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SVP-08-023

May 9, 2008

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Quad Cities Nuclear Power Station Annual Radiological Environmental Operating Report

In accordance with Quad Cities Technical Specifications 5.6.2, enclosed is the 2007 Radiological Environmental Operating Report for Quad Cities Nuclear Power Station. This report contains the results of the radiological environmental and meteorological monitoring programs. Also attached is the 2007 Radiological Groundwater Protection Program (RGPP) report, as Appendix E of the enclosure.

Should you have any questions concerning this letter, please contact W.J. Beck at (309) 227-2800.

Respectfully,

Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

Attachment: Quad Cities Nuclear Power Station 2007 Annual Radiological Environmental Operating Report

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

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Attachment

Quad Cities Nuclear Power Station
2007 Annual Radiological Environmental Operating Report

Docket No: 50-254
50-265

QUAD CITIES NUCLEAR POWER STATION
UNITS 1 and 2

Annual Radiological
Environmental Operating Report

1 January Through 31 December 2007

Prepared By

Teledyne Brown Engineering
Environmental Services

Exelon SM

Nuclear

Quad Cities Nuclear Power Station
Cordova, IL 61242

May 2008

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I. Summary and Conclusions

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 2007 through 31 December 2007. During that time period, 1,417 analyses were performed on 1,322 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. No 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 2007 through 31 December 2007.

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 2007. 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 2007 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 andLa-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 2007 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-38	03/23/07	Estimated time; timer malfunction
A/I	Q-03	04/06/07	Reported 30 min power outage due to station work
A/I	Q-02	04/06/07	Reported 30 min power outage due to station work
A/I	Q-37	04/27/07	Estimated time; low timer reading for no apparent reason

Table D-1 LISTING OF SAMPLE ANOMALIES (continued)

Sample Type	Location Code	Collection Date	Reason
A/I	Q-37	07/20/07	Estimated time; low timer reading possibly due to adverse weather
A/I	Q-38	07/20/07	Estimated time; low timer reading possibly due to adverse weather
A/I	Q-38	09/14/07	Estimated time; low timer reading for no apparent reason
A/I	Q-37	09/14/07	Estimated time; low timer reading for no apparent reason
A/I	Q-38	12/07/07	Estimated time; low timer reading possibly due to adverse weather
A/I	Q-38	12/14/07	Estimated time; low timer reading possibly due to adverse weather
TLD	Q-213-1	01/01/08	TLD read higher than expected (35.0 mrem) during 4th quarter; duplicate TLD in same sector read 22 mrem, which is expected

Table D-2 LISTING OF MISSED SAMPLES

Sample Type	Location Code	Collection Date	Reason
SW	Q-33	01/19/07	No sample; water frozen
SW	Q-34	01/19/07	No sample; water frozen
SW	Q-33	01/26/07	No sample; water frozen
SW	Q-33	02/02/07	No sample; water frozen
SW	Q-34	02/02/07	No sample; water frozen
SW	Q-33	02/16/07	No sample; water frozen
SW	Q-34	02/16/07	No sample; water frozen

Table D-2 LISTING OF MISSED SAMPLES (continued)

Sample Type	Location Code	Collection Date	Reason
A/I	Q-03	03/09/07	Collector found 4" of water inside sample station
TLD	Q-210-5	03/30/07	TLD not received from vendor; collector placed spare
TLD	Q-215-2	03/30/07	TLD found broken; collector placed spare
SW	Q-34	12/07/07	No sample; water frozen
SW	Q-33	12/14/07	No sample; water frozen
SW	Q-33	12/28/07	No sample; water frozen
AP	All	08/04/07 – 08/10/07	Shipment damaged. In repackaging, UPS discarded all the APs.

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

E. Program Changes

Starting in 2007, the mean and two standard deviation values are calculated using the positive values only.

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 22 of 24 samples. The values ranged from 2.5 to 7.8 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 70 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 54 E–3 pCi/m^3 with a mean of 21 E–3

pCi/m^3. The results from the far-field locations (Group II) ranged from 9 to 54 E–3 pCi/m^3 with a mean of 22 E–3 pCi/m^3. The results from the Control location (Group III) ranged from 9 to 49 E–3 pCi/m^3 with a mean of 23 E–3 pCi/m^3. Comparison of the 2007 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 2007 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.

Most TLD measurements were below 30 mR/quarter, with a range of 17 to 35 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 2007 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	5.5	-
SSE	1.1	3.6	6.6
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

There were several "location with the highest annual mean" values (averages) that were not correct that appear to be a cut /paste error. These errors are described below.

Errata data from 2006 AREOR

Page 28 of 227, 1Q06, Q-215-2 is recorded as 8 but is actually 30 (page 88).

Page 37 of 227, 2Q06, Q-205-1 is recorded as 11 but is actually 37 (page 88).

Page 45 of 227, 3Q06, Q-108-1 is recorded as 30 but is actually 27 (page 87).

Page 54 of 227, 4Q06, Q-205-1 is recorded as 13 but is actually 33 (page 88).

Page 64 of 227, Annual, Q-205-1 is recorded as 30 but is actually 27 (page 88).

Page 7 (12 of 227), Q-03 02/25/06 – The value for this sample on page 79 (week 8, Q-03) is significantly less than the other samples for this week. If "no air was going through (the sample media)" then this is likely a "missed"

sample.

Page 133 of 227 – section 3.2 (Dose to Man section); The asterisked note indicates that liquid effluent dose calculations are performed using RG 1.109 calculations. The site dose calculation software uses both NUREG 0133 and RG 1.109.

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, 17 out of 19 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 March 2007 I-131 in charcoal result of 34.7 pCi was lower than the known value of 71.3, resulting in a found to known ratio of 0.49. A new technician counted the charcoal cartridge on the back rather than the face side due to a label covering the flow indicator arrow. Due to decay of the I-131, recounting could not be performed. Counting the 2nd quarter Analytics charcoal cartridge on the face and the back resulted in approximately 220% more activity on the face of the cartridge. This indicates that we would have had acceptable results (ratio approximately 1.07) if the cartridge had been counted on the face side. The investigation was documented by Nonconformance Report NCR 07-02.

2. Teledyne Brown Engineering's ERA July 2007 Cs-134 result of 57.6 pCi/L exceeded the lower acceptance limit of 60.2 pCi/L. The high activity of the sample resulted in the lower acceptance limit of 8.66, although the ratio of found to known was 83.6%, which is considered acceptable by TBE. The investigation was documented by Nonconformance Report NCR 07-07.

For the secondary laboratory, 18 out of 19 analytes met the specified acceptance criteria. One sample did not meet the specified acceptance criteria for the following reasons:

1. 1. Environmental Inc.'s ERA March 2007 air particulate Cs-137 result of 345.3 pCi/L exceeded the upper control limit of 336 pCi/L. The reported result was calculated using composite filter geometry rather than the single filter geometry. The recalculated result of 305.8 pCi/filter fell within the acceptance limits. This was entered into their June 2007 Program Deviation Report.

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, 2007

NAME OF FACILITY: QUAD CITIES | **DOCKET NUMBER: 50-254 &50-265**
LOCATION OF FACILITY: CORDOVA, IL | **REPORTING PERIOD: ANNUAL 2007**

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	24	4	5.2 (10/12) (2.5/7.8)	5.3 (12/12) (3.8/7.5)	5.3 (12/12) (3.8/7.5)	Q-34 CONTROL CAMANCHE - UPSTREAM 4.4 MILES NNE OF SITE	0
	H-3	8	200	<LLD	<LLD	-		0
	GAMMA	24						
	MN-54		15	<LLD	<LLD	-		0
	CO-58		15	<LLD	<LLD	-		0
	FE-59		30	<LLD	<LLD	-		0
	CO-60		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)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR QUAD CITIES NUCLEAR POWER STATION, 2007

NAME OF FACILITY: QUAD CITIES **DOCKET NUMBER: 50-254 &50-265**
LOCATION OF FACILITY: CORDOVA, IL **REPORTING PERIOD: ANNUAL 2007**

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)	ZN-65		30	<LLD	<LLD	-		0
	NB-95		15	<LLD	<LLD	-		0
	ZR-95		30	<LLD	<LLD	-		0
	I-131		15	<LLD	<LLD	-		0
	CS-134		15	<LLD	<LLD	-		0
	CS-137		18	<LLD	<LLD	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
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TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR QUAD CITIES NUCLEAR POWER STATION, 2007

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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
SURFACE WATER (PCI/LITER)	BA-140		60	<LLD	<LLD	-		0
	LA-140		15	<LLD	<LLD	-		0
GROUND WATER (PCI/LITER)	H-3	8	200	<LLD	NA	-		0
	GAMMA	8						
	MN-54		15	<LLD	NA	-		0
	CO-58		15	<LLD	NA	-		0
	FE-59		30	<LLD	NA	-		0
	CO-60		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)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR QUAD CITIES NUCLEAR POWER STATION, 2007

NAME OF FACILITY: QUAD CITIES | **DOCKET NUMBER: 50-254 &50-265**
LOCATION OF FACILITY: CORDOVA, IL | **REPORTING PERIOD: ANNUAL 2007**

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)	ZN-65		30	<LLD	NA	-		0
	NB-95		15	<LLD	NA	-		0
	ZR-95		30	<LLD	NA	-		0
	I-131		15	<LLD	NA	-		0
	CS-134		15	<LLD	NA	-		0
	CS-137		18	<LLD	NA	-		0
	BA-140		60	<LLD	NA	-		0

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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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)	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
	NB-95		NA	<LLD	<LLD	-		0

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

LOCATION OF FACILITY: CORDOVA, IL **REPORTING PERIOD: ANNUAL 2007**

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)	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

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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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)	CO-58		NA	<LLD	NA	-		0
	FE-59		NA	<LLD	NA	-		0
	CO-60		NA	<LLD	NA	-		0
	ZN-65		NA	<LLD	NA	-		0
	NB-95		NA	<LLD	NA	-		0
	ZR-95		NA	<LLD	NA	-		0
	CS-134		150	<LLD	NA	-		0

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

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR QUAD CITIES NUCLEAR POWER STATION, 2007

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
SEDIMENT (PCI/KG DRY)	CS-137		180	70 (1/2) (70)	NA	70 (1/2) (70)	Q-39 INDICATOR CORDOVA - DOWNSTREAM MISSISSIPPI RIVER 0.8 MILES SSW OF SITE	0
	BA-140		NA	<LLD	NA	-		0
	LA-140		NA	<LLD	NA	-		0
AIR PARTICULATE (PCI/TOTAL)	GR-B	459	10	21 (407/408) (6/54)	23 (51/51) (9/49)	23 (51/51) (9/50)	Q-13 INDICATOR PRINCETON 4.7 MILES SW OF SITE	0
	GAMMA	36						
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	FE-59		NA	<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 2007**

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
AIR PARTICULATE (PCI/TOTAL)	CO-60		NA	<LLD	<LLD	-		0
	ZN-65		NA	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	CS-134		50	<LLD	<LLD	-		0
	CS-137		60	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0

MEAN AND RANGE BASED ON DETECTABLE MEASUREMENTS ONLY (M)
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NAME OF FACILITY: QUAD CITIES **DOCKET NUMBER: 50-254 &50-265**
LOCATION OF FACILITY: CORDOVA, IL **REPORTING PERIOD: ANNUAL 2007**

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
AIR PARTICULATE (PCI/TOTAL)	LA-140		NA	<LLD	<LLD	-		0
AIR IODINE (E-3 PCI/CU.METER)	GAMMA I-131	468	70	<LLD	<LLD	-		0
MILK (PCI/LITER)	I-131	19	1	<LLD	NA	-		0
	GAMMA MN-54	19	NA	<LLD	NA	-		0
	CO-58		NA	<LLD	NA	-		0
	FE-59		NA	<LLD	NA	-		0
	CO-60		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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LOCATION OF FACILITY: CORDOVA, IL **REPORTING PERIOD: ANNUAL 2007**

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)	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
	BA-140		60	<LLD	NA	-		0
	LA-140		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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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
VEGETATION (PCI/KG WET)	GAMMA	10						
	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)
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**
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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
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	324	NA	21.8 (316/316) (17/35)	21.9 (8/8) (19/27)	25.3 (4/4) (23/29)	Q-211-2 INDICATOR 4.5 MILES SW	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, 2007

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	Janet Price	6.0 miles NE
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, 2007

Location	Location Description	Distance & Direction From Site
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, 2007

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)

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Quad Cities Nuclear Power Station, 2007

Sample Medium	Analysis	Sampling Method	Analytical Procedure Number
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

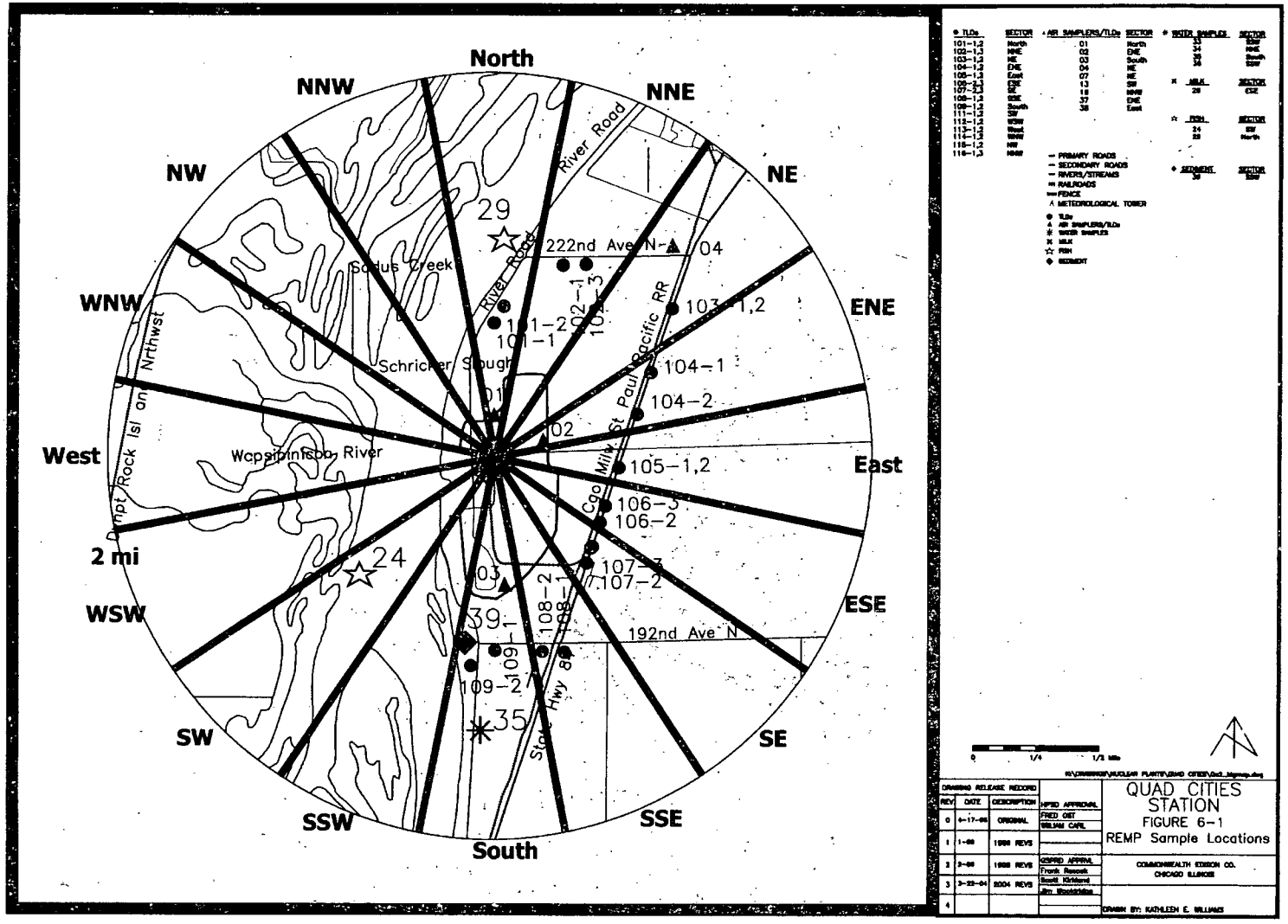


Figure B-1
Quad Cities REMP Sample Locations – 2 Mile Radius, 2007

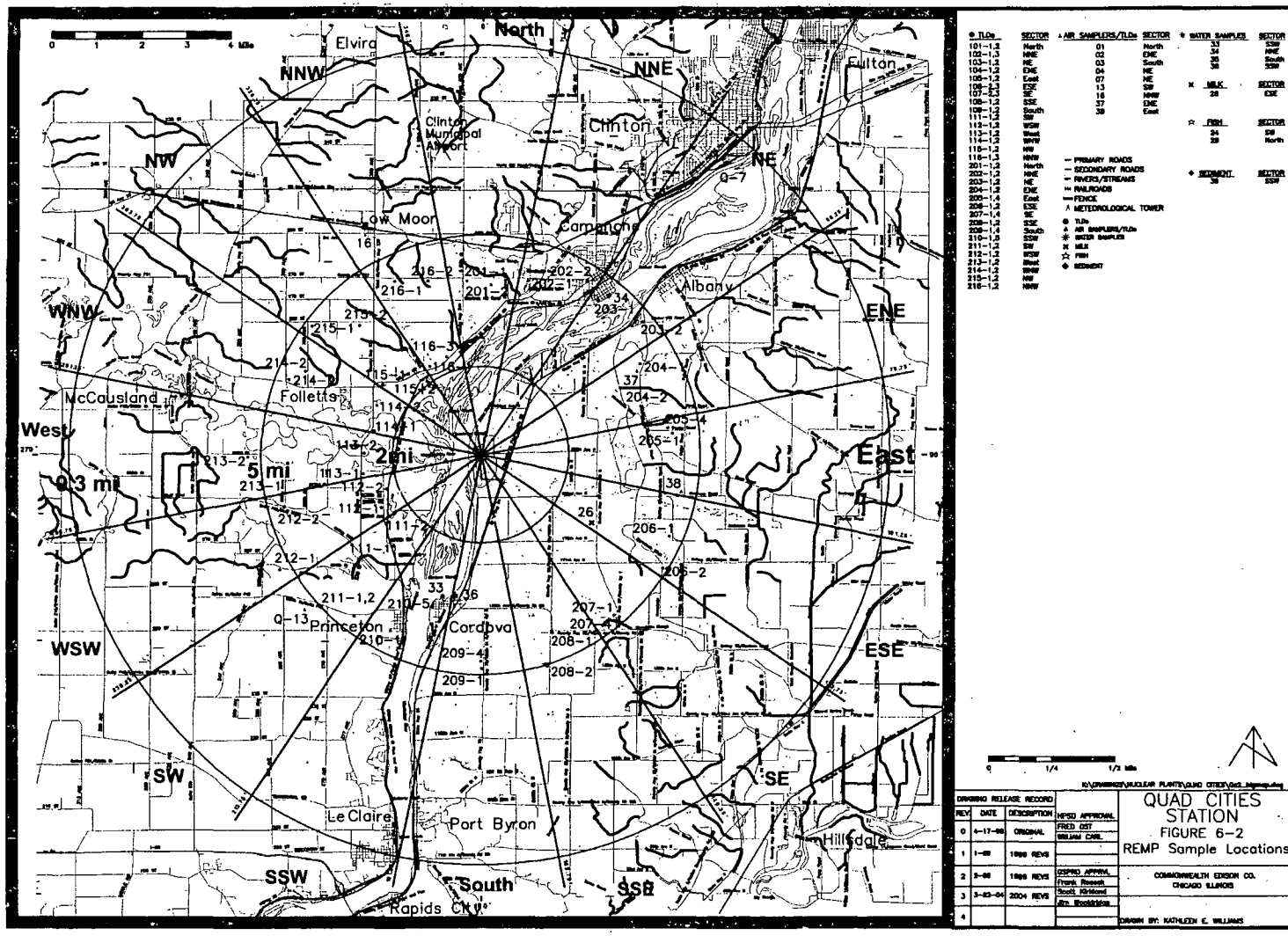


Figure B-2
Quad Cities REMP Sampling Locations – 9.3 Mile Radius, 2007

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, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Q-33	Q-34
12/29/06 - 01/05/07	2.5 ± 1.4	4.3 ± 1.7
02/23/07 - 02/23/07	4.3 ± 1.8	4.6 ± 1.9
03/02/07 - 03/30/07	5.2 ± 1.8	5.2 ± 1.8
04/06/07 - 04/27/07	< 2.6	5.0 ± 2.0
05/04/07 - 05/31/07	7.8 ± 2.1	7.2 ± 2.0
06/08/07 - 06/29/07	6.4 ± 1.8	6.7 ± 1.8
07/06/07 - 07/27/07	5.2 ± 1.8	3.8 ± 1.5
08/03/07 - 08/31/07	5.4 ± 1.8	7.5 ± 2.0
09/07/07 - 09/28/07	4.5 ± 1.8	4.8 ± 1.8
10/05/07 - 10/25/07	4.9 ± 1.9	6.1 ± 2.0
11/02/07 - 11/30/07	< 2.8	4.7 ± 2.1
12/14/07 - 12/28/07	6.3 ± 1.9	4.1 ± 1.7
MEAN*	5.5 ± 2.2	5.4 ± 2.5

TABLE C-I.2 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Q-33	Q-34
01/05/07 - 03/30/07	< 159	< 167
04/06/07 - 06/29/07	< 178	< 178
07/06/07 - 09/28/07	< 192	< 198
10/05/07 - 12/28/07	< 171	< 172
MEAN	-	-

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

TABLE C-I.3 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

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	12/29/06 - 01/05/07	< 0.4	< 1	< 1	< 0	< 1	< 1	< 1	< 14	< 0	< 0	< 13	< 4
	02/23/07 - 02/23/07	< 3	< 3	< 6	< 2	< 5	< 3	< 5	< 12	< 2	< 2	< 27	< 8
	03/02/07 - 03/30/07	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 18	< 6
	04/06/07 - 04/27/07	< 3	< 3	< 8	< 3	< 7	< 4	< 6	< 15	< 3	< 3	< 28	< 10
	05/04/07 - 05/31/07	< 1	< 2	< 3	< 1	< 3	< 2	< 3	< 8	< 1	< 1	< 14	< 4
	06/08/07 - 06/29/07	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 11	< 1	< 1	< 16	< 5
	07/06/07 - 07/27/07	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 13	< 1	< 2	< 20	< 6
	08/03/07 - 08/31/07	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 15	< 1	< 1	< 19	< 6
	09/07/07 - 09/28/07	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 15	< 3	< 3	< 26	< 9
	10/05/07 - 10/25/07	< 1	< 1	< 2	< 1	< 1	< 1	< 2	< 10	< 1	< 1	< 12	< 5
	11/02/07 - 11/30/07	< 2	< 3	< 6	< 2	< 6	< 3	< 5	< 11	< 2	< 2	< 22	< 7
	12/07/07 - 12/21/07	< 1	< 1	< 3	< 1	< 2	< 1	< 3	< 13	< 1	< 1	< 29	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-34	12/29/06 - 01/05/07	< 0.4	< 1	< 1	< 0	< 1	< 1	< 1	< 15	< 0	< 0	< 13	< 4
	02/23/07 - 02/23/07	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 14	< 2	< 3	< 27	< 8
	03/02/07 - 03/30/07	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 11	< 2	< 2	< 21	< 7
	04/06/07 - 04/27/07	< 3	< 3	< 8	< 3	< 6	< 3	< 6	< 15	< 3	< 3	< 27	< 10
	05/04/07 - 05/31/07	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 10	< 1	< 2	< 17	< 5
	06/08/07 - 06/29/07	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 15	< 1	< 1	< 21	< 7
	07/06/07 - 07/27/07	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 13	< 1	< 2	< 20	< 6
	08/03/07 - 08/31/07	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 15	< 1	< 1	< 18	< 6
	09/07/07 - 09/28/07	< 2	< 2	< 7	< 2	< 5	< 3	< 5	< 15	< 2	< 3	< 24	< 8
	10/05/07 - 10/25/07	< 2	< 3	< 7	< 3	< 5	< 3	< 5	< 14	< 2	< 2	< 43	< 14
	11/02/07 - 11/30/07	< 2	< 2	< 6	< 3	< 5	< 3	< 4	< 11	< 2	< 2	< 21	< 8
	12/14/07 - 12/28/07	< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 12	< 1	< 2	< 27	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-II.1 **CONCENTRATIONS OF TRITIUM IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Q-35	Q-36
01/12/07 - 01/12/07	< 184	< 183
04/13/07 - 04/13/07	< 168	< 164
07/13/07 - 07/13/07	< 164	< 162
10/12/07 - 10/12/07	< 190	< 188
MEAN	-	-

TABLE C-II.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

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	01/12/07 - 01/12/07	< 4	< 6	< 12	< 5	< 11	< 5	< 10	< 13	< 5	< 5	< 27	< 11
	04/13/07 - 04/13/07	< 5	< 5	< 10	< 5	< 10	< 5	< 8	< 13	< 4	< 5	< 31	< 9
	07/13/07 - 07/13/07	< 4	< 4	< 9	< 4	< 10	< 5	< 7	< 11	< 4	< 4	< 29	< 8
	10/12/07 - 10/12/07	< 5	< 5	< 10	< 5	< 7	< 5	< 9	< 13	< 5	< 5	< 32	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-36	01/12/07 - 01/12/07	< 4	< 4	< 9	< 4	< 7	< 4	< 7	< 11	< 4	< 4	< 27	< 8
	04/13/07 - 04/13/07	< 6	< 6	< 15	< 9	< 12	< 8	< 15	< 15	< 7	< 4	< 38	< 11
	07/13/07 - 07/13/07	< 4	< 3	< 8	< 4	< 7	< 4	< 6	< 10	< 3	< 4	< 23	< 7
	10/12/07 - 10/12/07	< 5	< 4	< 11	< 5	< 9	< 5	< 7	< 15	< 4	< 4	< 30	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-III.1 **CONCENTRATIONS OF GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PC/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												
Channel Catfish	05/02/07	< 52	< 57	< 121	< 52	< 114	< 74	< 111	< 51	< 51	< 452	< 144
White Bass	05/02/07	< 58	< 53	< 95	< 63	< 100	< 66	< 96	< 55	< 57	< 491	< 142
Channel Catfish	10/02/07	< 37	< 44	< 126	< 46	< 111	< 55	< 94	< 44	< 53	< 470	< 121
Common Carp	10/02/07	< 55	< 61	< 145	< 48	< 133	< 53	< 100	< 43	< 50	< 519	< 165
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-29												
Channel Catfish	05/02/07	< 43	< 49	< 110	< 46	< 93	< 54	< 90	< 46	< 45	< 395	< 125
Largemouth Bass	05/02/07	< 59	< 54	< 169	< 48	< 150	< 64	< 96	< 49	< 57	< 502	< 139
Channel Catfish	10/02/07	< 50	< 56	< 143	< 47	< 96	< 47	< 94	< 49	< 54	< 429	< 165
Common Carp	10/02/07	< 36	< 45	< 114	< 41	< 97	< 54	< 106	< 39	< 39	< 444	< 91
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-IV.1 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007

RESULTS IN UNITS OF PC/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	05/25/07	< 46	< 50	< 112	< 49	< 112	< 68	< 98	< 40	70 ± 48	< 362	< 102
	10/05/07	< 74	< 70	< 233	< 56	< 235	< 118	< 162	< 60	< 117	< 618	< 138
	MEAN	-	-	-	-	-	-	-	-	70 ± 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, 2007

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

	NEAR-FIELD GROUP I				FAR-FIELD GROUP II				CONTROL GROUP III
COLLECTION PERIOD	Q-01	Q-02	Q-03	Q-04	Q-13	Q-16	Q-37	Q-38	Q-07
12/29/06 - 01/05/07	25 ± 5	20 ± 4	18 ± 4	24 ± 5	22 ± 4	21 ± 4	23 ± 4	22 ± 4	24 ± 5
01/05/07 - 01/12/07	22 ± 4	19 ± 4	20 ± 4	27 ± 5	24 ± 5	26 ± 5	25 ± 5	25 ± 4	20 ± 4
01/12/07 - 01/19/07	20 ± 4	18 ± 4	18 ± 4	24 ± 5	20 ± 4	23 ± 5	22 ± 4	16 ± 4	20 ± 4
01/19/07 - 01/26/07	38 ± 5	34 ± 5	29 ± 5	44 ± 6	38 ± 5	38 ± 5	36 ± 5	35 ± 5	42 ± 5
01/26/07 - 02/02/07	21 ± 5	24 ± 5	22 ± 4	24 ± 5	23 ± 5	26 ± 5	22 ± 5	22 ± 4	23 ± 5
02/02/07 - 02/09/07	24 ± 5	24 ± 5	25 ± 5	29 ± 5	30 ± 5	24 ± 5	25 ± 5	24 ± 4	24 ± 5
02/09/07 - 02/16/07	20 ± 5	17 ± 4	22 ± 5	20 ± 5	22 ± 5	21 ± 4	19 ± 5	24 ± 5	23 ± 5
02/15/07 - 02/22/07	27 ± 5	23 ± 4	27 ± 5	22 ± 4	26 ± 5	23 ± 4	29 ± 5	25 ± 5	26 ± 5
02/22/07 - 03/02/07	10 ± 3	10 ± 3	11 ± 3	8 ± 3	13 ± 4	13 ± 4	11 ± 3	12 ± 3	9 ± 3
03/02/07 - 03/08/07	13 ± 4	16 ± 4	14 ± 4	12 ± 4	16 ± 5	16 ± 5	20 ± 4	15 ± 4	20 ± 5
03/08/07 - 03/16/07	18 ± 4	15 ± 4	20 ± 4	21 ± 4	19 ± 4	20 ± 4	20 ± 4	20 ± 4	16 ± 4
03/16/07 - 03/23/07	16 ± 4	18 ± 4	16 ± 4	15 ± 4	17 ± 4	18 ± 4	22 ± 4	17 ± 4	18 ± 4
03/23/07 - 03/30/07	12 ± 4	14 ± 4	10 ± 4	13 ± 4	13 ± 4	15 ± 4	15 ± 4	13 ± 4	11 ± 4
03/30/07 - 04/06/07	14 ± 4	12 ± 4	15 ± 4	12 ± 4	16 ± 5	13 ± 4	16 ± 4	11 ± 4	13 ± 4
04/06/07 - 04/13/07	15 ± 4	16 ± 4	14 ± 4	17 ± 4	18 ± 4	13 ± 4	17 ± 4	15 ± 4	12 ± 4
04/13/07 - 04/20/07	19 ± 4	19 ± 4	16 ± 4	19 ± 4	18 ± 4	18 ± 4	14 ± 4	19 ± 4	20 ± 4
04/20/07 - 04/27/07	17 ± 4	14 ± 4	13 ± 4	11 ± 4	14 ± 4	13 ± 4	11 ± 4	13 ± 4	16 ± 4
04/27/07 - 05/03/07	19 ± 4	14 ± 4	13 ± 4	18 ± 4	21 ± 5	22 ± 5	16 ± 4	15 ± 4	18 ± 5
05/03/07 - 05/11/07	18 ± 4	20 ± 4	17 ± 4	24 ± 5	21 ± 4	19 ± 4	22 ± 4	15 ± 4	22 ± 4
05/11/07 - 05/18/07	15 ± 4	13 ± 4	14 ± 4	17 ± 4	16 ± 4	12 ± 4	13 ± 4	13 ± 4	13 ± 4
05/18/07 - 05/25/07	27 ± 5	19 ± 4	22 ± 4	27 ± 5	22 ± 4	21 ± 4	20 ± 4	22 ± 4	23 ± 5
05/25/07 - 05/31/07	17 ± 4	16 ± 4	17 ± 4	15 ± 4	16 ± 5	20 ± 5	19 ± 4	17 ± 4	22 ± 5
05/31/07 - 06/08/07	11 ± 3	12 ± 3	12 ± 3	14 ± 4	15 ± 4	12 ± 3	17 ± 4	13 ± 4	16 ± 4
06/08/07 - 06/15/07	26 ± 5	17 ± 4	18 ± 4	22 ± 4	22 ± 4	27 ± 5	20 ± 4	23 ± 4	21 ± 4
06/15/07 - 06/21/07	22 ± 5	17 ± 4	22 ± 4	22 ± 5	30 ± 6	24 ± 5	19 ± 4	20 ± 4	27 ± 5
06/21/07 - 06/29/07	16 ± 4	16 ± 4	12 ± 4	15 ± 4	23 ± 4	14 ± 4	20 ± 4	17 ± 4	17 ± 4
06/29/07 - 07/06/07	16 ± 4	17 ± 4	16 ± 4	19 ± 4	20 ± 5	20 ± 5	19 ± 4	18 ± 4	19 ± 5
07/06/07 - 07/13/07	17 ± 4	21 ± 5	20 ± 5	21 ± 5	23 ± 5	19 ± 5	17 ± 4	15 ± 4	17 ± 4
07/13/07 - 07/20/07	13 ± 4	12 ± 4	11 ± 4	10 ± 4	13 ± 4	13 ± 4	13 ± 4	10 ± 4	13 ± 4
07/20/07 - 07/27/07	18 ± 4	20 ± 5	22 ± 5	22 ± 5	27 ± 5	22 ± 5	24 ± 5	24 ± 5	25 ± 5
07/27/07 - 08/04/07 (1)	24 ± 4	26 ± 4	21 ± 4	31 ± 5	30 ± 5	27 ± 5	24 ± 4	23 ± 4	26 ± 5
08/10/07 - 08/17/07	23 ± 5	29 ± 5	33 ± 5	25 ± 5	28 ± 5	26 ± 5	31 ± 5	29 ± 5	30 ± 5
08/17/07 - 08/24/07	16 ± 4	11 ± 4	14 ± 4	18 ± 4	17 ± 4	11 ± 4	13 ± 4	12 ± 4	16 ± 4
08/24/07 - 08/31/07	20 ± 4	20 ± 4	< 5	21 ± 4	23 ± 5	27 ± 5	24 ± 5	23 ± 5	22 ± 5
08/31/07 - 09/07/07	24 ± 4	25 ± 4	31 ± 5	30 ± 5	29 ± 5	26 ± 5	26 ± 4	33 ± 5	28 ± 5
09/07/07 - 09/14/07	15 ± 4	15 ± 4	18 ± 4	16 ± 4	20 ± 4	16 ± 4	16 ± 4	17 ± 4	17 ± 4
09/14/07 - 09/21/07	30 ± 5	26 ± 5	26 ± 5	34 ± 5	30 ± 5	28 ± 5	27 ± 5	25 ± 5	30 ± 5
09/21/07 - 09/30/07	25 ± 4	29 ± 4	27 ± 4	31 ± 4	21 ± 4	20 ± 4	24 ± 4	25 ± 4	28 ± 5
09/30/07 - 10/07/07	19 ± 4	21 ± 4	21 ± 5	20 ± 5	22 ± 5	32 ± 5	21 ± 4	26 ± 5	29 ± 5
10/07/07 - 10/13/07	7 ± 4	8 ± 4	6 ± 4	8 ± 5	9 ± 4	12 ± 4	11 ± 5	10 ± 5	10 ± 4
10/13/07 - 10/19/07	22 ± 5	25 ± 6	26 ± 6	25 ± 6	28 ± 5	28 ± 5	32 ± 6	32 ± 6	31 ± 5
10/19/07 - 10/25/07	19 ± 4	15 ± 4	18 ± 4	17 ± 4	21 ± 5	19 ± 5	20 ± 4	16 ± 4	22 ± 5
10/25/07 - 11/02/07	21 ± 5	22 ± 5	23 ± 5	21 ± 5	23 ± 4	22 ± 4	15 ± 4	21 ± 5	22 ± 4
11/02/07 - 11/09/07	20 ± 4	21 ± 4	24 ± 5	24 ± 5	22 ± 5	21 ± 4	20 ± 4	29 ± 5	22 ± 4
11/09/07 - 11/16/07	23 ± 5	23 ± 5	25 ± 6	30 ± 5	26 ± 5	29 ± 5	27 ± 5	26 ± 5	25 ± 4
11/16/07 - 11/23/07	25 ± 5	21 ± 4	26 ± 5	28 ± 5	22 ± 4	21 ± 4	23 ± 4	27 ± 5	22 ± 4
11/23/07 - 11/30/07	28 ± 4	29 ± 5	27 ± 5	29 ± 5	26 ± 5	33 ± 5	29 ± 5	33 ± 5	35 ± 5
11/30/07 - 12/07/07	18 ± 5	21 ± 5	18 ± 5	23 ± 5	19 ± 4	19 ± 4	20 ± 5	16 ± 6	19 ± 4
12/07/07 - 12/14/07	45 ± 6	44 ± 6	54 ± 6	49 ± 6	50 ± 6	54 ± 6	49 ± 6	54 ± 6	49 ± 6
12/14/07 - 12/21/07	44 ± 6	35 ± 5	47 ± 6	40 ± 6	41 ± 6	52 ± 6	45 ± 6	52 ± 6	45 ± 6
12/21/07 - 12/28/07	30 ± 5	25 ± 5	29 ± 5	32 ± 5	31 ± 6	35 ± 6	28 ± 5	32 ± 5	36 ± 6
MEAN*	20 ± 16	20 ± 14	21 ± 17	22 ± 17	23 ± 15	22 ± 18	22 ± 15	22 ± 18	23 ± 17

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

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-V.2 MONTHLY AND YEARLY MEAN VALUES OF GROSS BETA CONCENTRATIONS (PCI/CU METER) IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007

GROUP I - NEAR-FIELD 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
12/29/06 - 02/02/07	18	44	25 ± 14	12/29/06 - 02/02/07	16	38	25 ± 12	12/29/06 - 02/02/07	20	42	26 ± 19
02/02/07 - 03/02/07	8	29	20 ± 13	02/02/07 - 03/02/07	11	30	21 ± 12	02/02/07 - 03/02/07	9	26	20 ± 16
03/02/07 - 03/30/07	10	21	15 ± 6	03/02/07 - 03/30/07	13	22	17 ± 5	03/02/07 - 03/30/07	11	20	16 ± 8
03/30/07 - 04/27/07	11	19	15 ± 5	03/30/07 - 04/27/07	11	19	15 ± 5	03/30/07 - 04/27/07	12	20	15 ± 7
04/27/07 - 06/01/07	13	27	18 ± 8	04/27/07 - 06/08/07	12	22	18 ± 7	04/27/07 - 06/08/07	13	23	19 ± 7
06/01/07 - 06/29/07	11	26	17 ± 9	06/01/07 - 06/29/07	13	30	21 ± 9	06/08/07 - 06/29/07	17	27	22 ± 10
06/29/07 - 07/27/07	10	22	17 ± 8	06/29/07 - 07/27/07	10	27	18 ± 10	06/29/07 - 07/27/07	13	25	19 ± 10
07/27/07 - 08/31/07	< 5	33	22 ± 12	07/27/07 - 08/31/07	11	31	23 ± 13	07/27/07 - 08/31/07	16	30	23 ± 12
08/31/07 - 09/30/07	15	34	25 ± 12	08/31/07 - 10/05/07	16	33	24 ± 10	08/31/07 - 10/05/07	17	30	26 ± 10
09/30/07 - 11/03/07	6	26	18 ± 12	09/30/07 - 11/09/07	9	32	20 ± 13	10/05/07 - 11/09/07	10	31	21 ± 15
11/03/07 - 12/01/07	20	30	25 ± 6	11/03/07 - 12/07/07	19	33	26 ± 9	11/09/07 - 12/07/07	19	35	25 ± 14
12/01/07 - 12/29/07	18	54	35 ± 24	12/01/07 - 12/29/07	16	54	40 ± 26	12/07/07 - 12/28/07	36	49	43 ± 13
12/29/06 - 12/29/07	< 5	54	21 ± 11	12/29/06 - 12/29/07	9	54	22 ± 13	12/29/06 - 12/28/07	9	49	23 ± 15

* 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, 2007**

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	12/29/06 - 03/30/07	< 3	< 4	< 10	< 5	< 7	< 5	< 6	< 3	< 4	< 81	< 35
	03/30/07 - 06/29/07	< 3	< 5	< 19	< 3	< 8	< 5	< 8	< 4	< 2	< 472	< 179
	06/29/07 - 09/30/07	< 4	< 3	< 13	< 2	< 8	< 5	< 7	< 5	< 4	< 100	< 28
	09/30/07 - 12/29/07	< 2	< 3	< 9	< 3	< 6	< 3	< 6	< 3	< 2	< 63	< 28
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-02	12/29/06 - 03/30/07	< 3	< 4	< 11	< 4	< 7	< 4	< 7	< 3	< 4	< 82	< 38
	03/30/07 - 06/29/07	< 3	< 6	< 15	< 3	< 10	< 7	< 14	< 4	< 3	< 553	< 226
	06/29/07 - 09/30/07	< 3	< 5	< 11	< 2	< 9	< 4	< 7	< 4	< 3	< 71	< 25
	09/30/07 - 12/29/07	< 4	< 5	< 11	< 4	< 8	< 5	< 8	< 4	< 3	< 79	< 29
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-03	12/29/06 - 03/30/07	< 3	< 5	< 15	< 3	< 7	< 3	< 5	< 3	< 4	< 73	< 19
	03/30/07 - 06/29/07	< 4	< 6	< 17	< 2	< 11	< 6	< 11	< 4	< 3	< 635	< 244
	06/29/07 - 09/30/07	< 3	< 4	< 10	< 3	< 8	< 4	< 5	< 4	< 2	< 62	< 11
	09/30/07 - 12/29/07	< 4	< 3	< 13	< 2	< 5	< 5	< 7	< 4	< 3	< 95	< 38
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-04	12/29/06 - 03/30/07	< 5	< 6	< 14	< 6	< 9	< 6	< 6	< 4	< 5	< 85	< 28
	03/30/07 - 06/29/07	< 2	< 6	< 17	< 3	< 9	< 5	< 7	< 3	< 2	< 358	< 173
	06/29/07 - 09/30/07	< 4	< 5	< 12	< 5	< 12	< 5	< 7	< 5	< 3	< 76	< 25
	09/30/07 - 12/29/07	< 2	< 3	< 7	< 2	< 5	< 3	< 5	< 2	< 2	< 39	< 25
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-07	12/29/06 - 03/30/07	< 3	< 4	< 12	< 2	< 6	< 5	< 7	< 2	< 3	< 68	< 27
	03/30/07 - 06/29/07	< 3	< 5	< 16	< 3	< 10	< 6	< 13	< 4	< 3	< 557	< 207
	06/29/07 - 09/30/07	< 3	< 3	< 8	< 3	< 7	< 3	< 5	< 3	< 2	< 56	< 19
	09/28/07 - 12/28/07	< 3	< 3	< 7	< 2	< 6	< 3	< 5	< 2	< 2	< 63	< 24
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-V.3 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

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	12/29/06 - 03/30/07	< 3	< 3	< 13	< 5	< 12	< 4	< 7	< 3	< 4	< 92	< 33
	03/30/07 - 06/29/07	< 4	< 5	< 22	< 3	< 9	< 7	< 13	< 5	< 3	< 591	< 225
	06/29/07 - 09/30/07	< 3	< 4	< 9	< 4	< 9	< 4	< 7	< 4	< 3	< 62	< 34
	09/28/07 - 12/28/07	< 3	< 4	< 9	< 3	< 6	< 4	< 5	< 3	< 2	< 77	< 23
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-16	12/29/06 - 03/30/07	< 3	< 4	< 5	< 3	< 5	< 4	< 6	< 2	< 2	< 76	< 18
	03/30/07 - 06/29/07	< 4	< 3	< 13	< 3	< 8	< 5	< 9	< 4	< 3	< 575	< 171
	06/29/07 - 09/30/07	< 3	< 4	< 7	< 3	< 7	< 4	< 6	< 4	< 2	< 54	< 18
	09/28/07 - 12/28/07	< 2	< 3	< 5	< 3	< 5	< 3	< 3	< 2	< 2	< 47	< 24
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-37	12/29/06 - 03/30/07	< 3	< 5	< 12	< 5	< 10	< 4	< 8	< 4	< 3	< 105	< 36
	03/30/07 - 06/29/07	< 5	< 5	< 23	< 3	< 9	< 6	< 11	< 4	< 3	< 693	< 259
	06/29/07 - 09/30/07	< 3	< 3	< 10	< 2	< 12	< 4	< 7	< 4	< 3	< 81	< 27
	09/30/07 - 12/29/07	< 3	< 4	< 9	< 4	< 6	< 4	< 6	< 3	< 4	< 74	< 36
	MEAN	-	-	-	-	-	-	-	-	-	-	-
Q-38	12/29/06 - 03/30/07	< 2	< 3	< 7	< 2	< 5	< 3	< 4	< 2	< 2	< 56	< 23
	03/30/07 - 06/29/07	< 4	< 6	< 18	< 3	< 7	< 6	< 11	< 4	< 3	< 521	< 261
	06/29/07 - 09/30/07	< 3	< 4	< 9	< 3	< 10	< 4	< 7	< 4	< 2	< 74	< 33
	09/30/07 - 12/29/07	< 3	< 4	< 11	< 2	< 6	< 4	< 8	< 4	< 3	< 71	< 25
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-VI-.1 CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007

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

	NEAR-FIELD GROUP I				FAR-FIELD GROUP II				CONTROL GROUP III
COLLECTION PERIOD	Q-01	Q-02	Q-03	Q-04	Q-13	Q-16	Q-37	Q-38	Q-07
12/29/06 - 01/05/07	< 63	< 61	< 61	< 63	< 67	< 67	< 68	< 68	< 37
01/05/07 - 01/12/07	< 35	< 43	< 43	< 44	< 45	< 45	< 46	< 46	< 42
01/12/07 - 01/19/07	< 14	< 21	< 21	< 21	< 28	< 28	< 28	< 28	< 21
01/19/07 - 01/26/07	< 42	< 40	< 40	< 42	< 28	< 29	< 28	< 16	< 29
01/26/07 - 02/02/07	< 29	< 37	< 37	< 39	< 39	< 39	< 39	< 39	< 38
02/02/07 - 02/09/07	< 55	< 29	< 53	< 55	< 45	< 45	< 44	< 44	< 54
02/09/07 - 02/16/07	< 61	< 59	< 59	< 61	< 48	< 48	< 58	< 58	< 27
02/16/07 - 02/23/07	< 48	< 47	< 31	< 48	< 46	< 46	< 51	< 51	< 42
02/23/07 - 03/02/07	< 26	< 25	< 25	< 26	< 32	< 31	< 30	< 30	< 16
03/02/07 - 03/08/07	< 31	< 30	< 30	< 31	< 39	< 39	< 29	< 29	< 22
03/08/07 - 03/16/07	< 32	< 31	< 31	< 32	< 33	< 33	< 37	< 37	< 15
03/16/07 - 03/23/07	< 47	< 46	< 47	< 47	< 43	< 43	< 42	< 42	< 26
03/23/07 - 03/30/07	< 51	< 50	< 50	< 51	< 59	< 58	< 61	< 61	< 29
03/30/07 - 04/06/07	< 57	< 55	< 55	< 57	< 47	< 47	< 35	< 35	< 56
04/06/07 - 04/13/07	< 70	< 68	< 68	< 70	< 46	< 46	< 55	< 55	< 32
04/13/07 - 04/20/07	< 27	< 27	< 26	< 27	< 55	< 27	< 54	< 54	< 54
04/20/07 - 04/27/07	< 8	< 15	< 15	< 16	< 14	< 14	< 14	< 14	< 16
04/27/07 - 05/03/07	< 55	< 53	< 53	< 55	< 58	< 58	< 56	< 56	< 37
05/03/07 - 05/11/07	< 39	< 37	< 37	< 39	< 30	< 29	< 18	< 33	< 29
05/11/07 - 05/18/07	< 47	< 46	< 46	< 47	< 47	< 47	< 47	< 47	< 36
05/18/07 - 05/25/07	< 49	< 47	< 47	< 49	< 63	< 63	< 60	< 60	< 34
05/25/07 - 05/31/07	< 23	< 22	< 22	< 23	< 31	< 30	< 24	< 24	< 20
05/31/07 - 06/08/07	< 19	< 18	< 18	< 19	< 19	< 19	< 21	< 11	< 19
06/08/07 - 06/15/07	< 58	< 56	< 56	< 58	< 62	< 62	< 58	< 32	< 62
06/15/07 - 06/21/07	< 32	< 31	< 31	< 17	< 42	< 42	< 33	< 33	< 40
06/21/07 - 06/29/07	< 35	< 34	< 34	< 35	< 42	< 42	< 48	< 50	< 16
06/29/07 - 07/06/07	< 42	< 40	< 40	< 42	< 29	< 29	< 27	< 14	< 29
07/06/07 - 07/13/07	< 35	< 55	< 55	< 57	< 42	< 41	< 41	< 42	< 56
07/13/07 - 07/20/07	< 19	< 11	< 18	< 19	< 19	< 19	< 19	< 20	< 19
07/20/07 - 07/27/07	< 39	< 39	< 21	< 40	< 38	< 38	< 36	< 37	< 41
07/27/07 - 08/04/07	< 24	< 48	< 48	< 50	< 46	< 46	< 40	< 41	< 55
08/04/07 - 08/10/07	< 60	< 61	< 60	< 62	< 55	< 54	< 59	< 61	< 37
08/10/07 - 08/17/07	< 69	< 69	< 69	< 43	< 64	< 64	< 67	< 69	< 66
08/17/07 - 08/24/07	< 58	< 59	< 58	< 61	< 59	< 59	< 46	< 48	< 25
08/24/07 - 08/31/07	< 37	< 68	< 68	< 68	< 66	< 66	< 65	< 67	< 69
08/31/07 - 09/07/07	< 36	< 45	< 47	< 47	< 58	< 57	< 57	< 59	< 46
09/07/07 - 09/14/07	< 51	< 51	< 52	< 52	< 28	< 52	< 51	< 53	< 52
09/14/07 - 09/21/07	< 26	< 27	< 27	< 27	< 27	< 22	< 27	< 28	< 27
09/21/07 - 09/30/07	< 60	< 60	< 62	< 62	< 39	< 39	< 31	< 32	< 32
09/30/07 - 10/07/07	< 27	< 50	< 52	< 52	< 68	< 68	< 55	< 57	< 62
10/07/07 - 10/13/07	< 51	< 64	< 66	< 66	< 59	< 60	< 66	< 68	< 59
10/13/07 - 10/19/07	< 37	< 48	< 48	< 48	< 53	< 53	< 59	< 61	< 42
10/19/07 - 10/25/07	< 45	< 45	< 47	< 47	< 66	< 66	< 45	< 31	< 66
10/25/07 - 11/02/07	< 24	< 56	< 58	< 58	< 46	< 48	< 48	< 49	< 57
11/02/07 - 11/10/07	< 34	< 43	< 44	< 44	< 13	< 12	< 21	< 22	< 46
11/10/07 - 11/16/07	< 65	< 65	< 67	< 67	< 58	< 60	< 70	< 31	< 58
11/16/07 - 11/23/07	< 36	< 48	< 49	< 49	< 44	< 44	< 44	< 45	< 48
11/23/07 - 11/30/07	< 43	< 18	< 44	< 44	< 36	< 37	< 30	< 31	< 54
11/30/07 - 12/07/07	< 26	< 44	< 45	< 45	< 37	< 37	< 43	< 64	< 39
12/07/07 - 12/14/07	< 63	< 61	< 40	< 62	< 61	< 61	< 63	< 67	< 60
12/14/07 - 12/21/07	< 21	< 21	< 14	< 22	< 29	< 30	< 29	< 30	< 22
12/21/07 - 12/28/07	< 8	< 15	< 15	< 15	< 31	< 30	< 24	< 24	< 19
MEAN	-	-	-	-	-	-	-	-	-

TABLE C-VII.1 **CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	INDICATOR FARM Q-26
01/05/07	< 0.3
02/02/07	< 0.3
03/02/07	< 0.8
04/07/07	< 0.9
05/04/07	< 0.8
05/18/07	< 0.9
06/01/07	< 0.8
06/15/07	< 0.6
06/29/07	< 0.8
07/13/07	< 0.7
07/27/07	< 0.5
08/10/07	< 0.9
08/24/07	< 0.6
09/07/07	< 0.9
09/21/07	< 0.7
10/07/07	< 0.6
10/19/07	< 0.6
11/03/07	< 0.8
12/07/07	< 0.7
MEAN	-

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007

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	01/05/07	< 6	< 6	< 16	< 6	< 12	< 5	< 11	< 3	< 4	< 35	< 11
	02/02/07	< 6	< 7	< 14	< 5	< 13	< 7	< 11	< 6	< 6	< 29	< 9
	03/02/07	< 9	< 10	< 21	< 9	< 27	< 9	< 15	< 9	< 9	< 48	< 13
	04/07/07	< 5	< 8	< 18	< 8	< 17	< 8	< 15	< 7	< 7	< 38	< 13
	05/04/07	< 5	< 5	< 13	< 5	< 12	< 6	< 10	< 4	< 6	< 30	< 11
	05/18/07	< 4	< 6	< 17	< 6	< 12	< 6	< 10	< 5	< 5	< 59	< 13
	06/01/07	< 4	< 5	< 9	< 5	< 10	< 5	< 9	< 4	< 5	< 41	< 11
	06/15/07	< 5	< 6	< 13	< 5	< 13	< 6	< 9	< 4	< 5	< 42	< 14
	06/29/07	< 5	< 5	< 10	< 5	< 10	< 5	< 9	< 4	< 5	< 41	< 13
	07/13/07	< 5	< 5	< 12	< 5	< 13	< 7	< 9	< 5	< 6	< 31	< 8
	07/27/07	< 4	< 4	< 10	< 5	< 10	< 4	< 7	< 3	< 4	< 23	< 7
	08/10/07	< 4	< 5	< 12	< 4	< 9	< 5	< 9	< 4	< 4	< 54	< 15
	08/24/07	< 6	< 6	< 18	< 7	< 13	< 7	< 13	< 5	< 6	< 42	< 12
	09/07/07	< 5	< 6	< 15	< 6	< 15	< 6	< 10	< 5	< 6	< 35	< 13
	09/21/07	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 2	< 2	< 19	< 5
	10/07/07	< 6	< 8	< 17	< 6	< 18	< 8	< 14	< 7	< 8	< 46	< 9
	10/19/07	< 2	< 3	< 6	< 2	< 6	< 3	< 5	< 2	< 2	< 20	< 7
	11/03/07	< 2	< 3	< 7	< 2	< 6	< 3	< 6	< 2	< 2	< 31	< 9
	12/07/07	< 5	< 6	< 14	< 6	< 13	< 7	< 11	< 5	< 5	< 50	< 15
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-VIII.1 **CONCENTRATIONS OF GAMMA EMITTERS IN FOOD PRODUCT SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

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													
Potatoes	07/09/07	< 25	< 29	< 56	< 18	< 51	< 30	< 34	< 52	< 21	< 29	< 112	< 35
Rhubarb Leaves	07/09/07	< 11	< 12	< 27	< 10	< 25	< 12	< 22	< 20	< 10	< 11	< 52	< 16
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-QUAD 1													
Potatoes	07/09/07	< 26	< 28	< 63	< 21	< 52	< 26	< 41	< 46	< 21	< 28	< 145	< 44
Rhubarb Leaves	07/09/07	< 15	< 17	< 39	< 19	< 43	< 16	< 31	< 33	< 18	< 19	< 88	< 16
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-QUAD 2													
Kohlrabi	07/09/07	< 23	< 24	< 75	< 28	< 63	< 24	< 37	< 43	< 24	< 30	< 131	< 34
Rhubarb Leaves	07/09/07	< 22	< 22	< 51	< 26	< 46	< 20	< 32	< 39	< 20	< 20	< 89	< 22
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-QUAD 3													
Horseradish	07/09/07	< 22	< 21	< 49	< 25	< 49	< 23	< 40	< 45	< 21	< 22	< 121	< 36
Rhubarb Leaves	07/09/07	< 14	< 11	< 21	< 12	< 25	< 10	< 24	< 22	< 11	< 13	< 65	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
Q-QUAD 4													
Lettuce	07/09/07	< 31	< 29	< 77	< 27	< 78	< 32	< 54	< 55	< 31	< 31	< 133	< 49
Potatoes	07/09/07	< 18	< 23	< 53	< 22	< 49	< 27	< 45	< 36	< 20	< 23	< 107	< 40
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-IX.1 QUARTERLY TLD RESULTS FOR QUAD CITIES NUCLEAR POWER STATION, 2007

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	23.0 ± 7.1	26	26	19	21
Q-01-2	20.5 ± 5.3	24	19	18	21
Q-02-1	21.8 ± 6.4	24	19	19	25
Q-02-2	20.8 ± 8.5	27	18	18	20
Q-03-1	19.0 ± 4.3	22	18	17	19
Q-03-2	19.5 ± 5.3	23	17	18	20
Q-04-1	20.8 ± 4.7	24	19	19	21
Q-04-2	22.8 ± 7.0	27	21	19	24
Q-07-1	22.8 ± 6.0	27	22	20	22
Q-07-2	21.0 ± 3.7	23	22	19	20
Q-13-1	21.3 ± 7.7	27	19	19	20
Q-13-2	21.8 ± 3.4	24	22	20	21
Q-16-1	20.0 ± 5.9	23	17	18	22
Q-16-2	21.0 ± 4.9	23	20	18	23
Q-37-1	23.8 ± 6.6	28	23	20	24
Q-37-2	21.3 ± 3.0	23	20	20	22
Q-38-1	23.3 ± 6.6	28	21	21	23
Q-38-2	23.3 ± 6.4	26	21	20	26
Q-101-1	20.5 ± 3.5	23	20	19	20
Q-101-2	21.3 ± 4.7	23	21	18	23
Q-102-1	22.3 ± 5.3	25	20	20	24
Q-102-3	20.8 ± 4.1	23	21	18	21
Q-103-1	19.5 ± 5.3	23	18	17	20
Q-103-2	20.3 ± 7.2	25	18	17	21
Q-104-1	20.3 ± 7.2	25	18	17	21
Q-104-2	19.8 ± 4.7	23	18	18	20
Q-105-1	21.3 ± 7.0	25	20	17	23
Q-105-2	19.3 ± 6.6	24	17	17	19
Q-106-2	20.0 ± 4.3	23	18	19	20
Q-106-3	20.0 ± 5.2	23	21	17	19
Q-107-2	21.0 ± 5.4	25	20	19	20
Q-107-3	21.3 ± 6.4	26	20	19	20
Q-108-1	20.0 ± 4.3	23	19	18	20
Q-108-2	20.0 ± 4.9	23	20	17	20
Q-109-1	21.5 ± 6.0	25	19	19	23
Q-109-2	21.3 ± 5.7	25	18	21	21
Q-111-1	23.3 ± 1.9	24	22	23	24
Q-111-2	20.8 ± 3.4	23	21	19	20
Q-112-1	22.3 ± 6.8	27	22	19	21
Q-112-2	20.3 ± 4.1	23	18	20	20
Q-113-1	21.3 ± 5.3	23	19	19	24
Q-113-2	19.3 ± 5.3	22	17	17	21
Q-114-1	21.3 ± 5.7	25	19	19	22
Q-114-2	22.3 ± 4.7	24	22	19	24
Q-115-1	20.8 ± 8.4	27	19	18	19
Q-115-2	20.5 ± 5.8	23	18	18	23
Q-116-1	21.5 ± 5.3	25	20	19	22
Q-116-3	21.3 ± 5.7	25	19	19	22

TABLE C-IX.1 QUARTERLY TLD RESULTS FOR QUAD CITIES NUCLEAR POWER STATION, 2007

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	22.8 ± 5.5	26	21	20	24
Q-201-2	23.5 ± 2.6	25	23	22	24
Q-202-1	20.8 ± 3.4	23	20	21	19
Q-202-2	20.0 ± 8.2	26	18	17	19
Q-203-1	22.5 ± 6.0	27	21	21	21
Q-203-2	23.3 ± 4.1	26	21	23	23
Q-204-1	23.0 ± 7.1	28	21	20	23
Q-204-2	24.5 ± 7.7	30	21	24	23
Q-205-1	23.5 ± 6.6	28	23	20	23
Q-205-4	23.5 ± 7.4	28	21	20	25
Q-206-1	21.8 ± 4.4	24	23	19	21
Q-206-2	22.8 ± 5.5	26	20	21	24
Q-207-1	22.0 ± 3.7	24	20	23	21
Q-207-4	23.0 ± 4.0	26	22	22	22
Q-208-1	22.0 ± 4.0	25	21	21	21
Q-208-2	23.5 ± 7.4	28	23	19	24
Q-209-1	21.8 ± 4.7	25	20	20	22
Q-209-4	22.0 ± 3.3	24	22	20	22
Q-210-1	22.3 ± 3.4	24	22	20	23
Q-210-4 *	21.8 ± 8.5	28	19	19	21
Q-210-5	20.3 ± 6.8	25	19	17	20
Q-211-1	25.0 ± 4.6	27	23	23	27
Q-211-2	25.3 ± 5.3	29	24	23	25
Q-212-1	23.5 ± 3.5	25	24	21	24
Q-212-2	22.3 ± 7.5	27	21	18	23
Q-213-1	24.8 ± 14	24	21	19	35
Q-213-2	21.5 ± 8.1	27	19	18	22
Q-214-1	22.8 ± 7.7	28	21	19	23
Q-214-2	25.3 ± 6.6	30	23	23	25
Q-215-1	22.0 ± 4.3	25	21	20	22
Q-215-2	23.3 ± 6.6	28	21	21	23
Q-216-1	23.0 ± 6.7	28	21	22	21
Q-216-2	25.3 ± 6.6	29	25	21	26

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

TABLE C-IX.2 MEAN QUARTERLY TLD RESULTS FOR THE INNER RING, OUTER RING, OTHER AND CONTROL LOCATION FOR QUAD CITIES NUCLEAR POWER STATION, 2007

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	24.1 ± 2.6	26.5 ± 3.8	24.9 ± 4.0	25.0 ± 5.7
APR-JUN	19.4 ± 2.9	21.4 ± 3.2	20.0 ± 4.7	22.0 ± 0.0
JUL-SEP	18.5 ± 2.7	20.5 ± 3.6	18.9 ± 2.1	19.5 ± 1.4
OCT-DEC	21.2 ± 3.2	23.1 ± 5.7	22.0 ± 4.0	21.0 ± 2.8

TABLE C-IX.3 SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR QUAD CITIES NUCLEAR POWER STATION, 2007

RESULTS IN UNITS OF MILLI-ROENTGEN/QUARTER

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
INNER RING	120	17	27	20.8 ± 5.1
OUTER RING	132	17	35	22.8 ± 6.1
OTHER	64	17	28	21.5 ± 5.9
CONTROL	8	19	27	21.9 ± 4.9

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

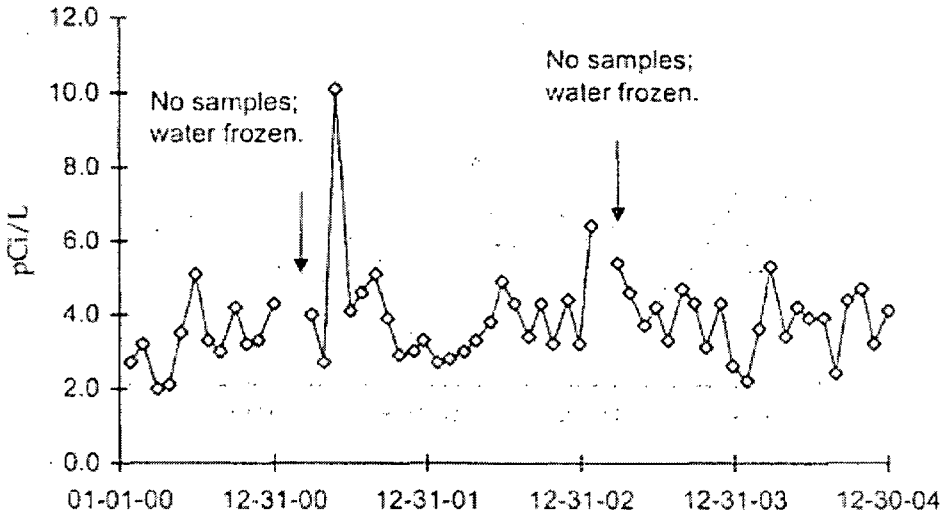
OTHER STATIONS - Q-01-1, Q-01-2, Q-02-1, Q-02-2, Q-03-1, Q-03-2, Q-04-1, Q-04-2, Q-13-1, Q-13-2, Q-16-1, Q-16-2, Q-37-1, Q-37-2, Q-38-1, Q-38-2

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

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

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

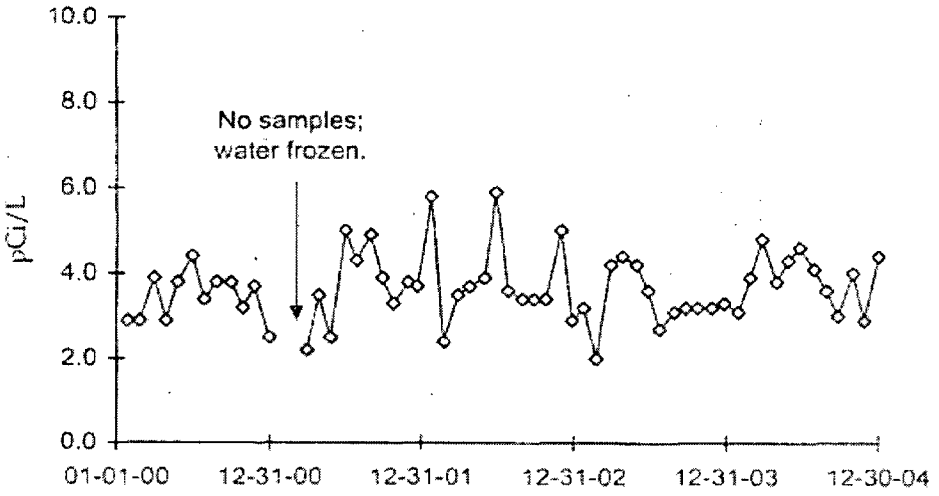
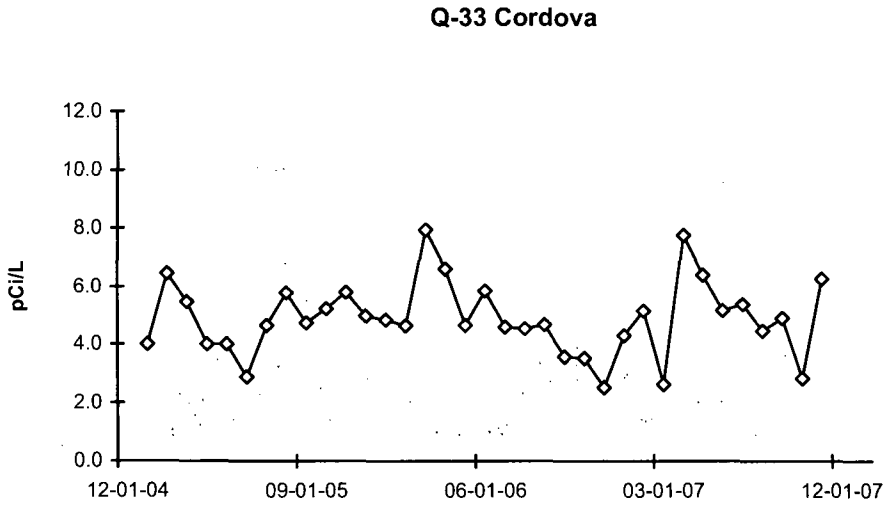
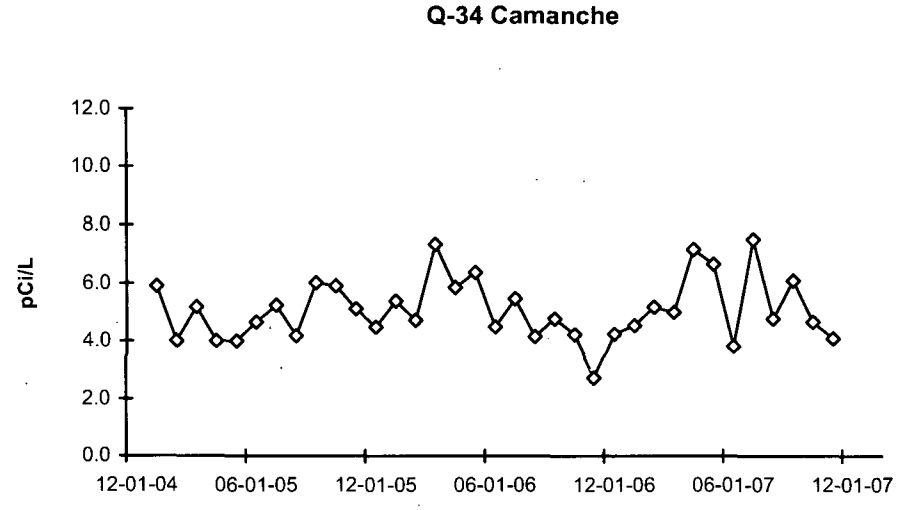


FIGURE C-1 (cont.)
Surface Water - Gross Beta - Stations Q-33 and Q-34 (C)
Collected in the Vicinity of QCNPS, 2005 - 2007

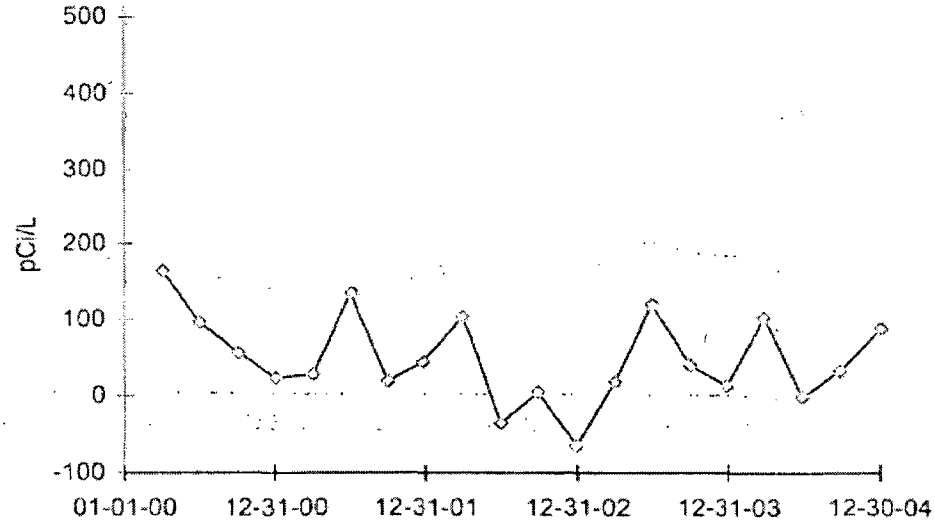




DUE TO VENDOR CHANGE, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY 2005

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

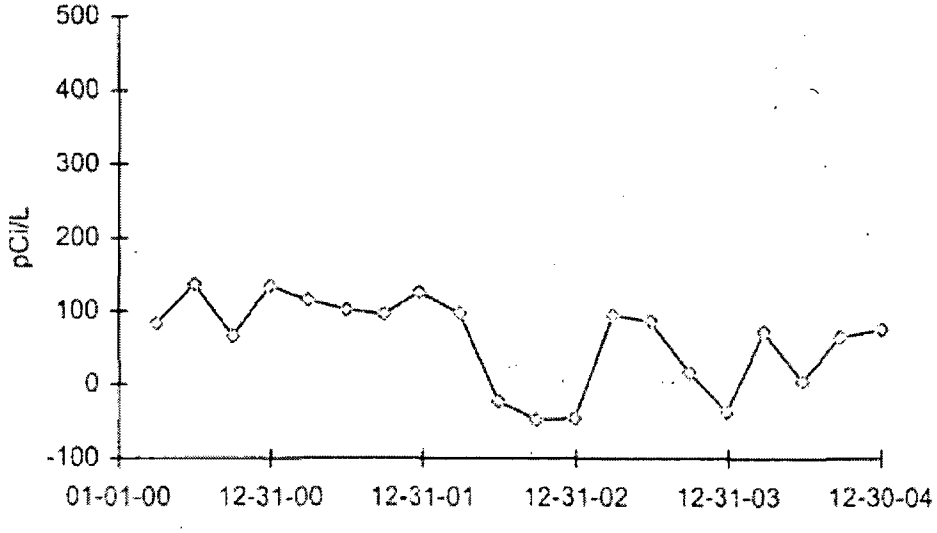
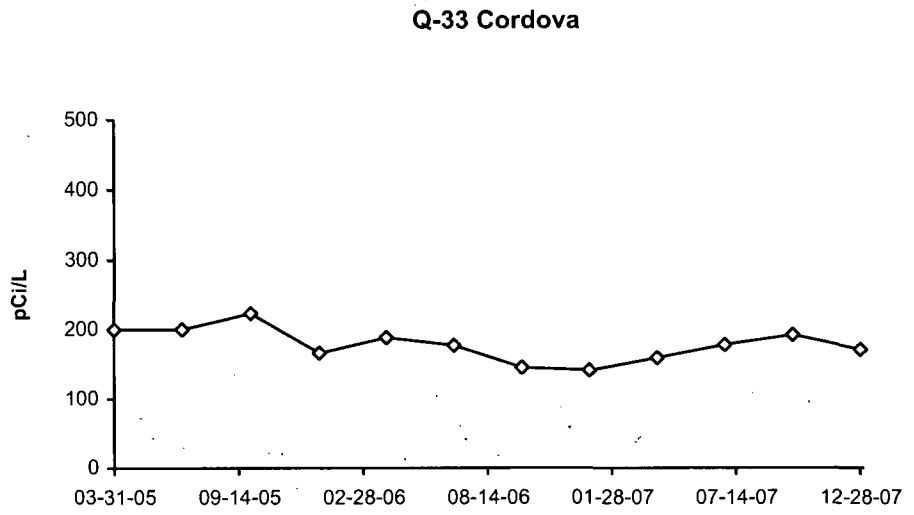
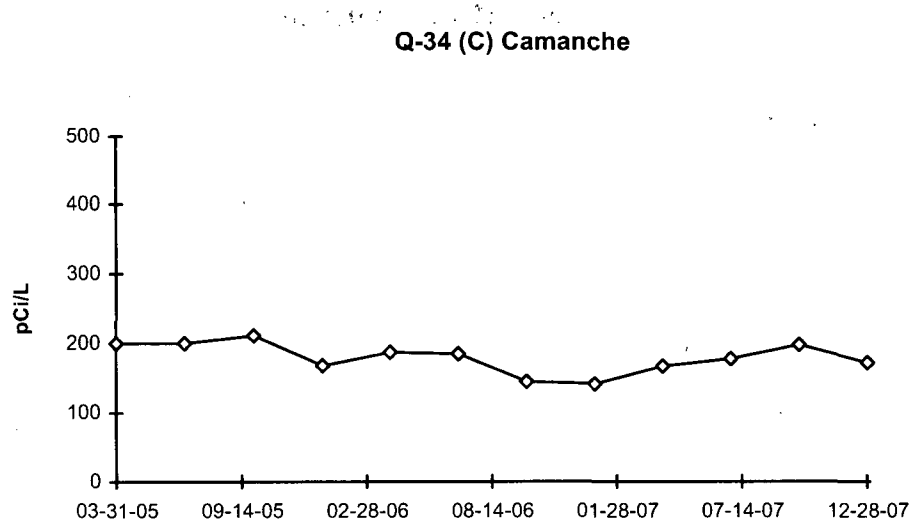


FIGURE C-2 (cont.)
Surface Water - Tritium - Stations Q-33 and Q-34 (C) Collected in the Vicinity of QCNPS, 2005 - 2007

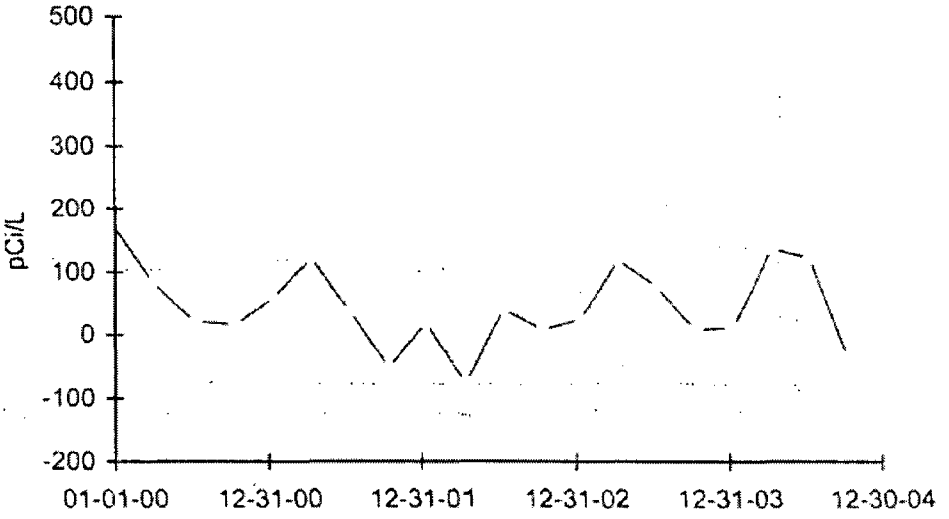




DUE TO VENDOR CHANGE, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY 2005

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

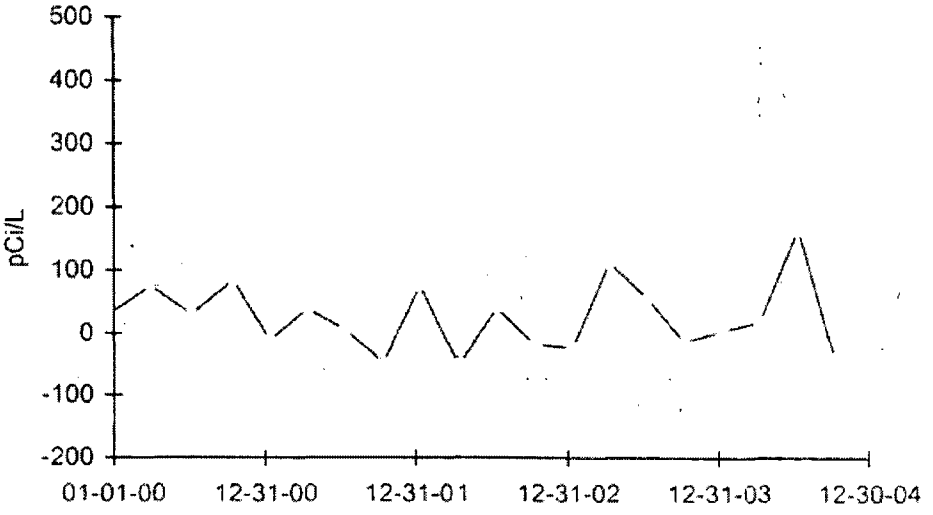
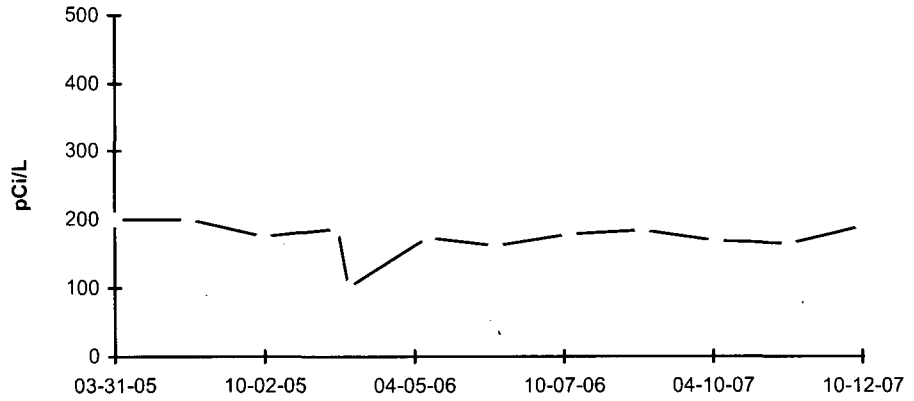
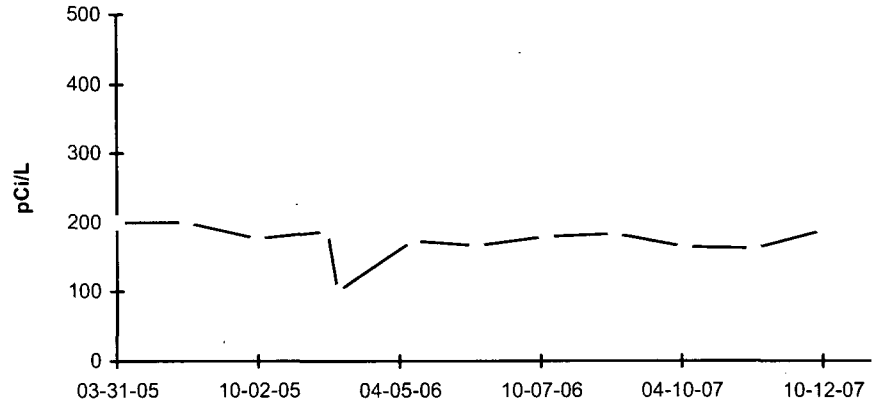


FIGURE C-3 (cont.)
Ground Water - Tritium - Stations Q-35 and Q-36
Collected in the Vicinity of QCNPS, 2005 - 2007

Q-35 McMillan Well



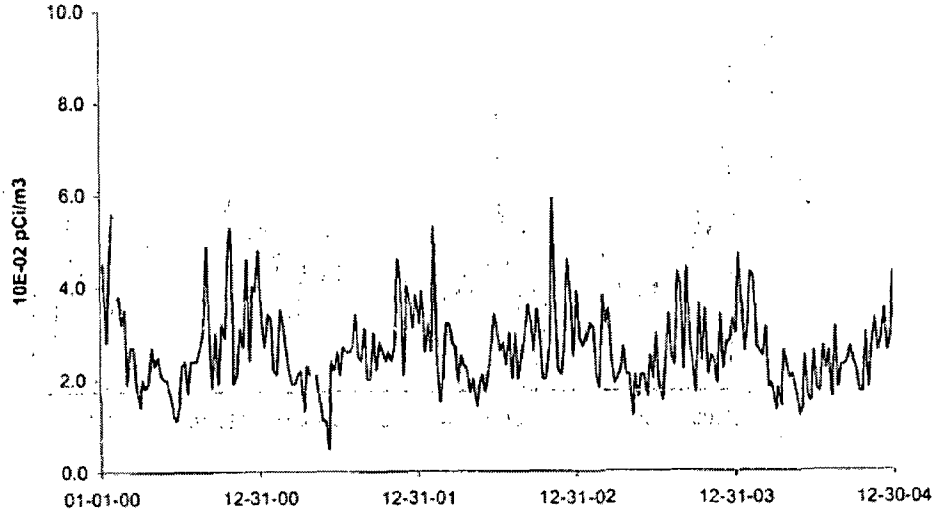
Q-36 Cordova Well



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

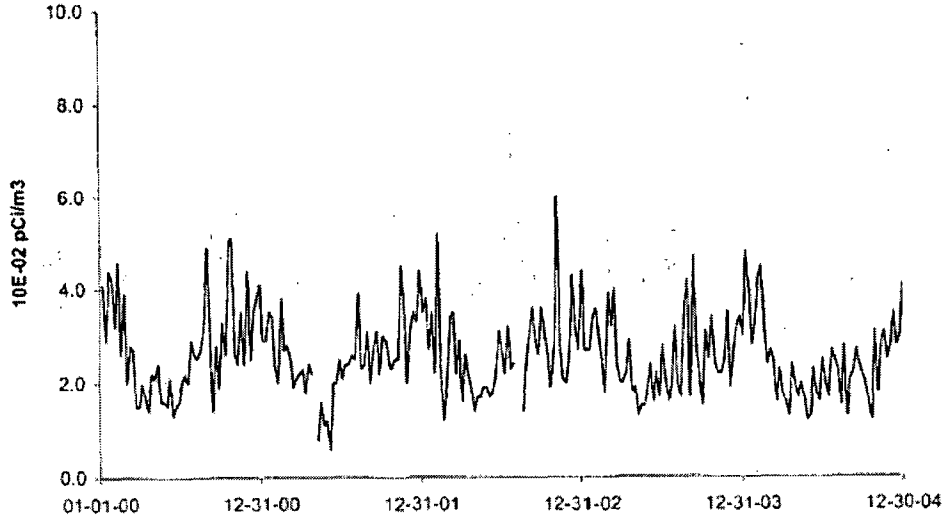
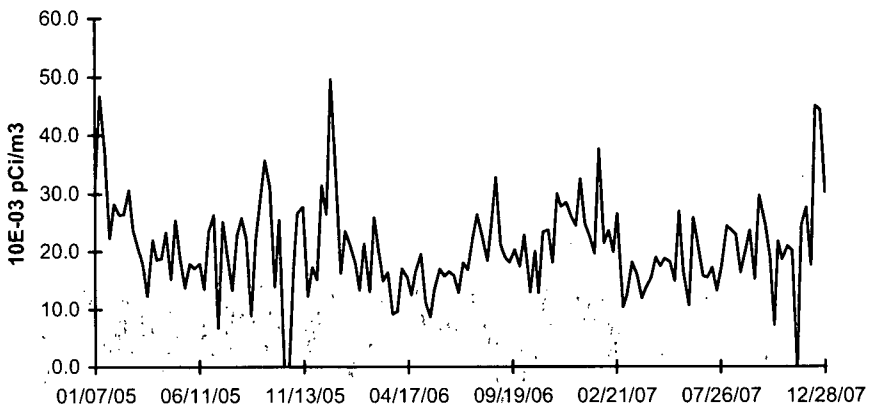


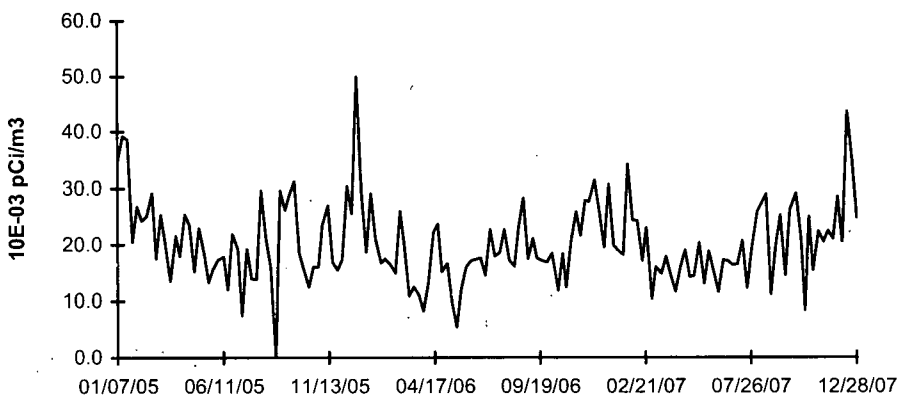
FIGURE C-4 (cont.)
Air Particulates - Gross Beta- Stations Q-01 and Q-02 Collected in the Vicinity of QCNPS, 2005 - 2007

Q-01 Onsite No. 1



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

Q-02 Onsite No. 2

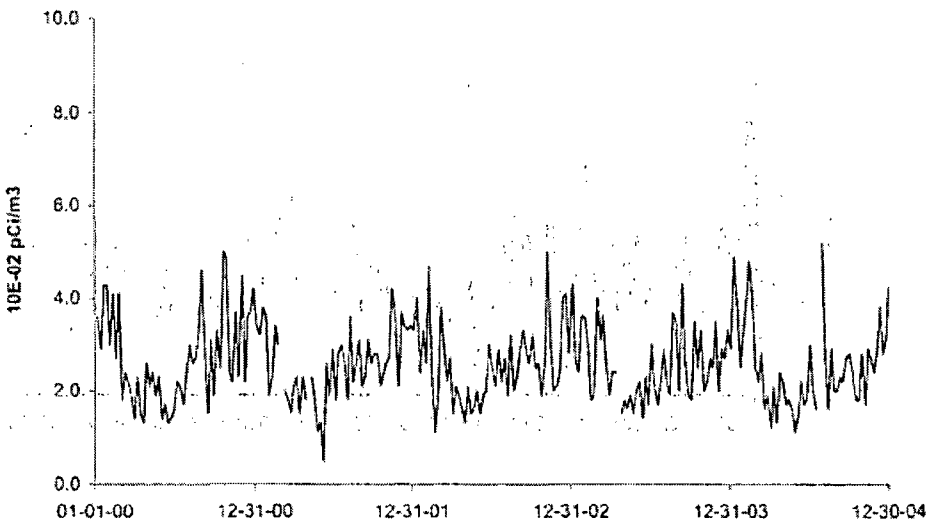


Station Q-02 lost power 08-19-05 - 08-26-05.

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

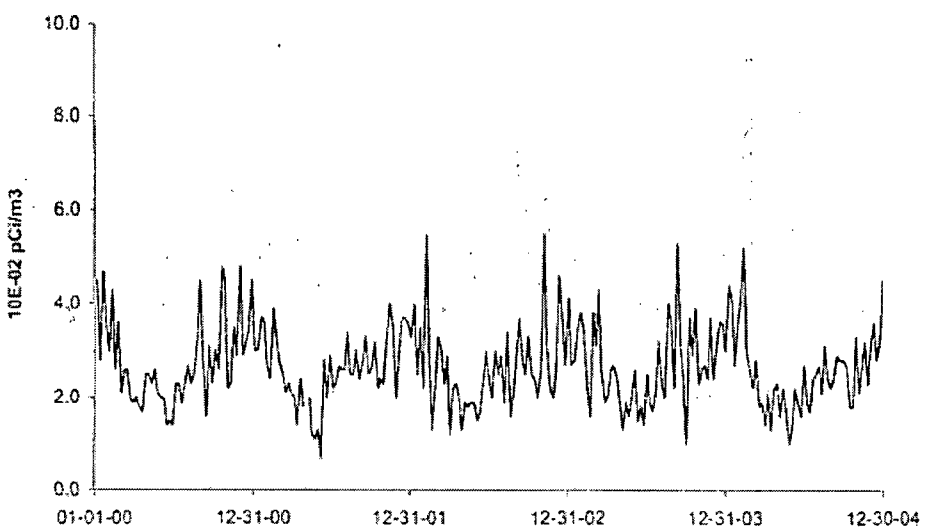
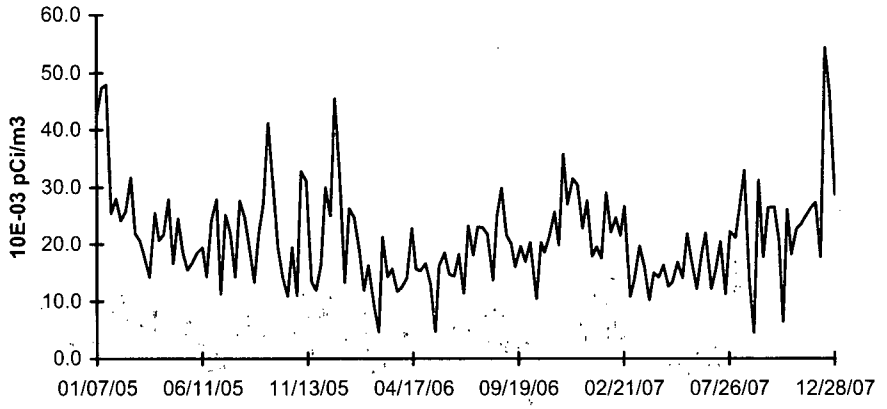
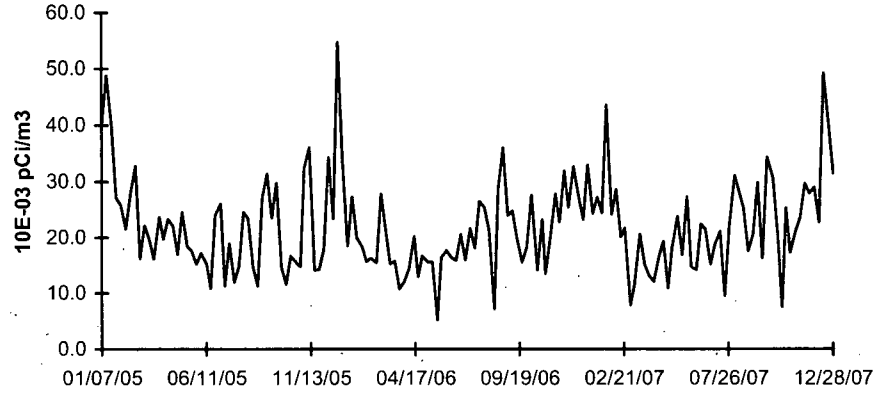


FIGURE C-5 (cont.)
Air Particulates - Gross Beta- Stations Q-03 and Q-04 Collected in the Vicinity of QCNPS, 2005 - 2007

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

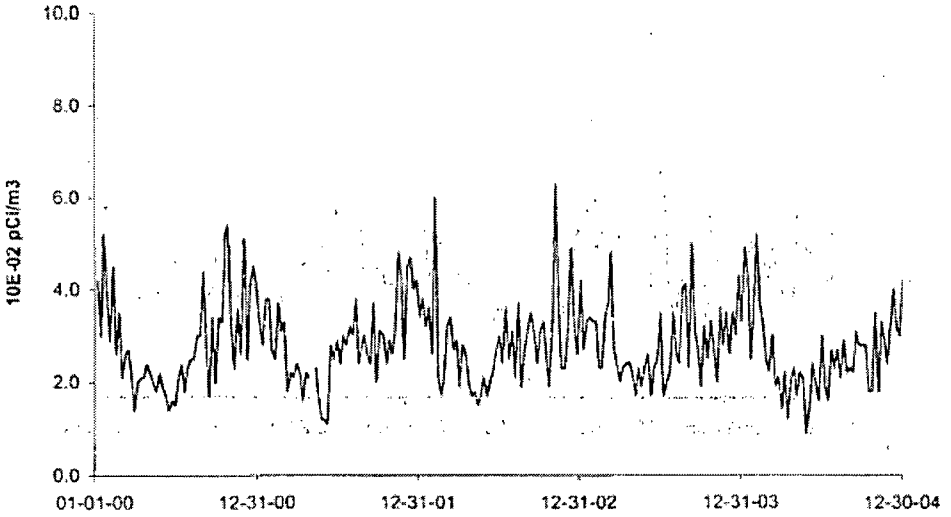
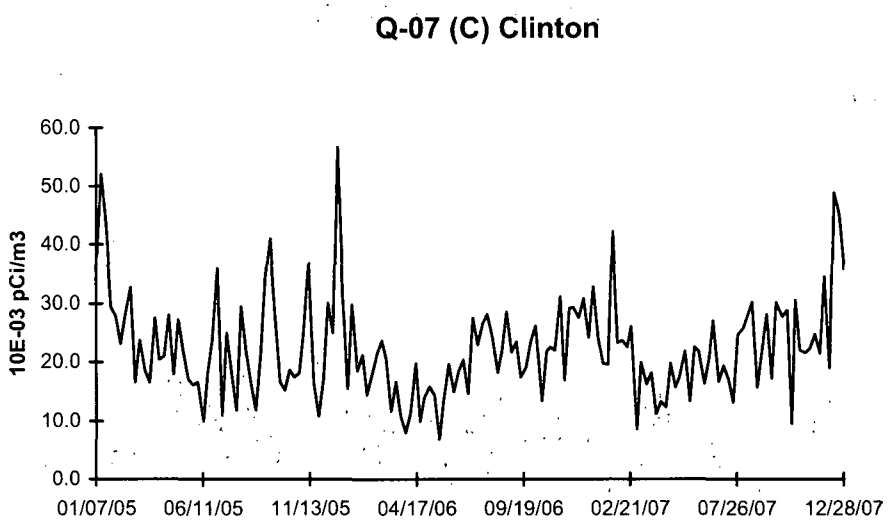


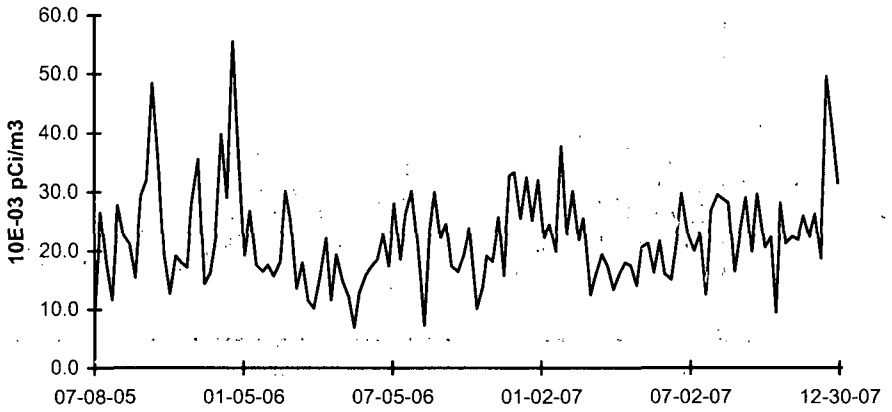
FIGURE C-6 (cont.)
Air Particulates - Gross Beta- Stations Q-07 (C) Collected in the Vicinity of QCNPS, 2005 - 2007



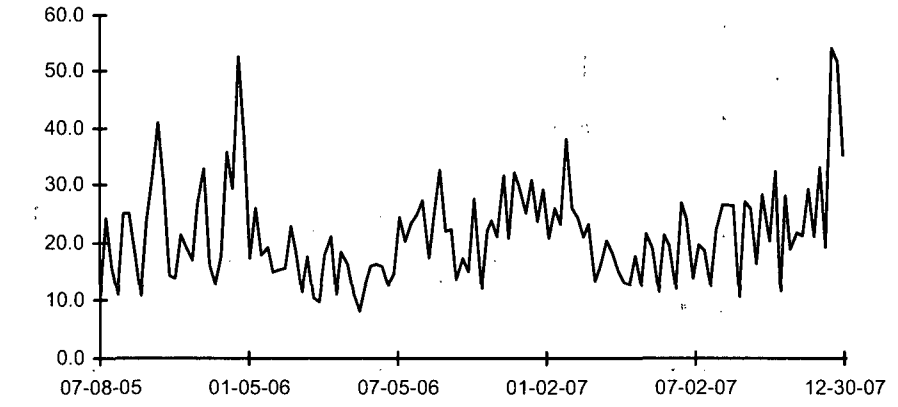
DUE TO VENDOR CHANGE IN 2005, THE REPORTED UNITS CHANGED FROM E-02 PCI/M3 TO E-03 PCI/M3

FIGURE C-7
Air Particulates - Gross Beta- Stations Q-13 and Q-16 Collected in the Vicinity of QCNPS, 2005 - 2007

Q-13 Princeton



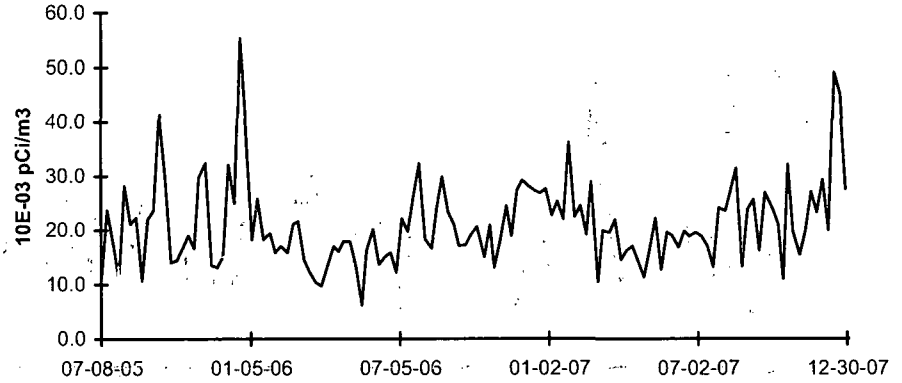
Q-16 Princeton



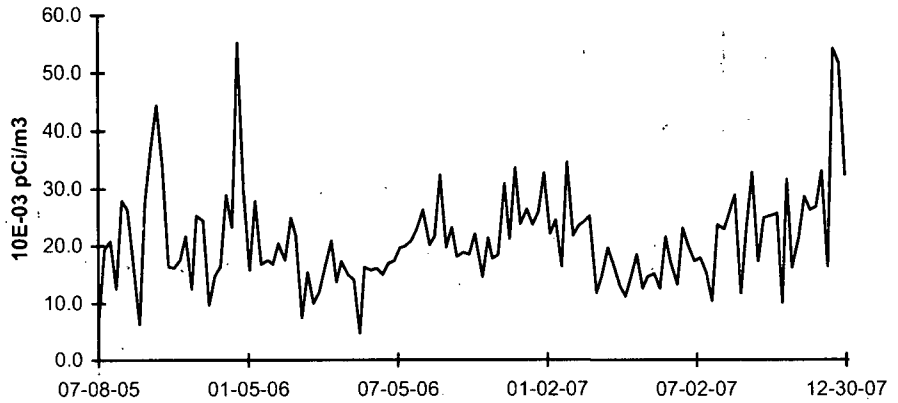
AIR PARTICULATE GROSS BETA ANALYSES OF FAR FIELD LOCATIONS STARTED IN JULY 2005
DUE TO VENDOR CHANGE IN 2005, THE REPORTED UNITS CHANGED FROM E-02 PCI/M3 TO E-03 PCI/M3

FIGURE C-8
Air Particulates - Gross Beta- Stations Q-37 and Q-38 Collected in the Vicinity of QCNPS, 2005 - 2007

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, 2007
(PAGE 1 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
March 2007	E5255-396	Milk	Sr-89	pCi/L	125	137	0.91	A
			Sr-90	pCi/L	10.8	10	1.08	A
	E5256-396	Milk	I-131	pCi/L	107	85.2	1.26	W
			Ce-141	pCi/L	269	297	0.91	A
			Cr-51	pCi/L	244	245	1.00	A
			Cs-134	pCi/L	98.1	112	0.88	A
			Cs-137	pCi/L	227	234	0.97	A
			Co-58	pCi/L	92.5	98.8	0.94	A
			Mn-54	pCi/L	182.0	182	1.00	A
			Fe-59	pCi/L	108.0	106	1.02	A
			Zn-65	pCi/L	985	1000	0.99	A
			Co-60	pCi/L	143	152	0.94	A
	E5258-396	AP	Ce-141	pCi	252	245	1.03	A
			Cr-51	pCi	204	202	1.01	A
			Cs-134	pCi	74.9	92.3	0.81	A
			Cs-137	pCi	190.0	197.0	0.96	A
			Co-58	pCi	79.7	81.6	0.98	A
			Mn-54	pCi	156	151	1.03	A
			Fe-59	pCi	99.1	87.2	1.14	A
			Zn-65	pCi	894	826	1.08	A
			Co-60	pCi	122	126	0.97	A
	E5257-396	Charcoal	I-131	pCi	34.7	71.3	0.49	N (1)
June 2007	E5384-396	Milk	Sr-89	pCi/L	98.3	95.2	1.03	A
			Sr-90	pCi/L	16.1	12.9	1.25	W
	E5385-396	Milk	I-131	pCi/L	71.0	70.1	1.01	A
			Ce-141	pCi/L	176	200	0.88	A
			Cr-51	pCi/L	459	512	0.90	A
			Cs-134	pCi/L	197	242	0.81	A
			Cs-137	pCi/L	158	169	0.93	A
			Co-58	pCi/L	180	198	0.91	A
			Mn-54	pCi/L	163	166	0.98	A
			Fe-59	pCi/L	158	167	0.95	A
			Zn-65	pCi/L	318	334	0.95	A
			Co-60	pCi/L	212	238	0.89	A
	E5387-396	AP	Ce-141	pCi	87.5	105	0.83	A
			Cr-51	pCi	232	268	0.87	A
			Cs-134	pCi	101	127	0.80	A
			Cs-137	pCi	78.9	88.5	0.89	A
			Co-58	pCi	91.8	104.0	0.88	A
			Mn-54	pCi	85.6	87	0.99	A
			Fe-59	pCi	89.8	87.3	1.03	A
			Zn-65	pCi	178	175	1.02	A
			Co-60	pCi	111	125	0.89	A
	E5386-396	Charcoal	I-131	pCi	79.3	79.1	1.00	A

TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2007
(PAGE 2 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
September 2007	E5492-396	Milk	Sr-89	pCi/L	99.0	94.9	1.04	A
			Sr-90	pCi/L	13.9	13.1	1.06	A
	E5493-396	Milk	I-131	pCi/L	81.9	85.2	0.96	A
			Ce-141	pCi/L	200	211	0.95	A
			Cr-51	pCi/L	271	289	0.94	A
			Cs-134	pCi/L	131	147	0.89	A
			Cs-137	pCi/L	131	131	1.00	A
			Co-58	pCi/L	114	114	1.00	A
			Mn-54	pCi/L	171	168	1.02	A
			Fe-59	pCi/L	117	111	1.05	A
			Zn-65	pCi/L	212	202	1.05	A
			Co-60	pCi/L	143	148	0.97	A
	E5495-396	AP	Ce-141	pCi	128	136	0.94	A
			Cr-51	pCi	181	186	0.97	A
			Cs-134	pCi	85.9	94.7	0.91	A
			Cs-137	pCi	83.2	83.9	0.99	A
			Co-58	pCi	69.4	73.3	0.95	A
			Mn-54	pCi	112	108	1.04	A
			Fe-59	pCi	79.6	71.1	1.12	A
			Zn-65	pCi	159	130	1.22	W
			Co-60	pCi	92.0	95.2	0.97	A
	E5494-396	Charcoal	I-131	pCi	70.8	69.5	1.02	A
December 2007	E5749-396	Milk	Sr-89	pCi/L	87.6	93.7	0.93	A
			Sr-90	pCi/L	15.5	15.2	1.02	A
	E5750-396	Milk	I-131	pCi/L	60.6	60.8	1.00	A
			Ce-141	pCi/L	137	141	0.97	A
			Cr-51	pCi/L	497	512	0.97	A
			Cs-134	pCi/L	117	137	0.85	A
			Cs-137	pCi/L	166	166	1.00	A
			Co-58	pCi/L	159	174	0.91	A
			Mn-54	pCi/L	190	190	1.00	A
			Fe-59	pCi/L	149	148	1.01	A
			Zn-65	pCi/L	231	234	0.99	A
			Co-60	pCi/L	198	211	0.94	A
	E5752-396	AP	Ce-141	pCi	88.6	93.4	0.95	A
			Cr-51	pCi	352	340	1.04	A
			Cs-134	pCi	84.6	91.2	0.93	A
			Cs-137	pCi	111	110.0	1.01	A
			Co-58	pCi	114	116.0	0.98	A
			Mn-54	pCi	135	126	1.07	A
			Fe-59	pCi	119	98.5	1.21	W
			Zn-65	pCi	172	155	1.11	A
			Co-60	pCi	137	141	0.97	A

TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2007
(PAGE 3 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
December 2007	E5751-396	Charcoal	I-131	pCi	65.8	74.1	0.89	A

(1) New technician counted charcoal cartridge on the back rather than the face, resulting in low activity. If the charcoal cartridge had been counted on the face, the ratio would have been approximately 1.07, which is acceptable. NCR 07-02

(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, 2007
(PAGE 1 OF 1)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Control Limits	Evaluation (c)
July 2007	Rad 70	Water	Sr-89	pCi/L	58.6	58.2	49.5 - 66.9	A
			Sr-90	pCi/L	18.7	19.0	10.3 - 27.7	A
			Ba-133	pCi/L	18.6	19.4	10.7 - 28.1	A
			Cs-134	pCi/L	57.6	68.9	60.2 - 77.6	N (1)
			Cs-137	pCi/L	55.4	61.3	52.6 - 70.0	A
			Co-60	pCi/L	31.3	33.5	24.8 - 42.2	A
			Zn-65	pCi/L	49.0	54.6	45.2 - 64.0	A
			Gr-A	pCi/L	26.8	27.1	15.4 - 38.8	A
			Gr-B	pCi/L	12	11.5	2.84 - 20.2	A
			I-131	pCi/L	31.1	26.5	21.3 - 31.7	A
			H-3	pCi/L	1700	1770	1180 - 2360	A
October 2007	RAD 71	Water	Sr-89	pCi/L	27.07	27.4	19.3 - 33.9	A
			Sr-90	pCi/L	17.40	18.2	12.9 - 21.6	A
			Ba-133	pCi/L	12.57	12.6	8.64 - 15.5	A
			Cs-134	pCi/L	63.33	71.1	58.0 - 78.2	A
			Cs-137	pCi/L	168	180	162 - 200	A
			Co-60	pCi/L	21.93	23.2	19.9 - 28.3	A
			Zn-65	pCi/L	245.33	251	226 - 294	A
			Gr-A	pCi/L	55.60	58.6	30.6 - 72.9	A
			Gr-B	pCi/L	15.23	9.73	4.26 - 18.2	A
			I-131	pCi/L	27.43	28.9	24.0 - 33.8	A
			H-3	pCi/L	9263.3	9700	8430 - 10700	A

(1) The Cs-134 TBE found/ERA known ratio is 83.6%, which TBE considers acceptable. NCR 07-07

(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, 2007

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
February 2007	07-MaW17	Water	Cs-134	Bq/L	74.5	83.5	58.5 - 108.6	A
			Cs-137	Bq/L	162	163.0	114-1 - 211.9	A
			Co-57	Bq/L	140	143.7	100.6 - 186.8	A
			Co-60	Bq/L	27.9	26.9	18.8 - 35.0	A
			H-3	Bq/L	346	283.0	198.1 - 367.9	W
			Mn-54	Bq/L	125	123.8	86.7 - 160.9	A
			Sr-90	Bq/L	8.90	8.87	6.21- 11.53	A
			Zn-65	Bq/L	117	114.8	80.4 - 149.2	A
	07-GrW17	Water	Gr-A	Bq/L	0.502	0.327	>0.0 - 0.654	A
			Gr-B	Bq/L	0.975	0.851	0.426 - 1.277	A
	07-MaS17	Soil	Cs-134	Bq/kg	322	327.4	229.2 - 425.6	A
			Cs-137	Bq/kg	893	799.7	559.8 - 1039.6	A
			Co-57	Bq/kg	508.3	471.2	329.8 - 612.6	A
			Co-60	Bq/kg	300.3	274.7	192.3 - 357.1	A
			Mn-54	Bq/kg	779	685.2	479.6 - 890.8	A
			K-40	Bq/kg	682	602	421 - 783	A
			Sr-90	Bq/kg	293	319.0	223.3 - 414.7	A
			Zn-65	Bq/kg	618.7	536.8	375.8 - 697.8	A
	07-RdF17	AP	Cs-134	Bq/sample	3.230	1.4960	2.9372 - 5.4548	W
			Cs-137	Bq/sample	2.453	2.5693	1.7985 - 3.3401	A
			Co-57	Bq/sample	3.067	2.8876	2.0213 - 3.7539	A
			Co-60	Bq/sample	2.767	2.9054	2.0338 - 3.7770	A
			Mn-54	Bq/sample	3.557	3.5185	2.4630 - 4.5741	A
			Sr-90	Bq/sample	0.584	0.6074	0.4252 - 0.7896	A
			Zn-65	Bq/sample	2.463	2.6828	1.8780 - 3.4876	A
	07-GrF17	AP	Gr-A	Bq/sample	0.353	0.601	>0.0 - 1.202	A
			Gr-B	Bq/sample	0.500	0.441	0.221 - 0.662	A
February 2007	07-RdV17	Vegetation	Cs-134	Bq/sample	6.207	6.2101	4.3471 - 8.0731	A
			Cs-137	Bq/sample	7.80	6.9949	4.8964 - 9.0934	A
			Co-57	Bq/sample	8.64	8.1878	5.7315 - 10.6441	A
			Co-60	Bq/sample	6.10	5.8215	4.0751 - 7.5680	A
			Mn-54	Bq/sample	9.41	8.4492	5.9144 - 10.9840	A
			K-40	Bq/sample	63.5	Not evaluated by MAPEP		
			Sr-90	Bq/sample	1.51	1.5351	1.0746 - 1.9956	A
			Zn-65	Bq/sample	7.15	5.6991	3.9894 - 7.4088	W

(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., 2007
(Page 1 of 2)

Lab Code *	Date	Analysis	Concentration (pCi/L) Laboratory Result[b]	ERA Result[c]	Control Limits	Acceptance
STAP-1116	03/19/07	Gr. Alpha	34.64 ± 2.56	25.8	12.4 - 39	Pass
STAP-1116	03/19/07	Gr. Beta	93.41 ± 3.20	79.5	48.8 - 116	Pass
STAP-1117	03/19/07	Co-60	1610.00 ± 8.40	1300.0	1010.0 - 1620	Pass
STAP-1117	03/19/07	Cs-134	1340.40 ± 48.84	1120.0	732.0 - 1380	Pass
STAP-1117 [e]	03/19/07	Cs-137	345.30 ± 8.20	255.0	192.0 - 336	Fail
STAP-1117 [f]	03/19/07	Mn-54	< 5.0	0.0		Pass
STAP-1117	03/19/07	Sr-90	156.10 ± 6.60	156.0	66.6 - 246	Pass
STAP-1117	03/19/07	Zn-65	363.80 ± 11.90	245.0	208.0 - 412	Pass
STSO-1118	03/19/07	Ac-228	3097.77 ± 94.96	2790.0	1790.0 - 3930	Pass
STSO-1118	03/19/07	Bi-212	2467.87 ± 114.33	2500.0	658.0 - 3730	Pass
STSO-1118	03/19/07	Co-60	7847.40 ± 86.60	7330.0	5340.0 - 9820	Pass
STSO-1118	03/19/07	Cs-134	7910.60 ± 356.88	7560.0	4850.0 - 9070	Pass
STSO-1118	03/19/07	Cs-137	4635.00 ± 99.10	4300.0	3290.0 - 5580	Pass
STSO-1118	03/19/07	K-40	12201.60 ± 423.20	11100.0	8050.0 - 15000	Pass
STSO-1118 [f]	03/19/07	Mn-54	< 34.0	0.0		Pass
STSO-1118	03/19/07	Pb-212	2046.80 ± 127.20	1730.0	1120.0 - 2430	Pass
STSO-1118	03/19/07	Pb-214	4142.80 ± 110.40	3330.0	1980.0 - 4980	Pass
STSO-1118	03/19/07	Sr-90	6163.30 ± 791.60	7500.0	2610.0 - 12400	Pass
STSO-1118	03/19/07	Th-234	4329.40 ± 569.10	3590.0	2190.0 - 4560	Pass
STSO-1118 [f]	03/19/07	Zn-65	0.00 ± 0.00	0.0	0.0 - 0	Pass
STVE-1119	03/19/07	Co-60	2827.90 ± 62.40	2600.0	1760.0 - 3720	Pass
STVE-1119	03/19/07	Cs-134	654.80 ± 48.40	579.0	308.0 - 822	Pass
STVE-1119	03/19/07	Cs-137	3307.30 ± 58.80	2920.0	2150.0 - 4060	Pass
STVE-1119	03/19/07	K-40	40814.20 ± 618.80	37900.0	27200.0 - 53600	Pass
STVE-1119 [f]	03/19/07	Mn-54	< 27.6	0.0		Pass
STVE-1119	03/19/07	Sr-90	8999.70 ± 580.90	8890.0	4900.0 - 11800	Pass
STVE-1119	03/19/07	Zn-65	474.30 ± 45.70	366.0	267.0 - 500	Pass
STW-1120	03/19/07	Co-60	541.40 ± 9.00	536.0	467.0 - 631	Pass
STW-1120	03/19/07	Cs-134	1623.80 ± 66.10	1750.0	1290.0 - 2020	Pass
STW-1120	03/19/07	Cs-137	1839.10 ± 17.90	1850.0	1570.0 - 2220	Pass
STW-1120 [f]	03/19/07	Mn-54	< 8.1	0.0		Pass
STW-1120	03/19/07	Sr-90	949.40 ± 16.70	989.0	630.0 - 1320	Pass
STW-1120	03/19/07	Zn-65	2009.00 ± 36.40	1910.0	1600.0 - 2410	Pass
STW-1121	04/09/07	Sr-89	30.7 ± 4.3	35.4	26.7 - 44.1	Pass
STW-1121	04/09/07	Sr-90	39.3 ± 1.8	42.1	33.4 - 50.8	Pass

TABLE D-4 ERA[(a)] STATISTICAL SUMMARY PROFICIENCY TESTING PROGRAM ENVIRONMENTAL, INC., 2007

Lab Code *	Date	Analysis	Concentration (pCi/L) Laboratory Result[b]	ERA Result[c]	Control Limits	Acceptance
STW-1122	04/09/07	Ba-133	30.0 ± 2.4	29.3	20.6 - 38.0	Pass
STW-1122	04/09/07	Co-60	118.5 ± 3.9	119.0	109.0 - 129.0	Pass
STW-1122	04/09/07	Cs-134	52.6 ± 2.3	54.3	45.6 - 63.0	Pass
STW-1122	04/09/07	Cs-137	49.5 ± 3.8	50.3	41.6 - 59.0	Pass
STW-1122	04/09/07	Zn-65	91.7 ± 6.3	88.6	73.3 - 104.0	Pass
STW-1123	04/09/07	Gr. Alpha	33.8 ± 3.5	56.5	32.0 - 81.0	Pass
STW-1123	04/09/07	Gr. Beta	24.2 ± 2.3	25.3	16.6 - 34.0	Pass
STW-1124	04/09/07	I-131	19.2 ± 1.2	18.9	13.7 - 24.1	Pass
STW-1125	04/09/07	H-3	7540.0 ± 255.0	8060.0	6660.0 - 9450.0	Pass
STW-1127	07/09/07	Sr-89	51.7 ± 5.0	58.2	49.5 - 66.9	Pass
STW-1127	07/09/07	Sr-90	21.4 ± 2.3	19.0	10.3 - 27.7	Pass
STW-1128	07/09/07	Ba-133	19.4 ± 2.2	19.4	10.7 - 28.1	Pass
STW-1128	07/09/07	Co-60	32.8 ± 2.0	33.5	24.8 - 42.2	Pass
STW-1128	07/09/07	Cs-134	67.0 ± 2.9	68.9	60.2 - 77.6	Pass
STW-1128	07/09/07	Cs-137	61.6 ± 3.8	61.3	52.6 - 70.0	Pass
STW-1128	07/09/07	Zn-65	55.6 ± 7.5	54.6	45.2 - 64.0	Pass
STW-1129	07/09/07	Gr. Alpha	19.2 ± 1.6	27.1	15.4 - 38.8	Pass
STW-1129	07/09/07	Gr. Beta	9.1 ± 0.9	11.5	2.8 - 20.2	Pass
STW-1131	10/05/07	Sr-89	27.3 ± 3.3	27.4	19.3 - 33.9	Pass
STW-1131	10/05/07	Sr-90	17.7 ± 1.2	18.2	12.9 - 21.6	Pass
STW-1132	10/05/07	Ba-133	12.2 ± 3.3	12.6	8.6 - 15.5	Pass
STW-1132	10/05/07	Co-60	23.8 ± 1.4	23.2	19.9 - 28.3	Pass
STW-1132	10/05/07	Cs-134	70.5 ± 4.2	71.1	58.0 - 78.2	Pass
STW-1132	10/05/07	Cs-137	178.2 ± 3.3	180.0	162.0 - 200.0	Pass
STW-1132	10/05/07	Zn-65	263.9 ± 6.9	251.0	226.0 - 294.0	Pass
STW-1133	10/05/07	Gr. Alpha	54.7 ± 2.1	58.6	30.6 - 72.9	Pass
STW-1133	10/05/07	Gr. Beta	11.9 ± 0.9	9.7	4.3 - 18.2	Pass
STW-1134	10/05/07	I-131	33.0 ± 1.5	28.9	24.0 - 33.8	Pass
STW-1135	10/05/07	H-3	9965.0 ± 250.0	9700.0	8430.0 - 10700.0	Pass

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

[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).

[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] A high bias (~ 20%) was observed in gamma results for air filters. A composite filter geometry was used in the calculations vs. a single filter geometry. Result of recalculation. Cs-137, 305.8 ± 6.0 pCi/filter.

[f] 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., 2007

		Concentration [b]				
Lab Code[c]	Date	Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STW-1110	01/01/07	Gr. Alpha	0.45 ± 0.08	0.33	0.00 - 0.65	Pass
STW-1110	01/01/07	Gr. Beta	0.90 ± 0.14	0.85	0.43 - 1.28	Pass
STW-1111	01/01/07	Co-57	151.60 ± 10.00	143.70	100.60 - 186.80	Pass
STW-1111	01/01/07	Cs-134	79.20 ± 8.00	83.50	58.50 - 108.60	Pass
STW-1111	01/01/07	Cs-137	168.70 ± 12.10	163.00	114.10 - 211.90	Pass
STW-1111	01/01/07	H-3	262.20 ± 9.10	283.00	198.10 - 367.90	Pass
STW-1111	01/01/07	Mn-54	130.60 ± 11.50	123.80	86.70 - 160.90	Pass
STW-1111	01/01/07	Sr-90	9.60 ± 1.40	8.87	6.21 - 11.53	Pass
STW-1111	01/01/07	Zn-65	123.70 ± 17.00	114.80	80.40 - 149.20	Pass
STSO-1112	01/01/07	Co-57	501.20 ± 2.90	471.20	329.80 - 612.60	Pass
STSO-1112	01/01/07	Co-60	285.90 ± 2.10	274.70	192.30 - 357.10	Pass
STSO-1112	01/01/07	Cs-134	325.90 ± 7.40	327.40	229.20 - 425.60	Pass
STSO-1112	01/01/07	Cs-137	855.70 ± 4.60	799.70	559.80 - 1039.60	Pass
STSO-1112	01/01/07	Mn-54	750.90 ± 4.70	685.20	479.60 - 890.80	Pass
STAP-1113	01/01/07	Gr. Alpha	0.27 ± 0.04	0.60	0.00 - 1.20	Pass
STAP-1113	01/01/07	Gr. Beta	0.57 ± 0.05	0.44	0.22 - 0.66	Pass
STAP-1114	01/01/07	Co-57	3.51 ± 0.07	2.89	2.02 - 3.75	Pass
STAP-1114	01/01/07	Co-60	2.98 ± 0.10	2.91	2.03 - 3.78	Pass
STAP-1114	01/01/07	Cs-134	4.02 ± 0.16	4.20	2.94 - 5.45	Pass
STAP-1114	01/01/07	Cs-137	2.75 ± 0.12	2.57	1.80 - 3.34	Pass
STAP-1114	01/01/07	Mn-54	3.94 ± 0.12	3.52	2.46 - 4.57	Pass
STAP-1114	01/01/07	Sr-90	0.58 ± 0.18	0.61	0.43 - 0.79	Pass
STAP-1114	01/01/07	Zn-65	2.70 ± 0.10	2.68	1.88 - 3.49	Pass
STVE-1115	01/01/07	Co-57	8.90 ± 0.20	8.19	5.73 - 10.64	Pass
STVE-1115	01/01/07	Co-60	6.50 ± 0.20	5.82	4.08 - 7.57	Pass
STVE-1115	01/01/07	Cs-134	6.90 ± 0.30	6.21	4.35 - 8.07	Pass
STVE-1115	01/01/07	Cs-137	8.20 ± 0.30	6.99	4.90 - 9.09	Pass
STVE-1115	01/01/07	Mn-54	10.10 ± 0.30	8.46	5.91 - 10.98	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 2007

Prepared By

Teledyne Brown Engineering
Environmental Services

Exelon SM
Nuclear

Quad Cities Nuclear Power Station
Cordova, IL 61242

May 2008

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Appendices

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 2007 through 31 December 2007.

In 2006, Exelon instituted a comprehensive program to evaluate the impact of station operations on groundwater and surface water in the vicinity of QCNPS. This evaluation involved numerous station personnel and contractor support personnel.

This report covers groundwater samples, collected from the environment on station property in 2007. During that time period, 236 analyses were performed on 199 samples from 38 locations.

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.

Tritium was detected in two groundwater samples at concentrations of 21,900 pCi/L and 30, 400 pCi/L, exceeding the United States Environmental Protection Agency (USEPA) drinking water standard (and the Nuclear Regulatory Commission Reporting Limit) of 20,000 pCi/L. Low levels of tritium were detected at concentrations greater than the LLD of 200 pCi/L in 14 of 38 groundwater monitoring locations. The tritium concentrations ranged from 203 to 8,280 pCi/L. Low levels of tritium were detected at concentrations greater than the LLD of 200 pCi/L both surface water monitoring locations. The concentrations ranged from 275 to 438 pCi/L.

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 evaluated in 2007.

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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.

This report covers those analyses performed by Teledyne Brown Engineering (TBE) on samples collected in 2007.

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 new 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, 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.

D. Characteristics of Tritium (H-3)

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

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

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

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

III. Program Description

A. Sample Analysis

This section describes the general analytical methodologies used by TBE to analyze the environmental samples for radioactivity for the Quad Cities Nuclear Power Station RGPP in 2007.

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 Appendix B). Tritium values ranged from the detection limit to 30,400 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 evaluated in 2007.

Gamma Emitters

Naturally occurring Potassium-40 was detected in three of 27 samples. The concentrations ranged from 155 pCi/liter to 226 pCi/liter. No other gamma emitting nuclides were detected. (Table B–I.2, Appendix B).

Surface Water

Tritium

Samples from two locations were analyzed for tritium activity (Table

B–II.1 Appendix B). Tritium values ranged from the detection limit to 438 pCi/l. The location most representative of potential offsite user of drinking water was <200 pCi/L.

Strontium

Strontium-90 was not evaluated in 2007.

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, 2007

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-115S	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

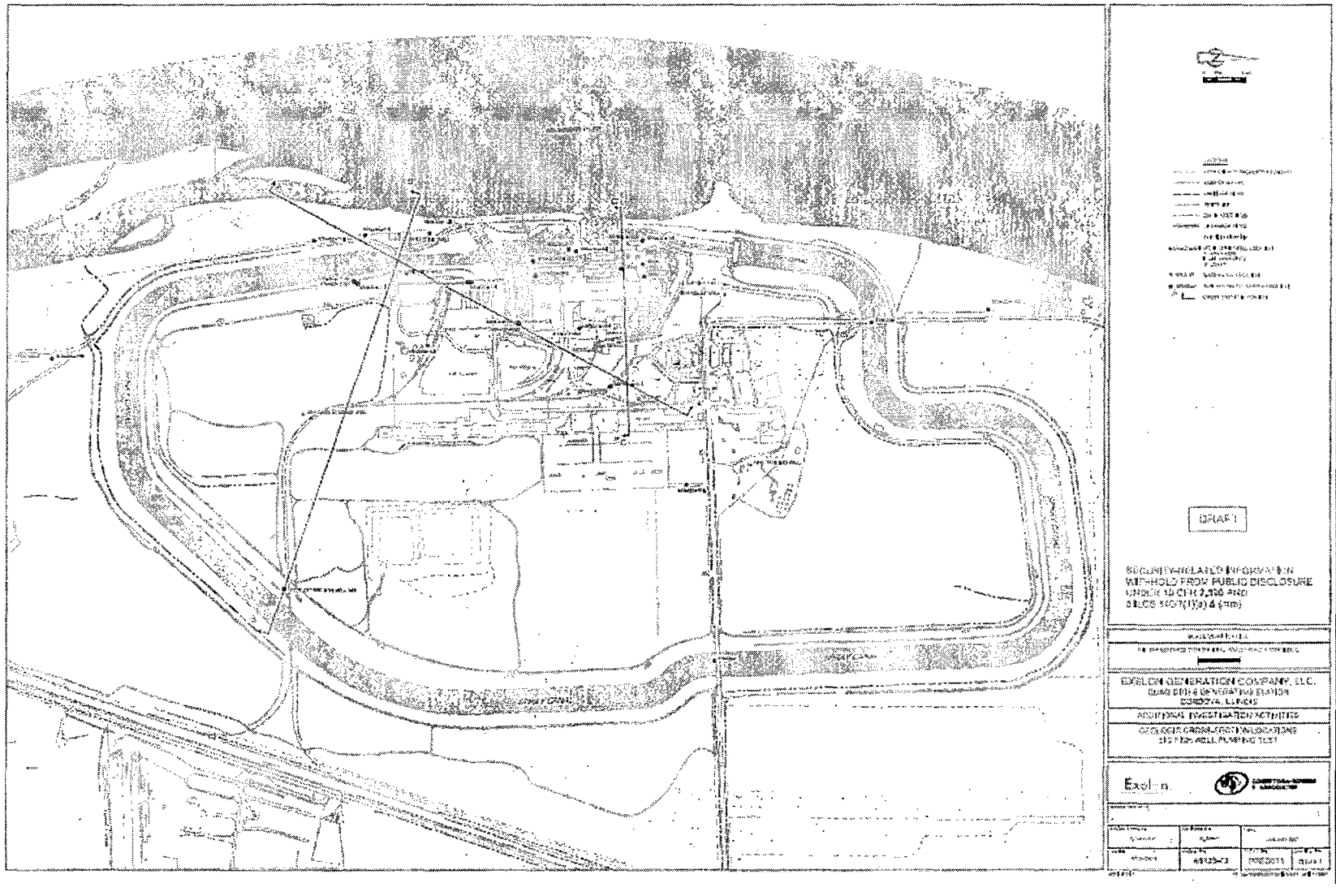

FIGURE A-1
Sampling Locations Near the Site Boundary of the Quad Cities Nuclear Power Station, 2007

APPENDIX B

DATA TABLES

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MW-1	02/22/07	203 ± 126
MW-1	05/16/07	< 162
MW-1	09/19/07	< 189
MW-1	10/17/07	< 196
MW-1	12/12/07	< 181
MW-2	02/22/07	< 192
MW-2	05/16/07	< 161
MW-2	09/19/07	< 189
MW-2	10/17/07	< 195
MW-2	12/12/07	< 181
MW-QC-101I	02/22/07	< 190
MW-QC-101I	05/16/07	< 155
MW-QC-101I	09/19/07	188 ± 119
MW-QC-101I	10/16/07	< 187
MW-QC-101I	12/12/07	< 169
MW-QC-101S	02/22/07	< 192
MW-QC-101S	05/16/07	< 158
MW-QC-101S	09/19/07	< 180
MW-QC-101S	10/16/07	< 189
MW-QC-101S	12/12/07	< 162
MW-QC-102D	02/22/07	3640 ± 426
MW-QC-102D	05/16/07	3970 ± 440
MW-QC-102D	06/05/07	3060 ± 353
MW-QC-102D	06/19/07	2940 ± 350
MW-QC-102D	09/19/07	3760 ± 440
MW-QC-102D	10/16/07	3110 ± 218
MW-QC-102D	12/12/07	3340 ± 398
MW-QC-102I	02/22/07	5590 ± 616
MW-QC-102I	05/16/07	17100 ± 1740
MW-QC-102I	06/05/07	30400 ± 3060
MW-QC-102I	06/19/07	21900 ± 2230
MW-QC-102I	07/16/07	8280 ± 873
MW-QC-102I	09/19/07	4090 ± 472
MW-QC-102I	10/16/07	6120 ± 363
MW-QC-102I	12/12/07	3900 ± 455
MW-QC-102S	02/22/07	< 176
MW-QC-102S	05/16/07	2160 ± 263
MW-QC-102S	06/05/07	724 ± 132
MW-QC-102S	06/19/07	< 188
MW-QC-102S	09/19/07	< 184
MW-QC-102S	10/16/07	< 189
MW-QC-102S	12/12/07	< 174
MW-QC-103I	02/23/07	< 189
MW-QC-103I	05/16/07	< 154

TABLE B-I.1 CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MW-QC-103I	09/19/07	< 186
MW-QC-103I	10/17/07	< 190
MW-QC-103I	12/12/07	< 171
MW-QC-104S	02/23/07	< 188
MW-QC-104S	05/16/07	< 150
MW-QC-104S	09/19/07	< 185
MW-QC-104S	10/16/07	< 188
MW-QC-104S	12/12/07	< 172
MW-QC-105I	02/23/07	< 189
MW-QC-105I	05/16/07	< 159
MW-QC-105I	09/19/07	< 188
MW-QC-105I	10/16/07	< 188
MW-QC-105I	12/12/07	< 181
MW-QC-106I	02/23/07	< 193
MW-QC-106I	05/16/07	< 154
MW-QC-106I	09/19/07	194 ± 122
MW-QC-106I	10/17/07	< 187
MW-QC-106I	12/12/07	< 183
MW-QC-106S	02/23/07	230 ± 127
MW-QC-106S	05/16/07	< 154
MW-QC-106S	09/19/07	< 192
MW-QC-106S	10/17/07	< 188
MW-QC-106S	12/12/07	< 183
MW-QC-107I	02/21/07	< 191
MW-QC-107I	05/15/07	< 156
MW-QC-107I	09/18/07	< 191
MW-QC-107I	10/15/07	< 187
MW-QC-107I	12/10/07	< 182
MW-QC-108D	02/22/07	3300 ± 398
MW-QC-108D	05/15/07	5180 ± 563
MW-QC-108D	06/05/07	6260 ± 671
MW-QC-108D	06/19/07	5810 ± 632
MW-QC-108D	09/18/07	5950 ± 656
MW-QC-108D	10/16/07	8050 ± 870
MW-QC-108D	12/11/07	6770 ± 741
MW-QC-108I	02/22/07	1290 ± 199
MW-QC-108I	05/15/07	1730 ± 223
MW-QC-108I	06/05/07	3080 ± 355
MW-QC-108I	06/19/07	3500 ± 406
MW-QC-108I	09/18/07	3680 ± 433
MW-QC-108I	10/16/07	4930 ± 560
MW-QC-108I	12/11/07	5330 ± 597
MW-QC-108S	02/21/07	363 ± 128
MW-QC-108S	05/15/07	787 ± 137

TABLE B-I.1 CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MW-QC-108S	06/05/07	843 ± 142
MW-QC-108S	06/19/07	870 ± 157
MW-QC-108S	09/18/07	478 ± 135
MW-QC-108S	10/16/07	< 190
MW-QC-108S	12/11/07	424 ± 132
MW-QC-109I	02/22/07	1380 ± 214
MW-QC-109I	05/16/07	429 ± 118
MW-QC-109I	09/19/07	492 ± 139
MW-QC-109I	10/17/07	< 196
MW-QC-109I	12/12/07	396 ± 129
MW-QC-109S	02/22/07	< 187
MW-QC-109S	05/16/07	< 159
MW-QC-109S	09/19/07	< 191
MW-QC-109S	10/17/07	< 192
MW-QC-109S	12/12/07	< 182
MW-QC-110I	02/21/07	< 189
MW-QC-110I	05/15/07	< 157
MW-QC-110I	09/19/07	< 188
MW-QC-110I	12/11/07	< 180
MW-QC-111 D1	02/21/07	< 193
MW-QC-111 D1	05/15/07	< 157
MW-QC-111 D1	09/18/07	< 190
MW-QC-111 D1	10/16/07	< 195
MW-QC-111 D1	12/11/07	< 186
MW-QC-111 D2	02/21/07	< 191
MW-QC-111 D2	05/15/07	< 162
MW-QC-111 D2	09/18/07	< 187
MW-QC-111 D2	10/16/07	< 197
MW-QC-111 D2	12/11/07	< 181
MW-QC-111I	02/21/07	< 185
MW-QC-111I	05/15/07	409 ± 115
MW-QC-111I	09/18/07	< 187
MW-QC-111I	10/16/07	< 196
MW-QC-111I	12/11/07	< 184
MW-QC-112I	02/21/07	< 184
MW-QC-112I	05/15/07	< 163
MW-QC-112I	09/18/07	< 185
MW-QC-112I	10/16/07	< 195
MW-QC-112I	12/11/07	446 ± 132
MW-QC-112I	12/11/07	252 ± 125
MW-QC-112I	12/11/07	412 ± 119
MW-QC-113I	02/21/07	< 184
MW-QC-113I	05/15/07	< 160
MW-QC-113I	09/18/07	< 192

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MW-QC-113I	10/16/07	< 195
MW-QC-113I	12/11/07	< 180
MW-QC-114I	02/21/07	< 189
MW-QC-114I	05/15/07	< 160
MW-QC-114I	09/18/07	< 190
MW-QC-114I	10/16/07	< 189
MW-QC-114I	12/11/07	< 182
MW-QC-115S	02/22/07	< 190
MW-QC-115S	05/15/07	< 160
MW-QC-115S	09/17/07	< 192
MW-QC-115S	10/15/07	< 198
MW-QC-115S	12/10/07	< 178
MW-QC-116S	02/21/07	< 189
MW-QC-116S	05/15/07	< 156
MW-QC-116S	09/17/07	203 ± 122
MW-QC-116S	10/15/07	< 195
MW-QC-116S	12/10/07	222 ± 118
MW-QC-116S	12/10/07	< 195
STP-SANDPOINT WELL	02/22/07	< 191
STP-SANDPOINT WELL	05/14/07	< 157
STP-SANDPOINT WELL	09/20/07	< 192
STP-SANDPOINT WELL	10/30/07	< 189
WELL #1	02/06/07	287 ± 128
WELL #1	02/22/07	327 ± 124
WELL #1	03/26/07	395 ± 140
WELL #1	05/14/07	313 ± 110
WELL #1	06/05/07	414 ± 117
WELL #1	06/19/07	257 ± 126
WELL #1	07/16/07	< 164
WELL #1	08/22/07	373 ± 109
WELL #1	09/20/07	307 ± 128
WELL #1	10/30/07	225 ± 127
WELL #1	11/30/07	231 ± 126
WELL #10 FISH HOUSE WELL	02/22/07	< 190
WELL #10 FISH HOUSE WELL	05/14/07	< 159
WELL #10 FISH HOUSE WELL	09/20/07	< 192
WELL #10 FISH HOUSE WELL	11/01/07	< 190
WELL #11 SPRAY CANAL WELL	05/14/07	< 159
WELL #11 SPRAY CANAL WELL	09/20/07	< 192
WELL #11 SPRAY CANAL WELL	11/01/07	< 193
WELL #5	03/26/07	< 190
WELL #5	05/14/07	< 151
WELL #5	06/05/07	< 153
WELL #5	06/19/07	< 184

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	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
QC-MW-1	09/19/07	< 42	< 41	< 5	< 5	< 9	< 4	< 9	< 5	< 7	< 9	< 4	< 4	< 22	< 8
QC-MW-2	09/19/07	< 30	226 ± 56	< 4	< 3	< 8	< 4	< 8	< 4	< 6	< 7	< 3	< 4	< 17	< 5
QC-MW-QC-101I	09/19/07	< 16	< 18	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 3	< 2	< 2	< 9	< 3
QC-MW-QC-101S	09/19/07	< 20	< 21	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 4	< 2	< 2	< 11	< 4
QC-MW-QC-102D	09/19/07	< 27	< 30	< 3	< 3	< 7	< 4	< 6	< 4	< 6	< 6	< 3	< 3	< 15	< 6
QC-MW-QC-102I	09/19/07	< 38	< 40	< 5	< 5	< 9	< 4	< 11	< 4	< 8	< 9	< 4	< 5	< 25	< 8
QC-MW-QC-102S	09/19/07	< 46	< 46	< 6	< 5	< 11	< 6	< 9	< 6	< 10	< 10	< 5	< 5	< 27	< 9
QC-MW-QC-103I	09/19/07	< 42	< 85	< 4	< 5	< 8	< 4	< 9	< 6	< 8	< 8	< 4	< 4	< 24	< 9
QC-MW-QC-104S	09/19/07	< 30	< 36	< 3	< 3	< 9	< 5	< 8	< 4	< 7	< 8	< 3	< 4	< 19	< 6
QC-MW-QC-105I	09/19/07	< 34	< 93	< 4	< 5	< 8	< 4	< 7	< 5	< 8	< 7	< 4	< 4	< 21	< 7
QC-MW-QC-106I	09/19/07	< 30	< 65	< 3	< 4	< 7	< 4	< 6	< 3	< 6	< 7	< 3	< 4	< 18	< 6
QC-MW-QC-106S	09/19/07	< 39	< 107	< 4	< 5	< 10	< 4	< 10	< 5	< 9	< 9	< 4	< 5	< 22	< 8
QC-MW-QC-107I	09/18/07	< 33	< 33	< 4	< 4	< 8	< 4	< 9	< 4	< 7	< 8	< 4	< 4	< 22	< 6
QC-MW-QC-108D	09/18/07	< 39	< 91	< 4	< 5	< 10	< 4	< 8	< 5	< 10	< 8	< 4	< 4	< 25	< 9
QC-MW-QC-108I	09/18/07	< 41	< 50	< 5	< 5	< 12	< 7	< 11	< 5	< 9	< 9	< 4	< 5	< 27	< 9
QC-MW-QC-108S	09/18/07	< 42	< 53	< 5	< 5	< 11	< 4	< 10	< 6	< 9	< 11	< 5	< 5	< 27	< 7
QC-MW-QC-109I	09/19/07	< 50	< 107	< 6	< 6	< 11	< 6	< 9	< 5	< 9	< 12	< 5	< 6	< 33	< 10
QC-MW-QC-109S	09/19/07	< 47	155 ± 79	< 5	< 5	< 11	< 5	< 11	< 5	< 10	< 9	< 5	< 5	< 27	< 11
QC-MW-QC-110I	09/19/07	< 44	< 41	< 5	< 6	< 12	< 5	< 10	< 6	< 8	< 11	< 5	< 6	< 30	< 10
QC-MW-QC-111 D1	09/18/07	< 54	< 122	< 6	< 5	< 12	< 6	< 11	< 7	< 10	< 12	< 5	< 6	< 30	< 9
QC-MW-QC-111 D2	09/18/07	< 41	< 46	< 5	< 4	< 9	< 5	< 10	< 5	< 8	< 9	< 4	< 5	< 25	< 7
QC-MW-QC-111I	09/18/07	< 47	< 39	< 5	< 5	< 10	< 5	< 10	< 5	< 9	< 11	< 5	< 6	< 27	< 9
QC-MW-QC-112I	09/18/07	< 31	< 62	< 4	< 3	< 7	< 4	< 9	< 4	< 7	< 8	< 4	< 4	< 23	< 6
QC-MW-QC-113I	09/18/07	< 50	< 120	< 6	< 6	< 10	< 6	< 10	< 7	< 9	< 12	< 5	< 6	< 31	< 11
QC-MW-QC-114I	09/18/07	< 48	< 89	< 5	< 5	< 10	< 7	< 10	< 6	< 8	< 11	< 4	< 5	< 26	< 9
QC-MW-QC-115S	09/17/07	< 33	197 ± 47	< 4	< 4	< 8	< 4	< 7	< 4	< 7	< 8	< 3	< 4	< 20	< 6
QC-MW-QC-116S	09/17/07	< 38	< 116	< 5	< 4	< 10	< 6	< 9	< 5	< 9	< 11	< 4	< 5	< 29	< 11

TABLE B-II.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
SURFACE WATER #1	05/14/07	413 ± 115
SURFACE WATER #1	06/04/07	438 ± 116
SURFACE WATER #1	06/18/07	< 191
SURFACE WATER #1	09/17/07	< 190
SURFACE WATER #2	05/14/07	330 ± 110
SURFACE WATER #2	06/04/07	275 ± 108
SURFACE WATER #2	06/18/07	< 187
SURFACE WATER #2	09/17/07	< 187

TABLE B-II.2 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	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	09/17/07	< 45	< 100	< 5	< 6	< 10	< 6	< 11	< 6	< 9	< 11	< 4	< 5	< 29	< 9
SURFACE WATER #2	09/17/07	< 43	< 52	< 5	< 5	< 12	< 6	< 11	< 4	< 10	< 11	< 5	< 5	< 29	< 9

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF QUAD CITIES NUCLEAR POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
WELL #5	07/16/07	< 165
WELL #5	08/22/07	< 144
WELL #5	09/20/07	< 187
WELL #5	10/30/07	< 192
WELL #5	11/30/07	< 191
WELL #6 LITTLE FISH WELL	02/22/07	< 195
WELL #6 LITTLE FISH WELL	05/14/07	< 152
WELL #6 LITTLE FISH WELL	09/20/07	< 190
WELL #6 LITTLE FISH WELL	11/01/07	< 193
WELL #7 BIG FISH WELL	02/22/07	205 ± 126
WELL #7 BIG FISH WELL	05/14/07	341 ± 110
WELL #7 BIG FISH WELL	06/05/07	421 ± 119
WELL #7 BIG FISH WELL	06/19/07	236 ± 129
WELL #7 BIG FISH WELL	09/20/07	221 ± 126
WELL #7 BIG FISH WELL	11/01/07	< 191
WELL #8 FIRE TRAINING WELL	02/22/07	< 189
WELL #8 FIRE TRAINING WELL	05/14/07	169 ± 105
WELL #8 FIRE TRAINING WELL	09/20/07	< 193
WELL #8 FIRE TRAINING WELL	10/30/07	< 196
WELL #9 DRY CASK WELL	02/22/07	< 190
WELL #9 DRY CASK WELL	05/14/07	< 156
WELL #9 DRY CASK WELL	09/20/07	< 191
WELL #9 DRY CASK WELL	10/30/07	< 188