17	< 6	< 14	< 7	< 14	< 5	< 8	< 38	< 9
	04/04/08	< 5	< 5	< 14	< 6	< 12	< 5	< 9	< 5	< 5	< 23	< 8
	05/02/08	< 6	< 6	< 15	< 7	< 17	< 5	< 13	< 6	< 6	< 32	< 9
	05/17/08	< 7	< 6	< 16	< 9	< 17	< 8	< 14	< 7	< 7	< 43	< 11
	05/30/08	< 8	< 10	< 21	< 9	< 17	< 10	< 19	< 9	< 10	< 34	< 14
	06/13/08	< 5	< 5	< 12	< 5	< 12	< 6	< 9	< 5	< 6	< 31	< 9
	06/27/08	< 7	< 8	< 17	< 7	< 19	< 8	< 13	< 9	< 8	< 47	< 14
	07/11/08	< 5	< 6	< 12	< 4	< 10	< 6	< 9	< 4	< 5	< 42	< 15
	07/25/08	< 5	< 5	< 13	< 6	< 10	< 6	< 8	< 4	< 5	< 34	< 10
	08/08/08	< 5	< 5	< 15	< 5	< 12	< 6	< 10	< 4	< 5	< 42	< 14
	08/22/08	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 2	< 2	< 17	< 4
	09/05/08	< 5	< 6	< 16	< 6	< 13	< 6	< 11	< 5	< 6	< 42	< 15
	09/19/08	< 7	< 7	< 15	< 6	< 13	< 7	< 12	< 6	< 7	< 47	< 10
	10/04/08	< 2	< 3	< 7	< 2	< 6	< 3	< 5	< 2	< 2	< 42	< 12
	10/17/08	< 5	< 6	< 13	< 5	< 11	< 6	< 10	< 5	< 5	< 60	< 14
	11/01/08	< 4	< 5	< 12	< 4	< 10	< 6	< 9	< 4	< 4	< 50	< 15
	11/14/08	< 1	< 2	< 4	< 1	< 2	< 2	< 3	< 0.9	< 1	< 48	< 13
	12/05/08	< 6	< 6	< 13	< 5	< 13	< 6	< 10	< 6	< 6	< 31	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-VIII.1 **CONCENTRATIONS OF GAMMA EMITTERS IN FOOD PRODUCT SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
Q-CONTROL													
Lettuce	07/28/08	< 3	< 4	< 8	< 3	< 7	< 4	< 6	< 20	< 3	< 3	< 33	< 8
Onions	07/28/08	< 6	< 6	< 15	< 5	< 13	< 7	< 12	< 43	< 5	< 6	< 68	< 18
Rhubarb Leaves	07/28/08	< 5	< 5	< 13	< 5	< 11	< 6	< 10	< 33	< 4	< 5	< 54	< 15
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-QUAD 1													
Cabbage	07/28/08	< 4	< 4	< 11	< 4	< 9	< 4	< 8	< 33	< 3	< 4	< 49	< 11
Onions	07/28/08	< 7	< 8	< 20	< 9	< 16	< 9	< 14	< 44	< 7	< 8	< 75	< 22
Potatoes	07/28/08	< 7	< 7	< 21	< 7	< 15	< 8	< 15	< 42	< 6	< 7	< 72	< 21
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-QUAD 2													
Carrots	07/28/08	< 7	< 8	< 19	< 7	< 17	< 7	< 14	< 46	< 7	< 9	< 79	< 18
Onions	07/28/08	< 10	< 11	< 25	< 10	< 20	< 12	< 20	< 58	< 10	< 10	< 104	< 29
Rhubarb Leaves	07/28/08	< 5	< 6	< 14	< 5	< 11	< 6	< 10	< 37	< 5	< 5	< 59	< 16
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-QUAD 3													
Broccoli	07/28/08	< 10	< 11	< 25	< 9	< 21	< 10	< 17	< 51	< 8	< 9	< 94	< 28
Horseradish	07/28/08	< 6	< 7	< 18	< 6	< 14	< 8	< 13	< 49	< 6	< 7	< 74	< 16
Lettuce	07/28/08	< 10	< 11	< 25	< 11	< 23	< 11	< 21	< 57	< 9	< 11	< 105	< 29
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-QUAD 4													
Onions	07/28/08	< 3	< 4	< 9	< 3	< 7	< 4	< 6	< 20	< 3	< 4	< 37	< 10
Potatoes	07/28/08	< 5	< 5	< 14	< 6	< 12	< 6	< 9	< 30	< 4	< 5	< 50	< 14
Rhubarb Leaves	07/28/08	< 5	< 5	< 13	< 4	< 10	< 6	< 10	< 37	< 5	< 5	< 57	< 14
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-IX.1 QUARTERLY TLD RESULTS FOR QUAD CITIES NUCLEAR POWER STATION, 2008

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

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
Q-01-1	21.8 ± 5.7	21	18	24	24
Q-01-2	22.0 ± 5.7	22	18	24	24
Q-02-1	22.5 ± 6.2	23	18	24	25
Q-02-2	21.5 ± 5.3	21	18	24	23
Q-03-1	21.0 ± 3.3	19	21	21	23
Q-03-2	20.0 ± 5.2	19	17	21	23
Q-04-1	22.0 ± 3.7	21	20	24	23
Q-04-2	22.3 ± 6.2	22	18	25	24
Q-07-1	22.5 ± 6.6	23	18	23	26
Q-07-2	21.3 ± 3.4	21	19	22	23
Q-13-1	22.0 ± 4.9	21	19	24	24
Q-13-2	22.5 ± 5.3	21	20	26	23
Q-16-1	21.3 ± 5.5	20	18	23	24
Q-16-2	20.5 ± 3.8	20	18	22	22
Q-37-1	23.5 ± 4.2	23	21	26	24
Q-37-2	22.8 ± 3.0	21	22	24	24
Q-38-1	23.5 ± 6.0	25	19	25	25
Q-38-2	24.5 ± 4.8	22	23	26	27
Q-101-1	21.5 ± 4.8	23	18	22	23
Q-101-2	22.8 ± 2.5	23	21	23	24
Q-102-1	22.0 ± 3.7	21	20	23	24
Q-102-3	21.8 ± 3.0	20	21	23	23
Q-103-1	21.0 ± 4.6	19	19	23	23
Q-103-2	21.3 ± 5.0	21	18	22	24
Q-104-1	22.5 ± 2.0	23	21	23	23
Q-104-2	21.5 ± 2.0	20	22	22	22
Q-105-1	20.5 ± 2.6	20	19	22	21
Q-105-2	21.8 ± 1.9	23	21	21	22
Q-106-2	22.5 ± 2.6	22	21	23	24
Q-106-3	22.0 ± 2.8	23	20	22	23
Q-107-2	21.5 ± 3.5	20	20	23	23
Q-107-3	23.0 ± 1.6	22	23	23	24
Q-108-1	21.5 ± 3.8	21	19	23	23
Q-108-2	19.8 ± 4.4	19	17	22	21
Q-109-1	22.5 ± 3.5	23	20	24	23
Q-109-2	21.0 ± 3.7	20	19	23	22
Q-111-1	24.8 ± 1.0	24	25	25	25
Q-111-2	21.0 ± 3.7	20	19	22	23
Q-112-1	22.5 ± 1.2	22	22	23	23
Q-112-2	20.5 ± 2.6	20	19	21	22
Q-113-1	21.8 ± 4.4	21	19	23	24
Q-113-2	21.0 ± 5.2	20	18	24	22
Q-114-1	23.3 ± 3.0	21	24	24	24
Q-114-2	23.5 ± 4.2	23	21	24	26
Q-115-1	21.3 ± 3.0	22	19	22	22
Q-115-2	21.5 ± 3.5	23	19	22	22
Q-116-1	22.0 ± 4.9	20	20	23	25
Q-116-3	22.8 ± 1.9	24	22	22	23

TABLE C-IX.1 QUARTERLY TLD RESULTS FOR QUAD CITIES NUCLEAR POWER STATION, 2008

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

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
Q-201-1	24.8 ± 3.0	24	23	26	26
Q-201-2	24.8 ± 1.0	25	24	25	25
Q-202-1	22.0 ± 2.3	23	21	23	21
Q-202-2	21.0 ± 4.3	21	18	22	23
Q-203-1	22.3 ± 4.7	22	19	24	24
Q-203-2	24.8 ± 2.5	23	25	26	25
Q-204-1	23.8 ± 5.5	22	21	25	27
Q-204-2	23.8 ± 4.4	23	21	26	25
Q-205-1	24.3 ± 4.4	25	21	25	26
Q-205-4	25.0 ± 2.3	26	24	24	26
Q-206-1	23.0 ± 0.0	23	23	23	23
Q-206-2	25.3 ± 4.1	27	23	24	27
Q-207-1	22.8 ± 4.4	22	20	25	24
Q-207-4	24.5 ± 5.8	21	24	25	28
Q-208-1	22.3 ± 4.4	21	20	23	25
Q-208-2	25.0 ± 0.0	25	25	25	25
Q-209-1	22.5 ± 3.5	23	20	23	24
Q-209-4	23.3 ± 3.0	21	24	24	24
Q-210-1	22.8 ± 6.6	23	19	22	27
Q-210-4	23.8 ± 2.5	25	22	24	24
Q-210-5	21.3 ± 5.3	20	19	21	25
Q-211-1	26.0 ± 2.3	27	25	27	25
Q-211-2	25.8 ± 2.5	24	26	27	26
Q-212-1	23.0 ± 3.7	22	21	25	24
Q-212-2	22.3 ± 6.8	19	22	21	27
Q-213-1	21.0 ± 3.7	20	19	22	23
Q-213-2	21.0 ± 4.6	19	19	23	23
Q-214-1	24.0 ± 5.9	22	21	27	26
Q-214-2	25.8 ± 5.3	26	22	27	28
Q-215-1	23.0 ± 8.3	22	24	28	18
Q-215-2	26.3 ± 4.2	27	(1)	28	24
Q-216-1	24.0 ± 3.7	22	23	26	25
Q-216-2	23.3 ± 4.4	22	21	26	24

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-IX.2 MEAN QUARTERLY TLD RESULTS FOR THE INNER RING, OUTER RING, OTHER AND CONTROL LOCATION FOR QUAD CITIES NUCLEAR POWER STATION, 2008

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

COLLECTION PERIOD	INNER RING ± 2 S.D.	OUTER RING	OTHER	CONTROL
JAN-MAR	21.4 ± 3.0	22.9 ± 4.4	21.3 ± 3.1	22.0 ± 2.8
APR-JUN	20.2 ± 3.7	21.8 ± 4.3	19.3 ± 3.5	18.5 ± 1.4
JUL-SEP	22.7 ± 1.8	24.6 ± 3.8	23.9 ± 3.1	22.5 ± 1.4
OCT-DEC	23.1 ± 2.3	24.8 ± 4.0	23.9 ± 2.3	24.5 ± 4.2

TABLE C-IX.3 SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR QUAD CITIES NUCLEAR POWER STATION, 2008

RESULTS IN UNITS OF MILLI-ROENTGEN/QUARTER

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
INNER RING	120	17	26	21.9 ± 3.6
OUTER RING	131	18	28	23.5 ± 4.8
OTHER	64	17	27	22.1 ± 4.9
CONTROL	8	18	26	21.9 ± 5.1

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

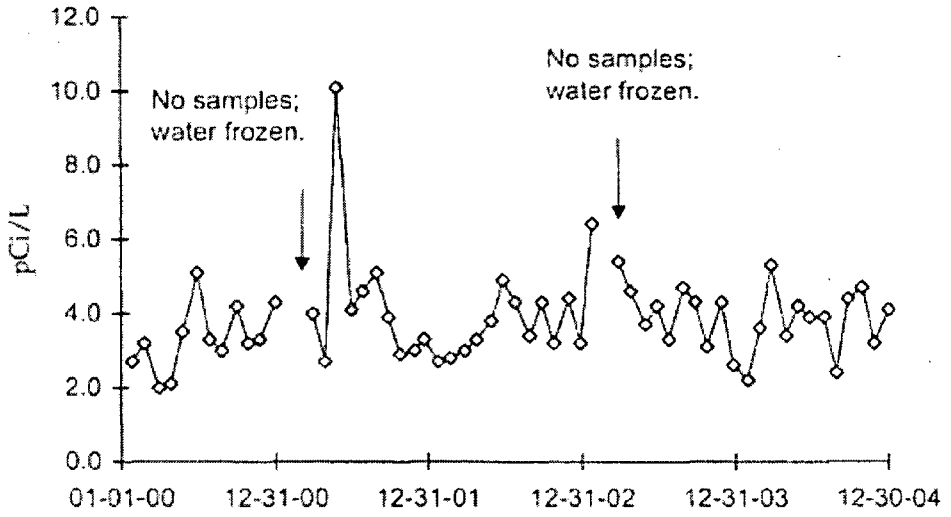
OUTER RING STATIONS - Q-201-1, Q-201-2, Q-202-1, Q-202-2, Q-203-1, Q-203-2, Q-204-1, Q-204-2, Q-205-1, Q-205-4, Q-206-1, Q-206-2, Q-207-1, Q-207-4, Q-208-1, Q-208-2, Q-209-1, Q-209-4, Q-210-1, Q-210-4, Q-210-5, Q-211-1, Q-211-2, Q-212-1, Q-212-2, Q-213-1, Q-213-2, Q-214-1, Q-214-2, Q-215-1, Q-215-2, Q-216-1, Q-216-2

OTHER STATIONS - Q-01-1, Q-01-2, Q-02-1, Q-02-2, Q-03-1, Q-03-2, Q-04-1, Q-04-2, Q-13-1, Q-13-2, Q-16-1, Q-16-2, Q-37-1, Q-37-2, Q-38-1, Q-38-2

CONTROL STATIONS - Q-07-1, Q-07-2

FIGURE C-1
Surface Water - Gross Beta - Stations Q-33 and Q-34 (C) Collected in the Vicinity of QCNPS, 2000 - 2004

Q-33 Cordova



Q-34 (C) Camanche

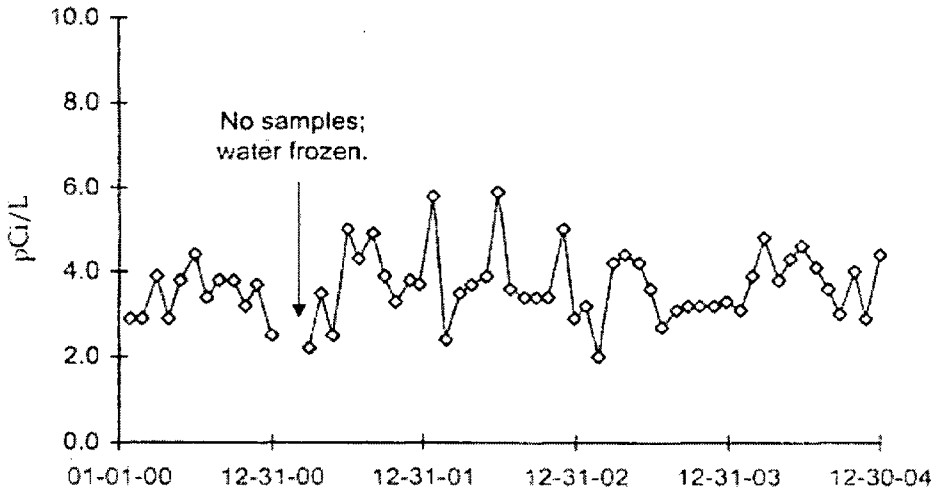
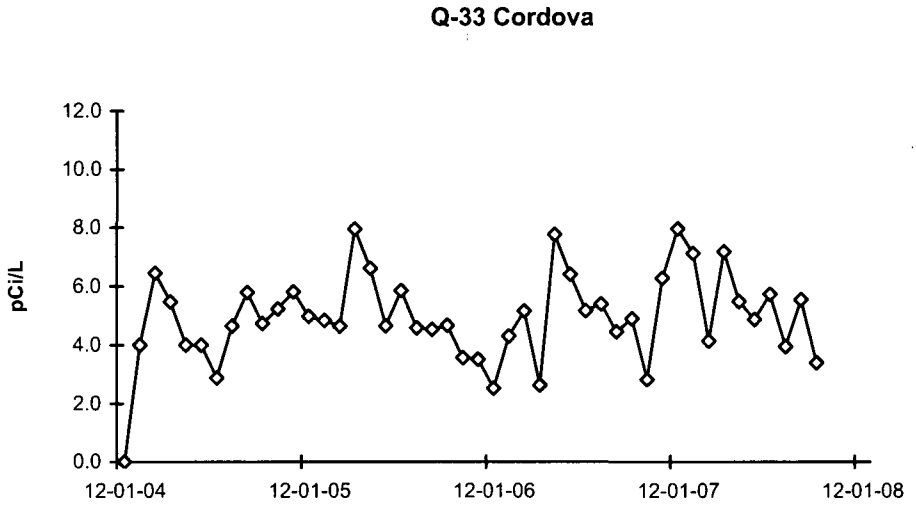
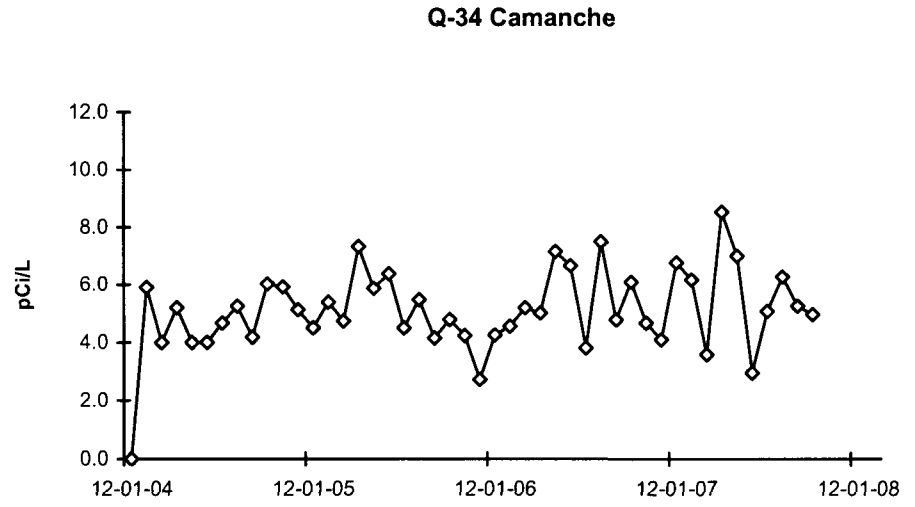


FIGURE C-1 (cont.)
Surface Water - Gross Beta - Stations Q-33 and Q-34 (C)
Collected in the Vicinity of QCNPS, 2005 - 2008

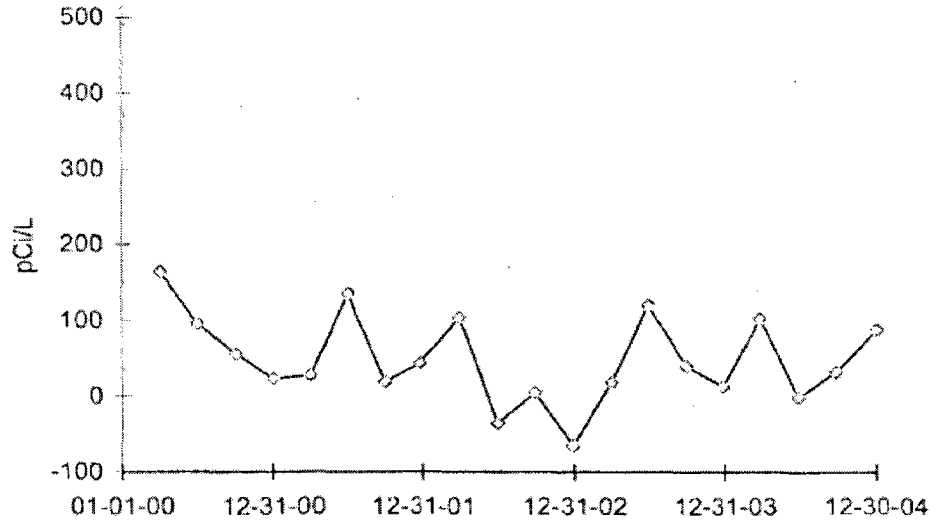




DUE TO VENDOR CHANGE, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY 2005

FIGURE C-2
Surface Water - Tritium - Stations Q-33 and Q-34 (C) Collected in the Vicinity of QCNPS, 2000 - 2004

Q-33 Cordova



Q-34 (C) Camanche

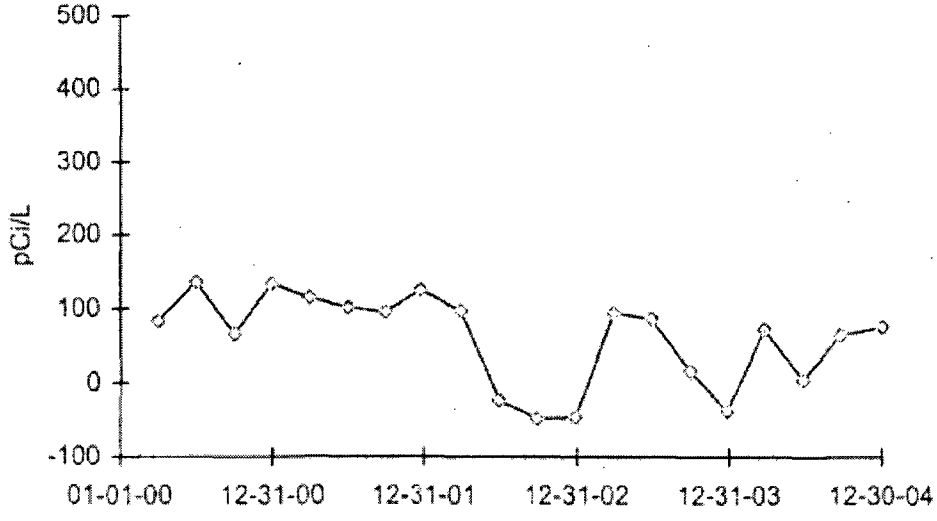
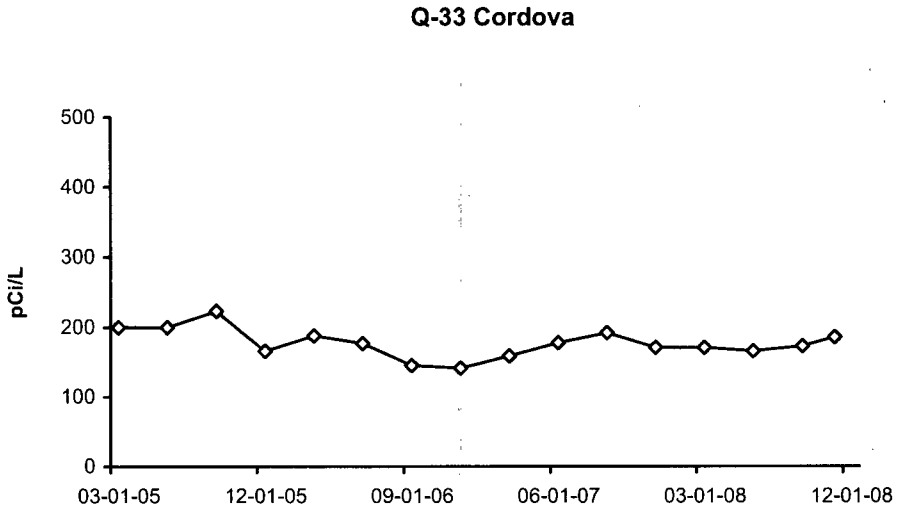
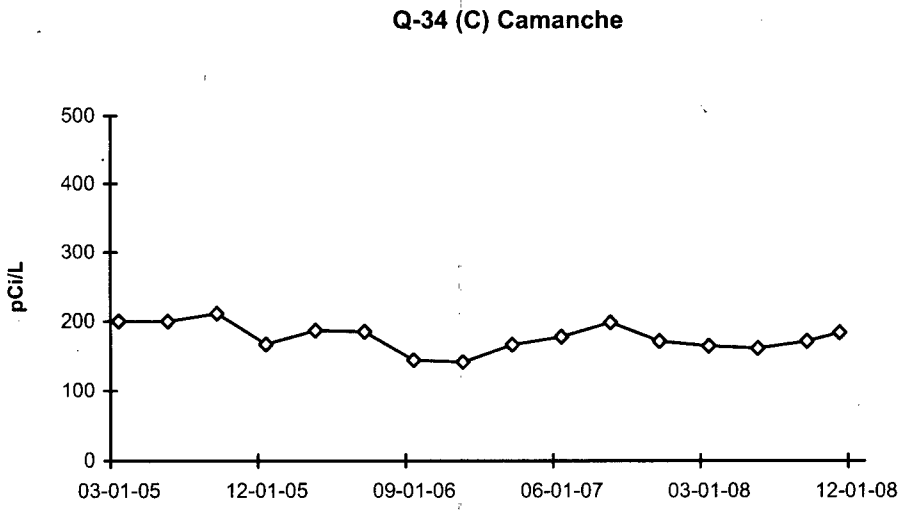


FIGURE C-2 (cont.)
Surface Water - Tritium - Stations Q-33 and Q-34 (C)
Collected in the Vicinity of QCNPS, 2005 - 2008

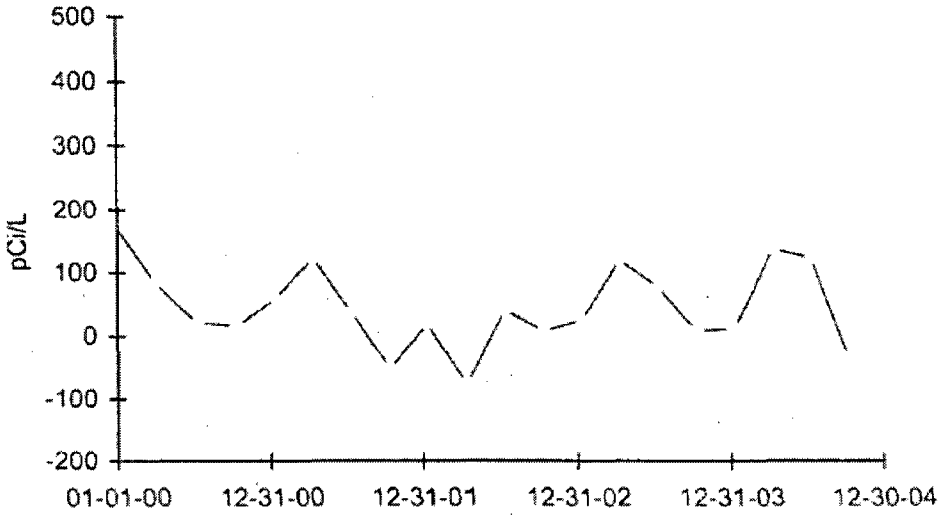




DUE TO VENDOR CHANGE, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY 2005

FIGURE C-3
Ground Water - Tritium - Stations Q-35 and Q-36 Collected in the Vicinity of QCNPS, 2000 - 2004

Q-35 McMillan Well



Q-36 Cordova Well

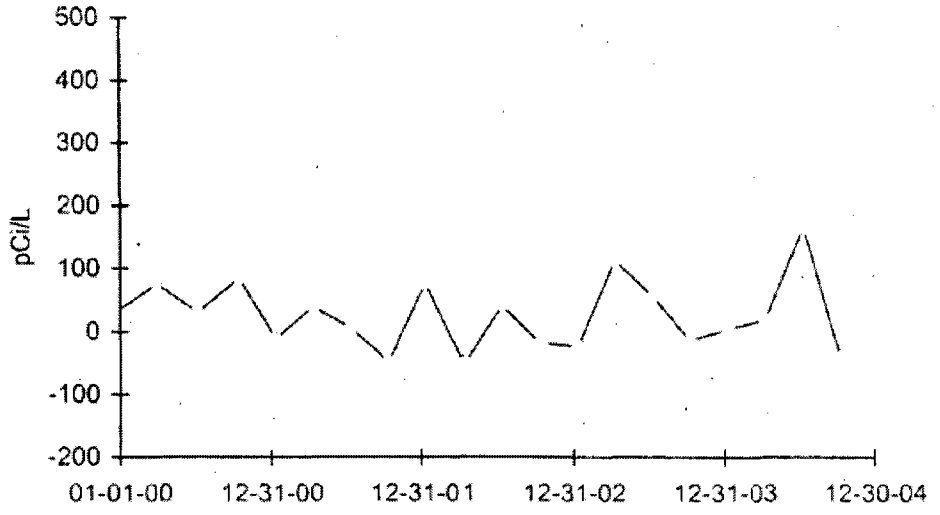
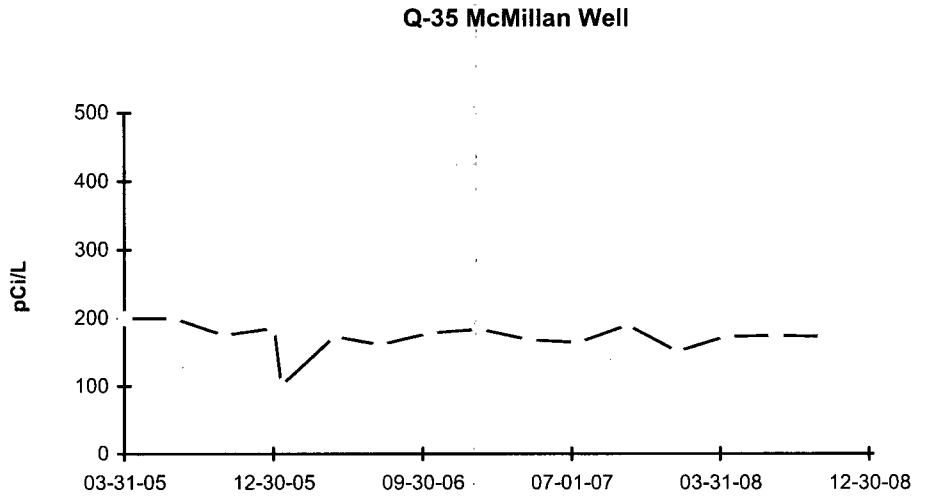
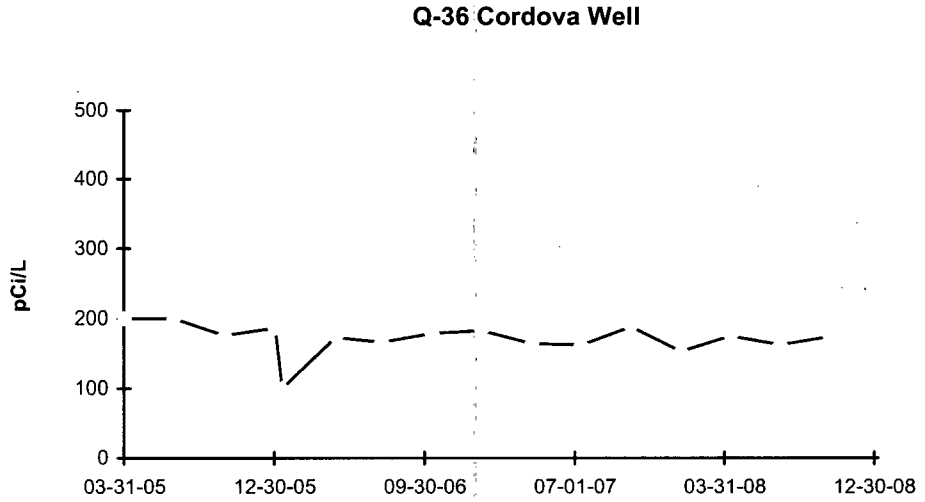


FIGURE C-3 (cont.)
Ground Water - Tritium - Stations Q-35 and Q-36 Collected in the Vicinity of QCNPS, 2005 - 2008

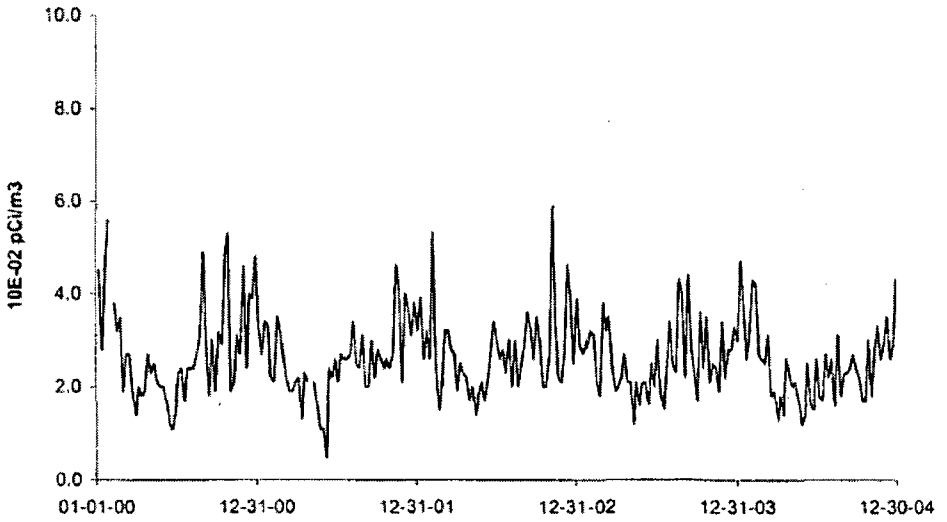




DUE TO VENDOR CHANGE, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY 2005

FIGURE C-4
Air Particulates - Gross Beta- Stations Q-01 and Q-02 Collected in the Vicinity of QCNPS, 2000 - 2004

Q-01 Onsite No. 1



Q-02 Onsite No. 2

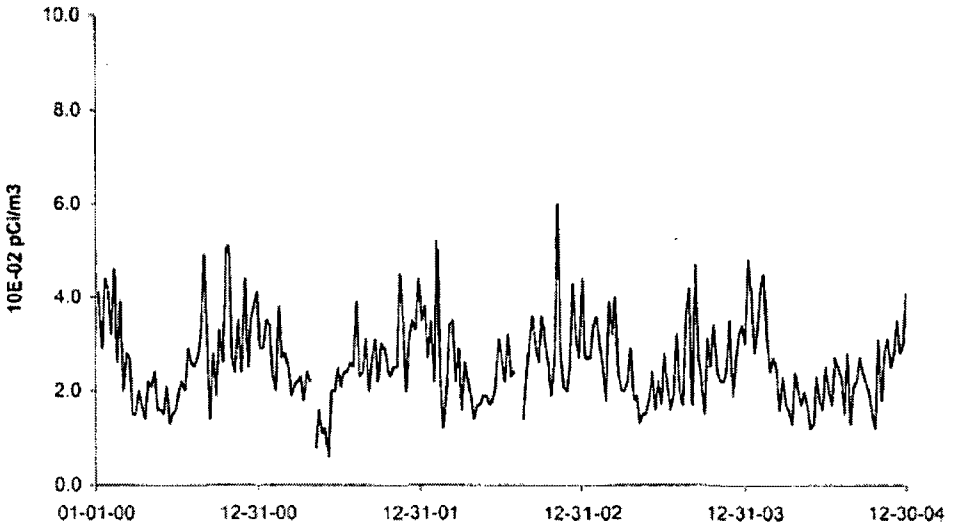
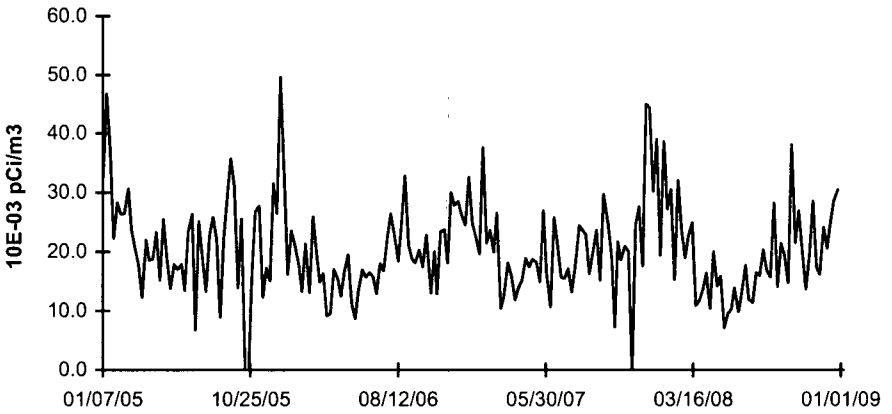


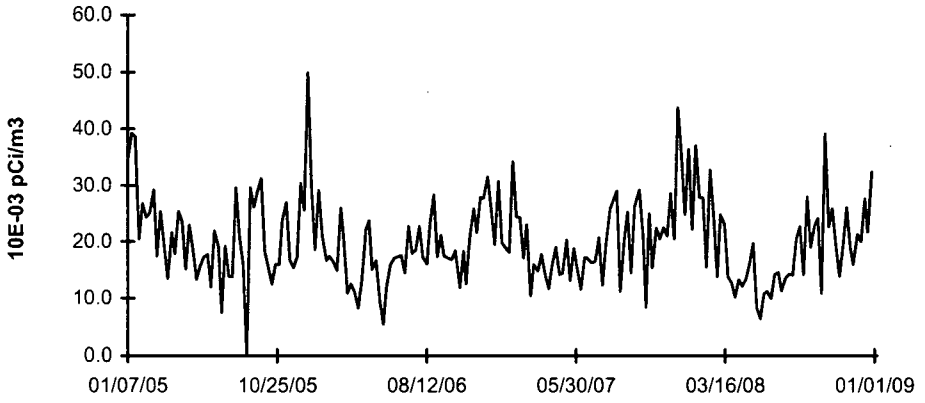
FIGURE C-4 (cont.)
Air Particulates - Gross Beta- Stations Q-01 and Q-02 Collected in the Vicinity of QCNPS, 2005 - 2008

Q-01 Onsite No. 1



Station Q-01 lost power 10-07-05 - 10-21-05.

Q-02 Onsite No. 2

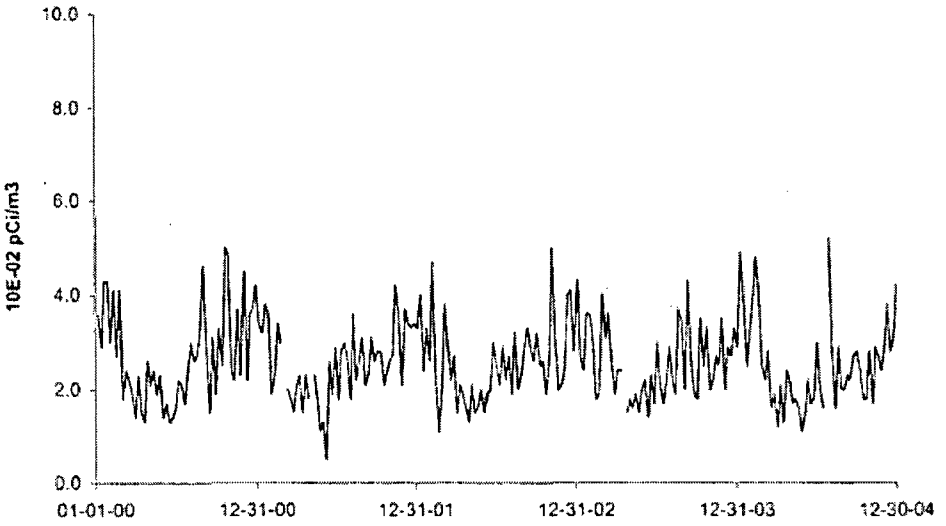


Station Q-02 lost power 08-19-05 - 08-26-05.

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

FIGURE C-5
Air Particulates - Gross Beta- Stations Q-03 and Q-04 Collected in the Vicinity of QCNPS, 2000 - 2004

Q-03 Onsite No. 3



Q-04 Nitrin

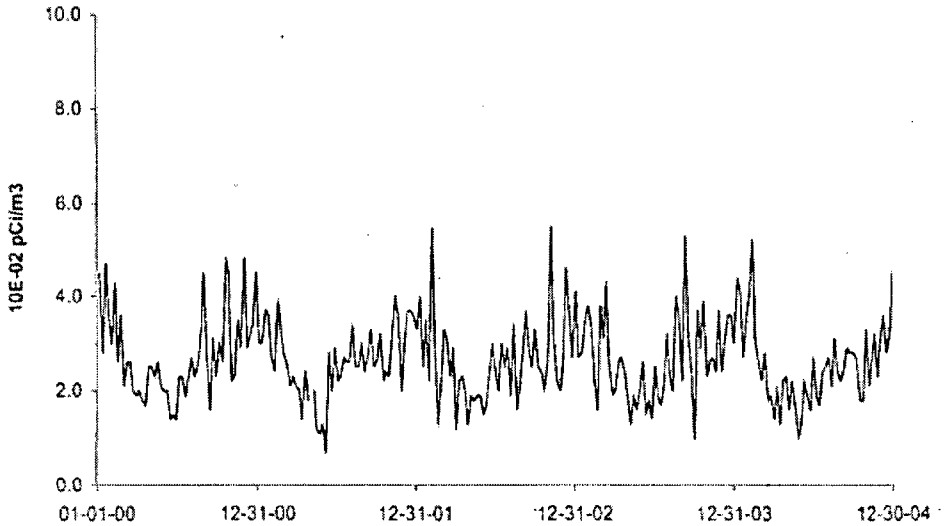
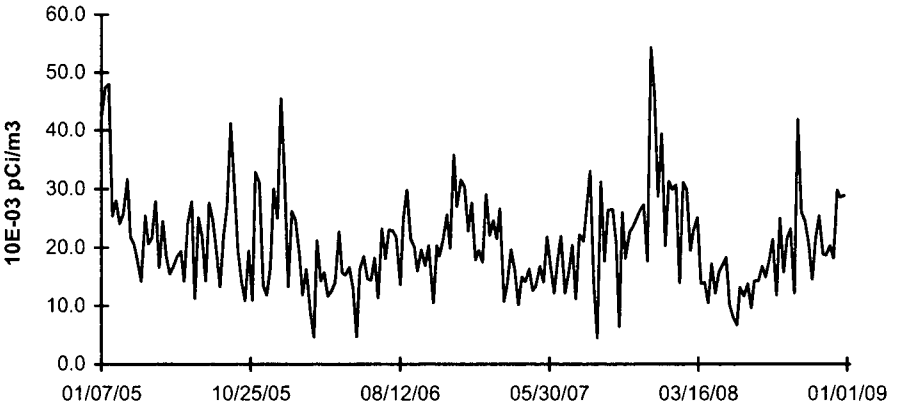
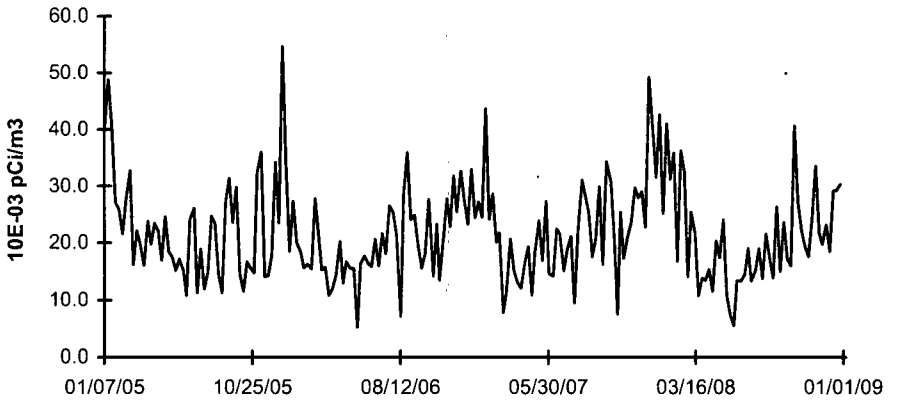


FIGURE C-5 (cont.)
Air Particulates - Gross Beta- Stations Q-03 and Q-04 Collected in the Vicinity of QCNPS, 2005 - 2008

Q-03 Onsite No. 3



Q-04 Nitrin



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

FIGURE C-6
Air Particulates - Gross Beta- Stations Q-07 (C) Collected in the Vicinity of QCNPS, 2000 - 2004

Q-07 (C) Clinton

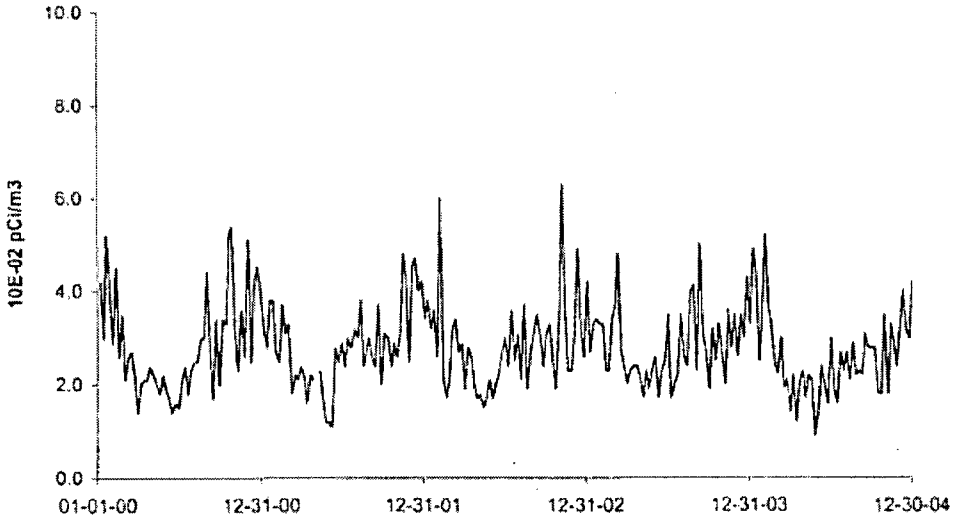
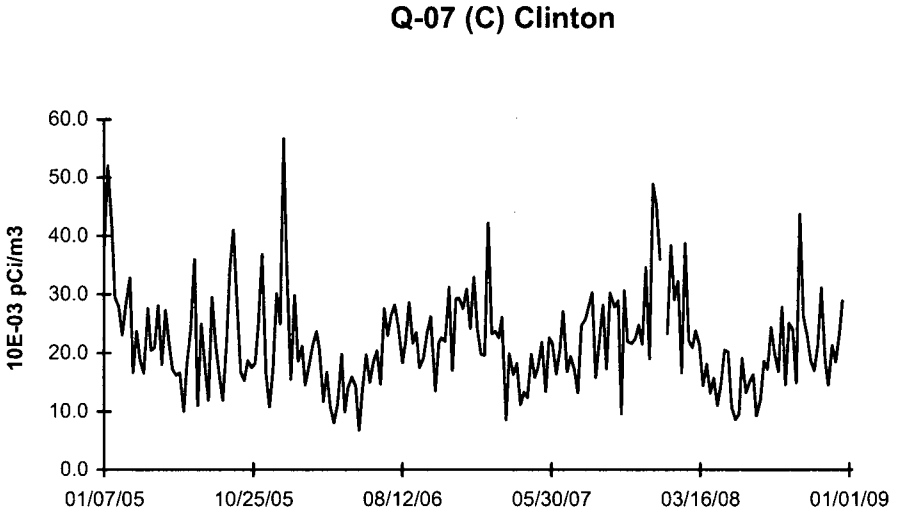


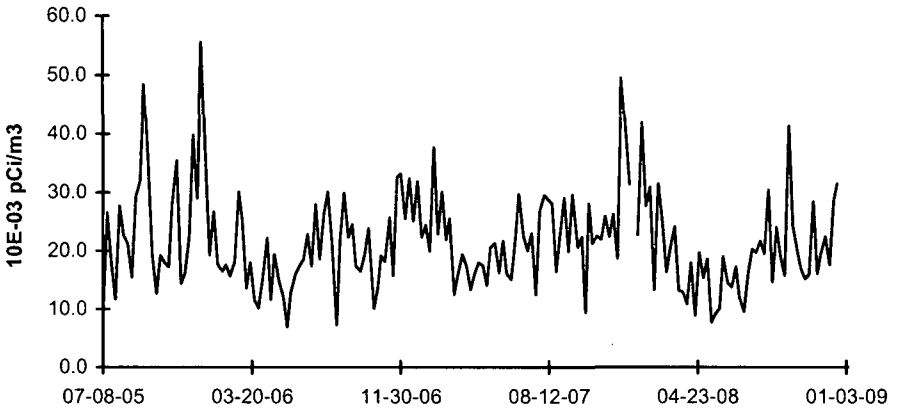
FIGURE C-6 (cont.)
Air Particulates - Gross Beta- Stations Q-07 (C) Collected in the Vicinity of QCNPS, 2005 - 2008



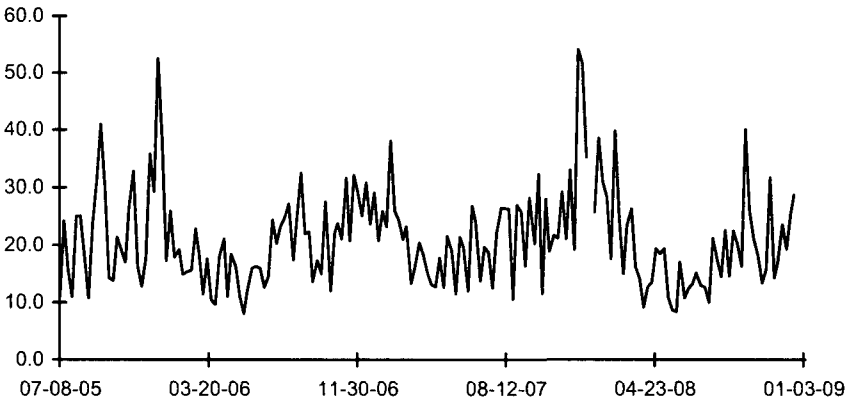
DUE TO VENDOR CHANGE IN 2005, THE REPORTED UNITS CHANGED FROM E-02 PCI/M3 TO E-03 PCI/M3

FIGURE C-7
Air Particulates - Gross Beta- Stations Q-13 and Q-16 Collected in the Vicinity of QCNPS, 2005 - 2008

Q-13 Princeton



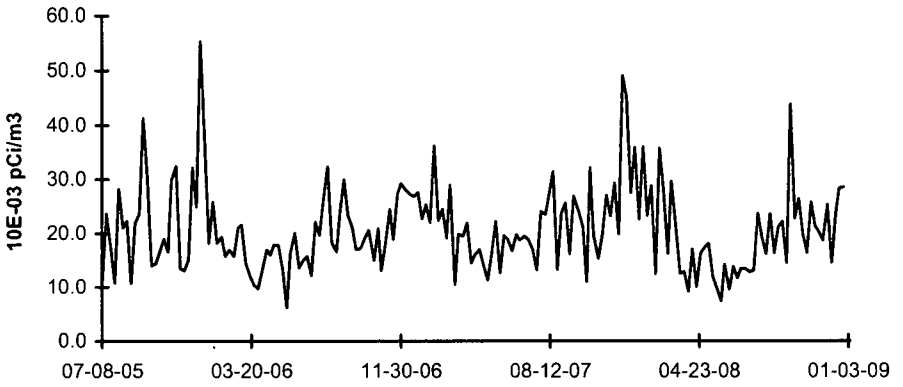
Q-16 Princeton



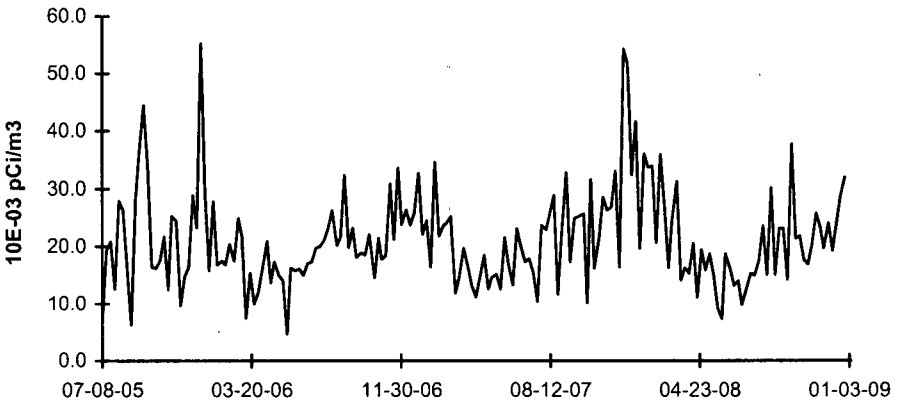
AIR PARTICULATE GROSS BETA ANALYSES OF FAR FIELD LOCATIONS STARTED IN JULY 2005
DUE TO VENDOR CHANGE IN 2005, THE REPORTED UNITS CHANGED FROM E-02 PCI/M3 TO E-03 PCI/M3

FIGURE C-8
Air Particulates - Gross Beta- Stations Q-37 and Q-38 Collected in the Vicinity of QCNPS, 2005 - 2008

Q-37 Meredosia Road



Q-38 Fuller Road



AIR PARTICULATE GROSS BETA ANALYSES OF FAR FIELD LOCATIONS STARTED IN JULY 2005
DUE TO VENDOR CHANGE IN 2005, THE REPORTED UNITS CHANGED FROM E-02 PCI/M3 TO E-03 PCI/M3

APPENDIX D

INTER-LABORATORY COMPARISON PROGRAM

TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2008
(PAGE 1 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
March 2008	E5847-396	Milk	Sr-89	pCi/L	83.5	95.8	0.87	A
			Sr-90	pCi/L	13.9	12.9	1.08	A
	E5848-396	Milk	I-131	pCi/L	57.3	60.0	0.96	A
			Ce-141	pCi/L	229	249	0.92	A
			Cr-51	pCi/L	336	359	0.94	A
			Cs-134	pCi/L	106	125	0.85	A
			Cs-137	pCi/L	141	146	0.97	A
			Co-58	pCi/L	71.8	70.8	1.01	A
			Mn-54	pCi/L	98.1	94.2	1.04	A
			Fe-59	pCi/L	102	102	1.00	A
			Zn-65	pCi/L	135	137	0.99	A
			Co-60	pCi/L	230	236	0.97	A
	E5850A-396	AP	Ce-141	pCi	163	157	1.04	A
			Cr-51	pCi	233	227	1.03	A
			Cs-134	pCi	72.6	79.0	0.92	A
			Cs-137	pCi	98.3	92.0	1.07	A
			Co-58	pCi	46.7	44.7	1.04	A
			Mn-54	pCi	69.8	59.4	1.18	A
			Fe-59	pCi	72.2	64.5	1.12	A
			Zn-65	pCi	106	86.4	1.23	W
			Co-60	pCi	156	149	1.05	A
	E5849-396	Charcoal	I-131	pCi	65.5	60.1	1.09	A
June 2008	E5971-396	Milk	Sr-89	pCi/L	83.9	85.0	0.99	A
			Sr-90	pCi/L	14.4	15.8	0.91	A
	E5972-396	Milk	I-131	pCi/L	70.9	71.4	0.99	A
			Ce-141	pCi/L	157	174	0.90	A
			Cr-51	pCi/L	159	138	1.15	A
			Cs-134	pCi/L	69.7	76.7	0.91	A
			Cs-137	pCi/L	115	116	0.99	A
			Co-58	pCi/L	59.1	61.9	0.95	A
			Mn-54	pCi/L	139	135	1.03	A
			Fe-59	pCi/L	98.4	91.7	1.07	A
			Zn-65	pCi/L	129	127	1.02	A
			Co-60	pCi/L	101	104	0.97	A
	E5974-396	AP	Ce-141	pCi	206	207	1.00	A
			Cr-51	pCi	173	164	1.05	A
			Cs-134	pCi	95.9	91.0	1.05	A
			Cs-137	pCi	142.0	138.0	1.03	A
			Co-58	pCi	72.0	73.4	0.98	A
			Mn-54	pCi	180	160.0	1.13	A
			Fe-59	pCi	108.0	109.0	0.99	A
			Zn-65	pCi	159	150	1.06	A
			Co-60	pCi	129	124	1.04	A

TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2008
(PAGE 2 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
June 2008	E5973-396	Charcoal	I-131	pCi	73.8	84.1	0.88	A
September 2008	E6284-396	Milk	Sr-89	pCi/L	76.2	73.9	1.03	A
			Sr-90	pCi/L	12.3	11.0	1.12	A
	E6285-396	Milk	I-131	pCi/L	65.7	67.9	0.97	A
			Ce-141	pCi/L	145	161	0.90	A
			Cr-51	pCi/L	406	421	0.96	A
			Cs-134	pCi/L	196	232	0.84	A
			Cs-137	pCi/L	147	162	0.91	A
			Co-58	pCi/L	167	179	0.93	A
			Mn-54	pCi/L	165	166	0.99	A
			Fe-59	pCi/L	161	144	1.12	A
			Zn-65	pCi/L	305	319	0.96	A
			Co-60	pCi/L	218	234	0.93	A
	E6287-396	AP	Ce-141	pCi	79.5	76.3	1.04	A
			Cr-51	pCi	208	199	1.05	A
			Cs-134	pCi	106	110	0.96	A
			Cs-137	pCi	79.3	76.7	1.03	A
			Co-58	pCi	87.7	84.4	1.04	A
			Mn-54	pCi	90.3	78.6	1.15	A
			Fe-59	pCi	81.7	68.3	1.20	A
			Zn-65	pCi	144	151	0.95	A
			Co-60	pCi	111	111	1.00	A
	E6286-396	Charcoal	I-131	pCi	93.2	90.0	1.04	A
December 2008	E6415-396	Milk	Sr-89	pCi/L	98.4	91.9	1.07	A
			Sr-90	pCi/L	18.0	12.6	1.43	N (1)
	E6416-396	Milk	I-131	pCi/L	69.2	79.9	0.87	A
			Ce-141	pCi/L	177	191	0.93	A
			Cr-51	pCi/L	231	246	0.94	A
			Cs-134	pCi/L	117	134	0.87	A
			Cs-137	pCi/L	119	120	0.99	A
			Co-58	pCi/L	104	104	1.00	A
			Mn-54	pCi/L	153	152	1.01	A
			Fe-59	pCi/L	99.6	100	1.00	A
			Zn-65	pCi/L	177	183	0.97	A
			Co-60	pCi/L	133	133	1.00	A
	E6418-396	AP	Ce-141	pCi	148	146	1.01	A
			Cr-51	pCi	202	187	1.08	A
			Cs-134	pCi	103	102	1.01	A
			Cs-137	pCi	95.4	91.2	1.05	A
			Co-58	pCi	81.4	79.2	1.03	A
			Mn-54	pCi	113	116.0	0.97	A
			Fe-59	pCi	76.5	76.4	1.00	A
			Zn-65	pCi	122	139	0.88	A
			Co-60	pCi	108	101	1.07	A

TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2008
(PAGE 3 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
December 2008	E6417-396	Charcoal	I-131	pCi	65.8	74.1	0.89	A

(1) NCR 09-02 initiated to investigate the failure.

(a) Teledyne Brown Engineering reported result.

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

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

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

TABLE D-2 **ERA ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM**
TELEDYNE BROWN ENGINEERING, 2008
(PAGE 1 OF 1)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Control Limits	Evaluation (c)
January 2008	Quik[tm] Response	Water	Sr-89	pCi/L	37.33	19.0	11.8 - 25.2	N (1)
			Sr-90	pCi/L	40.40	42.7	31.5 - 49.0	A
			Ba-133	pCi/L	87.8	90.5	76.2 - 99.6	A
			Cs-134	pCi/L	80.67	88.9	72.9 - 97.8	A
			Cs-137	pCi/L	222.33	231	208 - 256	A
			Co-60	pCi/L	98.9	101.0	90.9 - 113	A
			Zn-65	pCi/L	352	350	315 - 408	A
			Gr-A	pCi/L	13.0	12.7	6.02 - 18.7	A
			Gr-B	pCi/L	32.7	36.2	23.8 - 43.8	A
			H-3	pCi/L	11100	11300	9840 - 12400	A
January 2008	RAD 72	Water	Sr-89	pCi/L	69.0	65.3	53.0 - 73.4	A
			Sr-90	pCi/L	35.6	41.4	30.5 - 47.6	A
			Ba-133	pCi/L	25.9	25.7	20.0 - 29.5	A
			Cs-134	pCi/L	86.5	92.6	76.0 - 102	A
			Cs-137	pCi/L	155	158	142 - 176	A
			Co-60	pCi/L	16.0	14.4	11.4 - 18.7	A
			Zn-65	pCi/L	214	204	184 - 240	A
			Gr-A	pCi/L	13.3	14.8	7.15 - 21.2	A
			Gr-B	pCi/L	21.2	22.5	13.7 - 30.6	A
			I-131	pCi/L	22.8	23.6	19.6 - 28.0	A
			H-3	pCi/L	3390	3540	3000 - 3910	A
April 2008	Rad 73	Water	Sr-89	pCi/L	65.47	60.4	48.6 - 68.2	A
			Sr-90	pCi/L	39.80	39.2	28.8 - 45.1	A
			Ba-133	pCi/L	59.63	58.3	48.3 - 64.3	A
			Cs-134	pCi/L	45.00	46.6	37.4 - 51.3	A
			Cs-137	pCi/L	97.97	102	91.8 - 115	A
			Co-60	pCi/L	75.47	76.6	68.9 - 86.7	A
			Zn-65	pCi/L	109	106	95.4 - 126	A
			Gr-A	pCi/L	41.03	50.8	26.5 - 63.7	A
			Gr-B	pCi/L	50.20	51.4	35.0 - 58.4	A
			I-131	pCi/L	26.67	28.7	23.9 - 33.6	A
			H-3	pCi/L	11633	12000	10400 - 13200	A

(1) Could find no cause for Sr-89 failure. Sample sent to outside lab for verification, but the outside laboratory was unable to confirm our numbers or ERA numbers. Studies bracketing these results, RAD 71 and RAD 72, had acceptable Sr-89 results. NCR 08-03

(a) Teledyne Brown Engineering reported result.

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

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

TABLE D-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2008
(PAGE 1 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
January 2008	07-MaW18	Water	Cs-134	Bq/L	-0.26		(1)	A
			Cs-137	Bq/L	0.029		(1)	A
			Co-57	Bq/L	21	22.8	16.0 - 29.6	A
			Co-60	Bq/L	8.2	8.40	5.88 - 10.92	A
			H-3	Bq/L	473	472	330 - 614	A
			Mn-54	Bq/L	12	12.1	8.5 - 15.7	A
			Sr-90	Bq/L	10.70	11.4	7.98- 14.82	A
			Zn-65	Bq/L	15.6	16.3	11.4 - 21.2	A
	07-GrW18	Water	Gr-A	Bq/L	1.4	1.399	>0.0 - 2.798	A
			Gr-B	Bq/L	3.06	2.43	1.22 - 3.65	A
	07-MaS18	Soil	Cs-134	Bq/kg	790	854.0	598 - 1110	A
			Cs-137	Bq/kg	568	545	382 - 709	A
			Co-57	Bq/kg	424	421	295 - 547	A
			Co-60	Bq/kg	2.307	2.9	(2)	A
			Mn-54	Bq/kg	611	570	399 - 741	A
			K-40	Bq/kg	6.09	571	400 - 742	A
			Sr-90	Bq/kg	454	493.0	345 - 641	A
			Zn-65	Bq/kg	0.162		(1)	A
	07-RdF18	AP	Cs-134	Bq/sample	2.73	2.5200	1.76 - 3.28	A
			Cs-137	Bq/sample	2.88	2.7	1.89 - 3.51	A
			Co-57	Bq/sample	3.493	3.55	2.49 - 4.62	A
			Co-60	Bq/sample	1.357	1.31	0.92 - 1.70	A
			Mn-54	Bq/sample	0.006		(1)	A
			Sr-90	Bq/sample	1.61	1.548	1.084 - 2.012	A
			Zn-65	Bq/sample	2.59	2.04	1.43 - 2.65	A
	07-GrF18	AP	Gr-A	Bq/sample	0.131	0.348	>0.0 - 0.696	A
			Gr-B	Bq/sample	0.261	0.286	0.143 - 0.429	A
January 2008	07-RdV18	Vegetation	Cs-134	Bq/sample	5.25	6.28	4.40 - 8.16	A
			Cs-137	Bq/sample	3.13	3.41	2.39 - 4.43	A
			Co-57	Bq/sample	6.837	6.89	4.82 - 8.96	A
			Co-60	Bq/sample	2.44	2.77	1.94 - 3.60	A
			Mn-54	Bq/sample	4.45	4.74	3.32 - 6.16	A
			K-40	Bq/sample	61.3		(1)	
			Sr-90	Bq/sample	1.33	1.273	0.891 - 1.655	A
			Zn-65	Bq/sample	0.085		(1)	A
August 2008	08-MaW19	Water	Cs-134	Bq/L	17.1	19.5	13.7 - 25.4	A
			Cs-137	Bq/L	21.4	23.6	16.5 - 30.7	A
			Co-57	Bq/L	-0.044		(1)	A
			Co-60	Bq/L	10.8	11.6	8.1 - 15.1	A
			H-3	Bq/L	334	341	239 - 443	A
			Mn-54	Bq/L	13.0	13.7	9.6 - 17.8	A
			Sr-90	Bq/L	6.55	6.45	4.52- 8.39	A
			Zn-65	Bq/L	16.5	17.1	12.0 - 22.2	A

TABLE D-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2008
(PAGE 2 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
August 2008	08-GrW19	Water	Gr-A	Bq/L	0.0612	<0.56	(3)	A
			Gr-B	Bq/L	0.222	<1.85	(3)	A
	08-MaS19	Soil	Cs-134	Bq/kg	546	581	407 - 755	A
			Cs-137	Bq/kg	2.52	2.8	(2)	A
			Co-57	Bq/kg	340	333	233 - 433	A
			Co-60	Bq/kg	157	145.0	102 - 189	A
			Mn-54	Bq/kg	460	415	291 - 540	A
			K-40	Bq/kg	650	571	399 - 741	A
			Sr-90	Bq/kg	1.40		(1)	A
			Zn-65	Bq/kg	-1.53		(1)	A
	08-RdF19	AP	Cs-134	Bq/sample	2.46	2.6300	1.84 - 3.42	A
			Cs-137	Bq/sample	0.0063		(1)	A
			Co-57	Bq/sample	1.36	1.50	1.05 - 1.95	A
			Co-60	Bq/sample	0.0143		(1)	A
			Mn-54	Bq/sample	2.70	2.64	1.85 - 3.43	A
			Sr-90	Bq/sample	1.42	1.12	0.78 - 1.46	W
			Zn-65	Bq/sample	0.975	0.94	0.66 - 1.22	A
	08-GrF19	AP	Gr-A	Bq/sample	-0.0037		(4)	A
			Gr-B	Bq/sample	0.540	0.525	0.263 - 0.788	A
	08-RdV19	Vegetation	Cs-134	Bq/sample	4.36	5.5	3.9 - 7.2	W
			Cs-137	Bq/sample	-0.03		(1)	A
			Co-57	Bq/sample	6.72	7.1	5.0 - 9.2	A
			Co-60	Bq/sample	4.04	4.70	3.3 - 6.1	A
			Mn-54	Bq/sample	5.22	5.8	4.1 - 7.5	A
			K-40	Bq/sample	64.4		(1)	
			Sr-90	Bq/sample	1.62	1.9	1.3 - 2.5	A
			Zn-65	Bq/sample	6.160	6.9	4.8 - 9.0	A

(1) Not evaluated by MAPEP.

(2) Reported a statistically zero result.

(3) Designed to test the Safe Drinking Water screening levels. Labs reporting values less than ref values were found to be acceptable.

(4) False positive test.

(a) Teledyne Brown Engineering reported result.

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

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

TABLE D-4 **ERA (a) STATISTICAL SUMMARY PROFICIENCY TESTING PROGRAM ENVIRONMENTAL, INC., 2008**

Lab Code [b]	Date	Analysis	Concentration (pCi/L) Laboratory Result [c]	ERA Result [d]	Control Limits	Acceptance
STAP-1143	03/24/08	Co-60	650.72 ± 3.00	730.0	565.0 - 912.0	Pass
STAP-1143	03/24/08	Cs-134	467.50 ± 5.53	523.0	341.0 - 647.0	Pass
STAP-1143	03/24/08	Cs-137	1375.90 ± 25.41	1450.0	1090.0 - 1900.0	Pass
STAP-1143 [e]	03/24/08	Mn-54	0.00 ± 0.00	0.0	0.0 - 10.0	Pass
STAP-1143	03/24/08	Sr-90	157.60 ± 7.70	152.0	66.9 - 236.0	Pass
STAP-1143	03/24/08	Zn-65	889.90 ± 15.90	872.0	604.0 - 1210.0	Pass
STAP-1144	03/24/08	Gr. Beta	99.90 ± 3.09	92.2	56.80 - 135.0	Pass
STSO-1145	03/24/08	Ac-228	1269.02 ± 36.81	1180.0	757.0 - 1660.0	Pass
STSO-1145	03/24/08	Bi-212	1407.10 ± 56.64	1360.0	357.0 - 2030.0	Pass
STSO-1145	03/24/08	Co-60	5219.70 ± 90.30	5130.0	3730.0 - 6890.0	Pass
STSO-1145	03/24/08	Cs-134	5427.30 ± 102.94	5640.0	3630.0 - 6790.0	Pass
STSO-1145	03/24/08	Cs-137	6346.60 ± 201.80	6010.0	4600.0 - 7810.0	Pass
STSO-1145	03/24/08	K-40	11052.70 ± 181.80	11000.0	7980.0 - 14900.0	Pass
STSO-1145 [e]	03/24/08	Mn-54	0.00 ± 0.00	0.0	0.0 - 10.0	Pass
STSO-1145	03/24/08	Pb-212	1198.20 ± 96.58	1080.0	697.0 - 1520.0	Pass
STSO-1145	03/24/08	Pb-214	2253.30 ± 291.60	2020.0	1210.0 - 3010.0	Pass
STSO-1145	03/24/08	Sr-90	6407.00 ± 277.00	5360.0	1940.0 - 8750.0	Pass
STSO-1145	03/24/08	Th-234	2421.80 ± 321.00	2030.0	644.0 - 3870.0	Pass
STSO-1145	03/24/08	Zn-65	2936.20 ± 73.50	2660.0	2110.0 - 3570.0	Pass
STVE-1146	03/24/08	Co-60	912.41 ± 13.59	888.0	600.0 - 1280.0	Pass
STVE-1146	03/24/08	Cs-134	1547.70 ± 38.81	1540.0	882.0 - 2130.0	Pass
STVE-1146	03/24/08	Cs-137	1163.80 ± 20.62	1100.0	807.0 - 1530.0	Pass
STVE-1146	03/24/08	K-40	22186.00 ± 339.40	24600.0	17700.0 - 34800.0	Pass
STVE-1146 [e]	03/24/08	Mn-54	0.00 ± 0.00	0.0	0.0 - 10.0	Pass
STVE-1146	03/24/08	Sr-90	3825.90 ± 140.66	4130.0	2310.0 - 5480.0	Pass
STVE-1146	03/24/08	Zn-65	1676.80 ± 43.00	1430.0	1030.0 - 1960.0	Pass
STW-1147	03/24/08	Co-60	1430.00 ± 33.33	1420.0	1240.0 - 1680.0	Pass
STW-1147	03/24/08	Cs-134	730.18 ± 33.39	751.0	555.0 - 862.0	Pass
STW-1147	03/24/08	Cs-137	1947.80 ± 13.80	1990.0	1690.0 - 2380.0	Pass
STW-1147 [e]	03/24/08	Mn-54	0.00 ± 0.00	0.0	0.0 - 10.0	Pass
STW-1147	03/24/08	Sr-90	512.03 ± 43.37	512.0	325.0 - 684.0	Pass
STW-1147	03/24/08	Zn-65	708.90 ± 29.00	694.0	588.0 - 865.0	Pass
STW-1120	03/19/07	Zn-65	2009.00 ± 36.40	1910.0	1600.0 - 2410.0	Pass

[a] Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the crosscheck program for proficiency testing administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the Environmental Measurements Laboratory Quality Assessment Program (EML).

[b] Laboratory codes as follows: STW (water), STAP (air filter), STSO (soil), STVE (vegetation).

[c] Unless otherwise indicated, the laboratory result is given as the mean ± standard deviation for three determinations.

[d] Results are presented as the known values, expected laboratory precision (1 sigma, 1 determination) and control limits as provided by ERA.

[e] Included in the testing series as a "false positive". No activity expected.

TABLE D-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)[a] ENVIRONMENTAL, INC., 2008

		Concentration [b]				
Lab Code[c]	Date	Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STW-1137	01/01/08	Co-57	23.80 ± 0.60	22.80	16.00 - 29.60	Pass
STW-1137	01/01/08	Co-60	8.60 ± 0.50	8.40	5.88 - 10.92	Pass
STW-1137	01/01/08	Cs-134	-0.021 ± 0.10	0.00	-1.00 - 1.00	Pass
STW-1137	01/01/08	Cs-137	0.00 ± 0.10	0.00	-1.00 - 1.00	Pass
STW-1137	01/01/08	H-3	515.10 ± 12.70	472.00	330.00 - 614.00	Pass
STW-1137	01/01/08	Mn-54	12.90 ± 0.80	12.10	8.50 - 15.70	Pass
STW-1137	01/01/08	Sr-90	12.00 ± 1.50	11.40	7.98 - 14.82	Pass
STW-1137	01/01/08	Zn-65	16.90 ± 1.40	16.30	11.40 - 21.20	Pass
STW-1138	01/01/08	Gr. Beta	2.30 ± 0.15	2.43	1.22 - 3.65	Pass
STAP-1139	01/01/08	Co-57	3.90 ± 0.07	3.55	2.49 - 4.62	Pass
STAP-1139	01/01/08	Co-60	1.43 ± 0.07	1.31	0.92 - 1.70	Pass
STAP-1139	01/01/08	Cs-134	2.59 ± 0.16	2.52	1.76 - 3.28	Pass
STAP-1139	01/01/08	Cs-137	3.05 ± 0.12	2.70	1.89 - 3.51	Pass
STAP-1139	01/01/08	Mn-54	0.43 ± 0.58	0.00	0.00 - 1.00	Pass
STAP-1139	01/01/08	Sr-90	1.30 ± 0.27	1.55	1.08 - 2.01	Pass
STAP-1139	01/01/08	Zn-65	2.36 ± 0.18	2.04	1.43 - 2.65	Pass
STAP-1140	01/01/08	Gr. Beta	0.34 ± 0.04	0.29	0.14 - 0.43	Pass
STVE-1141	01/01/08	Co-57	8.30 ± 0.18	6.89	4.82 - 8.96	Pass
STVE-1141	01/01/08	Co-60	3.03 ± 0.13	2.77	1.94 - 3.60	Pass
STVE-1141	01/01/08	Cs-134	6.53 ± 0.29	6.28	4.40 - 8.16	Pass
STVE-1141	01/01/08	Cs-137	3.90 ± 0.19	3.41	2.39 - 4.43	Pass
STVE-1141	01/01/08	Mn-54	5.43 ± 0.21	4.74	3.32 - 6.16	Pass
STVE-1141	01/01/08	Zn-65	0.033 ± 0.10	0.00	0.00 - 1.00	Pass
STSO-1142	01/01/08	Co-57	483.00 ± 3.00	421.00	295.00 - 547.00	Pass
STSO-1142	01/01/08	Co-60	3.00 ± 0.80	2.90	0.00 - 5.00	Pass
STSO-1142	01/01/08	Cs-134	896.50 ± 7.40	854.00	598.00 - 1110.00	Pass
STSO-1142	01/01/08	Cs-137	624.40 ± 4.10	545.00	382.00 - 709.00	Pass
STSO-1142	01/01/08	Mn-54	667.20 ± 3.80	570.00	399.00 - 741.00	Pass
STSO-1142	01/01/08	Zn-65	0.093 ± 0.91	0.00	0.00 - 1.00	Pass
STSO-1158	08/01/08	Co-57	353.02 ± 2.01	333.00	233.00 - 433.00	Pass
STSO-1158	08/01/08	Co-60	151.99 ± 1.58	145.00	102.00 - 189.00	Pass
STSO-1158	08/01/08	Cs-134	499.72 ± 2.65	581.00	407.00 - 755.00	Pass
STSO-1158	08/01/08	Cs-137	2.54 ± 0.25	2.80	0.00 - 5.00	Pass
STSO-1158	08/01/08	K-40	643.94 ± 15.50	570.00	399.00 - 741.00	Pass
STSO-1158	08/01/08	Mn-54	452.14 ± 2.96	415.00	291.00 - 540.00	Pass
STSO-1158	08/01/08	Sr-90	1.95 ± 2.04	0.00	0.00 - 5.00	Pass
STSO-1158	08/01/08	Zn-65	0.10 ± 2.04	0.00	0.00 - 5.00	Pass

TABLE D-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)[a] ENVIRONMENTAL, INC., 2008

		Concentration [b]				
Lab Code[c]	Date	Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STVE-1159	08/01/08	Co-57	8.52 ± 0.23	7.10	5.00 - 9.20	Pass
STVE-1159	08/01/08	Co-60	5.08 ± 0.19	4.70	3.30 - 6.10	Pass
STVE-1159	08/01/08	Cs-134	5.26 ± 0.18	5.50	3.90 - 7.20	Pass
STVE-1159	08/01/08	Cs-137	0.01 ± 0.14	0.00	0.00 - 1.00	Pass
STVE-1159	08/01/08	Mn-54	6.39 ± 0.28	5.80	4.10 - 7.50	Pass
STVE-1159	08/01/08	Zn-65	7.73 ± 0.45	6.90	4.80 - 9.00	Pass
STW-1162	08/01/08	Co-57	0.03 ± 0.16	0.00	0.00 - 5.00	Pass
STW-1162	08/01/08	Co-60	11.27 ± 0.23	11.60	8.10 - 15.10	Pass
STW-1162	08/01/08	Cs-134	17.93 ± 0.52	19.50	13.70 - 25.40	Pass
STW-1162	08/01/08	Cs-137	23.72 ± 0.43	23.60	16.50 - 30.70	Pass
STW-1162	08/01/08	H-3	385.15 ± 8.93	341.00	239.00 - 443.00	Pass
STW-1162	08/01/08	Mn-54	13.87 ± 0.37	13.70	9.60 - 17.80	Pass
STW-1162	08/01/08	Sr-90	6.49 ± 1.12	6.45	4.52 - 8.39	Pass
STW-1162	08/01/08	Zn-65	17.64 ± 0.61	17.10	12.00 - 22.20	Pass
STW-1163	08/01/08	Gr. Beta	0.12 ± 0.05	0.00	0.00 - 1.85	Pass

[a] Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the Department of Energy's Mixed Analyte Performance Evaluation Program, Idaho Operations office, Idaho Falls, Idaho

[b] Results are reported in units of Bq/kg (soil), Bq/L (water) or Bq/total sample (filters, vegetation).

[c] Laboratory codes as follows: STW (water), STAP (air filter), STSO (soil), STVE (vegetation).

[d] MAPEP results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the MAPEP.

APPENDIX E

ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

Docket No: 50-254
50-265

QUAD CITIES NUCLEAR POWER STATION
UNITS 1 and 2

Annual Radiological
Groundwater Protection Program Report

1 January Through 31 December 2008

Prepared By

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Table Of Contents

I. Summary and Conclusion 1

II. Introduction 4
A. Objectives of the RGPP 4
B. Implementation of the Objectives 4
C. Program Description 5

III. Program Description 6
A. Sample Analysis 6
B. Data Interpretation 6
C. Background Analysis 7
1. Background Concentrations of Tritium 7

IV. Results and Discussion 9
A. Groundwater Results 9
B. Surface Water Results 10

Appendices

Appendix A Location Designation

Tables

Table A-1: Radiological Groundwater Protection Program - Sampling Locations, Quad Cities Nuclear Power Station, 2008

Figures

Figure A-1: Sampling Locations Near the Site Boundary of the Quad Cities Nuclear Power Station, 2008

Figure A-2: Geoprobe Monitoring Point Locations, Quad Cities Nuclear Power Station, 2008

Appendix B Data Tables

Tables

Table B-I.1 Concentrations of Tritium in Groundwater Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table B-I.2 Concentrations of Gamma Emitters in Groundwater Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table B-II.1 Concentrations of Tritium in Surface Water Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table B-II.2 Concentrations of Gamma Emitters in Surface Water Samples Collected in the Vicinity of Quad Cities Nuclear Power Station, 2008.

Table B-III.1 Concentrations of Tritium in Groundwater Samples Collected and Anaylzed by Quad Cities Station Personnel, 2008.

I. Summary and Conclusions

This report on the Radiological Groundwater Protection Program (RGPP) conducted for the Quad Cities Nuclear Power Station (QCNPS) by Exelon Nuclear covers the period 01 January 2008 through 31 December 2008.

In 2006, Exelon undertook a Fleetwide Assessment of groundwater at and in the vicinity of its nuclear power generating facilities for the presence of radionuclides. The data collected from the Quad Cities Station as part of the Fleetwide Assessment was summarized in a report entitled "Hydrogeologic Investigation Report, Fleetwide Assessment, Quad Cities Generation Station, Cordova, Illinois", dated September 2006. This report was submitted to the Illinois Environmental Protection Agency (IEPA) in September 2006. The Quad Cities Hydrogeologic Investigation Report concluded that tritium had not migrated off Site at detectable concentrations.

Following the Fleetwide Assessment, Exelon continued groundwater monitoring for radionuclides at the Site. As a result of this monitoring, Exelon detected higher than expected tritium levels in the vicinity of the station's Service Building and Turbine Building. Quad Cities undertook supplemental investigative activities to determine and characterize the source of the tritium. These investigative activities included the installation of additional monitoring wells, completion of an aquifer pumping test, installation of 14 Geoprobe monitoring points in the vicinity of the Service Building and Turbine Building, and several additional rounds of hydraulic monitoring and groundwater sampling. The collected groundwater data was utilized to assist with an extensive underground piping inspection program to locate the source of the tritium.

On October 12, 2007, Exelon voluntarily contacted the Illinois Environmental Protection Agency (IEPA) regarding the higher than expected concentrations of tritium in Site groundwater sampling points in the vicinity of the Service Building and Turbine Building. On April 8, 2008, the IEPA issued a Notice of Violation (NOV) to Exelon Generation Quad Cities Station alleging violations of Section 12 of the Illinois Environmental Protection Act, the General Prohibition Against Use Impairment of Resource Groundwater, and the causing of the groundwater quality standard of tritium (20,000 pCi/L) to be exceeded.

In May 2008, during the underground piping inspection program, Exelon located a small leak in the Unit 1 Residual Heat Removal (RHR) suction line located near the Service Building/ Turbine Building area. The line was

isolated and through further testing, Exelon determined it to be a source of the monitored tritium levels. In June 2008, the line was repaired, thereby eliminating this source of tritiated water.

In a letter dated June 5, 2008, Exelon informed the IEPA of its plan to prepare a Migration Control Plan (MCP) to minimize migration of the tritium plume offsite. The MCP was submitted to the IEPA July 17, 2008. The MCP listed Monitored Natural Attenuation as the preferred remediation option. Thru March 2009, Exelon has not received any further correspondence from IEPA regarding the April 8, 2008 NOV or the July 17, 2008 MCP.

This report covers groundwater samples, collected from the environment on station property in 2008. During that time period, RGPP samples were collected from 52 locations.

Sample locations include twenty-seven designated monitoring wells, two surface water monitoring points, nine production wells (three of which are used for site drinking water) and fourteen Geoprobe sample points. The twenty-seven designated monitoring wells are sampled on a quarterly basis for tritium, annually for gamma, and biannual for Sr-90. Samples from the twenty-seven designated monitoring wells were collected by a contractor (Environmental Inc.) and analyzed by a contract lab (Teledyne Browne). The remaining sample locations are collected quarterly (at a minimum) by site personnel and analyzed for tritium by Teledyne Browne or onsite by station personnel.

Tritium concentrations ranged from less than the LLD of 200 pCi/L at the site boundaries up to 7,500,000 pCi/L in the Geoprobe monitoring well closest to the identified leak in the U-1 RHR Suction line. Tritium was not detected at concentrations greater than the LLD of 200 pCi/L in either surface water monitoring location.

Gamma-emitting radionuclides associated with licensed plant operations were not detected at concentrations greater than their respective Lower Limits of Detection (LLDs) as specified in the Offsite Dose Calculation Manual (ODCM) in any of the groundwater samples. In the case of tritium, Exelon specified that it's laboratories achieve a lower limit of detection 10 times lower than that required by federal regulation. Most of the tritium that was detected in groundwater at the Station is on the south and east side of the Reactor / Turbine buildings.

Strontium-90 was not detected at concentrations greater than the Lower Limit of Detection (LLD) of 2.0 pCi/L as specified in the Offsite Dose Calculation Manual (ODCM).

In assessing all the data gathered for this report, it was concluded that the operation of QCNPS had no adverse radiological impact on the environment offsite of QCNPS.

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II. Introduction

The Quad Cities Nuclear Power Station (QCNPS), consisting of two 2957 MWth boiling water reactor owned and operated by Exelon Corporation, is located in Cordova, Illinois along the Mississippi River. Unit No. 1 went critical on 16 March 1972. Unit No. 2 went critical on 02 December 1973. The site is located in northern Illinois, approximately 182 miles west of Chicago, Illinois.

A. Objective of the RGPP

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

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

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

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

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

5. Regularly assess analytical results to identify adverse trends.

6. Take necessary corrective actions to protect groundwater resources.

B. Implementation of the Objectives

The objectives identified have been implemented at Quad Cities Nuclear Power Station as discussed below:

1. Exelon and its consultant identified locations as described in the Phase 1 study. Phase 1 studies were conducted by Conestoga Rovers and Associates (CRA) and the results and conclusions were made available to state and federal regulators as well as the public on an Exelon web site in station specific reports. http://www.exelonCorp.com/ourcompanies/powergen/nuclear/Tritium.htm
2. The Quad Cities Nuclear Power Station reports describe the local hydrogeologic regime. Periodically, the flow patterns on the

surface and shallow subsurface are updated based on ongoing measurements.

3. Quad Cities Nuclear Power Station will continue to perform routine sampling and radiological analysis of water from selected locations.

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

5. Quad Cities Nuclear Power Station staff and consulting hydrogeologist assess analytical results on an ongoing basis to identify adverse trends.

C. Program Description

1. Sample Collection

Sample locations can be found in Table A-1 and Figures A-1 & A-2, Appendix A.

Groundwater and Surface Water

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

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

III. Program Description

This section covers those analyses performed by Teledyne Brown Engineering (TBE) on samples collected in 2008.

A. Sample Analysis

This section describes the general analytical methodologies used by TBE to analyze the environmental samples for radioactivity for the Quad Cities Nuclear Power Station RGPP in 2008.

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

1. Concentrations of gamma emitters in groundwater and surface water.

2. Concentrations of strontium in groundwater and surface water.

3. Concentrations of tritium in groundwater and surface water.

B. Data Interpretation

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

1. Lower Limit of Detection and Minimum Detectable Concentration

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

2. Laboratory Measurements Uncertainty

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

Statistically, the exact value of a measurement is expressed as a range with a stated level of confidence. The convention is to report

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

Analytical uncertainties are reported at the 95% confidence level in this report for reporting consistency with the Annual Radiological Environmental Operating Report (AREOR).

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

For groundwater and surface water 14 nuclides, Be-7, K-40, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Nb-95, Zr-95, I-131, Cs-134, Cs-137, Ba-140 and La-140 were reported.

C. Background Analysis

A pre-operational radiological environmental monitoring program (pre-operational REMP) was conducted to establish background radioactivity levels prior to operation of the Station. The environmental media sampled and analyzed during the pre-operational REMP were atmospheric radiation, fall-out, domestic water, surface water, marine life, and vegetation. The results of the monitoring were detailed in the reports entitled, Quad Cities Nuclear Power Plant Environmental Monitoring Report, Commonwealth Edison Company, covering the period from July 1968 through September 1971.

The pre-operational REMP contained analytical results from samples collected from the surface water and groundwater.

1. Background Concentrations of Tritium

The purpose of the following discussion is to summarize background measurements of tritium in various media performed by others.

a. Tritium Production

Tritium is created in the environment from naturally occurring processes both cosmic and subterranean, as well as from anthropogenic (i.e., man-made) sources. In the upper atmosphere, "Cosmogenic" tritium is produced from the bombardment of stable nuclides and combines with oxygen to form tritiated water, which will then enter the hydrologic cycle. Below ground, "lithogenic" tritium is produced by the bombardment of natural lithium present in crystalline rocks by neutrons produced by the radioactive decay of naturally abundant uranium and thorium. Lithogenic production of tritium is usually negligible compared to other sources due to the limited abundance of lithium in rock. The lithogenic tritium is introduced directly to groundwater.
A major anthropogenic source of tritium and strontium-90 comes from the former atmospheric testing of thermonuclear weapons. Levels of tritium in precipitation increased significantly during the 1950s and early 1960s, and later with additional testing, resulting in the release of significant amounts of tritium to the atmosphere. The Canadian heavy water nuclear power reactors, other commercial power reactors, nuclear research and weapons production continue to influence tritium concentrations in the environment.

b. Precipitation Data

Precipitation samples are routinely collected at stations around the world for the analysis of tritium and other radionuclides. Two publicly available databases that provide tritium concentrations in precipitation are Global Network of Isotopes in Precipitation (GNIP) and USEPA's RadNet database. GNIP provides tritium precipitation concentration data for samples collected world wide from 1960 to 2006. RadNet provides tritium precipitation concentration data for samples collected at stations through out the U.S. from 1960 up to and including 2006. Based on GNIP data for sample stations located in the U.S. Midwest, tritium concentrations peaked around 1963. This peak, which approached 10,000 pCi/L for some stations, coincided with the atmospheric testing of thermonuclear weapons. Tritium concentrations in surface water showed a sharp decline up until 1975 followed by a gradual decline since that time. Tritium concentrations in Midwest precipitation have typically been below 100 pCi/L since around 1980. Tritium concentrations in wells may still

be above the 200 pCi/L detection limit from the external causes described above.

c. Surface Water Data

Tritium concentrations are routinely measured in large surface water bodies, including the Mississippi River. Illinois surface water data were typically less than 100 pCi/L.

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

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

IV. Results and Discussion

A. Groundwater Results

Groundwater

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

Tritium

Samples from all locations were analyzed for tritium activity (Table B–I.1 & B-III.1 Appendix B). Tritium values ranged from the detection limit to 7,500,000 pCi/l. All samples obtained at the site boundaries were less then the detection limit of 200 pCi/L. The location most representative of potential offsite user of drinking water was <200 pCi/L.

Strontium

Strontium-90 was not detected above the Lower Limit of Detection (LLD) of 2.0 pCi/L. (Table B–I.1 Appendix B)

Gamma Emitters

Naturally occurring Potassium-40 was detected in two of 27 samples. The concentrations ranged from 130 pCi/liter to 167 pCi/liter. No other gamma emitting nuclides were detected. (Table B–I.2, Appendix B)

B. Surface Water Results

Surface Water

Tritium

Samples from two locations were analyzed for tritium activity (Table B–II.1 Appendix B). Tritium was not detected above the detection limit of 200 pCi/l.

Strontium

Strontium-90 was not detected above the Lower Limit of Detection (LLD) of 2.0 pCi/L. (Table B–I.1 Appendix B)

Gamma Emitters

No gamma emitting nuclides were detected. (Table B–II.2, Appendix B)

APPENDIX A

LOCATION DESIGNATION

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Quad Cities Nuclear Power Station, 2008

Site	Site Type
MW-1	Monitoring Well
MW-2	Monitoring Well
MW-QC-101I	Monitoring Well
MW-QC-101S	Monitoring Well
MW-QC-102D	Monitoring Well
MW-QC-102I	Monitoring Well
MW-QC-102S	Monitoring Well
MW-QC-103I	Monitoring Well
MW-QC-104S	Monitoring Well
MW-QC-105I	Monitoring Well
MW-QC-106I	Monitoring Well
MW-QC-106S	Monitoring Well
MW-QC-107I	Monitoring Well
MW-QC-108D	Monitoring Well
MW-QC-108I	Monitoring Well
MW-QC-108S	Monitoring Well
MW-QC-109I	Monitoring Well
MW-QC-109S	Monitoring Well
MW-QC-110I	Monitoring Well
MW-QC-111D1	Monitoring Well
MW-QC-111D2	Monitoring Well
MW-QC-111I	Monitoring Well
MW-QC-112I	Monitoring Well
MW-QC-113I	Monitoring Well
MW-QC-114I	Monitoring Well
MW-QC-115I	Monitoring Well
MW-QC-115S	Monitoring Well
MW-QC-116S	Monitoring Well
MW-QC-116S	Monitoring Well
STP SAND POINT WELL	Production Well
WELL #1	Production Well
WELL #5	Production Well
WELL #6 LITTLE FISH	Production Well
WELL #7 BIG FISH WELL	Production Well
WELL #8 FIRE TRAINING WELL	Production Well
WELL #9 DRY CASK WELL	Production Well
WELL #10 FISH HOUSE WELL	Production Well
WELL #11 SPRAY CANAL WELL	Production Well
SURFACE WATER #1 SPRAY CANAL – ACCESS ROAD	Surface Water
SURFACE WATER #2 SPRAY CANAL – RIVER ROAD	Surface Water
QC-GP-1	Geoprobe Well
QC-GP-2	Geoprobe Well
QC-GP-3	Geoprobe Well
QC-GP-4	Geoprobe Well
QC-GP-5	Geoprobe Well
QC-GP-6	Geoprobe Well
QC-GP-7	Geoprobe Well
QC-GP-8	Geoprobe Well
QC-GP-9	Geoprobe Well
QC-GP-10	Geoprobe Well
QC-GP-11	Geoprobe Well
QC-GP-12	Geoprobe Well
QC-GP-13	Geoprobe Well
QC-GP-14	Geoprobe Well

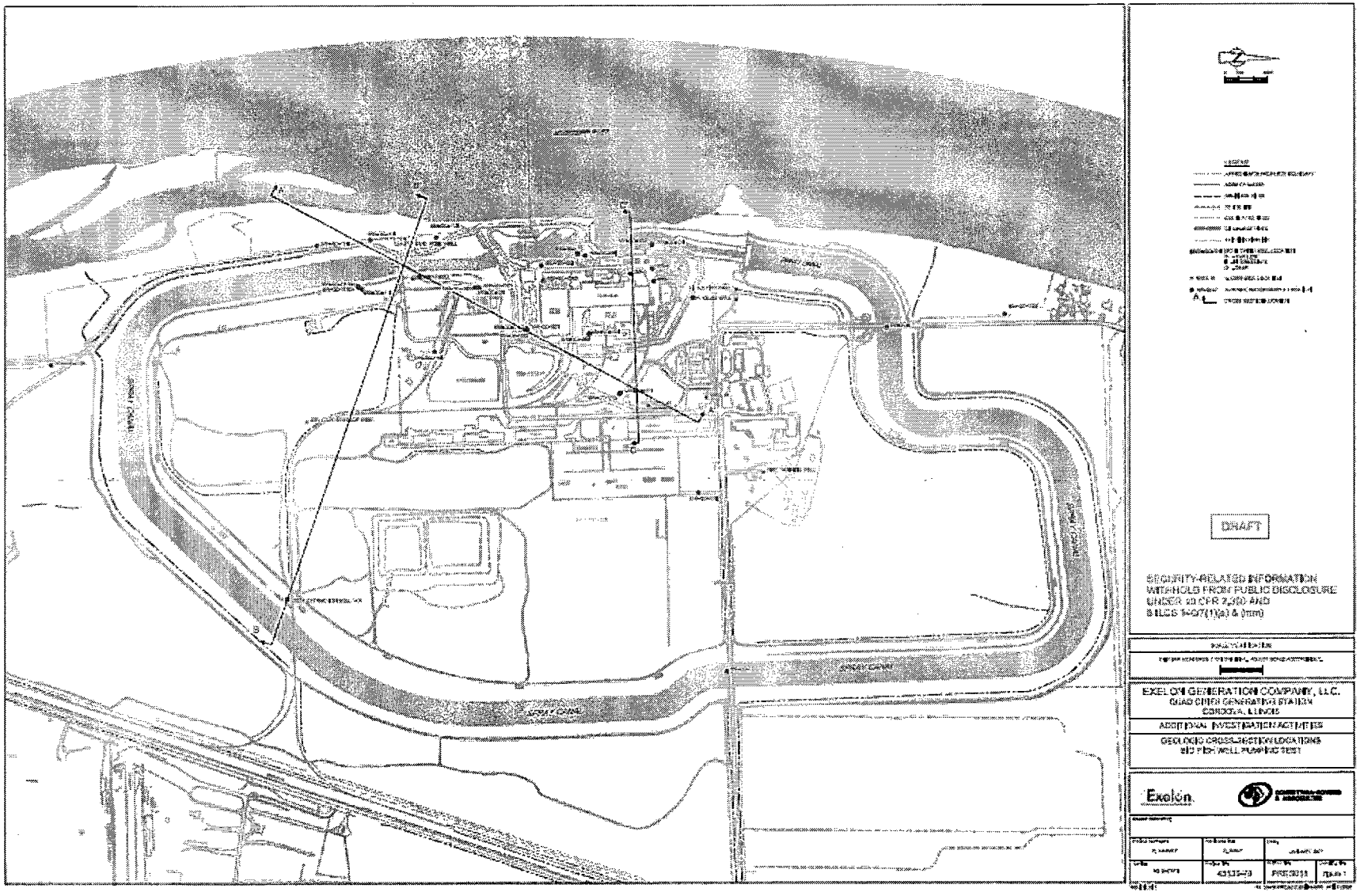

FIGURE A-1
Sampling Locations Near the Site Boundary of the Quad Cities Nuclear Power Station, 2008

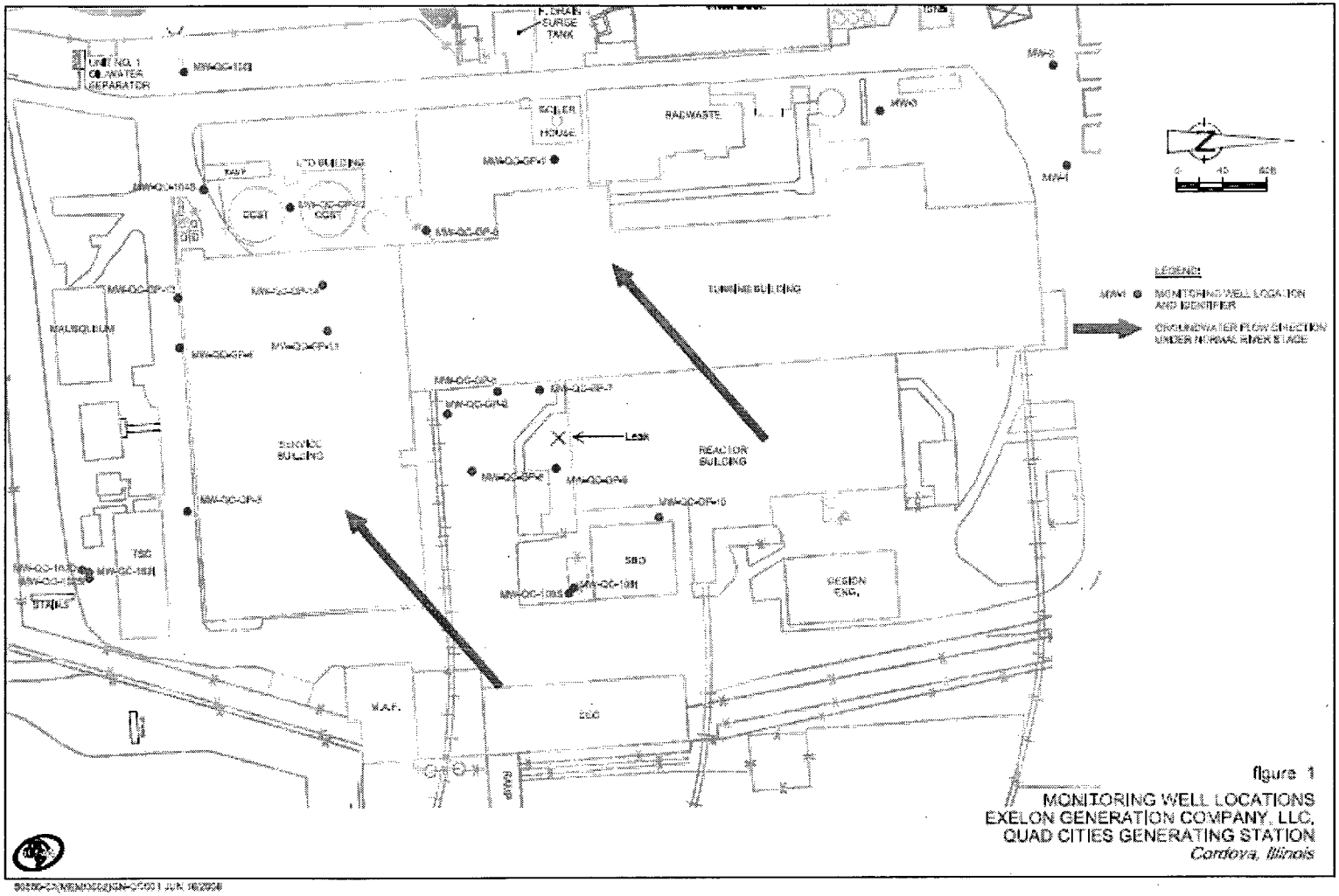

FIGURE A-2
Geoprobe Monitoring Point Locations, Quad Cities Nuclear Power Station, 2008

APPENDIX B

DATA TABLES

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-90
MW-1	05/20/08	< 183	
MW-1	08/26/08	< 160	< 1.6
MW-1	11/18/08	< 181	
MW-2	05/20/08	231 ± 120	
MW-2	08/26/08	< 172	< 0.9
MW-2	11/18/08	< 181	
MW-QC-101I	03/17/08	< 166	
MW-QC-101I	05/20/08	< 165	
MW-QC-101I	08/26/08	< 175	< 1.2
MW-QC-101I	11/17/08	< 172	
MW-QC-101S	03/17/08	< 188	
MW-QC-101S	05/20/08	< 171	
MW-QC-101S	08/26/08	< 173	< 0.6
MW-QC-101S	11/17/08	< 169	
MW-QC-102D	03/19/08	3070 ± 371	
MW-QC-102D	05/20/08	3660 ± 428	
MW-QC-102D	08/26/08	4920 ± 545	< 0.8
MW-QC-102D	11/18/08	5240 ± 586	
MW-QC-102I	03/19/08	3830 ± 445	
MW-QC-102I	05/20/08	10200 ± 1070	
MW-QC-102I	08/26/08	5140 ± 570	< 1.3
MW-QC-102I	11/18/08	1180 ± 188	
MW-QC-102S	03/19/08	< 187	
MW-QC-102S	05/20/08	< 166	
MW-QC-102S	08/26/08	< 171	< 1.2
MW-QC-102S	11/18/08	< 170	
MW-QC-103I	03/19/08	< 163	
MW-QC-103I	05/20/08	179 ± 111	
MW-QC-103I	08/26/08	< 171	< 0.8
MW-QC-103I	11/18/08	< 171	
MW-QC-104S	01/18/08	485 ± 132	
MW-QC-104S	03/19/08	< 166	
MW-QC-104S	05/20/08	186 ± 113	
MW-QC-104S	08/26/08	< 169	< 0.7
MW-QC-105I	03/19/08	< 189	
MW-QC-105I	05/20/08	< 171	
MW-QC-105I	08/26/08	15700 ± 1590	< 0.9
MW-QC-105I	11/18/08	54800 ± 5530	
MW-QC-105I	11/18/08	58300 ± 5820	
MW-QC-106I	03/19/08	< 159	
MW-QC-106I	05/20/08	< 163	
MW-QC-106I	08/26/08	< 169	< 0.8
MW-QC-106I	11/18/08	< 172	

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-90
MW-QC-106S	03/19/08	< 166	
MW-QC-106S	05/20/08	< 163	
MW-QC-106S	08/26/08	< 173	< 0.8
MW-QC-106S	11/18/08	< 169	
MW-QC-107I	03/17/08	< 183	
MW-QC-107I	05/19/08	< 168	
MW-QC-107I	08/25/08	< 171	< 0.8
MW-QC-107I	11/18/08	< 172	
MW-QC-108D	03/18/08	7670 ± 823	
MW-QC-108D	05/21/08	5170 ± 575	
MW-QC-108D	08/27/08	6960 ± 751	< 0.8
MW-QC-108D	11/19/08	7590 ± 821	
MW-QC-108I	03/18/08	4250 ± 485	
MW-QC-108I	05/21/08	3080 ± 368	
MW-QC-108I	08/27/08	3040 ± 363	< 0.8
MW-QC-108I	11/19/08	328 ± 120	
MW-QC-108S	03/18/08	3200 ± 385	
MW-QC-108S	05/21/08	1950 ± 263	
MW-QC-108S	08/27/08	1260 ± 192	< 0.8
MW-QC-108S	11/19/08	379 ± 121	
MW-QC-109I	03/19/08	570 ± 129	
MW-QC-109I	05/20/08	6680 ± 724	
MW-QC-109I	08/26/08	209 ± 95	< 1.1
MW-QC-109I	08/26/08	219 ± 99	
MW-QC-109I	11/18/08	417 ± 122	
MW-QC-109S	03/19/08	< 162	
MW-QC-109S	05/20/08	< 170	
MW-QC-109S	08/26/08	< 170	< 1.8
MW-QC-109S	11/18/08	< 169	
MW-QC-110I	05/21/08	< 170	
MW-QC-110I	08/27/08	< 168	< 0.9
MW-QC-110I	11/19/08	< 173	
MW-QC-111 D1	03/18/08	< 160	
MW-QC-111 D1	05/21/08	< 165	
MW-QC-111 D1	08/27/08	< 171	< 1.1
MW-QC-111 D1	11/19/08	< 170	
MW-QC-111 D2	03/18/08	< 164	
MW-QC-111 D2	05/21/08	< 169	
MW-QC-111 D2	08/27/08	< 167	< 1.1
MW-QC-111 D2	11/19/08	< 183	
MW-QC-111I	03/18/08	< 160	
MW-QC-111I	05/21/08	< 167	
MW-QC-111I	08/27/08	< 170	< 1.3
MW-QC-111I	11/19/08	< 174	

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-90
MW-QC-112I	01/14/08	436 ± 116	
MW-QC-112I	03/18/08	325 ± 124	
MW-QC-112I	05/21/08	< 170	
MW-QC-112I	08/25/08	< 167	< 0.8
MW-QC-112I	11/17/08	< 183	
MW-QC-113I	03/18/08	< 160	
MW-QC-113I	05/21/08	< 170	
MW-QC-113I	08/27/08	< 168	< 0.9
MW-QC-113I	11/19/08	< 186	
MW-QC-114I	01/19/08	< 183	
MW-QC-114I	03/18/08	< 186	
MW-QC-114I	05/21/08	< 169	
MW-QC-114I	08/27/08	< 168	< 0.8
MW-QC-115S	03/17/08	< 188	
MW-QC-115S	05/19/08	< 178	
MW-QC-115S	08/25/08	< 168	< 1.0
MW-QC-115S	11/18/08	< 181	
MW-QC-116S	01/14/08	185 ± 99	
MW-QC-116S	03/17/08	< 188	
MW-QC-116S	05/19/08	< 188	
MW-QC-116S	08/25/08	< 162	< 1.0
MW-QC-116S	11/18/08	276 ± 119	
STP SANDPOINT	03/20/08	< 170	
STP SANDPOINT	05/22/08	< 170	
WELL 1	03/20/08	184 ± 114	
WELL 1	05/22/08	229 ± 116	
WELL 10 FISH HATCHERY	03/20/08	< 175	
WELL 10 FISH HATCHERY	05/22/08	202 ± 115	
WELL 11 SPRAY CANAL	03/20/08	< 171	
WELL 11 SPRAY CANAL	05/22/08	< 168	
WELL 5	03/20/08	< 172	
WELL 5	05/22/08	< 169	
WELL 6 LITTLE FISH	03/20/08	< 173	
WELL 6 LITTLE FISH	05/22/08	< 174	
WELL 7 BIG FISH	03/20/08	< 168	
WELL 7 BIG FISH	03/28/08	596 ± 133	
WELL 7 BIG FISH	05/22/08	623 ± 136	
WELL 8 FIRE TRAINING	03/20/08	< 171	
WELL 8 FIRE TRAINING	05/22/08	212 ± 113	

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MW-1	08/26/08	< 34	< 36	< 4	< 4	< 9	< 4	< 7	< 4	< 7	< 20	< 3	< 4	< 36	< 13
MW-2	08/26/08	< 44	130 ± 50	< 4	< 4	< 11	< 5	< 9	< 5	< 8	< 20	< 4	< 4	< 39	< 13
MW-QC-101I	08/26/08	< 46	< 95	< 6	< 6	< 13	< 4	< 10	< 5	< 9	< 23	< 4	< 5	< 44	< 14
MW-QC-101S	08/26/08	< 48	< 43	< 4	< 5	< 10	< 4	< 10	< 5	< 9	< 23	< 4	< 5	< 45	< 14
MW-QC-102D	08/26/08	< 41	< 36	< 4	< 4	< 10	< 4	< 9	< 4	< 8	< 21	< 4	< 4	< 35	< 13
MW-QC-102I	08/26/08	< 52	< 51	< 5	< 5	< 10	< 4	< 10	< 6	< 8	< 30	< 5	< 5	< 45	< 12
MW-QC-102S	08/26/08	< 56	< 34	< 6	< 6	< 12	< 5	< 10	< 7	< 10	< 27	< 5	< 5	< 46	< 12
MW-QC-103I	08/26/08	< 40	< 81	< 4	< 5	< 10	< 4	< 8	< 5	< 7	< 21	< 4	< 4	< 37	< 15
MW-QC-104S	08/26/08	< 41	< 88	< 4	< 4	< 9	< 3	< 8	< 5	< 8	< 21	< 4	< 4	< 40	< 12
MW-QC-105I	08/26/08	< 40	< 72	< 4	< 4	< 9	< 4	< 7	< 4	< 8	< 21	< 3	< 4	< 38	< 12
MW-QC-106I	08/26/08	< 31	< 29	< 3	< 3	< 8	< 4	< 6	< 3	< 6	< 15	< 3	< 3	< 27	< 12
MW-QC-106S	08/26/08	< 45	< 86	< 5	< 5	< 11	< 4	< 9	< 5	< 9	< 22	< 4	< 5	< 46	< 13
MW-QC-107I	08/25/08	< 40	< 73	< 4	< 4	< 11	< 3	< 8	< 5	< 8	< 25	< 4	< 4	< 41	< 15
MW-QC-108D	08/27/08	< 50	< 82	< 5	< 5	< 11	< 5	< 11	< 5	< 9	< 25	< 4	< 5	< 42	< 12
MW-QC-108I	08/27/08	< 52	< 39	< 5	< 4	< 12	< 4	< 11	< 6	< 10	< 25	< 5	< 5	< 45	< 14
MW-QC-108S	08/27/08	< 51	< 97	< 4	< 5	< 11	< 3	< 8	< 5	< 8	< 21	< 4	< 5	< 42	< 14
MW-QC-109I	08/26/08	< 42	< 34	< 4	< 4	< 12	< 4	< 7	< 5	< 8	< 22	< 4	< 4	< 37	< 14
MW-QC-109S	08/26/08	< 33	167 ± 58	< 4	< 4	< 10	< 4	< 7	< 4	< 8	< 20	< 3	< 4	< 39	< 13
MW-QC-110I	08/27/08	< 43	< 75	< 4	< 4	< 10	< 4	< 9	< 5	< 10	< 23	< 4	< 5	< 38	< 10
MW-QC-111 D1	08/27/08	< 35	< 79	< 3	< 4	< 9	< 3	< 7	< 3	< 7	< 20	< 3	< 3	< 33	< 14
MW-QC-111 D2	08/27/08	< 41	< 46	< 5	< 3	< 12	< 5	< 8	< 4	< 8	< 23	< 4	< 5	< 45	< 14
MW-QC-111I	08/27/08	< 41	< 81	< 4	< 5	< 11	< 4	< 7	< 6	< 7	< 20	< 4	< 4	< 40	< 11
MW-QC-112I	08/25/08	< 10	< 15	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 117	< 1	< 1	< 59	< 14
MW-QC-113I	08/27/08	< 40	< 28	< 4	< 4	< 11	< 3	< 8	< 4	< 7	< 19	< 4	< 4	< 36	< 12
MW-QC-114I	08/27/08	< 40	< 33	< 4	< 4	< 9	< 4	< 7	< 5	< 8	< 20	< 3	< 4	< 35	< 13
MW-QC-115S	08/25/08	< 44	< 42	< 4	< 5	< 10	< 4	< 9	< 4	< 10	< 28	< 4	< 4	< 52	< 13
MW-QC-116S	08/25/08	< 38	< 36	< 4	< 5	< 9	< 4	< 8	< 4	< 7	< 23	< 4	< 4	< 39	< 14

TABLE B-II.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-90
SURFACE WATER #1	03/17/08	< 191	
SURFACE WATER #1	05/19/08	< 190	
SURFACE WATER #1	08/25/08	< 164	< 1.6
SURFACE WATER #1	11/18/08	< 181	
SURFACE WATER #2	03/17/08	< 189	
SURFACE WATER #2	05/19/08	< 190	
SURFACE WATER #2	08/25/08	< 167	< 1.3
SURFACE WATER #2	11/18/08	< 187	

TABLE B-II.2 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2008**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
SURFACE WATER #1	08/25/08	< 29	< 106	< 3	< 3	< 9	< 4	< 7	< 4	< 6	< 17	< 3	< 3	< 32	< 14
SURFACE WATER #2	08/25/08	< 44	< 32	< 4	< 5	< 11	< 3	< 10	< 5	< 9	< 26	< 3	< 4	< 43	< 13

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED AND ANALYZED BY QUAD CITIES STATION PERSONNEL, 2008**

RESULTS IN UNITS OF PCI/LITER

SITE	COLLECTION DATE	ACTIVITY	AQUIFER
QC-GP-1	01/08/08	**2,680**	Shallow Aquifer
QC-GP-1	01/14/08	**2,580**	Shallow Aquifer
QC-GP-1	03/12/08	**3,910**	Shallow Aquifer
QC-GP-1	03/17/08	**4,760**	Shallow Aquifer
QC-GP-1	03/25/08	**3,130**	Shallow Aquifer
QC-GP-1	04/11/08	**3,670**	Shallow Aquifer
QC-GP-1	04/14/08	**2,660**	Shallow Aquifer
QC-GP-1	04/21/08	**2,000**	Shallow Aquifer
QC-GP-1	05/19/08	**2,000**	Shallow Aquifer
QC-GP-1	06/24/08	**3,410**	Shallow Aquifer
QC-GP-1	07/09/08	**2,450**	Shallow Aquifer
QC-GP-1	07/28/08	**2,000**	Shallow Aquifer
QC-GP-1	08/25/08	**7,280**	Shallow Aquifer
QC-GP-1	09/17/08	**2,000**	Shallow Aquifer
QC-GP-1	09/30/08	**3,490**	Shallow Aquifer
QC-GP-1	10/21/08	**5,940**	Shallow Aquifer
QC-GP-1	11/10/08	**7,260**	Shallow Aquifer
QC-GP-2	01/08/08	**334,000**	Shallow Aquifer
QC-GP-2	01/14/08	**416,000**	Shallow Aquifer
QC-GP-2	01/23/08	**480,000**	Shallow Aquifer
QC-GP-2	01/28/08	**531,000**	Shallow Aquifer
QC-GP-2	02/06/08	**455,000**	Shallow Aquifer
QC-GP-2	02/13/08	**408,000**	Shallow Aquifer
QC-GP-2	02/18/08	**438,000**	Shallow Aquifer
QC-GP-2	02/25/08	**474,000**	Shallow Aquifer
QC-GP-2	03/05/08	**414,000**	Shallow Aquifer
QC-GP-2	03/12/08	**503,000**	Shallow Aquifer
QC-GP-2	03/17/08	**533,000**	Shallow Aquifer
QC-GP-2	03/25/08	**456,000**	Shallow Aquifer
QC-GP-2	04/11/08	**1,210,000**	Shallow Aquifer
QC-GP-2	04/14/08	**903,000**	Shallow Aquifer
QC-GP-2	04/21/08	**915,000**	Shallow Aquifer
QC-GP-2	04/30/08	**1,810,000**	Shallow Aquifer
QC-GP-2	05/05/08	**2,000,000**	Shallow Aquifer
QC-GP-2	05/09/08	**1,390,000**	Shallow Aquifer
QC-GP-2	05/19/08	**699,000**	Shallow Aquifer
QC-GP-2	05/28/08	**612,000**	Shallow Aquifer
QC-GP-2	06/03/08	**1,180,000**	Shallow Aquifer
QC-GP-2	06/12/08	**986,000**	Shallow Aquifer
QC-GP-2	06/24/08	**635,000**	Shallow Aquifer
QC-GP-2	07/09/08	**820,000**	Shallow Aquifer
QC-GP-2	07/28/08	**1,050,000**	Shallow Aquifer
QC-GP-2	08/13/08	**968,000**	Shallow Aquifer
QC-GP-2	08/25/08	**568,000**	Shallow Aquifer

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED AND ANALYZED BY QUAD CITIES STATION PERSONNEL, 2008**

RESULTS IN UNITS OF PCI/LITER

SITE	COLLECTION DATE	ACTIVITY	AQUIFER
QC-GP-2	09/11/08	**285,000**	Shallow Aquifer
QC-GP-2	09/17/08	**315,000**	Shallow Aquifer
QC-GP-2	09/30/08	**299,000**	Shallow Aquifer
QC-GP-2	10/21/08	**134,000**	Shallow Aquifer
QC-GP-2	11/10/08	**99,200**	Shallow Aquifer
QC-GP-2	12/03/08	**85,300**	Shallow Aquifer
QC-GP-2	12/17/08	**71,000**	Shallow Aquifer
QC-GP-3	01/08/08	**16,800**	Shallow Aquifer
QC-GP-3	01/14/08	**19,300**	Shallow Aquifer
QC-GP-3	02/25/08	**15,100**	Shallow Aquifer
QC-GP-3	03/05/08	**13,000**	Shallow Aquifer
QC-GP-3	03/12/08	**14,900**	Shallow Aquifer
QC-GP-3	03/17/08	**12,500**	Shallow Aquifer
QC-GP-3	03/25/08	**13,100**	Shallow Aquifer
QC-GP-3	04/11/08	**18,700**	Shallow Aquifer
QC-GP-3	04/14/08	**20,200**	Shallow Aquifer
QC-GP-3	04/21/08	**26,100**	Shallow Aquifer
QC-GP-3	04/30/08	**38,800**	Shallow Aquifer
QC-GP-3	05/05/08	**31,400**	Shallow Aquifer
QC-GP-3	05/09/08	**20,900**	Shallow Aquifer
QC-GP-3	05/19/08	**17,300**	Shallow Aquifer
QC-GP-3	05/28/08	**17,900**	Shallow Aquifer
QC-GP-3	06/03/08	**19,400**	Shallow Aquifer
QC-GP-3	06/24/08	**28,900**	Shallow Aquifer
QC-GP-3	07/09/08	**15,400**	Shallow Aquifer
QC-GP-3	07/28/08	**19,400**	Shallow Aquifer
QC-GP-3	08/25/08	**9,040**	Shallow Aquifer
QC-GP-3	09/17/08	**3,530**	Shallow Aquifer
QC-GP-3	09/30/08	**5,010**	Shallow Aquifer
QC-GP-3	10/21/08	**6,830**	Shallow Aquifer
QC-GP-3	11/10/08	**2,220**	Shallow Aquifer
QC-GP-3	12/17/08	**3,010**	Shallow Aquifer
QC-GP-4	01/08/08	**25,500**	Shallow Aquifer
QC-GP-4	01/14/08	**26,300**	Shallow Aquifer
QC-GP-4	02/25/08	**30,900**	Shallow Aquifer
QC-GP-4	03/05/08	**32,600**	Shallow Aquifer
QC-GP-4	03/12/08	**38,500**	Shallow Aquifer
QC-GP-4	03/17/08	**52,000**	Shallow Aquifer
QC-GP-4	03/25/08	**53,200**	Shallow Aquifer
QC-GP-4	04/11/08	**382,000**	Shallow Aquifer
QC-GP-4	04/14/08	**138,000**	Shallow Aquifer
QC-GP-4	04/21/08	**179,000**	Shallow Aquifer
QC-GP-4	04/30/08	**97,000**	Shallow Aquifer
QC-GP-4	05/05/08	**60,300**	Shallow Aquifer

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED AND ANALYZED BY QUAD CITIES STATION PERSONNEL, 2008**

RESULTS IN UNITS OF PCI/LITER

SITE	COLLECTION DATE	ACTIVITY	AQUIFER
QC-GP-4	05/09/08	**23,100**	Shallow Aquifer
QC-GP-4	05/19/08	**12,800**	Shallow Aquifer
QC-GP-4	05/28/08	**16,700**	Shallow Aquifer
QC-GP-4	06/12/08	**114,000**	Shallow Aquifer
QC-GP-4	06/24/08	**17,600**	Shallow Aquifer
QC-GP-4	07/09/08	**17,900**	Shallow Aquifer
QC-GP-4	07/28/08	**70,000**	Shallow Aquifer
QC-GP-4	08/13/08	**104,000**	Shallow Aquifer
QC-GP-4	08/25/08	**67,800**	Shallow Aquifer
QC-GP-4	09/17/08	**217,000**	Shallow Aquifer
QC-GP-4	09/30/08	**153,000**	Shallow Aquifer
QC-GP-4	10/21/08	**187,000**	Shallow Aquifer
QC-GP-4	11/10/08	**255,000**	Shallow Aquifer
QC-GP-4	12/17/08	**226,000**	Shallow Aquifer
QC-GP-5	01/08/08	**43,900**	Shallow Aquifer
QC-GP-5	01/14/08	**95,600**	Shallow Aquifer
QC-GP-5	01/23/08	**115,000**	Shallow Aquifer
QC-GP-5	01/28/08	**117,000**	Shallow Aquifer
QC-GP-5	02/06/08	**139,000**	Shallow Aquifer
QC-GP-5	02/13/08	**150,000**	Shallow Aquifer
QC-GP-5	02/18/08	**142,000**	Shallow Aquifer
QC-GP-5	02/25/08	**168,000**	Shallow Aquifer
QC-GP-5	03/05/08	**213,000**	Shallow Aquifer
QC-GP-5	03/12/08	**249,000**	Shallow Aquifer
QC-GP-5	03/17/08	**261,000**	Shallow Aquifer
QC-GP-5	03/25/08	**168,000**	Shallow Aquifer
QC-GP-5	04/11/08	**150,000**	Shallow Aquifer
QC-GP-5	04/14/08	**102,000**	Shallow Aquifer
QC-GP-5	04/21/08	**540,000**	Shallow Aquifer
QC-GP-5	04/30/08	**954,000**	Shallow Aquifer
QC-GP-5	05/05/08	**898,000**	Shallow Aquifer
QC-GP-5	05/09/08	**797,000**	Shallow Aquifer
QC-GP-5	05/19/08	**681,000**	Shallow Aquifer
QC-GP-5	05/28/08	**490,000**	Shallow Aquifer
QC-GP-5	06/03/08	**360,000**	Shallow Aquifer
QC-GP-5	06/12/08	**378,000**	Shallow Aquifer
QC-GP-5	06/24/08	**423,000**	Shallow Aquifer
QC-GP-5	07/09/08	**106,000**	Shallow Aquifer
QC-GP-5	07/28/08	**1,820,000**	Shallow Aquifer
QC-GP-5	08/13/08	**760,000**	Shallow Aquifer
QC-GP-5	08/25/08	**119,000**	Shallow Aquifer
QC-GP-5	09/17/08	**8,600**	Shallow Aquifer
QC-GP-5	09/30/08	**15,000**	Shallow Aquifer
QC-GP-5	10/21/08	**28,400**	Shallow Aquifer

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED AND ANALYZED BY QUAD CITIES STATION PERSONNEL, 2008**

RESULTS IN UNITS OF PCI/LITER

SITE	COLLECTION DATE	ACTIVITY	AQUIFER
QC-GP-5	11/10/08	**13,400**	Shallow Aquifer
QC-GP-5	12/17/08	**54,600**	Shallow Aquifer
QC-GP-6	01/08/08	**<2,000**	Shallow Aquifer
QC-GP-6	03/12/08	**2,620**	Shallow Aquifer
QC-GP-6	03/17/08	**<2,000**	Shallow Aquifer
QC-GP-6	03/25/08	**30,100**	Shallow Aquifer
QC-GP-6	04/11/08	**66,200**	Shallow Aquifer
QC-GP-6	04/14/08	**161,000**	Shallow Aquifer
QC-GP-6	04/21/08	**1,980,000**	Shallow Aquifer
QC-GP-6	04/30/08	**7,490,000**	Shallow Aquifer
QC-GP-6	05/05/08	**7,500,000**	Shallow Aquifer
QC-GP-6	05/09/08	**7,080,000**	Shallow Aquifer
QC-GP-6	05/19/08	**5,470,000**	Shallow Aquifer
QC-GP-6	05/28/08	**4,290,000**	Shallow Aquifer
QC-GP-6	06/03/08	**5,050,000**	Shallow Aquifer
QC-GP-6	06/12/08	**2,570,000**	Shallow Aquifer
QC-GP-6	06/24/08	**4,550,000**	Shallow Aquifer
QC-GP-6	07/09/08	**1,670,000**	Shallow Aquifer
QC-GP-6	07/28/08	**3,540**	Shallow Aquifer
QC-GP-6	08/13/08	**9,400**	Shallow Aquifer
QC-GP-6	08/25/08	**3,410**	Shallow Aquifer
QC-GP-6	09/11/08	**4,090**	Shallow Aquifer
QC-GP-6	09/17/08	**2,610**	Shallow Aquifer
QC-GP-6	09/30/08	**10,200**	Shallow Aquifer
QC-GP-6	10/21/08	**10,900**	Shallow Aquifer
QC-GP-6	11/10/08	**17,700**	Shallow Aquifer
QC-GP-6	12/03/08	**15,600**	Shallow Aquifer
QC-GP-6	12/17/08	**18,700**	Shallow Aquifer
QC-GP-7	01/08/08	**97,800**	Shallow Aquifer
QC-GP-7	01/14/08	**97,200**	Shallow Aquifer
QC-GP-7	02/06/08	**101,000**	Shallow Aquifer
QC-GP-7	02/25/08	**105,000**	Shallow Aquifer
QC-GP-7	03/05/08	**112,000**	Shallow Aquifer
QC-GP-7	03/12/08	**98,600**	Shallow Aquifer
QC-GP-7	03/17/08	**95,300**	Shallow Aquifer
QC-GP-7	03/25/08	**90,700**	Shallow Aquifer
QC-GP-7	04/11/08	**71,600**	Shallow Aquifer
QC-GP-7	04/14/08	**60,900**	Shallow Aquifer
QC-GP-7	04/21/08	**85,600**	Shallow Aquifer
QC-GP-7	04/30/08	**114,000**	Shallow Aquifer
QC-GP-7	05/05/08	**131,000**	Shallow Aquifer
QC-GP-7	05/09/08	**130,000**	Shallow Aquifer
QC-GP-7	05/19/08	**133,000**	Shallow Aquifer
QC-GP-7	05/28/08	**129,000**	Shallow Aquifer

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED AND ANALYZED BY QUAD CITIES STATION PERSONNEL, 2008**

RESULTS IN UNITS OF PCI/LITER

SITE	COLLECTION DATE	ACTIVITY	AQUIFER
QC-GP-7	06/03/08	**102,000**	Shallow Aquifer
QC-GP-7	06/12/08	**79,800**	Shallow Aquifer
QC-GP-7	06/24/08	**136,000**	Shallow Aquifer
QC-GP-7	07/09/08	**95,600**	Shallow Aquifer
QC-GP-7	07/28/08	**62,600**	Shallow Aquifer
QC-GP-7	08/13/08	**56,200**	Shallow Aquifer
QC-GP-7	08/25/08	**63,200**	Shallow Aquifer
QC-GP-7	09/17/08	**62,100**	Shallow Aquifer
QC-GP-7	09/30/08	**62,300**	Shallow Aquifer
QC-GP-7	10/21/08	**46,500**	Shallow Aquifer
QC-GP-7	11/10/08	**39,200**	Shallow Aquifer
QC-GP-7	12/17/08	**31,700**	Shallow Aquifer
QC-GP-8	01/08/08	**<2,000**	Shallow Aquifer
QC-GP-8	01/14/08	**<2,000**	Shallow Aquifer
QC-GP-8	03/12/08	**<2,000**	Shallow Aquifer
QC-GP-8	03/17/08	**<2,000**	Shallow Aquifer
QC-GP-8	03/25/08	**<2,000**	Shallow Aquifer
QC-GP-8	04/11/08	**2,770**	Shallow Aquifer
QC-GP-8	04/14/08	**4,650**	Shallow Aquifer
QC-GP-8	04/21/08	**<2,000**	Shallow Aquifer
QC-GP-8	04/30/08	**10,000**	Shallow Aquifer
QC-GP-8	05/05/08	**272,000**	Shallow Aquifer
QC-GP-8	05/09/08	**309,000**	Shallow Aquifer
QC-GP-8	05/19/08	**171,000**	Shallow Aquifer
QC-GP-8	05/28/08	**149,000**	Shallow Aquifer
QC-GP-8	06/12/08	**3,070**	Shallow Aquifer
QC-GP-8	06/24/08	**344,000**	Shallow Aquifer
QC-GP-8	07/09/08	**<2,000**	Shallow Aquifer
QC-GP-8	07/28/08	**2,620**	Shallow Aquifer
QC-GP-8	08/25/08	**<2,000**	Shallow Aquifer
QC-GP-8	09/17/08	**<2,000**	Shallow Aquifer
QC-GP-8	09/30/08	**2,860**	Shallow Aquifer
QC-GP-8	10/21/08	**2,850**	Shallow Aquifer
QC-GP-8	11/10/08	**2,360**	Shallow Aquifer
QC-GP-8	12/17/08	**<2,000**	Shallow Aquifer
QC-GP-9	01/08/08	**33,900**	Shallow Aquifer
QC-GP-9	01/14/08	**40,000**	Shallow Aquifer
QC-GP-9	02/06/08	**54,100**	Shallow Aquifer
QC-GP-9	02/25/08	**51,400**	Shallow Aquifer
QC-GP-9	03/05/08	**40,500**	Shallow Aquifer
QC-GP-9	03/12/08	**47,300**	Shallow Aquifer
QC-GP-9	03/17/08	**53,000**	Shallow Aquifer
QC-GP-9	03/25/08	**51,600**	Shallow Aquifer
QC-GP-9	04/11/08	**33,200**	Shallow Aquifer

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED AND ANALYZED BY QUAD CITIES STATION PERSONNEL, 2008**

RESULTS IN UNITS OF PCI/LITER

SITE	COLLECTION DATE	ACTIVITY	AQUIFER
QC-GP-9	04/14/08	**19,300**	Shallow Aquifer
QC-GP-9	04/21/08	**28,800**	Shallow Aquifer
QC-GP-9	04/30/08	**13,900**	Shallow Aquifer
QC-GP-9	05/05/08	**15,900**	Shallow Aquifer
QC-GP-9	05/09/08	**11,700**	Shallow Aquifer
QC-GP-9	05/19/08	**<2,000**	Shallow Aquifer
QC-GP-9	05/28/08	**<2,000**	Shallow Aquifer
QC-GP-9	06/24/08	**5,490**	Shallow Aquifer
QC-GP-9	07/09/08	**2,500**	Shallow Aquifer
QC-GP-9	07/28/08	**18,600**	Shallow Aquifer
QC-GP-9	08/13/08	**90,100**	Shallow Aquifer
QC-GP-9	08/25/08	**193,000**	Shallow Aquifer
QC-GP-9	09/17/08	**182,000**	Shallow Aquifer
QC-GP-9	09/30/08	**149,000**	Shallow Aquifer
QC-GP-9	10/21/08	**133,000**	Shallow Aquifer
QC-GP-9	11/10/08	**115,000**	Shallow Aquifer
QC-GP-9	12/17/08	**97,600**	Shallow Aquifer
QC-GP-10	01/08/08	**<2,000**	Shallow Aquifer
QC-GP-10	03/12/08	**<2,000**	Shallow Aquifer
QC-GP-10	03/17/08	**<2,000**	Shallow Aquifer
QC-GP-10	04/11/08	**<2,000**	Shallow Aquifer
QC-GP-10	04/14/08	**<2,000**	Shallow Aquifer
QC-GP-10	04/21/08	**<2,000**	Shallow Aquifer
QC-GP-10	04/30/08	**<2,000**	Shallow Aquifer
QC-GP-10	05/05/08	**<2,000**	Shallow Aquifer
QC-GP-10	05/09/08	**<2,000**	Shallow Aquifer
QC-GP-10	05/19/08	**<2,000**	Shallow Aquifer
QC-GP-10	06/24/08	**<2,000**	Shallow Aquifer
QC-GP-10	07/28/08	**<2,000**	Shallow Aquifer
QC-GP-10	08/25/08	**<2,000**	Shallow Aquifer
QC-GP-10	09/17/08	**<2,000**	Shallow Aquifer
QC-GP-10	09/30/08	**<2,000**	Shallow Aquifer
QC-GP-10	10/21/08	**<2,000**	Shallow Aquifer
QC-GP-10	11/10/08	**<2,000**	Shallow Aquifer
QC-GP-10	12/17/08	**<2,000**	Shallow Aquifer
QC-GP-11	01/03/08	**2,050,000**	Shallow Aquifer
QC-GP-11	01/08/08	**1,960,000**	Shallow Aquifer
QC-GP-11	01/14/08	**2,000,000**	Shallow Aquifer
QC-GP-11	01/23/08	**1,860,000**	Shallow Aquifer
QC-GP-11	01/28/08	**1,810,000**	Shallow Aquifer
QC-GP-11	02/06/08	**1,590,000**	Shallow Aquifer
QC-GP-11	02/13/08	**1,550,000**	Shallow Aquifer
QC-GP-11	02/18/08	**1,610,000**	Shallow Aquifer
QC-GP-11	02/25/08	**1,530,000**	Shallow Aquifer

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED AND ANALYZED BY QUAD CITIES STATION PERSONNEL, 2008**

RESULTS IN UNITS OF PCI/LITER

SITE	COLLECTION DATE	ACTIVITY	AQUIFER
QC-GP-11	03/05/08	**1,630,000**	Shallow Aquifer
QC-GP-11	03/12/08	**1,320,000**	Shallow Aquifer
QC-GP-11	03/17/08	**1,180,000**	Shallow Aquifer
QC-GP-11	03/25/08	**1,560,000**	Shallow Aquifer
QC-GP-11	04/11/08	**2,120,000**	Shallow Aquifer
QC-GP-11	04/14/08	**1,780,000**	Shallow Aquifer
QC-GP-11	04/21/08	**1,240,000**	Shallow Aquifer
QC-GP-11	04/30/08	**647,000**	Shallow Aquifer
QC-GP-11	05/05/08	**278,000**	Shallow Aquifer
QC-GP-11	05/09/08	**271,000**	Shallow Aquifer
QC-GP-11	05/19/08	**137,000**	Shallow Aquifer
QC-GP-11	05/28/08	**654,000**	Shallow Aquifer
QC-GP-11	06/03/08	**766,000**	Shallow Aquifer
QC-GP-11	06/12/08	**1,290,000**	Shallow Aquifer
QC-GP-11	06/24/08	**164,000**	Shallow Aquifer
QC-GP-11	07/09/08	**1,040,000**	Shallow Aquifer
QC-GP-11	07/28/08	**1,530,000**	Shallow Aquifer
QC-GP-11	08/13/08	**708,000**	Shallow Aquifer
QC-GP-11	08/25/08	**159,000**	Shallow Aquifer
QC-GP-11	09/11/08	**242,000**	Shallow Aquifer
QC-GP-11	09/17/08	**52,500**	Shallow Aquifer
QC-GP-11	09/30/08	**28,900**	Shallow Aquifer
QC-GP-11	10/21/08	**32,400**	Shallow Aquifer
QC-GP-11	11/10/08	**47,900**	Shallow Aquifer
QC-GP-11	12/03/08	**27,500**	Shallow Aquifer
QC-GP-11	12/17/08	**24,300**	Shallow Aquifer
QC-GP-12	01/08/08	**<2,000**	Shallow Aquifer
QC-GP-12	01/14/08	**<2,000**	Shallow Aquifer
QC-GP-12	02/25/08	**<2,000**	Shallow Aquifer
QC-GP-12	03/12/08	**<2,000**	Shallow Aquifer
QC-GP-12	03/17/08	**<2,000**	Shallow Aquifer
QC-GP-12	05/19/08	**<2,000**	Shallow Aquifer
QC-GP-12	06/24/08	**<2,000**	Shallow Aquifer
QC-GP-12	07/28/08	**<2,000**	Shallow Aquifer
QC-GP-12	08/25/08	**<2,000**	Shallow Aquifer
QC-GP-12	09/17/08	**6,220**	Shallow Aquifer
QC-GP-12	09/30/08	**9,960**	Shallow Aquifer
QC-GP-12	10/21/08	**5,480**	Shallow Aquifer
QC-GP-12	11/10/08	**3,770**	Shallow Aquifer
QC-GP-12	12/17/08	**2,500**	Shallow Aquifer
QC-GP-13	01/08/08	**60,100**	Shallow Aquifer
QC-GP-13	01/14/08	**75,900**	Shallow Aquifer
QC-GP-13	01/23/08	**52,600**	Shallow Aquifer
QC-GP-13	01/28/08	**59,900**	Shallow Aquifer

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED AND ANALYZED BY QUAD CITIES STATION PERSONNEL, 2008**

RESULTS IN UNITS OF PCI/LITER

SITE	COLLECTION DATE	ACTIVITY	AQUIFER
QC-GP-13	02/06/08	**58,900**	Shallow Aquifer
QC-GP-13	02/13/08	**88,900**	Shallow Aquifer
QC-GP-13	02/25/08	**47,100**	Shallow Aquifer
QC-GP-13	03/05/08	**69,300**	Shallow Aquifer
QC-GP-13	03/12/08	**99,900**	Shallow Aquifer
QC-GP-13	03/17/08	**188,000**	Shallow Aquifer
QC-GP-13	03/25/08	**15,700**	Shallow Aquifer
QC-GP-13	04/11/08	**23,100**	Shallow Aquifer
QC-GP-13	04/14/08	**20,200**	Shallow Aquifer
QC-GP-13	04/21/08	**7,570**	Shallow Aquifer
QC-GP-13	04/30/08	**<2,000**	Shallow Aquifer
QC-GP-13	05/05/08	**<2,000**	Shallow Aquifer
QC-GP-13	05/09/08	**<2,000**	Shallow Aquifer
QC-GP-13	05/19/08	**<2,000**	Shallow Aquifer
QC-GP-13	06/03/08	**2,500**	Shallow Aquifer
QC-GP-13	06/24/08	**<2,000**	Shallow Aquifer
QC-GP-13	07/09/08	**7,910**	Shallow Aquifer
QC-GP-13	07/28/08	**28,200**	Shallow Aquifer
QC-GP-13	08/13/08	**96,000**	Shallow Aquifer
QC-GP-13	08/25/08	**89,300**	Shallow Aquifer
QC-GP-13	09/11/08	**303,000**	Shallow Aquifer
QC-GP-13	09/17/08	**402,000**	Shallow Aquifer
QC-GP-13	09/30/08	**208,000**	Shallow Aquifer
QC-GP-13	10/21/08	**309,000**	Shallow Aquifer
QC-GP-13	11/10/08	**132,000**	Shallow Aquifer
QC-GP-13	12/03/08	**94,100**	Shallow Aquifer
QC-GP-13	12/17/08	**62,700**	Shallow Aquifer
QC-GP-14	01/03/08	**1,700,000**	Shallow Aquifer
QC-GP-14	01/08/08	**1,800,000**	Shallow Aquifer
QC-GP-14	01/14/08	**1,720,000**	Shallow Aquifer
QC-GP-14	01/23/08	**1,800,000**	Shallow Aquifer
QC-GP-14	01/28/08	**1,760,000**	Shallow Aquifer
QC-GP-14	02/06/08	**1,910,000**	Shallow Aquifer
QC-GP-14	02/13/08	**1,890,000**	Shallow Aquifer
QC-GP-14	02/18/08	**1,890,000**	Shallow Aquifer
QC-GP-14	02/25/08	**1,890,000**	Shallow Aquifer
QC-GP-14	03/05/08	**1,920,000**	Shallow Aquifer
QC-GP-14	03/12/08	**1,790,000**	Shallow Aquifer
QC-GP-14	03/17/08	**1,770,000**	Shallow Aquifer
QC-GP-14	03/25/08	**1,430,000**	Shallow Aquifer
QC-GP-14	04/11/08	**713,000**	Shallow Aquifer
QC-GP-14	04/14/08	**387,000**	Shallow Aquifer
QC-GP-14	04/21/08	**47,400**	Shallow Aquifer
QC-GP-14	04/30/08	**6,120**	Shallow Aquifer

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED AND ANALYZED BY QUAD CITIES STATION PERSONNEL, 2008**

RESULTS IN UNITS OF PCI/LITER

SITE	COLLECTION DATE	ACTIVITY	AQUIFER
QC-GP-14	05/05/08	**<2,000**	Shallow Aquifer
QC-GP-14	05/09/08	**<2,000**	Shallow Aquifer
QC-GP-14	05/19/08	**<2,000**	Shallow Aquifer
QC-GP-14	05/28/08	**<2,000**	Shallow Aquifer
QC-GP-14	06/03/08	**2,050**	Shallow Aquifer
QC-GP-14	06/12/08	**<2,000**	Shallow Aquifer
QC-GP-14	06/24/08	**<2,000**	Shallow Aquifer
QC-GP-14	07/09/08	**<2,000**	Shallow Aquifer
QC-GP-14	07/28/08	**33,000**	Shallow Aquifer
QC-GP-14	08/13/08	**416,000**	Shallow Aquifer
QC-GP-14	08/25/08	**926,000**	Shallow Aquifer
QC-GP-14	09/11/08	**1,100,000**	Shallow Aquifer
QC-GP-14	09/17/08	**1,110,000**	Shallow Aquifer
QC-GP-14	09/30/08	**1,090,000**	Shallow Aquifer
QC-GP-14	10/21/08	**610,000**	Shallow Aquifer
QC-GP-14	11/10/08	**785,000**	Shallow Aquifer
QC-GP-14	12/03/08	**443,000**	Shallow Aquifer
QC-GP-14	12/17/08	**689,000**	Shallow Aquifer
WELL #1	08/25/08	**<200**	Bedrock
WELL #1	11/17/08	**<200**	Bedrock
WELL #5	08/25/08	**<200**	Bedrock
WELL #5	11/17/08	**<200**	Bedrock
WELL #6 LITTLE FISH	08/25/08	**<200**	Shallow Aquifer
WELL #6 LITTLE FISH	11/17/08	**<200**	Shallow Aquifer
WELL #7 BIG FISH	08/25/08	**<200**	Sand & Gravel
WELL #7 BIG FISH	11/17/08	**<200**	Sand & Gravel
WELL #8 FIRE TRAINING	08/25/08	**<200**	Bedrock
WELL #8 FIRE TRAINING	11/17/08	**<200**	Bedrock
WELL #9 DRY CASK STORAGE	11/17/08	**<200**	Shallow Aquifer
WELL #10 FISH HOUSE	08/25/08	**<200**	Bedrock
WELL #10 FISH HOUSE	11/17/08	**<200**	Bedrock
STP SAND POINT WELL	08/25/08	**<200**	Shallow Aquifer
STP SAND POINT WELL	11/17/08	**<200**	Shallow Aquifer
WELL #11 SPRAY CANAL	11/17/08	**<200**	Sand & Gravel