



# ENERGY NORTHWEST

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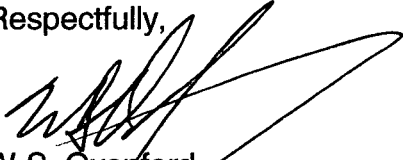
Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397  
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2009 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT**

References: 1. Columbia Generating Station Technical Specification 5.6.1  
2. Independent Spent Fuel Storage Installation Technical Specification 5.4.b  
3. EFSEC Resolution No. 260, January 13, 1992

Dear Sir or Madam:

In accordance with the requirements of References 1-3, the subject report is submitted as an enclosure to this letter. If you have questions regarding this information, please contact TE Northstrom at (509) 377-8462.

Respectfully,



W.S. Oxenford  
Vice President, Nuclear Generation & Chief Nuclear Officer

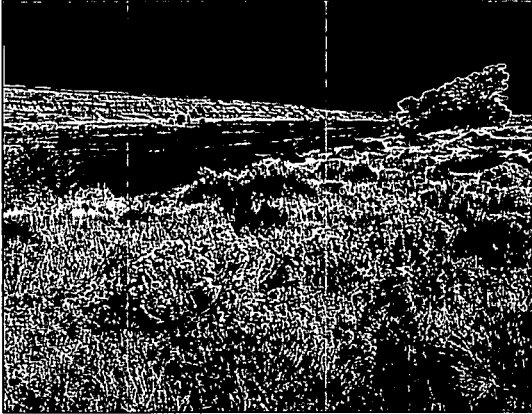
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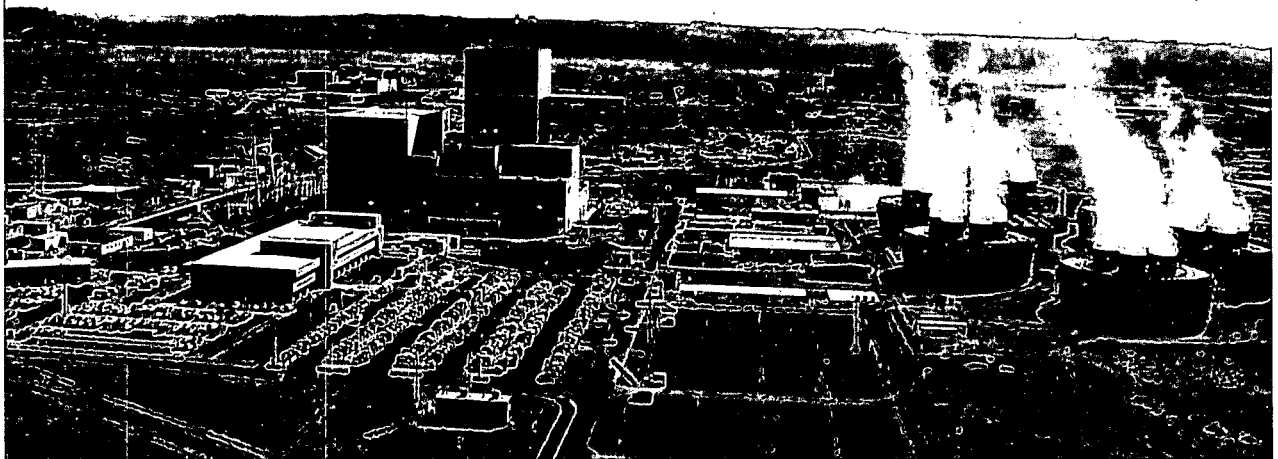
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# COLUMBIA GENERATING STATION



## 2009 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT



### RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM FOR THE COLUMBIA GENERATING STATION



**ENERGY  
NORTHWEST**





**COLUMBIA GENERATING STATION**

**RADIOLOGICAL ENVIRONMENTAL  
MONITORING PROGRAM**

**2009 ANNUAL RADIOLOGICAL  
ENVIRONMENTAL OPERATING REPORT**

**For Calendar Year 2009**

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## **1.0 EXECUTIVE SUMMARY**

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The purpose of the Energy Northwest Radiological Environmental Monitoring Program (REMP) is to evaluate the radiological impact that Columbia Generating Station (CGS) operation may have on the environment. Sampling is performed as specified in the Offsite Dose Calculation Manual (ODCM) and agreements made with the State of Washington Energy Facility Site Evaluation Council (EFSEC). Additional sampling is also performed to meet Nuclear Energy Institute (NEI) guidelines or an Energy Northwest initiative. Sampling and analysis is performed by the Energy Northwest Environmental Services group with analysis performed at the Applied Process Engineering Laboratory (APEL) facility located in Richland, Washington. Direct radiation services are provided by Pacific Northwest National Laboratory (PNNL). Specialized analyses may be contracted to other outside vendors as needed.

A variety of environmental samples are routinely collected and analyzed by the REMP. Most samples are collected from locations that could potentially be affected by CGS operation. Some samples are also collected as controls from areas that could not reasonably be affected by CGS operation. The types of samples collected include air, water, soil, sediment, milk, fish, and garden produce. Additionally, the program monitors direct radiation at 79 different locations. Analysis results are trended and compared to results from control locations, results obtained in previous operational and pre-operational periods, and regulatory limits.

The results contained in this report indicate that CGS operation had no significant radiological impact on the environment during 2009. The sample results are consistent with the results obtained from control locations, results from the preoperational period, and historical results collected since CGS began commercial operation. No unusual finding or adverse trends were observed. Most radioactive material identified in this report is of natural origin or known to be present in the environment around CGS in the quantities identified.

Below is a summary of the 2009 results by exposure pathway:

**Direct Radiation** – No impact was identified at locations beyond the CGS controlled area. Within the controlled area, the only impact identified was at locations known to be influenced by the Independent Spent Fuel Storage Installation (ISFSI) or radiation from the turbine building during operation.

**Airborne**- No impact was identified.

**Waterborne**- For surface/drinking water locations, the only impact identified was low level tritium in storm drain water attributed to recapture of CGS effluent tritium. Tritium identified in sanitary waste water is attributed to discharges made from facilities operated by the Department of Energy. For ground water, tritium activity identified is at levels consistent with levels known to exist in Hanford groundwater. Radionuclide activity identified in river sediment is consistent with activity levels known to exist in Hanford area sediment and soils.

**Ingestion**- No impact was identified in any of the food sample results.

## **2.0 DEFINITIONS**

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**Airborne Activity Sampling:** Continuous sampling of air through the collection of particulates and radionuclides on filter media. Periodic soil samples are collected for gamma isotopic analysis to provide information on deposition to the soil from airborne releases.

**Alpha Particle ( $\alpha$ ):** A charged particle emitted from the nucleus of an atom having a mass and charge equal in magnitude of a helium nucleus.

**Becquerel (Bq):** One disintegration per second. One picocurie (pCi) equals 0.037 becquerel.

**Beta Particle ( $\beta$ ):** Charged particle emitted from the nucleus of an atom with a mass and charge equal in magnitude to that of an electron.

**Blank Sample:** A sample of the same media as the field sample being analyzed but without any radionuclide(s) being measured. It enables correction for the inherent sample background.

**CGS:** Columbia Generating Station, formerly referred to as WNP-2.

**CGS Controlled Area:** The area within a 1.2 mile radius of the CGS reactor building and a narrow corridor extending from CGS east to the Columbia River.

**Composite Sample:** A series of single collected portions (aliquots) analyzed as one sample. The aliquots making up the sample are collected at time intervals that are very short compared to the composite period.

**Control Station:** A sampling station in a location not likely to be affected by plant effluents due to its distance and/or direction from the Columbia Generating Station.

**Counting Error:** An estimate of the two-sigma uncertainty associated with the sample results based on respective count times.

$$+/-2\sqrt{(SampleCPM / CountTime + BkgCpm / CountTime)}$$

**Curie (Ci):** A measure of radioactivity; equal to  $3.7 \times 10^{10}$  disintegrations per second, or  $2.22 \times 10^{12}$  disintegrations per minute.

**Direct Radiation Monitoring:** The measurement of radiation dose at various distances from the plant is assessed using thermoluminescent dosimeters and pressurized ionization chambers.

**DOE:** U.S. Department of Energy.

**DOH:** Washington State Department of Health.

**EFSEC:** Energy Facility Site Evaluation Council.

**FFTF:** Fast Flux Test Facility.

**Flow Proportional Sampling:** Sample collection volume or frequency determined as a function of the flow rate of the water being sampled.

**Grab Sample:** A single discrete sample drawn at one point in time.

**IDC:** Energy Northwest Industrial Development Complex, formerly referred to as the WNP-1 and WNP-4 sites.

**Indicator Station:** A sampling location that is likely to be affected by plant effluents due to its proximity and/or direction from the Columbia Generating Station.

**Ingestion Pathway Monitoring:** The ingestion pathway includes milk, soil, fish, and garden produce. Also sampled (under special circumstances) are other media such as vegetation and animal products such as eggs and meat when additional information about particular radionuclides is needed.

**ISFSI:** Independent Spent Fuel Storage Installation.

**Lower Limit of Detection (LLD):** The smallest concentration of radioactive material in a sample that will yield a net count (above system background) that will be detected with 95% probability with a 5% probability of a false conclusion that a blank observation represents "real" signal.

**MAPEP:** Mixed Analyte Performance Evaluation Program.

**Mean:** The average, i.e., the sum of results divided by the number of results.

**Microcurie:**  $3.7 \times 10^4$  disintegrations per second, or  $2.22 \times 10^6$  disintegrations per minute.

**Milliroentgen (mR):** 1/1000 Roentgen; a unit of exposure to X or gamma radiation.

**MDA:** Minimum Detectable Activity.

**MDC:** Minimum Detectable Concentration.

**NEI:** Nuclear Energy Institute

**NIST:** National Institute of Standards and Technology.

**NPDES:** National Pollutant Discharge Elimination System.

**NRC:** U.S. Nuclear Regulatory Commission.

**ODCM:** Offsite Dose Calculation Manual. Licensing document that contains the offsite radiological requirements.

**Picocurie (pCi):**  $1 \times 10^{-12}$  Curie or 2.22 disintegrations per minute; one millionth of a microcurie.

**REMP:** Radiological Environmental Monitoring Program.

**Range:** The difference between the smallest and largest results.

**Restricted Area:** Any area to which access is controlled for purposes of protection of individuals from exposure to radiation and radioactive materials.

**Roentgen:** Unit of exposure to ionizing radiation in air.

**Site Certification Agreement (SCA):** The initial Columbia Generating Station licensing agreement with the State of Washington. The REMP sampling commitments in the SCA have been modified by EFSEC agreements.

**Spiked Sample:** A sample that has had a known quantity of radionuclide(s) added for the purposes of assessing analytical performance.

**Standard Deviation:** A measure of the scatter of a set of observations (or samples) around their mean value. Indicated by " $\sigma$ ".

**Standard Error of the Mean:** An estimate of the uncertainty associated with the mean of observation (or sample) averages. Also known as the standard deviation.

$$SE = \sqrt{\frac{S^2}{n}}$$

where  $S^2$ , the variance is

$$S^2 = \frac{1}{(n-1)} \sum^n (X_i - \bar{X})^2$$

**SWTF:** Sanitary Waste Treatment Facility. The sanitary waste processing facility for the Columbia Generating Station, the IDC, and the Department of Energy's 400 Area.

**TEDA:** triethylene diamine

**Thermoluminescent Dosimeter (TLD):** A TLD is a phosphor that stores energy from exposure to radiation and emits that energy in the form of light when heated.

### **3.0 INTRODUCTION**

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#### **3.1 Site Description**

The Columbia Generating Station is a 1200 MWe commercial nuclear power plant that achieved initial criticality on January 19, 1984. The plant is located in a sparsely populated shrub-steppe region within the Department of Energy (DOE) Hanford Site in southeastern Washington. The plant is approximately three miles west of the Columbia River and is surrounded on all sides by uninhabited desert land. The nearest large population centers are Richland, Pasco and Kennewick, which are 12 miles south, 18 miles southeast, and 21 miles southeast, respectively. The nearest privately owned lands are located approximately four miles east-northeast of the plant, across the Columbia River. The site has a bimodal wind pattern with winds primarily from the northwest and south.<sup>(17)</sup> The primary region of focus for REMP sampling is the farming region east of the plant.

Naturally occurring radionuclides exist in detectable quantities throughout the world and are seen in many of the samples collected for the REMP. Some examples of naturally occurring radionuclides that are frequently seen in samples are K-40, Be-7, Ac-228 (present as a decay product of Ra-228), and Ra-226. Additionally, some relatively long lived anthropogenic radioisotopes, such as Sr-90 and Cs-137, are also seen in some REMP samples; these radionuclides exist in measurable quantities throughout the world as a result of fallout from atmospheric nuclear weapons testing.

Due to the location of CGS on the Hanford Site, there are other sources of reactor produced radionuclides in close proximity to the plant. CGS is unique in the U.S. commercial nuclear power industry in this respect. Hanford related radionuclides, most notably tritium, are identified in some CGS REMP samples. Though the presence of these radionuclides in the vicinity of CGS are not necessarily reflective of CGS activity, changes in the levels of these radionuclides are monitored to assess any contribution that CGS may be making to the established background. The DOE has an active REMP program for the Hanford Site that overlaps the CGS REMP.

#### **3.2 Program Background**

The CGS REMP is designed to conform to the Nuclear Regulatory Commission (NRC) Regulatory Guides 4.1,<sup>(1)</sup> 4.8,<sup>(2)</sup> and the Radiological Assessment Branch Technical Position.<sup>(3)</sup> In addition, the REMP also meets the requirements of 10 CFR 72.44(d)(2) for coverage of the ISFSI.

The quality assurance aspects of the sampling program and the thermoluminescent dosimetry are conducted in accordance with Regulatory Guides 4.15<sup>(4)</sup> and 4.13.<sup>(5)</sup> The REMP also adheres to the requirements of the Washington Energy Facility Site Evaluation Council (EFSEC),<sup>(6)</sup> the Columbia Generating Station Technical Specifications<sup>(7)</sup> and the Offsite Dose Calculation Manual (ODCM).<sup>(8)</sup> These requirements cover the environmental sampling and sample analysis aspects of the program, and also the reporting and quality assurance requirements.

The preoperational phase of the program, which lasted from March 1978 until initial criticality in January 1984, provided a baseline of background environmental data. Variability in the background levels of radioactivity over time is due to differences in geologic composition, meteorological

conditions, decay of nuclear testing fallout material in the environment, and seasonal changes. Variability in results may also have been introduced by changing analytical contractors and the use of different correction factors over the years.

The Energy Northwest Environmental Services Laboratory performed most REMP sample analyses in 2009. The Pacific Northwest National Laboratory processed the thermoluminescent dosimeters used for the REMP in 2009.

In addition to evaluating the environmental concentrations against regulatory limits, the REMP may also compare results to state standards.<sup>(12, 13)</sup> The results may also be evaluated by comparing them to similar measurements made during the preoperational and previous operational periods and to the detection capabilities associated with the current methods of analysis.

### **3.3 Program Objectives**

The REMP provides an independent mechanism for determining the levels of radioactivity in the plant environs to ensure that any accumulation of radionuclides in the environment will not become significant as a result of station operations or exceed established limits. While in-plant monitoring programs are used to ensure that 10 CFR 20<sup>(9)</sup> and 10 CFR 50<sup>(10)</sup> criteria for releases of radioactive effluents are met, the REMP provides direct verification of any environmental impact that may result from plant effluents.



## **4.0 PROGRAM DESCRIPTION**

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The ODCM contains the CGS licensing based sampling requirements for the REMP. Additional sampling requirements are specified in resolutions with the Washington State Energy Facility Site Evaluation Council (EFSEC) or are self initiated in response to site specific or industry wide concerns. The sampling plan presented in Table 4-1 gives an overview of the REMP sampling routine, a summary of the sample locations, the specified collection frequency, and the types of analyses to be performed. The methods of sampling and sampling frequencies utilized in the program are mostly dictated by regulatory requirements. Factors such as nuclide half-lives and the major exposure pathways for the radionuclides potentially released from the plant have been taken into account in determining the sampling methodology.

### **4.1 Sample Locations**

One hundred and thirteen sampling locations (referred to as 'stations') are included in the monitoring program. More than one sample type may be collected at a sample station. One hundred and four indicator and three control stations are located within a 10-mile radius of CGS. Six additional stations are located beyond the ten mile radius of the plant, two are indicator locations and 4 are control locations. Sample stations are listed in Tables 4-1 and 4-2. Most station locations are shown in Figures 4-1 to 4-4.

The locations of most sample stations have been selected on the basis of an exposure pathway analysis. The exposure pathway analysis was based on factors such as weather patterns, anticipated emissions, likely receptors, and land use in the surrounding areas. Samples collected from stations located in areas that potentially could be influenced by CGS operation are used as indicators. Samples collected from locations that are not likely to be influenced by CGS operation serve as controls. Results from indicator stations are compared to the results from control stations and results obtained during the previous operational and preoperational years of the program in order to assess the impact CGS operation may be having on the environment.

### **4.2 Independent Spent Fuel Storage Installation (ISFSI)**

The Independent Spent Fuel Storage Installation (ISFSI) is a fenced, secured area constructed to provide a storage location for spent nuclear fuel. The spent fuel is stored in HI-STORM dry storage casks which are placed on concrete pads inside the facility. The pads are 30-feet wide by 135-feet long and each pad can hold up to 18 casks. The ISFSI is located approximately 500 meters north-northwest of the reactor building.

REMP monitoring of the ISFSI is performed using quarterly and annual TLDs placed at 10 different locations on the outer security fence of the facility. In addition, two other TLD stations, Station 121 located approximately 200 meters north of the turbine building and Station 122 located approximately 100 meters north of the ISFSI, were installed to monitor ISFSI direct radiation. Figure 4-1 shows the ISFSI location in relation to CGS and the position of the 2 additional TLD locations. Figure 4-4 shows the location of the 10 TLD stations located around the ISFSI. This arrangement of TLDs in conjunction with the radiological surveys conducted by the CGS Radiation Protection Department serve as the radiological monitoring program for the ISFSI.

### 4.3 Land Use Census

A land use census for areas within five miles of CGS is performed annually. The objective of the land use census is to identify the locations of the nearest milk animal, residence, and garden greater than 500 ft<sup>2</sup> producing broadleaf vegetation. This information is used to determine whether any site located during the census has a calculated dose or dose commitment greater than the sites currently monitored for the same exposure pathway. If a new location with a higher dose commitment was found, routine sampling of that dose pathway would be initiated at that new site. The results of the 2009 land use census within five miles of CGS are presented in Table 4-3. No significant changes from the 2008 land use census were observed.

### 4.4 Sampling Methods

Energy Northwest personnel collect environmental samples in accordance with the program plan outlined in Table 4-1. Methods of sample collection and TLD handling are specified in REMP specific procedures. Most REMP samples collected in 2009 were prepared and analyzed at the Energy Northwest Environmental Services Laboratory located at the APEL facility in Richland, WA. The section 4.4 subsections below give a general overview of the sampling methods used in the REMP. Generic descriptions of the REMP sample analysis methods are given in section 4.5.

#### 4.4.1 Direct Radiation

Direct radiation dose levels are monitored with Harshaw Model 8807 thermoluminescent dosimeters (TLDs). Two sets of TLDs are placed in the field approximately three feet above the ground at each monitoring station. One set of TLDs is exchanged on a quarterly basis (Quarterly TLDs); the other is exchanged on an annual basis (Annual TLDs).

The locations of the TLD stations are listed in Table 4-2 and are shown in Figures 4-1 through 4.4. Station 9A in Sunnyside, serves as a control for CGS TLDs. Station 119C serves as the control for Station 119B (the cooling tower sediment disposal basin). The remaining TLDs deployed in the field serve as indicator TLDs.

The TLDs are arranged in a series of rings that encircle CGS. The innermost ring of TLD stations, which are located inside the CGS site boundary at distances that range from 0.3-0.8 miles from the reactor building centerline, are referred to as the 'S stations.' The next ring of TLDs, referred to as the "near plant" stations, are located at distances ranging from 0.9 to 2.1 miles from the reactor building. The outer ring of TLDs are located at distances that range from a little under three miles to around ten miles. A Thermo MicroRem dose rate meter is available as a backup device and to take real time readings as needed.

#### 4.4.2 Airborne - Particulate/Iodine

Weekly air particulate and air radioiodine (I-131) samples are obtained through the use of low volume (1.5 cfm), constant flow-rate sampling units located at 12 locations. The samples collected at station 9A (Figure 4-3) are considered controls, the samples collected at the other locations (Figures 4-1, 4-2, and 4-3) are indicators. Air particulate samples are collected using 47mm diameter glass fiber filters, air iodine samples are collected using Radeco CP-100 TEDA impregnated charcoal cartridges. The air particulate filter and charcoal cartridge are placed in tandem, particulate filter first, in a holder that

attaches to the air inlet of the sampler unit. The sampler units are placed in ventilated metal weatherproof housings mounted on elevated platforms at each air sample location. The filter media are changed weekly. Four additional air sample locations established to monitor remediation work at the DOE 618-11 burial site utilize similar equipment.

#### 4.4.3 Water

Water sampling is performed to meet the requirements in the ODCM and State of Washington EFSEC requirements, comply with NEI guidelines, or a CGS initiative. REMP water sampling can be categorized as follows:

- Intake-River/Drinking Water; two locations (Stations 26, and 29)
- Deep Groundwater; three locations (Stations 52, 31, and 32)
- Shallow Groundwater; eleven locations (MW-3 and MW-5 through MW-14)
- Plant Discharge Water; one location (Station 27)
- Storm Drain Water; one location (Station 101)
- Sanitary Wastewater; two locations (Stations 102A, and 102B)

The sample at Station 26 is obtained using a composite sampler that draws water from the plant intake water system (TMU). The source of this water is the Columbia River. The station serves as a control location, as it is upstream of the plant discharge location, and also as a drinking water location as drinking water for CGS comes from this source. Station 29 is a composite sampler located at the Richland Water Treatment Plant located 11 miles downstream of the plant discharge. Station 29 is an indicator station for both river and drinking water.

The ODCM requirement for a downstream water sample "near but beyond the mixing zone" is conservatively met by Station 27, a composite sampler that collects water from the cooling tower discharge line just prior to final discharge into the Columbia River. This sample reflects the radioactivity present in the plant discharge prior to any river dilution, rather than the concentrations that would be found after dilution in the mixing zone. Composite samples from Stations 26, 27, and 29 are collected monthly and analyzed for gamma emitting radionuclides, gross beta, and tritium.

Three drinking water wells within the vicinity of CGS are used as groundwater sampling locations. These include a deep well on the CGS site, Station 52 located 0.1 mile north of the reactor building, and two deep wells at the IDC (ENW Industrial Development Complex), Station 31 and Station 32 located 1.2 miles down gradient from CGS. Water from Station 52 can be used as a backup source for drinking water and fire protection. The IDC wells supply water for drinking and fire protection at the IDC site. All of these wells are considered indicator locations. Quarterly grab samples are collected from each well and analyzed for gamma emitting radionuclides and tritium.

Station 101 is a composite sampler that collects a representative sample of water flowing into the storm drain pond located east of CGS. The main source of this water is storm water runoff and discharges from the potable water and the plant makeup water demineralizer treatment systems. Additional discharges from CGS that have been verified to meet radiological environmental discharge limits may also be made to this location. Water is collected monthly using a flow-proportional composite sampler and analyzed for gross beta, gamma emitting radionuclides, and tritium.

The Sanitary Waste Treatment Facility (SWTF) receives sanitary waste water from CGS, the IDC (ENW Industrial Development Complex), the Kootenai Building, and the DOE 400 Area. Discharge standards and monitoring requirements for the SWTF are established in EFSEC Resolution 300<sup>(15)</sup>. Station 102A is a flow meter and composite sampler located on the DOE 400 Area sewer line before it ties into the sewer lines coming from Energy Northwest facilities. A portion of the water used in the 400 Area is drawn from aquifers that are known to be contaminated with tritium as a result of past DOE activities on the Hanford Site, consequently, the water sampled at Station 102A has tritium concentrations normally above 2000 pCi/liter. Station 102B is a composite sampler that collects a representative sample of water flowing into the head works at the SWTF. The sample obtained here contains water from all the Energy Northwest facilities mentioned above and the DOE 400 area. Monthly samples are collected at both Stations 102A and 102B and analyzed for gross alpha, gross beta, tritium, and gamma emitting radionuclides.

Beginning in 2009, routine quarterly grab samples were taken as part of the REMP from a number of groundwater monitoring wells surrounding CGS. The monitoring well locations are shown in Figure 4-1. All are shallow wells that allow sampling from the unconfined aquifer under CGS. None of the wells are used for drinking water. Sampling from these locations is performed to meet NEI 07-07 guidelines<sup>(21)</sup> and requirements in the CGS NPDES permit.

#### **4.4.4 Soil**

Annual soil samples are collected at the indicator Stations 1, 7, 21, and 23 as required by EFSEC Resolution 260<sup>(6)</sup>. A sample is also collected at a control location, Station 9A (Figure 4-3). Each sample is collected from an area of approximately one square foot to a depth of approximately one inch. About two kilograms of soil are collected for each sample. Soil samples are analyzed for gamma activity on a dry weight basis.

#### **4.4.5 Sediment**

River sediment samples are collected semiannually as required by the ODCM and EFSEC Resolution 260<sup>(6)</sup>. The upstream sediment sample location (Station 33) is approximately two miles upriver from the plant discharge. The downstream sample (Station 34) is collected approximately one mile downstream from the plant discharge. Each sample consists of approximately two kilograms of the shallow surface sediment scooped from below the waterline. Sediment samples are dried in an oven and then analyzed for gamma emitting radionuclides on a dry weight basis.

Cooling tower sediment samples are collected and analyzed whenever cooling tower sediment is added to the disposal cells (Station 119B, Figure 4-1). Disposal in the Station 119B cells is made in accordance with EFSEC Resolution No. 299<sup>(16)</sup>. Wet cooling tower sediment samples are collected and analyzed prior to transfer to the disposal cells. Following transfer, the material is allowed to dry then an additional sample is collected within 30 days of the disposal date and analyzed.

#### **4.4.6 Fish**

Annual fish sampling is usually performed in late fall. Fish samples collected from the Columbia River (Station 30) serve as indicator samples, whereas fish collected on the Snake River (Stations 38) serve as control samples. Only edible portions of the fish are used to prepare the sample for analysis. Fish samples are analyzed for gamma emitting radionuclides on a wet weight basis.

Three categories of fish samples are collected; an anadromous species (either a salmon or steelhead), and two other species generally considered edible or potentially edible (such as carp, catfish, sucker, and whitefish) are collected at each location. Electro-shocking and netting is used for most fish collection. Anadromous species are usually collected at fish hatcheries.

#### 4.4.7 Milk

Milk samples are collected monthly during the fall and winter months (October through March). During the spring and summer months when cows are likely to be grazing or on fresh feed, milk samples are collected twice per month. Raw milk samples are collected within a few hours of milking and the samples are normally prepared and analyzed within four days. Milk samples were collected in 2009 from two locations. Station 36 in Franklin County serves as the indicator location and is the only dairy within a ten mile radius of CGS. Station 9B is in the Sunnyside/Grandview area and serves as the control location.

#### 4.4.8 Garden Produce

Samples of local garden produce are collected monthly during the growing season when the produce is readily available. When possible, three types of produce samples are collected; a root crop, a fruit, and a leafy vegetable. Control samples are usually obtained from the lower Yakima Valley. Indicator samples may be collected from any areas downstream of the CGS discharge where crops are irrigated with Columbia River water. These samples are designated as Station 37 and usually are collected in the Riverview area of Pasco. Additionally, apples are normally collected in late summer or early fall from Station 91, Rio Vista Farms, an orchard located on the Columbia River 4.3 miles ESE of CGS. A small garden/vegetation area supplying broadleaf samples is maintained by the Environmental Service personnel next to the SWTF and has been designated as Station 102G. A vegetation sample was also taken from a small park area near CGS (Station 103A) in 2009. Garden and vegetation samples are typically puréed in a food processor and then analyzed for gamma emitting radionuclides on a wet weight basis. Only edible portions are used for analysis.

### 4.5 Sample Analyses

General descriptions of the procedures used to analyze REMP samples are provided in the following sections. The REMP TLDs were processed by Battelle at the Pacific Northwest National Laboratory (PNNL). Most REMP field samples were analyzed by Energy Northwest Environmental Services. Samples are normally collected and analyzed within a short time period to ensure required detection sensitivities are met and to provide timely results. Sample count times are conservatively calculated to ensure required *a priori* LLDs are achieved. Table 4-4 list the ODCM required LLDs and the nominal target LLD used in the Energy Northwest REMP program during 2009.

#### 4.5.1 Analysis of TLDs

The REMP TLDs are measured at the Pacific Northwest National Laboratory on a Harshaw Model 8800 hot gas reader. The reader is calibrated weekly and immediately prior to processing the environmental TLDs. The reader is calibrated with TLDs that have been given a known exposure from a Cs-137 source. Each group of environmental TLDs is processed with blank (freshly annealed) TLDs

and spiked TLDs that have been given a known exposure. Exposure received by the field TLDs during transport is monitored with a set of 'trip' control dosimeters that accompany the field dosimeters to and from the field locations and while they are in storage. Another set of TLDs, the building controls, are used to determine the exposure of the TLDs at the storage location. The TLD exposure during transport to and from the field was determined from the difference between the building control results and the trip control results.

#### 4.5.2 Gross Beta Activity on Air Particulate Filters

Air particulate filters are counted directly in a gas flow proportional counter after a delay of several days to allow for the decay of radon and its progeny. Samples were counted using a Protean WPC-9550 instrument which allows automated sample counting and simultaneous alpha/beta determination. If gross beta activity is identified at greater than 10 times the yearly mean of the control samples, gamma isotopic analysis is performed on the individual samples as required by ODCM Table 6.3.1-1 2c.

#### 4.5.3 Measurement of Gamma Emitting Radionuclides

Gamma isotopic analysis allows identification and quantification of gamma-emitting radionuclides that may be attributable to CGS effluents. Shielded, high purity germanium (HPGe) detectors are used to assay environmental samples for gamma emitting radionuclides. All samples are counted in standardized, calibrated geometries.

- **Liquids** – Measured aliquots of the liquid samples are poured into appropriately sized Marinelli beakers. Results are reported in pCi/liter.
- **Solids** – Soil, sludge, and sediment samples are dried and if needed ground. Foodstuff, biota (fish), and vegetation, are chopped finely or pureed and then analyzed wet (no drying is done). For foodstuff (including fish), only the edible portion of the sample is used. Measured aliquots of the solid samples are placed into tared containers and weighed. Results are reported in pCi/kg.
- **Charcoal Cartridges** – Typically four charcoal cartridges are counted simultaneously using a cartridge holding jig that positions the cartridges in a standardized geometry to the side of the detector. Detector calibration files are maintained for both face mount and side count positions. Sample volume for each cartridge group count is conservatively set to the lowest cartridge sample volume in the group. If I-131 is identified in the assay of a group, each charcoal cartridge in the group is assayed separately. Results are corrected for decay during the sample collection period. Results are reported in pCi/m<sup>3</sup>.
- **Air Particulate Filters** – At the end of each quarter, air particulate filters are composited on a station by station basis. The filters are stacked in a Petri dish and analyzed by gamma spectroscopy. Results are reported in pCi/m<sup>3</sup> and represent the total quarterly gamma activity collected at each station. Results are decay corrected to the midpoint of the sample collection period. If a radionuclide related to CGS operation is positively identified, the filters are separated and counted individually.

#### 4.5.4 Gross Alpha and Gross Beta Activity in Water

A measured aliquot of each sample is evaporated to a small volume then quantitatively transferred to a ribbed, stainless steel planchet. Final evaporation is done under a heat lamp. Residue mass is determined by weighing the planchet before and after mounting the sample. The planchet is counted for alpha/beta activity using a Protean WPC-9550 automatic gas flow proportional counter which allows automated sample counting and simultaneous alpha/beta determination. Results are corrected for sample self-absorption using the sample residue mass values. Results are reported in pCi/liter.

#### 4.5.5 Tritium in Water

The sample is distilled, then 8.0mL of the distillate is mixed with 12.0mL of scintillation cocktail. The sample mixture is analyzed on a Packard Tri-Carb 2900TR automatic liquid scintillation counter. Results are reported in pCi/liter.

#### 4.5.6 Sr-90, Fe-55 and Ni-63 in Water

Shallow well water samples from the 1<sup>st</sup> and 2<sup>nd</sup> quarters were analyzed for these constituents by Teledyne Brown Radiological Laboratory Services using standard procedures developed by this vendor for these analyses.

#### 4.5.7 Low Level Iodine-131 in Milk and Water

Four liters of sample are first equilibrated with stable iodide carrier. Anion exchange resin is added to remove any iodine from the sample. The resin is isolated from the liquid sample and transferred to a small counting container. The iodine content is then determined by gamma spectroscopy analysis. Results are reported in pCi/liter.

### 4.6 Data Analysis Methods

Counting results for low level samples are often within the counting error of the background determination; consequently results can range from negative to positive values in these samples. Though most REMP analytical results are below the detection limit, an actual calculated value has been reported. In some cases the reported value is zero or a negative number. Reporting results in this manner is a common practice in environmental analysis as it gives an indication of positive or negative biases that may be present and prevents loss of individual results inherent in the use of "less than" (<) values. Also reported in most cases are the *a posteriori* MDA values. A nuclide is flagged as positively identified if its calculated value is greater than the MDA. A listing of the Energy Northwest nominal target LLDs (*a priori*) for each sample type is provided in Table 4-4; the ODCM required LLDs are also included for a comparison.

Data is trended following analysis for many of the sample types analyzed. For analyses such as gross beta on air particulate filters where results are normally above the detection limit, indicator results are plotted with the control results for easy comparison. Analysis results that are normally below detection limits are plotted against historical data to monitor if trends may be evident.

Thermoluminescent dosimeter (TLD) data is presented in terms of the net mR/day exposure rate. These results are determined from the total exposure (in mR) calculated for each TLD minus the TLD background and any transit (or trip) exposure received during distribution and retrieval, and divided by the number of days the TLD was in the field. The total mR/standard quarter and mR/year values are



also reported (see Tables 5-3, 5-4). All TLD results are reported in units of exposure (Roentgen) and not in units of dose (Rem).

The quarterly TLD results are compared with the annual TLD results and expressed as a ratio by dividing the sum of the quarterly results over the annual results (See Appendix A, Table A-1.1). The agreement between the two sets is usually within plus or minus ten percent (10%); occasionally there can be more significant than expected in the annual set and the results may be lower than the sum of the quarterly data.

#### **4.7 Changes to the Sampling Program in 2009**

There were no major changes made to ODCM or EFSEC Resolution 260 mandated sampling in 2009. Sampling and analysis of shallow groundwater wells around CGS was made a routine part of the REMP. A new sample location near CGS was established (Station 103A) to provide vegetation samples at CGS Chemistry Effluents request. A TLD location (Station 58) was added as part of the CGS effort to monitor remediation work at the DOE 618-11 burial ground. An annual sediment/sludge sample from the SWTF was not taken in 2009. The sample is not required by EFSEC Resolution 300 and obtaining the sample presented health and safety concerns.

**TABLE 4-1  
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING PLAN**

<b>SAMPLE TYPE<sup>(a)</sup></b>	<b>SAMPLE STATION<sup>(b)</sup> NUMBER</b>	<b>SAMPLE METHOD AND COLLECTION FREQUENCY<sup>(c)</sup></b>	<b>TYPE AND FREQUENCY OF ANALYSIS</b>
<b>AIRBORNE</b>			
Particulates and radioiodine (6/12) <sup>(d)</sup>	1, 4-8, <u>9A</u> , 21, 23, 40, 48, and 57	Continuous sampling; weekly collection.	Weekly air filter gross beta and iodine cartridge gamma isotopic. Quarterly air filter composite gamma isotopic.
<b>DIRECT RADIATION</b>			
TLD <sup>(f)</sup> (34/79)	1-8, <u>9A</u> , 10-25, 40-47, 49-51, 53-56, 58, 65, 71-90, 119B, <u>119C</u> , 120-129, 136A-138A, 150-151.	Continuous monitoring, quarterly and annual collection.	Radiation exposure monitoring processed on a quarterly and annual frequency.
PIC <sup>(k)</sup>	Various locations, as needed	Continuous monitoring, as needed.	Radiation exposure monitoring. As needed.
<b>WATERBORNE</b>			
River/Drinking Water <sup>(l)</sup> (3/3)	<u>26</u> , 27 and 29	Composite aliquots <sup>(m)</sup> ; monthly collection.	Monthly gamma isotopic, gross beta, and tritium. I-131 <sup>(o)</sup> as required.
Storm Drain Water (0/1)	101	Composite aliquots <sup>(m)</sup> , monthly collection.	Monthly gamma isotopic, tritium, and gross beta.
Sanitary Waste Treatment Facility Water (0/2)	102A, 102B	Composite aliquots <sup>(m)</sup> , monthly collection.	Monthly gamma isotopic, gross beta, gross alpha, and tritium.
Ground Water (2/3) <sup>(p)</sup>	31, 32, and 52	Grab sample performed quarterly.	Quarterly gamma isotopic and tritium.
Ground Water Monitoring (0/11) <sup>(q)</sup>	MW-3, 5-14	Grab sample performed quarterly.	Quarterly gamma isotopic and tritium.
<b>SOIL AND SEDIMENT</b>			
Soil <sup>(e)</sup> (0/5)	<u>9A</u> , 1, 7, 21 and 23	Grab sample performed annually.	Annual gamma isotopic. Sr-90 <sup>(g)</sup> as needed.
River Sediment (1/2) <sup>(q)</sup>	<u>33</u> and 34	Grab sample performed semiannually.	Semiannual gamma isotopic.
Sanitary Waste Treatment Facility Sediment (0/1) <sup>(m)</sup>	102D	Grab sample as needed.	Gamma isotopic as needed.
Cooling Tower Sediment Disposal Area (0/2)	119B, <u>119C</u>	Grab sample of dried sediment within 30 days of disposal date.	Gamma Isotopic as needed.
<b>INGESTION</b>			
Milk <sup>(r)</sup> (2/2)	<u>9B</u> , 36	Grab sample collected semimonthly during grazing season, monthly at other times.	Gamma isotopic, I-131, Sr-90. <sup>(s)</sup>
Fish <sup>(t)</sup> (2/2)	30, <u>38</u>	Grab samples collected annually.	Gamma isotopic.
Garden Produce <sup>(u)</sup> (1/5)	<u>9C</u> , 91, 37, 102G, 103A <sup>(v)</sup>	Grab samples collected monthly or at time of harvest.	Gamma isotopic.

**TABLE 4-1 FOOTNOTES:**

- (a) The fraction in parentheses for each sample type indicates the ratio of ODCM-required sample locations to the total number of sample locations currently being monitored in the surveillance program. Additional sampling is performed to meet EFSEC Resolution 260 requirements and at ENW initiative.
- (b) The underlined sample location designates a control station.
- (c) Sample collection is performed at a frequency specified in the ODCM and EFSEC resolutions. Some sampling referenced in Table 4-1 is performed at CGS initiative. Sample deviations are permitted if samples are unobtainable due to hazardous conditions, seasonal availability, malfunction of automatic sampling equipment, or other legitimate reasons.
- (d) The ODCM specifies six air sample locations and EFSEC Resolution 260 specifies nine. Not listed in Table 4-1 are four other air sample locations established to monitor remediation work at the DOE 618-11 burial ground. See Section 5.9.6 for details.
- (f) Sampling is performed to meet NEI 07-07 guidelines and NPDES requirements.
- (g) Soil samples are collected at five air-sampling locations to satisfy EFSEC Resolution 260 requirements. This resolution also requires Sr-90 analysis be performed on any indicator soil sample having gamma results greater than ten times the result for the control location. Cs-137 activity has historically been used as the gamma results parameter.
- (j) TLD Stations 71-86 are not included among the 34 TLD stations required by the ODCM. Alternate designations for these stations are 1S-16S. EFSEC Resolution 260 requires 25 or more TLD stations to be located within a 10-mile radius of CGS.
- (k) Pressurized ion chambers (PICs) may be used in place of or in addition to TLDs as per ODCM Table 6.3.1-1 1b.
- (l) The term "river/drinking water" is used throughout this report because the drinking water is taken from the Columbia River. Station 26, CGS makeup water intake from the Columbia River is both an upstream water sample and the drinking water sample location. Station 29 is a downstream drinking water sample. The Station 27 sample, which is drawn from the plant discharge line, is taken in place of a "downstream" water sample near but beyond the mixing zone. It reflects the radioactivity present in the plant discharge prior to any river dilution. EFSEC Resolution 260 requires two drinking water locations downstream from the plant discharge and requires sampling from the plant intake and discharge water. Only one drinking water station is now sampled after DOE closed the intake at the 300 Area (Station 28) in 1998.
- (m) Composite samples are collected using automatic sampling equipment that collects an aliquot at time intervals that are short relative to the compositing period.
- (n) A sediment sample from the SWTF has historically been taken annually, however there is no ODCM or EFSEC requirement to perform this sampling. No sediment was removed from the SWTW in 2009 and no sediment sample was collected or analyzed.
- (o) When the dose calculated via ODCM methodology for consumption of water exceeds 1 mrem per year, low level I-131 analyses are performed on the drinking water samples.
- (p) EFSEC Resolution 260 requires sampling from wells used for fire protection and as backup drinking water sources.
- (q) EFSEC Resolution 260 requires sediment sample collection upstream and downstream of the plant discharge.
- (r) Milk samples will be obtained from farms or individual milk animals that are located in the most prevalent wind directions from CGS. EFSEC Resolution 260 requires at least three milk locations within the 10-mile radius of the plant and one in a control location, however, ENW currently has access to only one dairy within a 10-mile radius of the plant (Station 36) and one control location at 30 miles. Broadleaf vegetation can be sampled in lieu of milk if a representative milk sample is not available.
- (s) ODCM Table 6.3.1-1 4k requires that if Cs-134 or Cs-137 is measured in an individual milk sample in excess of 30 pCi/liter, then a Sr-90 analysis will also be performed.
- (t) Station 30 is the Columbia River and station 38 is the Snake River. If an impact is indicated, sampling will be conducted semiannually per ODCM Table 6.3.1-1 4i. There are no species fished commercially in the Hanford Reach of the Columbia River. The most recreationally important species in the area are anadromous, which ascend rivers from the ocean for breeding. Anadromous fish species are normally obtained from hatcheries; Snake River samples are obtained from the Lyons Ferry Fish Hatchery, and Columbia River samples are obtained at the Ringold Fish Hatchery.
- (u) Garden produce is obtained from farms or gardens that use Columbia River water for irrigation. One sample of a root crop, leafy vegetable, and a fruit is collected each sample period, when available. The variety of the produce obtained will be dependent on seasonal availability.
- (v) Station 91 is an apple orchard irrigated with Columbia River water that is normally sampled at harvest. Station 102G is a small garden/vegetation area located by the SWTF. Station 103A is a small park area located by the Kootanai building (EOF). Station 102G is maintained by REMP personnel and used to provide broad leaf vegetation samples, sampling at station 103A involves collection of broadleaf vegetation from trees and shrubs. Both stations are sampled at the request of CGS Chemistry effluents, neither station meets the ODCM criteria for a garden requiring sampling.

TABLE 4-2  
REMP SAMPLE STATIONS AND REQUIREMENTS

SECTOR <sup>(a)</sup>	STATION NUMBER <sup>(b)</sup>	DISTANCE MILES <sup>(c)</sup>	ODCM <sup>(d)</sup>	STATE <sup>(e)</sup>	OTHER <sup>(f)</sup>
N (1)	52	0.07	DGW	DGW	
	71(1S)	0.28			TLD
	47	0.70		TLD	
	57	0.70	AP/AI		
	18	1.16	TLD	TLD	
	53	7.54	TLD		
NNE (2)	72(2S)	0.32			TLD
	2	1.45	TLD	TLD	
	54	6.08	TLD		
NE (3)	73(3S)	0.54			TLD
	19	1.74	TLD	TLD	
	48	4.59	AP/AI	AP/AI	
	46	4.99	TLD		
	MW-9	0.22			SGW
ENE (4)	74(4S)	0.38			TLD
	21	1.45		TLD, SO	AP/AI
	20	1.93	TLD	TLD	
	11	3.16		TLD	
	33	3.44		SE	
	45	4.45	TLD		
	44	5.90	TLD		
	101	0.22			SW
	MW-7	0.30			SGW
	MW-8	0.26			SGW
	MW-11	0.10			SGW
E (5)	75(5S)	0.37			TLD
	22	2.08	TLD		
	10	3.16	TLD	TLD	
	26	3.19	SW, DW	SW	
	27	3.19	SW	DIS W	
	30 <sup>(g)</sup>	3.5	FI	FI	
	43	5.16	TLD		
	151 (Site 4)	0.83			TLD
	MW-12	0.12			SGW
ESE (6)	76(6S)	0.42			TLD
	31	1.06	DGW	DGW	
	32	1.27		DGW	
	51	2.14	TLD		

TABLE 4-2 (cont.)  
REMP SAMPLE STATIONS AND REQUIREMENTS

SECTOR <sup>(a)</sup>	STATION NUMBER <sup>(b)</sup>	DISTANCE MILES <sup>(c)</sup>	ODCM <sup>(d)</sup>	STATE <sup>(e)</sup>	OTHER <sup>(f)</sup>
ESE (6)(cont.)	23	3.03		TLD, AP/AI, SO	
	34	3.32	SE	SE	
	8	4.39	TLD, AP/AI	TLD, AP/AI	
	91	4.30		GP	
	42	5.85	TLD		
	36	7.33	MI	MI	
	5	7.72	TLD		AP/AI
	38 <sup>(g)</sup>	26	FI	FI	
	150 (Site 1)	0.90			TLD
SE (7)	77(7S)	0.57			TLD
	24	1.87	TLD	TLD	
	3	2.06		TLD	
	41	5.79	TLD		
	40	6.51	TLD, AP/AI	AP/AI	
	MW-14	0.58			SGW
SSE (8)	119C	0.28		TLD	
	120	0.32			TLD, SE
	102B	0.50		SFW	
	102D	0.50			SFW, SE
	102G	0.56			GP/VE
	78(8S)	0.81			TLD
	25	1.50	TLD	TLD	
	55	6.05	TLD		
	4	9.57	TLD, AP/AI	TLD, AP/AI	
	29	11.57	DW	DW	
	37 <sup>(h)</sup>	16	GP	GP	
	MW-6	0.33			SGW
	MW-13	0.52			SGW
S (9)	119B	0.31		TLD, SE	
	102A	0.67		SFW	
	79(9S)	0.76			TLD
	1	1.25	TLD	TLD, AP/AI, SO	
	6	7.72	TLD	TLD, AP/AI	
	65	8.87			TLD
SSW (10)	80(10S)	0.83			TLD
	50	1.26	TLD	TLD	
	56	6.65	TLD		
	MW-3	0.31			SGW

TABLE 4-2 (cont.)  
REMP SAMPLE STATIONS AND REQUIREMENTS

SECTOR <sup>(a)</sup>	STATION NUMBER <sup>(b)</sup>	DISTANCE MILES <sup>(c)</sup>	ODCM <sup>(d)</sup>	STATE <sup>(e)</sup>	OTHER <sup>(f)</sup>
SW (11)	13	1.26	TLD	TLD	
	81(11S)	0.74			TLD
	103A	0.63			VE
	90	0.62			TLD, AI/AP
	MW-5	0.43			SGW
WSW (12)	82(12S)	0.57			TLD
	14	1.26	TLD	TLD	
	9A	28.35	TLD, AP/AI	TLD, AP/AI, SO	
	9B	32.82	MI	MI	
	9C <sup>(i)</sup>	32		GP	
	89	0.23			TLD, AI/AP
	58	0.44			TLD
W (13)	83(13S)	0.52			TLD
	15	1.24	TLD	TLD	
WNW (14)	84(14S)	0.55			TLD
	16	1.21	TLD	TLD	
	7	2.83	TLD	TLD, AP/AI, SO	
	88	0.17			TLD, AI/AP
	MW-10	0.07			SGW
NW (15)	85 (15S)	0.43			TLD
	49	1.19	TLD	TLD	
	87	0.20			TLD, AI/AP
NNW (16)	121	0.12			TLD
	122	0.31			TLD
	123	0.29			TLD
	124	0.28			TLD
	125	0.28			TLD
	126	0.28			TLD
	127	0.26			TLD
	128	0.25			TLD
	129	0.17			TLD
	136A	0.29			TLD
	137A	0.24			TLD
	138A	0.17			TLD
	86 (16S)	0.31			TLD
	17	1.19	TLD	TLD	
	12	6.74		TLD	

TABLE 4-2 (cont.)  
REMP SAMPLE STATIONS AND REQUIREMENTS

TABLE 4-2 SAMPLE TYPE KEY

AP/AI - Air Particulate/Air Iodine	DW - Drinking Water
Dis W - Discharge Water	FI - Fish
GP - Garden/Orchard Produce	DGW - Deep Ground Water
MI - Milk	SE - Sediment
SFW - Sanitation Facility Water	SO - Soil
SW - Surface Water	TLD - Thermoluminescent Dosimeter
VE - Vegetation	SGW - Shallow Ground Water

TABLE 4-2 FOOTNOTES:

- (a) The area in the vicinity of CGS is separated into 16 sectors for reporting purposes. The 16 sectors cover 360 degrees in equal 22.5 degree sections, beginning with sector 1 (N) at 348.75 to 11.25 degrees and continuing clockwise through sector 16 (NNW).
- (b) Alternate designations for station is given in parentheses; i.e., TLD Stations 71-86 are also referred to as IS-16S.
- (c) Distances are from GPS positions for each location as a radial distance from CGS reactor building.
- (d) ODCM - Offsite Dose Calculation Manual Table 6.3.1-1 requirement.
- (e) STATE - State of Washington EFSEC Resolution requirement.
- (f) OTHER -Special study stations. TLD Stations 121 through 138 satisfy ISFSI monitoring requirements 10CFR72.44(d)(2). Sampling at MW locations performed to meet NEI 07-07 guidelines and NPDES requirements.
- (g) Station 30 is the Columbia River at the vicinity of the plant discharge. Actual distance of fish collection locations from plant are variable, distance listed is approximation. Station 38 is the Snake River. Control resident fish are typically collected at variable locations in area below Ice Harbor Dam, distance listed is approximation. Control anadromous fish are typically collected at Lyons Ferry Fish Hatchery.
- (h) Fruit and Vegetable indicator samples are typically collected from farms and gardens in the Riverview area of Pasco. Distance listed here is general distance of Riverview area to Plant. Note station 37 encompasses any area downstream of plant discharge that irrigates with Columbia River water.
- (i) Station 9C is the designation given for control fruits and vegetables. Distance listed is general distance to the Sunnyside-Grandview area where the majority of the control fruits and vegetables are obtained. Note station 9C may indicate any area that does not irrigate with Columbia River water.

TABLE 4-3  
2009 FIVE MILE LAND USE CENSUS RESULTS

SECTOR <sup>(a)</sup>	NEAREST RESIDENT <sup>(b)</sup>	GARDEN (>500 ft <sup>2</sup> )	DAIRY ANIMALS	LIVESTOCK <sup>(b)</sup>
NE	4.47	none	none	none
ENE	4.01	none	none	4.96
E	4.59	none	none	none
ESE	4.24	none	none	none
SE	none	none	none	none

FOOTNOTES

- (a) Within a five-mile radius of the plant, only 4.5 sq. miles of the land in the sixteen meteorological sectors is privately owned farmland. The remainder of the land is on the federally owned Hanford Site. Only those sectors containing points of interest are presented here.
- (b) Estimated distances in miles from CGS Reactor Building based on GPS readings.



**TABLE 4-4**  
**COMPARISON OF LABORATORY NOMINAL LOWER LIMITS OF DETECTION WITH**  
**OFFSITE DOSE CALCULATION MANUAL REQUIREMENTS**

MEDIA (UNITS)	ANALYSIS	ENERGY NORTHWEST LLDs <sup>(a)</sup>	ODCM REQUIRED LLDs
<b>Air</b> (pCi/m <sup>3</sup> )	Gross Beta	0.002	0.01
	Cs-134	0.001	0.05
	Cs-137	0.001	0.06
	I-131	0.03	0.07
<b>Water:</b> (pCi/liter)	Gross Beta	2.4	4
	Tritium	300	2000 <sup>(b)</sup>
	Sr-90 <sup>(d)</sup>	1	---
	Ni-63 <sup>(d)</sup>	5	---
	Fe-55 <sup>(d)</sup>	200	---
	I-131 <sup>(c)</sup>	1	---
	Mn-54	7	15
	Fe-59	10	30
	Co-58	7	15
	Co-60	7	15
	Zn-65	10	30
	Zr-Nb-95	7	15
	Cs-134	7	15
	Cs-137	7	18
Ba-La-140	10	15	
<b>Soil/Sediment:</b> (pCi/kg dry)	Mn-54	20	---
	Co-60	20	---
	Zn-65	30	---
	Cs-134	20	150
	Cs-137	20	180
	Sr-90	10	---
<b>Fish:</b> (pCi/kg wet)	Mn-54	25	130
	Fe-59	100	260
	Co-58	35	130
	Co-60	25	130
	Zn-65	50	260
	Cs-134	30	130
	Cs-137	25	150
<b>Milk:</b> (pCi/liter)	I-31 <sup>(c)</sup>	0.5	1
	Cs-134	7	15
	Cs-137	7	18
	Ba-La-140	10	15
	Sr-90	1	---
<b>Garden Produce:</b> (pCi/kg wet)	Cs-134	10	60
	Cs-137	10	80
	I-131	12	60

<sup>(a)</sup> These are the nominal target LLDs (a priori) for analyses performed in the Energy Northwest Environmental Services Laboratory and are based on conservative assumptions. These calculations included corrections for decay during the collection period and delay prior to analysis using factors that are normally encountered for the different media types. Actual LLDs (a posteriori) may be higher or lower for specific samples.

<sup>(b)</sup> If no drinking water pathway exists, a value of 3,000 pCi/liter may be used.

<sup>(c)</sup> This ENW I-131 LLD achieved by anion resin separation and does not represent a direct analysis of the sample media.

<sup>(d)</sup> These are the target LLDs used by Teledyne-Brown for the ground water samples analyzed in the 1<sup>st</sup> and 2<sup>nd</sup> quarters.

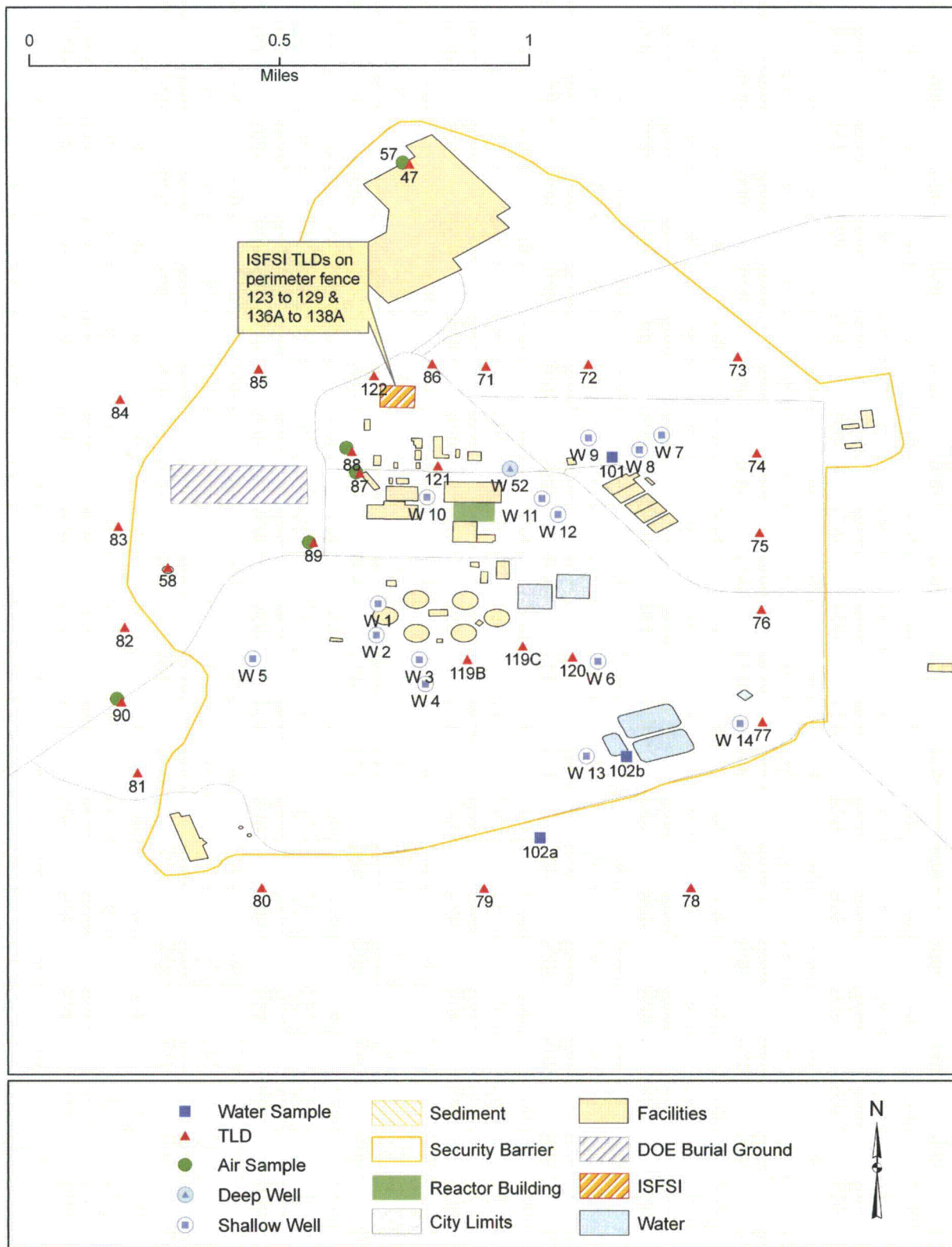


FIGURE 4-1 SELECT REMP SAMPLING LOCATIONS WITHIN 0.8 MILES OF CGS

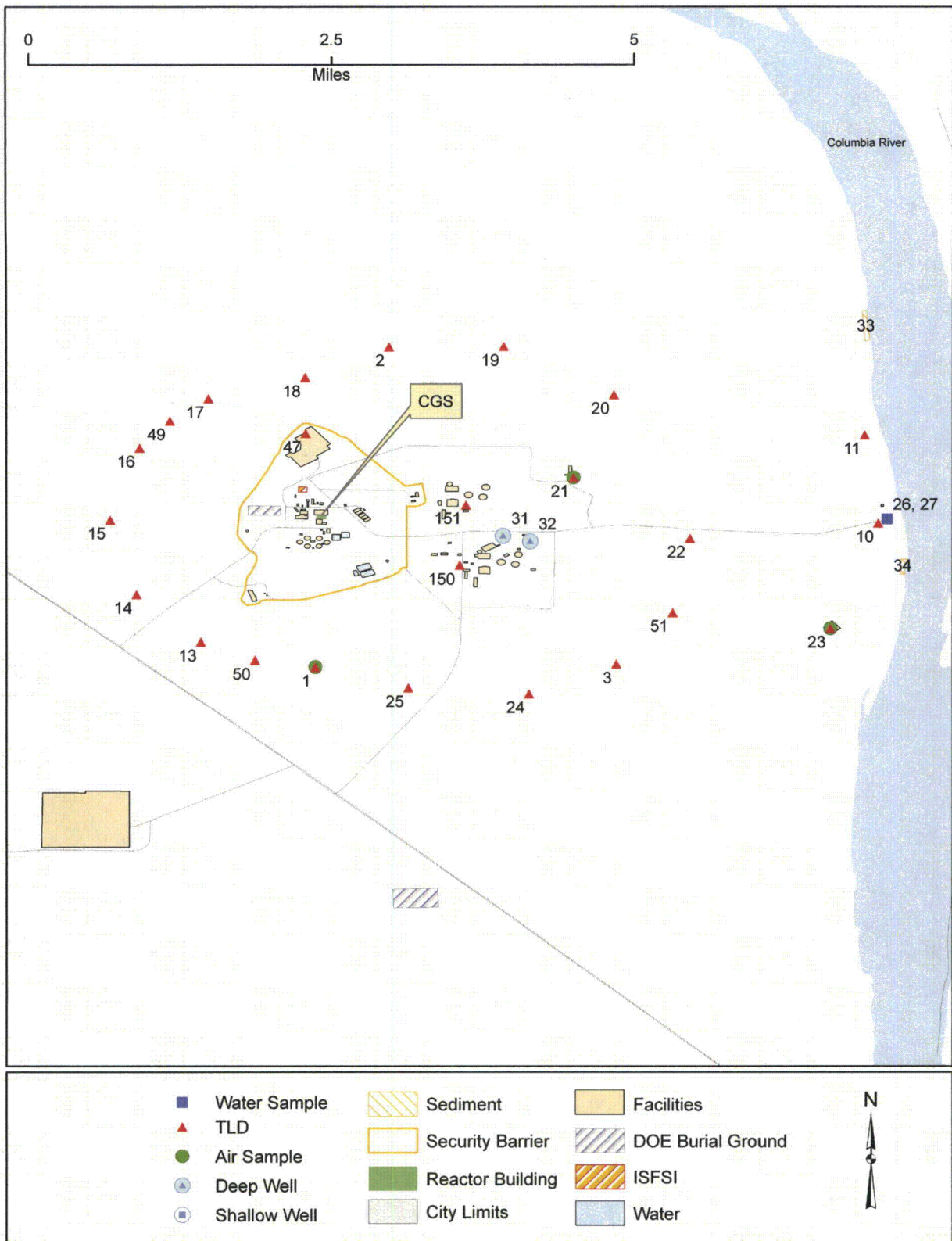


FIGURE 4-2 SELECT REMP SAMPLING LOCATIONS BETWEEN 0.8 AND 2.8 MILES

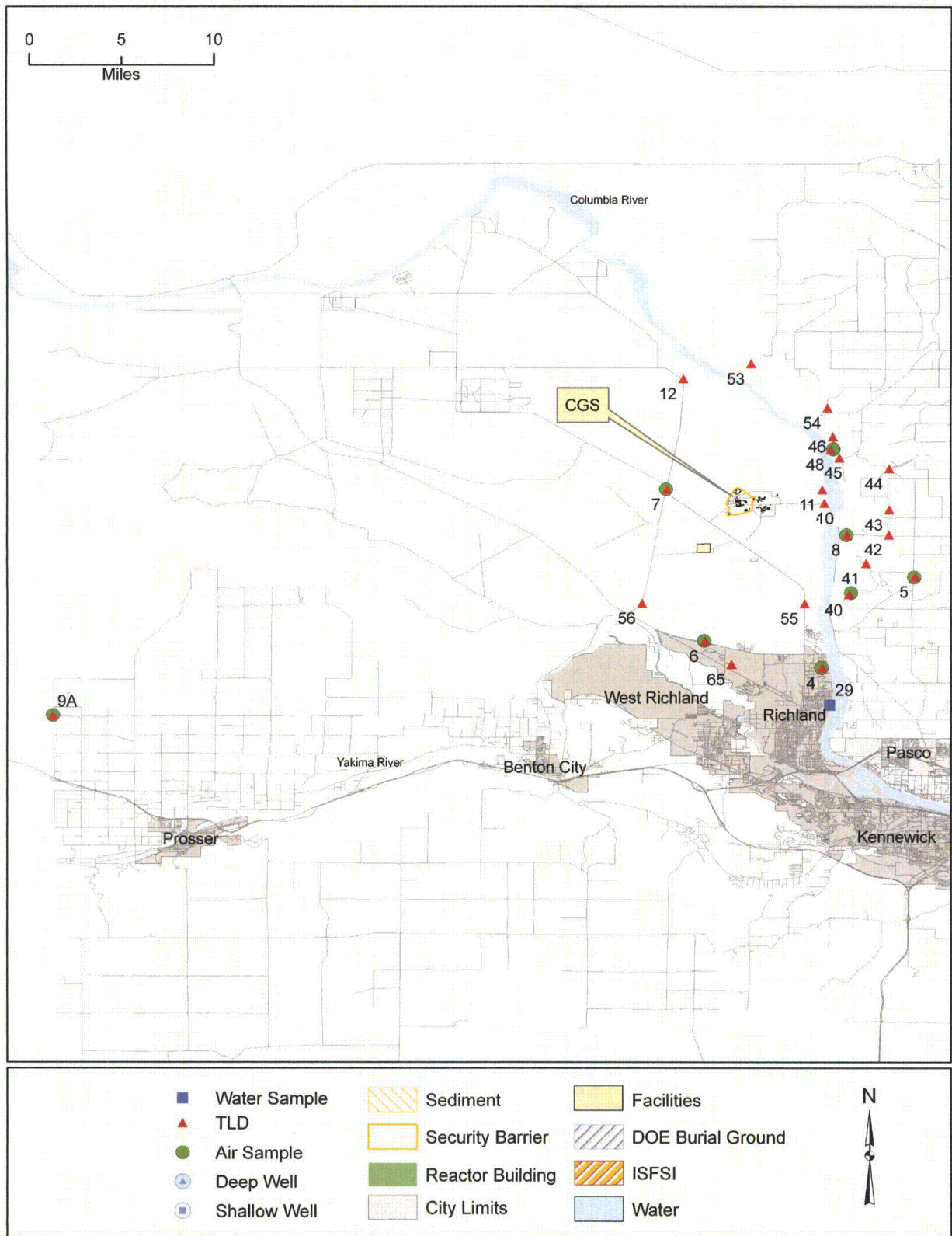


FIGURE 4-3 SELECT REMP SAMPLING LOCATIONS BEYOND 2.8 MILES

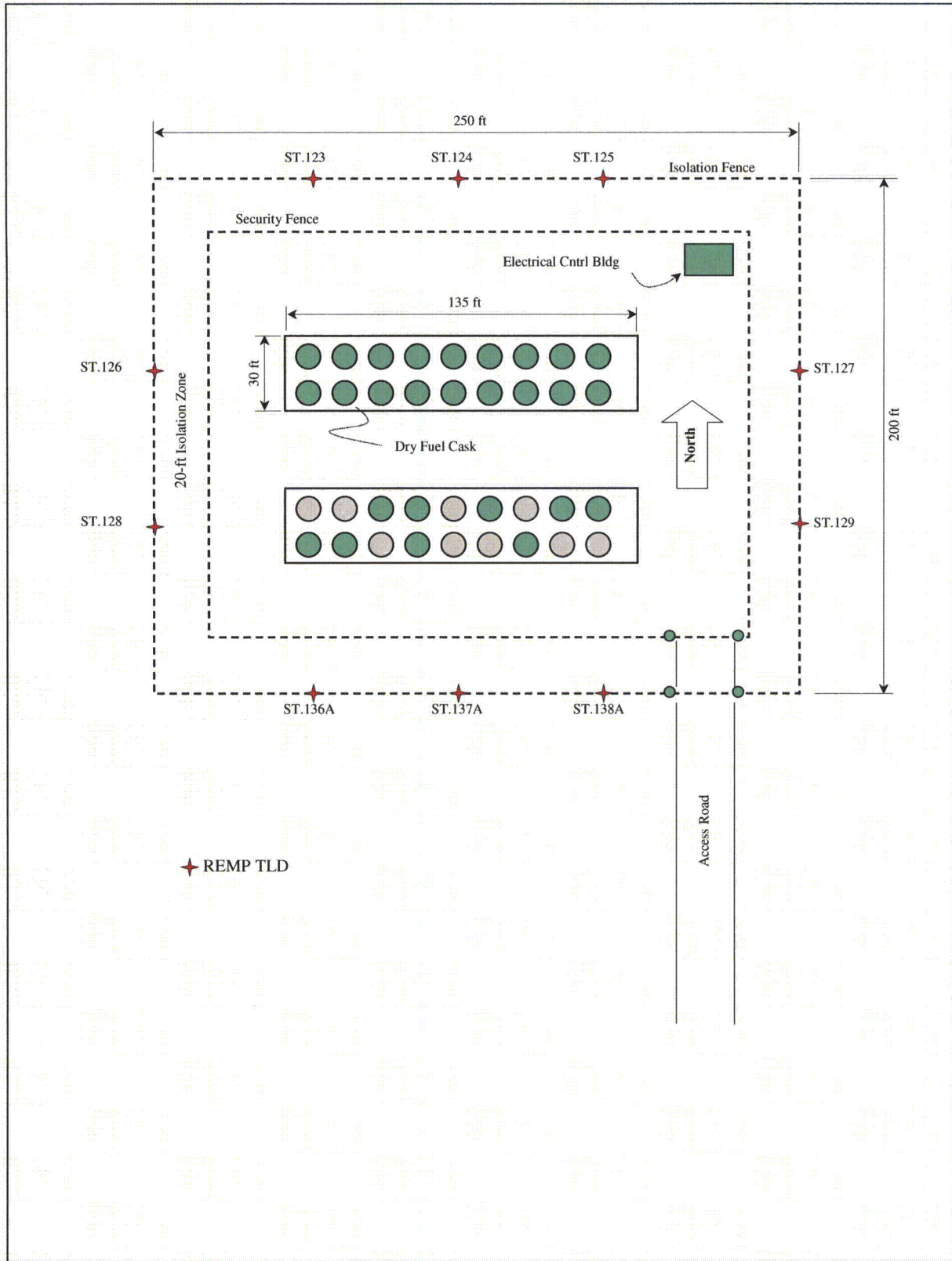


FIGURE 4-4 ISFSI TLD STATION LAYOUT

## **5.0 RESULTS AND DISCUSSION**

## 5.0 RESULTS AND DISCUSSION

The Columbia Generating Station environmental TLDs were collected by Energy Northwest Environmental Services personnel and analyzed by Battelle at the Pacific Northwest National Laboratory (PNNL). Sr-90, Fe-55 and Ni-63 analysis were performed by Teledyne-Brown in Knoxville, TN. All other CGS REMP samples were analyzed by the Energy Northwest Environmental Services Laboratory located in Richland, WA. Table 5-2 provides a summary of the ODCM required REMP sample and CGS groundwater monitoring analysis results in the format specified in Regulatory Guide 4.8. Results for naturally occurring radionuclides that are not related to CGS operations have not been included in the summary table. The lower limits of detection (LLDs) listed in Table 5-2 are the ODCM required detection limits and are not the method detection limits listed in Table 4-4. Analytical results for all REMP samples are presented in Appendix A of this volume and summarize the results in greater detail.

### 5.1 Direct Radiation

Direct radiation is monitored at 79 TLD locations surrounding CGS. TLDs are exchanged on a quarterly and annual frequency at all locations. The 16 locations designated as "S" stations are located between 0.3 and 0.8 miles from the CGS reactor building and all are inside the property boundary, see Figure 4-1 for station locations. Figure 5-1 presents the 2009 "S" station mean quarterly TLD results separated into sixteen geographical sectors around the plant. Figure 5-1 also shows the high, low, and mean result in each sector for 1984 through 2008 for comparison. The results in the N, NNE, and NNW sectors show higher exposure rates than most other "S" stations as a result of being physically closer to the ISFSI and the plant turbine building. The highest results were found in the NNW sector with this sector being the only one with results above the sector long term average. The NNW location is the closest "S" station to the ISFSI and higher results here are attributed to the stations close proximity to this facility.

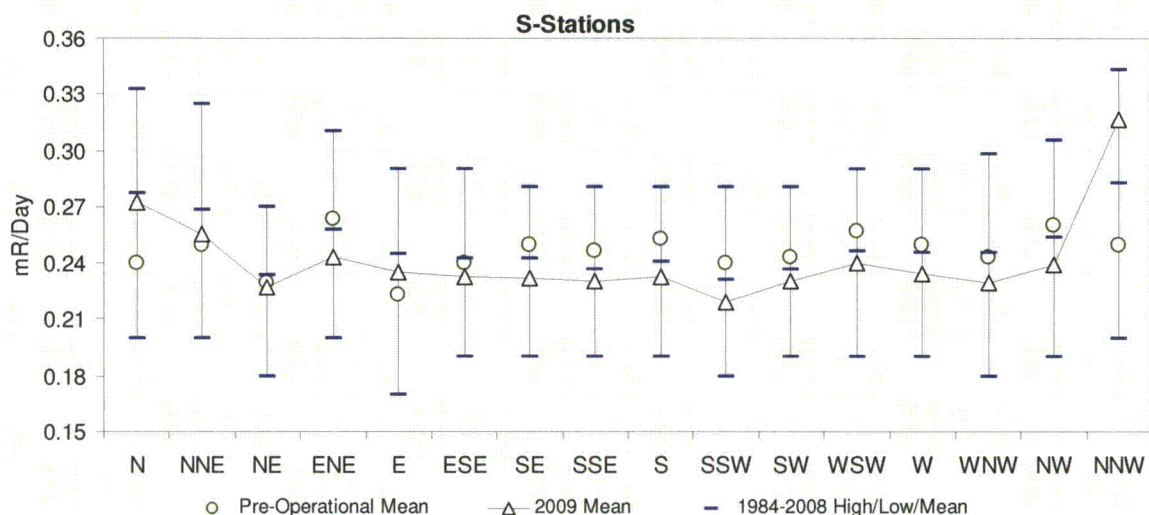


Figure 5-1 Site Boundary Quarterly TLDs 1984-2008 Hi/Low/Mean and 2009 Mean by Sector

TLDs in most all other sectors show results below the preoperational and long term sector average, a pattern that has been observed since 2003. Excluding the NNW sector, the average deviation relative to the preoperational period was -3.5%.

Exposure rates for 19 near plant TLD locations are presented in Figure 5-2. These TLDs are located at distances between 0.9 and 2.1 miles from the reactor building, see Figure 4-2 for station locations. Results for all but one sector were below the preoperational and long term operational means. The average deviation relative to the preoperational period was -2.8%.

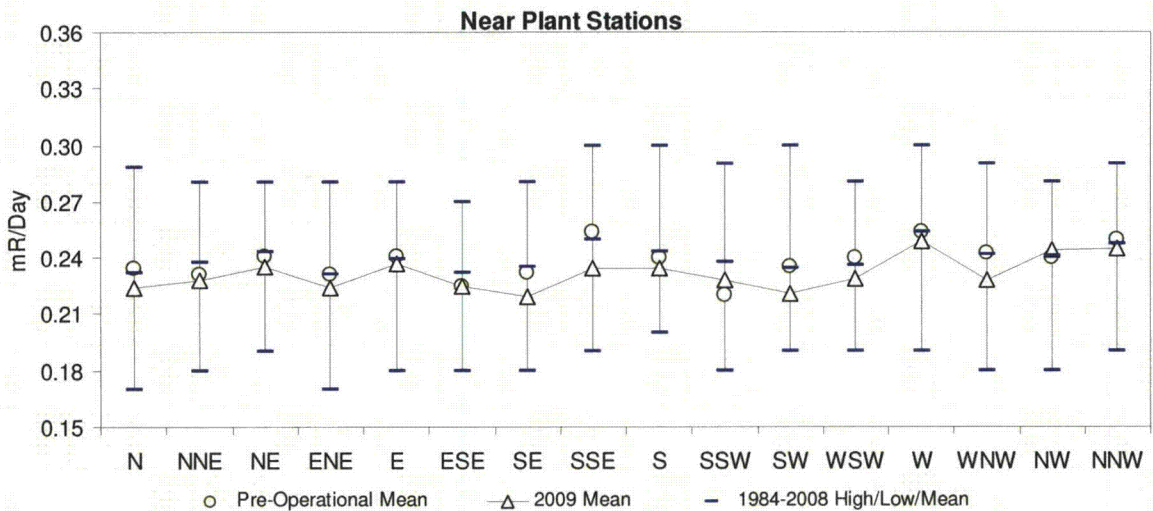


Figure 5-2 Near Plant Stations Quarterly TLDs 1984-2008 Hi/Low/Mean and 2009 Mean by Sector

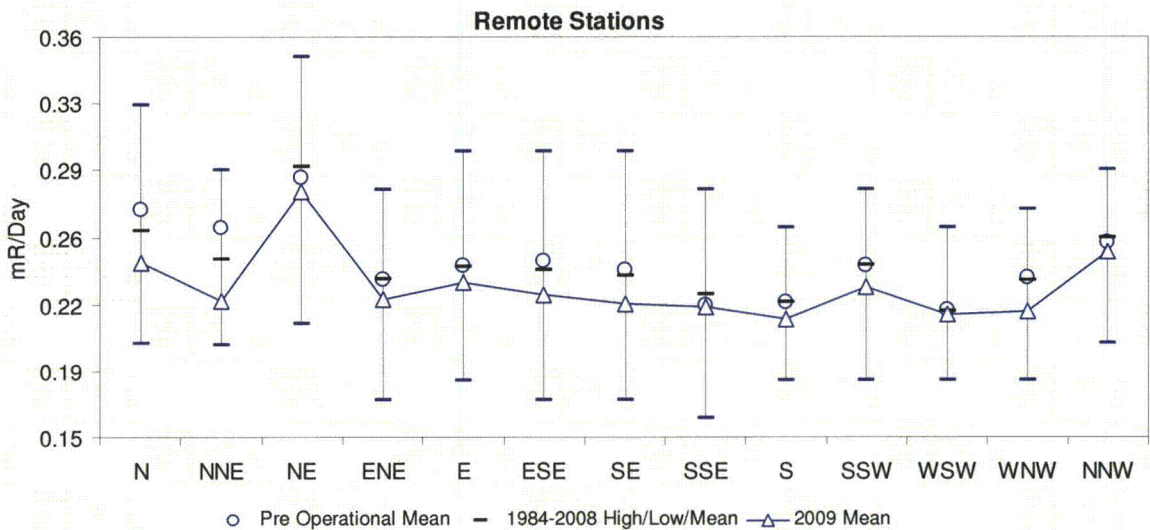


Figure 5-3 Remote Quarterly TLDs 1984-2008 Hi/Low/Mean and 2009 Mean By Sector



Exposure rates for 22 remote TLD locations are presented in Figure 5-3, see also Figure 4-3 for station locations. Station 46 in the Wahluke Reserve (NE sector) remained the remote location with the highest exposure rate. This has been the case since the preoperational measurement phase and is attributed to differences in the underlying rock and soil composition in this area. Remote location results for all sectors were below the preoperational and long term operational means. A similar pattern has been observed since 2003. The average deviation relative to the preoperational period was -5.3%.

Offsite direct radiation monitoring results are consistent with previous years. The 2009 results indicate no measurable dose contribution due to plant operations at locations outside the CGS controlled area. Dose contributions inside the CGS controlled area are limited to those locations known to be influenced by the Independent Spent Fuel Storage Installation (ISFSI) and/or radiation from the turbine building during operation. Environmental radiation exposure rates for 2009, the preoperational phase, and the long term operational phase are summarized in Tables 5-3 and 5-4. See also Appendix A, Tables A-1.1 and B-1.1 for comparisons of the 2009 annual and summed quarterly TLD results. TLD results for special interest locations are discussed in further detail in Section 5.9.

## 5.2 Airborne Particulate/Iodine

Air samples are collected weekly from 11 sample stations located around CGS. Additionally, an air sample station located 28 miles WSW of CGS is used as a control for comparison. Air particulate filters are analyzed for gross beta and iodine cartridges for radioactive iodines on a weekly basis. Air filters are also composited and analyzed for gamma emitting nuclides quarterly. The 2009 average particulate filter gross beta results for the five stations sampled weekly and located within three miles of CGS are plotted in Figure 5-4 (See also Appendix A, Tables A-2.1, A-2.2). Results for these locations are within the range observed in previous years and closely follow the trend observed for the control location.

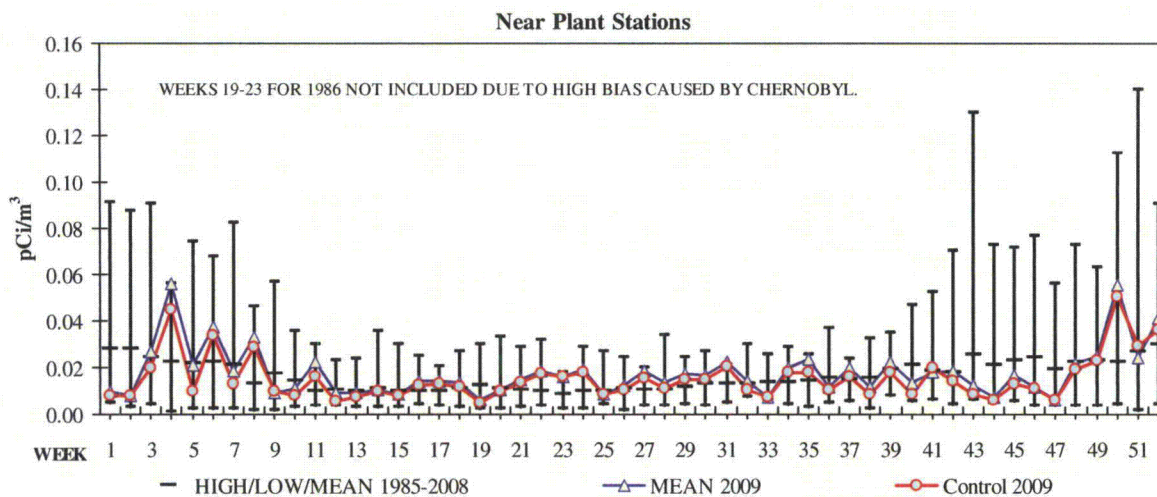


Figure 5-4 1985-2008 Weekly Hi/Low/Mean and 2009 Weekly Mean Gross Beta in Air - Near Plant Stations

Figure 5-5 is a plot of the 2009 mean weekly particulate filter gross beta results for the 6 sample stations located between 3 and 9.6 miles from CGS (See also Appendix A, Tables A-2.1, A-2.2). A similar trend to that seen with the near plant station was observed with all results trending closely to the control. A noticeable increase above the historic gross beta mean was observed in weeks 4, 8, 11, and 50 at all locations including the control. These increases are attributed to weather induced background fluctuations. As noted in previously reports, gross beta levels typically increase during periods of inversion occurring in the fall and winter months. Gross beta results plotted over a period of several years show a cyclical pattern of fall and winter increases. As the increases were seen at the control location also, the increases observed are due to background fluctuations and are not attributable to CGS operation.

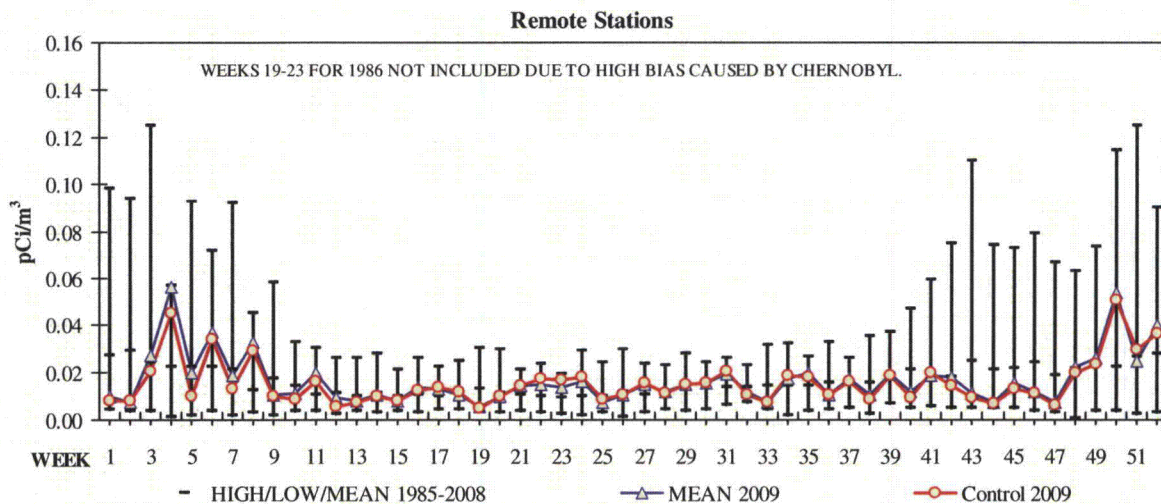


Figure 5-5 1985-2008 Weekly Hi/Low/Mean and 2009 Weekly Mean Gross Beta in Air - Remote Stations

The quarterly particulate filter gamma isotopic results identified the presence of only naturally occurring radionuclides (See Appendix A, Tables A-3.1, A-3.2). Be-7 was positively identified in all samples at both the indicator and control locations.

The 2009 weekly iodine cartridge isotopic results showed no indication of I-131 in any of the samples with result in all cases being below the I-131 lower level of detection (See Appendix A, Tables A-4.1, A-4.2).

Based on these results, there is no evidence of any measurable environmental radiological air quality impact that can be attributed to CGS plant operation during 2009.

## 5.3 Water

### 5.3.1 Surface Water

Composite water samples are collected from 6 surface water locations monthly and analyzed for tritium, gross beta, and gamma emitters. A plot of the 2009 gross beta results for the plant intake, plant discharge, and river/drinking water are shown in Figure 5-6. All drinking and river water (Stations 26 and 29) gross beta results were below the analysis method *a priori* LLD (See Appendix A, Tables A-5.1, A-5.2). Gross beta levels in the plant discharge water (Station 27) were higher than the levels seen in the intake water (Station 26). This is the normal observation as natural radioactivity is concentrated in the discharge water due to evaporative loss and the scrubbing action of the cooling towers which incorporates atmospheric particulate material into the water. The relatively low gross beta results for Station 27 during the summer months reflects periods when CGS was shut down for outages and discharge water was at a low level of concentration. The discharge sample results are representative of the radioactivity present in plant discharge water before any mixing with river water occurs.

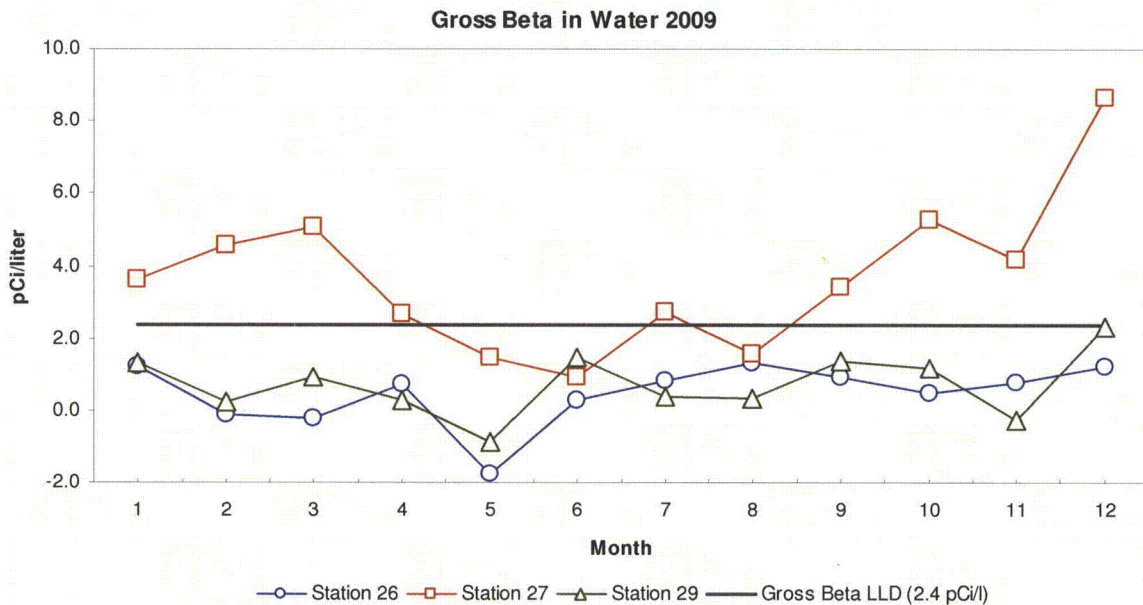


Figure 5-6 Gross Beta in River/Drinking ( Stations 26 & 29) and Plant Discharge Water (Station 27) for 2009

Tritium results for all plant intake, plant discharge, and river/drinking samples were below the analysis method *a priori* LLD. (See Appendix A, Tables A-6.1, A-6.2). This is consistent with results seen in previous years. Tritium results for the three sample locations are plotted in Figure 5-7. Gamma spectroscopy results for all plant intake, plant discharge, and river/drinking samples showed no indication of any gamma-emitting radionuclides of interest being present (See Appendix A, Tables A-7.1, A-7.2).

There is no evidence of significant impact to the environment due to CGS plant operations in the plant intake, plant discharge, or river/drinking water results analyzed in 2009. Composite water samples are also taken from two sanitary waste sample locations and one storm drain location. Analysis results for these samples are discussed in further detail in Section 5.9.

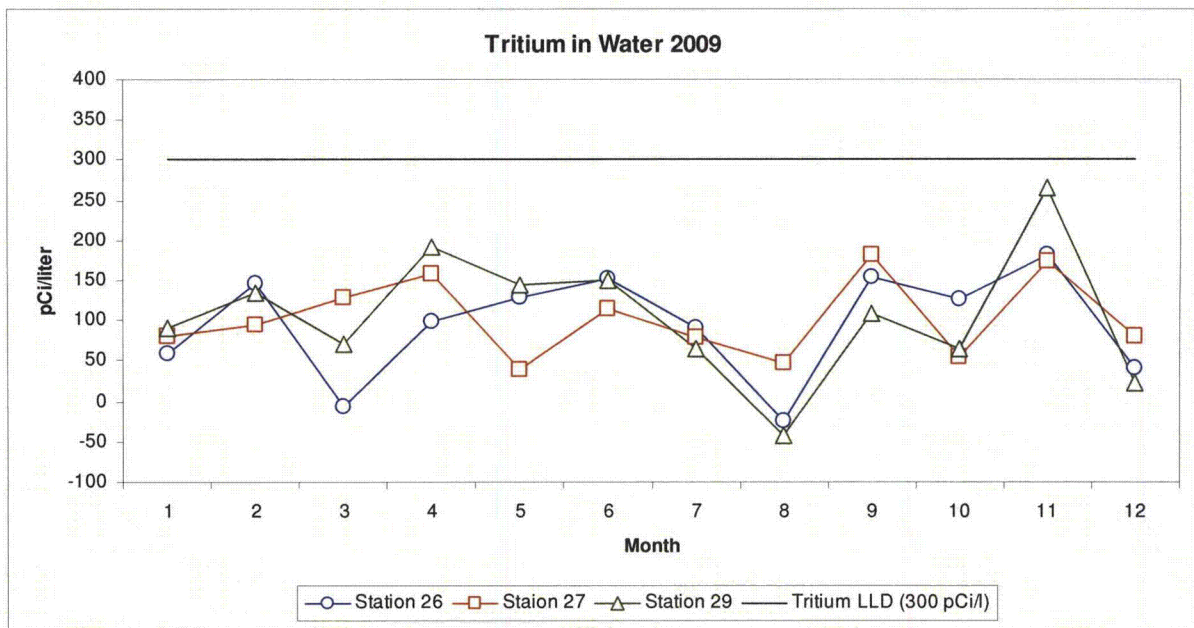


Figure 5-7 Tritium in River/Drinking ( Stations 26 & 29) and Plant Discharge Water (Station 27) for 2009

### 5.3.2 Ground Water

Samples from 3 deep wells are collected quarterly and analyzed for tritium and gamma emitting radionuclides. Routine quarterly sample collection from eleven shallow groundwater monitoring wells located near CGS was also performed in 2009 as part of the CGS groundwater monitoring program. During the 1<sup>st</sup> and 2<sup>nd</sup> quarters of 2009, the shallow ground water samples were analyzed for tritium, gross alpha/beta, gamma emitters, Sr-90, Fe-55 and Ni-63. During the 3<sup>rd</sup> and 4<sup>th</sup> quarters, these samples were analyzed for tritium and gamma emitters. Locations of the ground water wells are shown in Figures 4-1 and 4-2.

Analytical results for the three deep water wells were consistent with results seen in previous years. No gamma emitting radionuclides of interest or tritium was identified in any of these samples (See Appendix A, Tables A-6.1, A-6.2, A-7.1, and A-7.2).

Analytical results for the eleven shallow monitoring wells are presented in Table 5-2 and Appendix A. Gamma Spectroscopy results for these samples did not identify any gamma emitting radionuclides of interest (See Appendix A, Tables B-10.1, and B-10.2). Results of the Sr-90, Fe-55 and Ni-63 analyses conducted during the 1<sup>st</sup> and 2<sup>nd</sup> quarters were all below the analysis methods minimum detectable concentration (See Appendix A, Table B-9.1). Results from the gross alpha/ beta analysis conducted during the 1<sup>st</sup> and 2<sup>nd</sup> quarter showed the presence of small quantities of gross alpha and beta present in most of these samples (See Appendix A, Table B-12.1). Tritium concentrations in these samples ranged from < LLD to 17,000 pCi/liter (See Appendix A, Table B-11.1). Tritium results from each well were consistent during the year with the exception of well 7 results in the 2<sup>nd</sup> quarter and well 8 results during the 3<sup>rd</sup> quarter which were noticeably above the trend.

The CGS ground water monitoring program is conducted to meet the Nuclear Energy Institute (NEI) Groundwater Protection Initiative (NEI 07-07),<sup>(21)</sup> guidelines and to support NPDES licensing requirements. The eleven shallow wells allow water to be sampled from the unconfined aquifer around the CGS site. None of these monitoring wells are used as a source of drinking water. CGS is unique in the commercial nuclear power industry in that it is located in an area where the unconfined aquifer under the site is known to be contaminated with tritium as a result of past DOE activities on the Hanford Site<sup>(20)</sup>. The CGS groundwater program is intended to assess any contribution CGS may be making to the known groundwater contamination issue.

#### **5.4 Soil**

Gamma spectroscopy analysis was performed on soil samples from 5 different locations in 2009 (See Appendix A, Tables A-8.1, A-8.2). Naturally occurring radionuclides ( K-40 and Bi-214) were identified in all samples and Cs-137 was identified in two of the samples, one being a sample from the control location. The level of Cs-137 identified was similar to that seen in the past and within the concentration range that is considered normal background levels for Hanford site soils.<sup>(11,19)</sup> No indicator location had Cs-137 concentrations high enough above the control location to require Sr-90 analysis. The soil sample results do not indicate any measurable impact from CGS plant operation.

#### **5.5 River Sediment**

Gamma assays of river sediment identified naturally occurring radionuclides ( K-40, Ra-226, Bi-214) and Cs-137 (See Appendix A, Tables A-9.1, 9.2). Cs-137 was detected in one upstream (Station 33) and both downstream (Station 34) samples (relative to the cooling tower discharge point). As observed in previous years, Cs-137 downstream activity was slightly higher than the activity identified upstream. Both the upstream and downstream Cs-137 activity levels identified are within the range quantified in previous years and consistent with known Cs-137 background levels in Hanford area sediment and soil<sup>(19)</sup>. The sediment sample results do not indicate any measurable impact from CGS plant operation. CGS has not made a radioactive discharge to the Columbia River since 1998.

#### **5.6 Fish**

The gamma spectroscopy results of fish samples collected at both the indicator location (Columbia River) and the control location (Snake River) identified the presence of only naturally occurring radionuclides. (See Appendix A, Tables A-10.1, 10.2). These results are consistent with results seen from past years.

## 5.7 Milk

There was no I-131 activity identified in any of the milk samples collected in 2009 (See Appendix A, Tables A-11.1, A-11.2). Gamma spectroscopy results of milk radionuclides other than I-131 did not identify the presence of any radionuclides of interest above detection limits (See Appendix A, Tables A-12.1, A-12.2). Naturally occurring K-40 was identified in all milk samples.

## 5.8 Garden Produce

Gamma analysis was performed on twelve different fruit and vegetable crops in 2009 (See Appendix A, Tables A-15.1, A-15.2, A-16.1, A-16.2, A-17.1, A-17.2). No radionuclides of interest were identified in any of the samples. Naturally occurring K-40 was identified in all samples.

## 5.9 Special Interest Stations

Sampling and analysis is performed at the locations covered in this section to comply with EFSEC requirements or is performed at CGS initiative. The storm drain pond and the Sanitary Waste Treatment Facility (SWTF) were incorporated into the routine sampling schedule in 1992. In 1995, the cooling tower sediment disposal area was added. TLDs were placed around the spray pond drain field (Station 120) in June 1995. TLD monitoring in the vicinity of the planned Independent Spent Fuel Storage Installation (ISFSI) was first performed in 1998 to collect background data and TLD monitoring was established on the ISFSI fence line after construction was completed in 2002. Discussions of the results from each of the locations are given in the following sections.

### 5.9.1 Storm Drain Pond (Station 101)

The storm drain pond (NPDES Outfall 002) is located approximately 1500 feet northeast of CGS. Water is sent to the pond through an 18-inch diameter pipe that discharges into a 300-foot long earthen channel that leads to a 100-foot diameter pond. The pond is a shallow, unlined percolation/evaporation basin. Water at the storm drain outfall is sampled using a flow proportional automatic sampler to collect monthly composite samples. The storm drain pond area is fenced and access is restricted.

Monthly water samples were analyzed for gamma emitting radionuclides, tritium, and gross beta. Gamma spectroscopy results did not identify the presence of any gamma emitting radionuclides of interest (See Appendix A Tables B-2.1, B-2.2). Gross beta was positively identified in only one of the twelve samples; the level identified was just above the detection limit and within the range observed in previous years. (See Appendix A, Tables B-3.1, B-3.2). Tritium was detected in six of the twelve samples (See Appendix A, Tables B-4.1, B-4.2). The samples with the highest tritium activity were from colder, wetter months which is consistent with results seen in previous years. The source of the tritium in these samples is believed to be from recapture of tritium from CGS effluents which is more likely to occur during cooler, rainier periods. Multiple Station 101

composite samples were analyzed in July. Emergent condenser repair work resulted in CGS discharging large amounts of water via this pathway during this time frame.

### **5.9.2 Sanitary Waste Treatment Facility (Station 102)**

The Sanitary Waste Treatment Facility (SWTF) is located approximately 0.5 miles south-southeast of the CGS. The facility processes sanitary waste water from CGS, the ENW Industrial Development Complex (formerly referred to as WNP-1 and WNP-4), the Kootenai Building, and the DOE 400 Area. Station 102B receives water from all these locations, Station 102A receives water only from the DOE 400 Area. Discharge standards and monitoring requirements for the SWTF are established in EFSEC Resolution No. 300<sup>(15)</sup>.

The monthly composite gross alpha and beta results for the DOE 400 Area effluent (Station 102A) and the SWTF head works (Station 102B) were consistent with results seen in previous years. Low level gross beta was identified in all samples, gross alpha was not identified above the LLD in any of the samples. (See Appendix A, Tables B-5.1, B-5.2, B-6.1, B-6.2).

Gamma spectroscopy results of the monthly SWTF water samples identified I-131 in the January Station 102B composite sample. AR/CR 192102 was written to document the finding. As no additional radioisotopes were identified in the sample, the determination was made that the source of the radioiodine was from a medically administered treatment. No other gamma emitting radionuclides of interest were detected in any of the other samples analyzed in 2009 (See Appendix A, Tables B-7.1, B-7.2). A Station 102D sediment sample (collected from the lined north stabilization pond) was not collected in 2009.

Tritium activity was identified in most all of the SWTF Station 102A and 102B samples (See Appendix A, Tables B-8.1, B-8.2). The tritium levels identified are consistent with levels identified in previous years. Station 102A results remain elevated as the source of this sample is partly from an unconfined aquifer that is known to be contaminated with tritium as a result of past DOE activities on the Hanford site<sup>(20)</sup>. Tritium activity coming from the DOE 400 area is the main source of the tritium identified in the station 102B samples.

### **5.9.3 Cooling Tower Sediment Disposal Area (Station 119)**

EFSEC Resolution No. 299<sup>(16)</sup> authorizes the onsite disposal of sediments from plant cooling systems containing low levels of radionuclides. The disposal area for these sediments is located just south of the cooling towers. Resolution No. 299<sup>(16)</sup> requires direct radiation monitoring using quarterly and annual TLDs in the vicinity of the disposal cells and the collection and analysis of a dry composite sediment sample from the disposal cell within thirty days following each cleaning to confirm that the disposal criteria outlined in the resolution have not been exceeded.

Cleaning of the cooling towers was performed in May 2009. Disposal of the material removed resulted in an estimated 131.6 cubic meters of dry sediment being placed into the 2007 disposal cell. In April, an estimated 4 cubic meters of dry material removed from Valve boxes 9 and 12 was placed into the 2005 disposal cell. Approval for this disposal was given by EFSEC. Figure 5-8 summarizes the estimated quantity of radionuclides that were placed in the disposal area in 2009. For those isotopes listed in the table that were not positively identified, the MDA value obtained

from the sample analysis was used in the table calculations. As such, the total activity reported should be considered a conservative estimate.

All results are well below the disposal concentration limits specified in EFSEC resolution 299<sup>(16)</sup>. Cs-137 is routinely identified in the sediment disposal samples and the CS-137 level identified in the 2009 samples were within the range seen in previous years and only slightly higher than the Cs-137 levels identified in Columbia River sediment (See Appendix A, Tables A-9.1 for comparison). Co-60 was not positively identified in any 2009 sample.

2009 Cooling Tower Sediment Disposal Data				
	Disposal Date	April 2009	May 2009	
	Pit ID:	2005 Pit	2007 Pit	
	Mass, kg	4,388	71,314	
	Density, g/cc	1.43	0.542	
Nuclide	Limit (pCi/kg)	Analytical Result (pCi/kg)	Analytical Result (pCi/kg)	Total Curies
Co-60	5.00E+03	< 2.66E+01	< 5.72E+01	< 4.20E-06
Mn-54	3.00E+04	< 3.19E+01	< 5.59E+01	< 4.13E-06
Zn-65	5.00E+04	< 5.97E+01	< 1.51E+02	< 1.10E-05
Cs-134	1.00E+04	< 2.57E+01	< 5.53E+01	< 4.06E-06
Cs-137	2.00E+04	< 2.63E+01	2.14E+02	1.54E-05
				3.88E-05

Figure 5-8 Cooling Tower Sediment Activity Levels For Disposals Made In 2009

Measurements of direct radiation at the disposal basin was taken using TLDs. Two locations were used, an indicator location next to the collection area (Station 119B) and a control location approximately 100 yards to the east (Station 119C). The mean quarterly and annual TLD results agree well with results from previous operational years. The negligible difference between the indicator and the control TLDs indicate that there was no measureable dose contribution above background due to material in the disposal cells. (See Tables 5.3, 5.4 and Appendix A, Tables B-1.1, B-1.2).

#### 5.9.4 Spray Pond Drain Field (Station 120)

There were no discharges to the Spray Pond Drain Field (NPDES Outfall 003) in 2009. The TLD results at Station 120 in 2009 are in agreement with those seen in previous operational years (See Table 5-3, 5-4 and Appendix A, Tables B-1.1, B-1.2).

#### 5.9.5 Independent Spent Fuel Storage Installation

The Independent Spent Fuel Storage Installation (ISFSI) is a fenced, secured area north northwest of CGS. Ten TLD stations, stations 123-129 and stations 136A-138A are located on the outer security fence surrounding the ISFSI. TLD station 122 is just north of the ISFSI between the ISFSI and the plant access road. TLD station 121 is located approximately 0.1 mile north of the plant between the Transformer Yard and the ISFSI. Refer to Figure 4-4 for ISFSI TLD locations.



Radiological exposure rates at the ISFSI security fence are elevated and access to the area directly outside the fence requires radiological dosimetry and security notification to enter. In addition to the TLD monitoring program, quarterly radiological surveys of the ISFSI are conducted by the CGS Radiation Protection Department.

No spent fuel storage casks were added to the ISFSI during 2009. As shown in Figure 5-9, exposure rates at the ISFSI fence line followed a leveling to downward trend during the year. Station 122 TLD results showed a similar pattern with the trend for this location correlating to the overall ISFSI TLD trend but at a lower level. The Station 121 TLD results showed a marked drop in the second and third quarters reflecting plant operational status. As noted in previous reports, the trend for this location is more influenced by turbine building radiation levels than by the ISFSI. (See Table 5-3, 5-4 and Appendix A, Tables B-1.1, B-1.2)

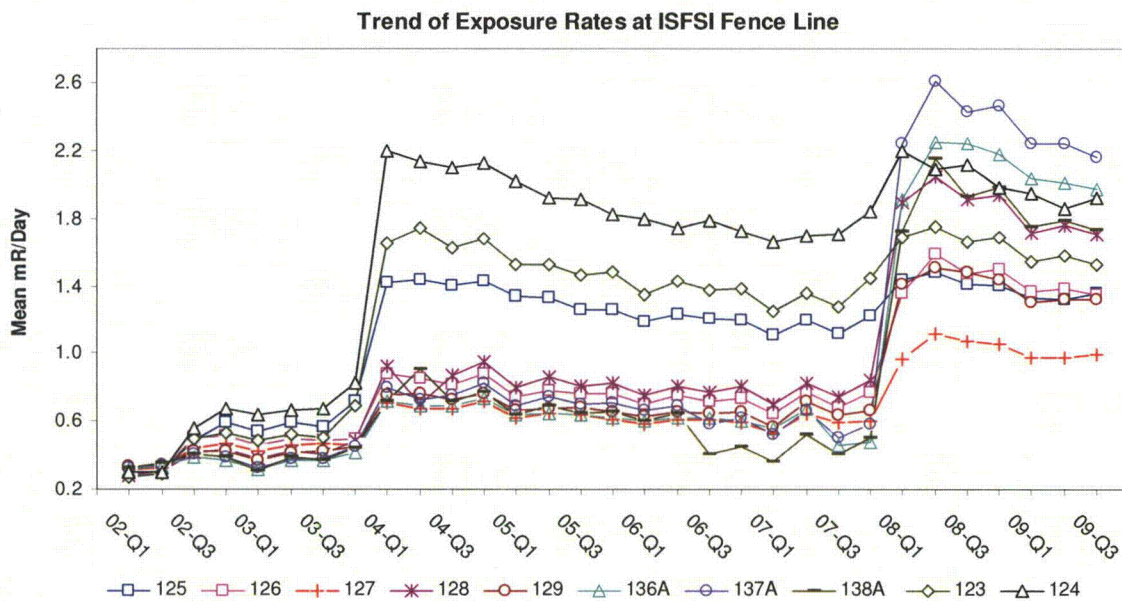


Figure 5-9 ISFSI TLD Trend at CGS (All TLDs located on outer security fence).

### 5.9.6 Additional Air Sample and TLD Locations

Four additional air sample locations (Stations 87-90) and 5 TLD stations (Stations 58, 87-90) were established in 2008/2009 in order to monitor air quality and direct radiation during remediation work at the DOE 618-11 burial ground located just west of CGS (See Figure 4-1). Air samples were collected and TLDs were exchanged at these locations in 2009 though no remediation work took place at the burial ground during the year. Air particulate data from the four locations show no indication of any effects from CGS effluents (See Appendix A, Tables B-13.1 and B-14.1). Three of the TLD stations had results slightly higher than background due to the stations close proximity to the turbine building and the ISFSI (See Appendix A, Table B-1.1).

## 5.10 2009 Sample Deviations

A summary of the sample deviations from 2009 are listed in Table 5-1. Only those deviations that resulted in a CR being written, demonstrate a sample not achieving the required detection sensitivity, or represent a non-mechanical error are reported.

TABLE 5-1 REMP Sample Deviations for 2009				
SAMPLE MEDIA	DATE	LOCATION	CR/AR ID	PROBLEM / COMMENTS
Water Composite Sampler	3/1/09	Station 27	193273 194133	Sampler declared INOP for 10 hours due to full containers. Sampling interval changed 4/14/09 to prevent reoccurrence.
Water Composite Sampler	5/26/09	Station 27	198121	Sampler found off though blowdown was in progress. OPS contacted and sampler turned on. Plant in shut down.
Water Composite Sampler	6/1/09	Station 27	NA	Sampler off for ~ 54 hours for planned power outage, blowdown in progress. Plant in shut down.
Water Composite Sampler	8/20/09	Station 27	203169	Sampler off for ~ 16 hours though blowdown in progress. OPS contacted and sampler turned on. Plant in shut down.
Air Sampler	11/3/09	Station 5	NA	Power off at station for week due to sub station renovation. Not a ODCM or EFSEC required sample location.
Air Sampler	11/24/09	Station 23	NA	Power off for week due to planned power outage. This is EFSEC but not a ODCM required sample.
Air Sampler	12/15/09	Station 5	NA	Power off at station for week due to sub station renovation. Not a ODCM or EFSEC required sample location.
Fish	Annual 2009	Station 30, 38	212250	Fish collected at control location not in all cases same species as collected at indicator location.

TABLE 5-2							
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY							
COLUMBIA GENERATING STATION				DOCKET NO. 50-397			
Benton County, Washington				Calendar Year 2009			
Medium: Environmental Direct Radiation (TLD)				Units: mR/period			
Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD)	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
TLD Quarterly	228	---	21.21 (224 / 224) (17.61-30.62)	86 NNW 0.3 miles	28.88 (4/4) (28.16-30.62)	19.59 (4/4) (19.24-19.83)	0
TLD Annual	57	---	84.36 (56 / 56) (74.34-114.77)	86 NNW 0.3 miles	114.77 (1/1)	78.46 (1/1)	0

a. (f) is the number of positive measurements / total measurements at specified location.

Reference Appendix A, Tables A-1.1, A-1.2

TABLE 5-2							
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY							
COLUMBIA GENERATING STATION				DOCKET NO. 50-397			
Benton County, Washington				Calendar Year 2009			
Medium: ISFSI Direct Radiation (TLD)				Units: mR/period			
Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD)	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
TLD Quarterly	48	---	135.5 (48 / 48) (37.9-225.0)	137A NNW 0.24 miles	208.18 (4 / 4) (197.33-224.98)	--- (0 / 0)	0
TLD Annual	12	---	550.7 (12 / 12) (161.4-865.2)	137A NNW 0.24 miles	865.2 (1 / 1)	--- (0 / 0)	0

a. (f) is the number of positive measurements / total measurements at specified location.

Reference Appendix A, Tables B-1.1, B-1.2

**TABLE 5-2**

**RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY**  
**COLUMBIA GENERATING STATION** **DOCKET NO. 50-397**  
**Benton County, Washington** **Calendar Year 2009**

Medium: Air Particulate/Air Radioiodine

Units: pCi/m<sup>3</sup>

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
Gross Beta	621	0.01	0.0174 (569/569) (-0.0009-0.0778)	21 ENE 1.45 Miles	0.0198(52/52) (0.0051-0.0611)	0.0155 (52/52) (0.0052 - 0.0506)	0
I-131	621	0.07	--- (0 / 569)	---	---	--- (0 / 52)	0
Cs-134	48	0.05	--- (0 / 44)	---	---	--- (0 / 4)	0
Cs-137	48	0.06	--- (0 / 44)	---	---	--- (0 / 4)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Tables A-2.1, A-2.2, Tables A-3.1, A-3.2, and Tables A- 4.1, A-4.2.

**TABLE 5-2**  
**RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY**  
**COLUMBIA GENERATING STATION** **DOCKET NO. 50-397**  
**Benton County, Washington** **Calendar Year 2009**

Medium: Water-River/Drinking

Units: pCi/L

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>c</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
Gross Beta	24	4.0	---(1 / 24) <sup>(b)</sup>	29 SSE 11.76 miles	0.732(1/12) (-0.864-2.32)	--- (0 / 12)	0
H-3	8	2000	--- (0 / 8) <sup>(b)</sup>	---	---	--- (0 / 4)	0
Mn-54	24	15	--- (0 / 24) <sup>(b)</sup>	---	---	--- (0 / 12)	0
Fe-59	24	30	--- (0 / 24) <sup>(b)</sup>	---	---	--- (0 / 12)	0
Co-58	24	15	--- (0 / 24) <sup>(b)</sup>	---	---	--- (0 / 12)	0
Co-60	24	15	--- (0 / 24) <sup>(b)</sup>	---	---	--- (0 / 12)	0
Zn-65	24	30	--- (0 / 24) <sup>(b)</sup>	---	---	--- (0 / 12)	0
Zr/Nb-95	24	15	--- (0 / 24) <sup>(b)</sup>	---	---	--- (0 / 12)	0
Cs-134	24	15	--- (0 / 24) <sup>(b)</sup>	---	---	--- (0 / 12)	0
Cs-137	24	18	--- (0 / 24) <sup>(b)</sup>	---	---	--- (0 / 12)	0
Ba/La-140	24	15	--- (0 / 24) <sup>(b)</sup>	---	---	--- (0 / 12)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. This includes the control sample for this group; the control (Station 26) is also a drinking water sample.

c. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Tables A-5.1, A-5.2, Tables A-6.1, A-6.2, and Tables A-7.1, A-7.2

**TABLE 5-2**  
**RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY**  
**COLUMBIA GENERATING STATION** **DOCKET NO. 50-397**  
**Benton County, Washington** **Calendar Year 2009**

Medium: Water-Discharge

Units: pCi/L

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
Gross Beta	12	4.0	3.69 (9 / 12) (0.937-8.66)	27 E 3.2 miles	3.69 (9 / 12) (0.937-8.66)	---(0 / 0)	0
H-3	4	2000	--- (0 / 4)	---	---	--- (0 / 0)	0
Mn-54	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Fe-59	12	30	--- (0 / 12)	---	---	--- (0 / 0)	0
Co-58	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Co-60	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Zn-65	12	30	--- (0 / 12)	---	---	--- (0 / 0)	0
Zr/Nb-95	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Cs-134	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Cs-137	12	18	--- (0 / 12)	---	---	--- (0 / 0)	0
Ba/La-140	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Tables A-5.1, A-5.2, Tables A-6.1, A-6.2, and Tables A-7.1, A-7.2

**TABLE 5-2**  
**RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY**  
**COLUMBIA GENERATING STATION** **DOCKET NO. 50-397**  
**Benton County, Washington** **Calendar Year 2009**

Medium: Water- Deep Ground

Units: pCi/L

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
H-3	12	2000	--- (0 / 12)	---	---	--- (0 / 0)	0
Mn-54	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Fe-59	12	30	--- (0 / 12)	---	---	--- (0 / 0)	0
Co-58	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Co-60	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Zn-65	12	30	--- (0 / 12)	---	---	--- (0 / 0)	0
Zr/Nb-95	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Cs-134	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Cs-137	12	18	--- (0 / 12)	---	---	--- (0 / 0)	0
Ba/La-140	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Tables A-6.1, A-6.2, and Tables A-7.1, A-7.2

**TABLE 5-2**  
**RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY**  
**COLUMBIA GENERATING STATION** **DOCKET NO. 50-397**  
**Benton County, Washington** **Calendar Year 2009**

Medium: Water- Shallow Ground

Units: pCi/L

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
Gross Alpha	22	---	6.9 (20 / 22) (0.1-17.2)	MW-3 SSW 0.3 miles	13.0 (2 / 2) (12.2-13.7)	--- (0 / 0)	22
Gross Beta	22	4.0	6.5 (19 / 22) (0.6-16.5)	MW-5 SW 0.43 miles	15.0 (2 / 2) (13.4-16.5)	--- (0 / 0)	22
H-3	44	2000	3600 (41 / 44) (16-17,000)	MW-5 SW 0.43 miles	16,800 (4 / 4) (16,600-17,000)	--- (0 / 0)	0
Mn-54	44	15	--- (0 / 44)	---	---	--- (0 / 0)	0
Fe-59	44	30	--- (0 / 44)	---	---	--- (0 / 0)	0
Co-58	44	15	--- (0 / 44)	---	---	--- (0 / 0)	0
Co-60	44	15	--- (0 / 44)	---	---	--- (0 / 0)	0
Zn-65	44	30	--- (0 / 44)	---	---	--- (0 / 0)	0
Zr/Nb-95	44	15	--- (0 / 44)	---	---	--- (0 / 0)	0
Cs-134	44	15	--- (0 / 44)	---	---	--- (0 / 0)	0
Cs-137	44	18	--- (0 / 44)	---	---	--- (0 / 0)	0
Ba/La-140	44	15	--- (0 / 44)	---	---	--- (0 / 0)	0
Fe-55	22	---	--- (0 / 22)	---	---	--- (0 / 0)	22
Ni-63	22	---	--- (0 / 22)	---	---	--- (0 / 0)	22
Sr-90	22	---	--- (0 / 22)	---	---	--- (0 / 0)	22

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Tables B-9.1, B-10.1, B-10.2, B-11.1, and B-12.1.



**TABLE 5-2**  
**RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY**  
**COLUMBIA GENERATING STATION** **DOCKET NO. 50-397**  
**Benton County, Washington** **Calendar Year 2009**

Medium: River Sediment

Units: pCi/kg

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
Cs-134	4	150	--- (0 / 2)	---	---	--- (0 / 2)	0
Cs-137	4	180	158 (2 / 2) (145-171)	34 ESE 3.32 Miles	150 (2 / 2) (145-171)	44.3 (1 / 2) (36.8-51.8)	0
Co-60	4	---	--- (0 / 2)	---	---	--- (0 / 2)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Tables A-9.1, A-9.2.

**TABLE 5-2**  
**RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY**  
**COLUMBIA GENERATING STATION** **DOCKET NO. 50-397**  
**Benton County, Washington** **Calendar Year 2009**

Medium: Roots

Units: pCi/kg

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
I-131	8	60	--- (0 / 4)	---	---	--- (0 / 4)	0
Cs-134	8	60	--- (0 / 4)	---	---	--- (0 / 4)	0
Cs-137	8	80	--- (0 / 4)	---	---	--- (0 / 4)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Tables A-15.1, A-15.2.

**TABLE 5-2**  
**RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY**  
**COLUMBIA GENERATING STATION** **DOCKET NO. 50-397**  
**Benton County, Washington** **Calendar Year 2009**

Medium: Fruits

Units: pCi/kg

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
I-131	9	60	--- (0 / 5)	---	---	--- (0 / 4)	0
Cs-134	9	60	--- (0 / 5)	---	---	--- (0 / 4)	0
Cs-137	9	80	--- (0 / 5)	---	---	--- (0 / 4)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Table A-16.1, A-16.2.

<p align="center"><b>TABLE 5-2</b>  <b>RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY</b>  <b>COLUMBIA GENERATING STATION</b> <span style="float:right"><b>DOCKET NO. 50-397</b></span>  <b>Benton County, Washington</b> <span style="float:right"><b>Calendar Year 2009</b></span></p>							
Medium: Vegetables				Units: pCi/kg			
Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
I-131	16	60	--- (0 / 10)	---	---	--- (0 / 6)	0
Cs-134	16	60	--- (0 / 10)	---	---	--- (0 / 6)	0
Cs-137	16	80	--- (0 / 10)	---	---	--- (0 / 6)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Table A-17.1, A-17.2.

<p align="center"><b>TABLE 5-2</b>  <b>RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY</b>  <b>COLUMBIA GENERATING STATION</b> <span style="float:right"><b>DOCKET NO. 50-397</b></span>  <b>Benton County, Washington</b> <span style="float:right"><b>Calendar Year 2009</b></span></p>							
Medium: Fish				Units: pCi/kg			
Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
Mn-54	6	130	--- (0 / 3)	---	---	--- (0 / 3)	0
Fe-59	6	260	--- (0 / 3)	---	---	--- (0 / 3)	0
Co-58	6	130	--- (0 / 3)	---	---	--- (0 / 3)	0
Co-60	6	130	--- (0 / 3)	---	---	--- (0 / 3)	0
Zn-65	6	260	--- (0 / 3)	---	---	--- (0 / 3)	0
Cs-134	6	130	--- (0 / 3)	---	---	--- (0 / 3)	0
Cs-137	6	150	--- (0 / 3)	---	---	--- (0 / 3)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Table A-10.1, A-10.2.

**TABLE 5-2**  
**RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY**  
**COLUMBIA GENERATING STATION** **DOCKET NO. 50-397**  
**Benton County, Washington** **Calendar Year 2009**

Medium: Milk

Units: pCi/L

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) <sup>b</sup>	Indicator Locations Mean (f) <sup>a</sup> Range	Location With Highest Annual Mean		Control Locations Mean (f) <sup>a</sup> Range	Number of Nonroutine Measurements
				Location Information	Mean (f) <sup>a</sup> Range		
I-131	36	1.0	--- (0 / 18)	---	---	--- (0 / 18)	0
Cs-134	36	15	--- (0 / 18)	---	---	--- (0 / 18)	0
Cs-137	36	18	--- (0 / 18)	---	---	--- (0 / 18)	0
Ba/La-140	36	15	--- (0 / 18)	---	---	--- (0 / 18)	0

a. (f) is the number of positive measurements / total measurements at specified location.

b. These are the ODCM specified LLDs, actual method LLDs will be lower. See Table 4-4.

Reference Appendix A, Tables A-11.1, A-11.2, Tables A-12.1, A-12.2.

**TABLE 5-3**  
**QUARTERLY TLD DATA SUMMARY WITH COMPARISON TO**  
**PREOPERATIONAL AND OPERATIONAL PERIODS**  
 Results in mR/Standard Quarter

Station	Pre-Operational				Operational to 2008				2009 Operational			
	Min	Max	Std Dev	MEAN	Min	Max	Std Dev	MEAN	min	max	Std Dev	MEAN
1	19.16	23.73	2.07	21.90	18.25	27.38	1.77	22.21	21.00	22.08	0.51	21.38
2	17.34	22.81	2.09	21.10	16.43	25.55	1.64	21.73	19.32	21.82	1.16	20.84
3	18.25	21.90	1.46	20.42	16.43	24.64	1.77	21.01	19.13	20.05	0.40	19.59
4	15.51	23.73	2.65	19.96	14.60	22.81	1.76	19.61	17.61	20.59	1.43	18.96
5	18.25	22.81	1.74	20.76	16.43	23.73	1.75	20.13	18.45	19.80	0.59	19.20
6	18.25	21.90	1.50	20.19	16.43	23.73	1.63	20.31	18.68	19.82	0.50	19.15
7	19.16	22.81	1.69	21.33	16.43	24.64	1.81	21.21	18.78	20.37	0.70	19.79
8	21.90	25.55	1.50	23.84	15.51	27.38	2.08	23.34	20.95	22.84	0.85	22.20
9	15.51	21.90	2.00	19.85	16.43	23.73	1.79	19.74	19.24	19.83	0.25	19.59
10	19.16	22.81	1.38	20.99	16.43	24.64	1.73	21.07	18.84	21.64	1.24	20.12
11	19.16	22.81	1.38	21.44	16.43	24.64	1.56	21.58	20.12	22.88	1.18	21.31
12	20.99	24.64	1.60	23.04	18.25	26.46	1.79	23.22	21.42	23.97	1.25	22.61
13	19.16	22.81	1.54	21.44	17.34	27.38	1.88	21.46	19.66	21.07	0.62	20.17
14	19.16	24.64	2.07	21.90	17.34	25.55	1.59	21.57	20.56	21.48	0.40	20.92
15	20.99	25.55	1.37	23.15	17.34	27.38	1.78	23.15	22.32	23.41	0.49	22.71
16	20.08	23.73	1.52	22.13	16.43	26.46	1.88	22.09	20.11	21.64	0.66	20.82
17	19.16	23.73	1.62	22.81	17.34	26.46	1.69	22.58	21.45	23.15	0.78	22.36
18	20.08	23.73	1.27	22.13	16.43	25.55	1.76	22.06	20.71	22.55	0.82	21.35
19	20.08	23.73	1.24	22.01	17.34	25.55	1.65	22.26	19.98	22.75	1.14	21.45
20	19.16	23.73	1.76	21.44	17.34	25.55	1.72	21.89	19.74	22.10	1.08	20.92
21	19.16	21.90	1.25	20.68	15.51	23.73	1.50	20.41	19.37	20.90	0.68	19.99
22	19.16	23.73	1.58	22.01	16.43	25.55	1.56	21.84	20.57	22.57	0.86	21.59
23	20.08	23.73	1.49	21.60	17.34	25.55	1.71	21.25	19.33	20.68	0.55	19.97
24	20.99	23.73	1.09	21.90	17.34	50.50	3.36	22.29	18.28	23.85	2.40	20.40
25	20.99	24.64	1.46	23.15	17.34	27.38	1.99	22.88	19.16	23.53	1.81	21.41
40	17.34	21.90	1.70	19.94	15.51	24.64	1.80	20.22	17.66	19.99	0.98	18.94
41	20.08	25.55	2.00	23.73	17.34	27.38	2.11	22.60	20.23	22.46	1.15	21.34
42	20.08	23.73	1.61	22.36	17.34	26.46	2.01	22.17	20.42	21.71	0.59	20.85
43	20.99	24.64	1.49	23.12	16.43	27.38	2.25	22.68	21.02	23.10	0.85	22.08
44	19.16	22.81	1.34	21.12	15.51	24.64	2.01	20.94	18.59	20.82	1.09	19.53
45	19.16	22.81	1.37	21.25	16.43	25.55	1.86	21.33	19.07	21.25	0.99	20.22
46	22.81	28.29	2.10	26.10	19.16	31.94	2.23	26.61	22.82	27.77	2.06	25.49
47	17.34	20.99	1.73	19.85	15.51	26.28	1.80	20.32	18.70	20.97	1.02	19.50
49	21.90	21.90	-	21.90	16.43	25.55	1.62	21.98	20.52	23.75	1.40	22.24
50	20.08	20.08	-	20.08	16.43	26.46	1.82	21.73	19.30	22.02	1.37	20.82
51	19.16	21.90	1.18	20.53	16.43	24.64	1.71	21.19	19.82	20.84	0.46	20.49
53	24.64	24.64	-	24.64	18.25	29.57	2.07	23.61	21.19	23.05	0.78	22.09
54	23.73	23.73	-	23.73	18.18	26.46	2.04	22.21	18.47	22.19	1.78	20.30
55	20.99	20.99	-	20.99	16.43	25.55	1.57	21.50	19.91	22.69	1.27	21.02
56	21.90	21.90	-	21.90	16.43	25.55	1.83	21.92	19.92	22.27	1.08	20.95
58	-	-	-	-	-	-	-	-	18.52	19.93	0.70	19.22

**TABLE 5-3 (cont)**  
**QUARTERLY TLD DATA SUMMARY WITH COMPARISON TO**  
**PREOPERATIONAL AND OPERATIONAL PERIODS**  
 Results in mR/Standard Quarter

Station	Pre-Operational				Operational to 2008				2009 Operational			
	Min	Max	Std Dev	MEAN	Min	Max	Std Dev	MEAN	min	max	Std Dev	MEAN
65	-	-	-	-	17.73	22.72	1.32	19.96	18.79	20.54	0.87	19.69
71(1S)	20.08	22.81	1.58	21.90	18.25	30.39	2.52	25.30	23.88	27.40	1.71	24.86
72(2S)	21.90	23.73	0.91	22.81	18.25	29.65	2.04	24.45	22.00	24.89	1.19	23.33
73(3S)	20.08	21.90	0.91	20.99	16.43	24.64	1.63	21.33	19.85	21.32	0.64	20.73
74(4S)	23.73	24.64	0.53	24.03	18.25	28.29	1.97	23.49	21.31	23.14	0.85	22.23
75(5S)	19.16	21.90	1.39	20.38	15.51	26.46	1.95	22.33	19.72	23.17	1.47	21.49
76(6S)	20.99	22.81	0.91	21.90	17.34	26.46	1.73	22.11	19.66	21.96	1.06	21.22
77(7S)	21.90	23.73	0.91	22.81	17.34	25.55	1.68	22.11	20.17	21.95	0.75	21.16
78(8S)	21.90	23.73	1.05	22.51	17.34	25.55	1.64	21.60	19.93	22.32	1.24	21.02
79(9S)	22.81	23.73	0.53	23.12	17.34	25.55	1.71	21.97	20.49	21.83	0.56	21.25
80(10S)	20.99	22.81	0.91	21.90	16.43	25.55	1.84	21.11	19.25	20.43	0.51	19.97
81(11S)	20.08	23.73	1.90	22.20	17.34	25.55	1.60	21.60	20.73	21.73	0.49	21.00
82(12S)	21.90	24.64	1.39	23.42	17.34	26.46	1.64	22.48	21.20	22.54	0.55	21.90
83(13S)	21.90	23.73	0.91	22.81	17.34	26.46	1.95	22.40	20.27	22.13	0.80	21.36
84(14S)	20.99	22.81	1.05	22.20	16.43	27.17	1.83	22.41	20.46	21.93	0.66	20.98
85(15S)	21.90	24.64	1.58	23.73	17.34	27.83	1.96	23.19	20.95	23.60	1.19	21.84
86(16S)	21.90	23.73	0.91	22.81	18.25	31.28	2.56	25.79	28.16	30.62	1.17	28.88
87	-	-	-	-	-	-	-	-	22.78	32.67	4.22	26.86
88	-	-	-	-	-	-	-	-	24.53	30.68	2.97	27.60
89	-	-	-	-	-	-	-	-	23.22	29.38	2.71	26.07
90	-	-	-	-	-	-	-	-	18.37	19.50	0.50	18.76
119B	-	-	-	-	19.36	25.64	1.50	22.19	20.73	23.70	1.32	21.94
119Ctrl	-	-	-	-	19.53	26.55	1.48	21.79	20.87	22.40	0.66	21.74
120East	-	-	-	-	19.78	31.12	2.02	22.47	21.34	23.52	0.95	22.15
121 (ISFSI)	-	-	-	-	20.81	130.27	23.59	77.47	49.51	97.13	21.88	73.84
122 (ISFSI)	-	-	-	-	19.62	42.49	7.18	28.74	37.93	40.66	1.28	39.43
123 (ISFSI)	-	-	-	-	24.99	160.33	46.15	109.93	139.93	154.80	6.66	145.20
124 (ISFSI)	-	-	-	-	26.89	201.05	59.76	139.61	170.02	181.62	4.91	176.35
125 (ISFSI)	-	-	-	-	26.46	135.52	35.47	97.41	120.62	128.56	3.46	123.97
126 (ISFSI)	-	-	-	-	26.00	145.68	28.38	68.39	123.44	137.51	6.40	128.16
127 (ISFSI)	-	-	-	-	28.97	102.08	17.58	56.01	89.23	96.76	3.56	91.51
128 (ISFSI)	-	-	-	-	25.64	187.25	41.78	74.27	156.13	177.42	9.92	162.85
129 (ISFSI)	-	-	-	-	30.16	138.08	28.77	62.27	119.39	131.18	5.46	123.05
136A (ISFSI)	-	-	-	-	28.99	205.64	48.59	65.20	180.18	199.12	8.22	187.42
137A (ISFSI)	-	-	-	-	29.47	238.74	56.27	71.24	197.33	224.98	11.80	208.18
138A (ISFSI)	-	-	-	-	28.28	196.68	44.01	62.33	158.70	181.04	10.37	165.79
150 (Site 1)	-	-	-	-	11.92	18.69	1.75	17.33	18.05	19.63	0.68	19.02
151 (Site 4)	-	-	-	-	17.02	32.44	4.31	18.88	18.98	19.87	0.38	19.45

**Table 5-3 Notes:**

The preoperational mean is from 1982-1983 data. Station 65 was added in 1997.  
 Stations 119B, 119Ctrl, and 120 were added in 1995. Stations 121 and 122 were added in 1998 for the ISFSI.  
 Stations 123-129 and 136A-138A were added in the 2nd quarter of 2002. Stations Site 1 and Site 4 were added in 2006.  
 Stations 87 and 88 to 90 were added in 2009 to monitor remediation work at DOE 618-11 burial site.

**TABLE 5-4**  
**ANNUAL TLD DATA SUMMARY WITH COMPARISON TO**  
**PREOPERATIONAL AND OPERATIONAL PERIODS**

Results in mR per Year

Station	Pre-Operational				1984-2008 Operational				2009
	Min	Max	Std Dev	MEAN	Min	Max	Std Dev	MEAN	Result
1	85.37	98.66	9.39	92.02	73.00	102.20	7.30	83.55	83.03
2	83.44	84.53	0.77	83.99	73.00	98.19	6.32	82.23	82.31
3	81.94	85.74	2.68	83.84	70.99	94.17	6.61	78.30	76.67
4	74.46	100.52	18.43	87.49	65.70	87.24	5.68	74.74	78.66
5	81.29	93.62	8.72	87.45	68.62	88.33	5.60	75.89	77.48
6	79.79	83.95	2.94	81.87	69.35	90.52	6.14	76.27	76.16
7	84.28	86.61	1.65	85.45	71.58	97.09	6.27	80.73	76.36
8	94.61	98.62	2.84	96.62	80.34	108.04	7.60	89.97	84.52
9	78.00	81.58	2.53	79.79	68.99	91.98	5.79	75.59	78.46
10	82.02	86.72	3.33	84.37	69.35	93.81	5.17	79.97	81.62
11	83.04	88.26	3.69	85.65	73.00	99.28	6.65	81.91	81.52
12	92.27	94.17	1.34	93.22	80.30	102.57	5.49	87.75	88.84
13	85.41	88.00	1.83	86.71	76.65	97.46	5.80	82.78	82.12
14	84.50	86.25	1.24	85.37	69.35	97.09	6.52	81.27	84.89
15	83.95	94.83	7.69	89.39	76.65	104.03	7.37	88.04	89.56
16	89.61	91.83	1.57	90.72	76.65	101.47	6.60	84.59	88.49
17	85.59	91.47	4.16	88.53	76.65	101.84	6.48	85.65	84.82
18	86.51	97.64	7.87	92.07	76.65	101.47	6.18	85.47	86.97
19	-	-	-	85.63	76.65	104.03	6.07	84.65	85.77
20	85.41	90.05	3.28	87.73	74.78	101.84	6.66	83.63	85.34
21	79.72	84.24	3.20	81.98	69.35	91.25	5.93	76.99	79.73
22	84.79	88.07	2.32	86.43	74.98	97.09	6.37	82.18	80.40
23	83.55	87.09	2.50	85.32	72.65	94.90	6.44	80.06	78.73
24	85.26	87.97	1.91	86.61	74.28	100.01	7.17	82.44	81.32
25	90.56	95.37	3.41	92.97	76.65	104.03	7.46	87.53	91.11
40	-	-	-	76.54	68.08	91.25	6.20	75.45	74.34
41	94.90	97.46	1.81	96.18	75.19	102.20	8.15	85.17	83.40
42	-	-	-	85.81	75.92	104.03	7.58	83.39	81.72
43	-	-	-	88.22	71.18	107.68	9.56	84.19	84.46
44	83.48	89.53	4.28	86.51	71.91	94.17	6.63	79.34	80.54
45	82.53	86.10	2.53	84.32	72.64	96.36	5.89	80.61	79.23
46	102.42	107.53	3.61	104.97	94.90	123.37	7.59	102.80	103.68
47	-	-	-	80.45	69.35	95.27	6.61	78.17	79.51
49	-	-	-	-	76.65	100.74	6.24	82.84	83.54
50	-	-	-	-	73.00	100.01	7.34	81.28	79.79
51	-	-	-	-	72.11	97.46	6.73	80.17	83.04
53	-	-	-	-	77.75	104.03	6.91	89.84	85.90
54	-	-	-	-	75.83	100.38	7.23	84.74	84.41
55	-	-	-	-	72.97	96.36	6.10	80.26	81.83
56	-	-	-	-	71.18	101.47	6.70	83.99	83.72
58	-	-	-	-	-	-	-	-	-
65	-	-	-	-	71.25	86.51	4.30	75.49	76.47

**TABLE 5-4 (cont)**  
**ANNUAL TLD DATA SUMMARY WITH COMPARISON TO**  
**PREOPERATIONAL AND OPERATIONAL PERIODS**  
 Results in mR per Year

Station	Pre-Operational				1984-2008 Operational				2009 Result
	Min	Max	Std Dev	MEAN	Min	Max	Std Dev	MEAN	
71(1S)	-	-	-	88.04	83.95	112.06	7.37	97.42	100.20
72(2S)	-	-	-	91.54	83.95	110.96	6.74	93.72	93.64
73(3S)	-	-	-	83.69	73.00	94.90	5.90	80.37	80.70
74(4S)	-	-	-	88.99	80.30	106.22	6.23	89.80	91.36
75(5S)	-	-	-	86.32	73.00	100.74	6.53	84.49	82.89
76(6S)	-	-	-	88.26	76.65	101.47	5.49	84.55	85.55
77(7S)	-	-	-	89.90	73.00	99.28	5.98	83.88	83.99
78(8S)	-	-	-	89.94	73.00	97.71	6.39	82.63	82.33
79(9S)	-	-	-	91.98	73.00	101.11	6.24	83.01	85.12
80(10S)	-	-	-	85.30	69.42	97.09	6.92	80.52	79.56
81(11S)	-	-	-	82.67	72.19	96.36	6.74	80.89	84.36
82(12S)	-	-	-	89.79	74.83	101.47	6.90	84.88	84.93
83(13S)	-	-	-	91.10	76.65	99.65	6.69	86.18	85.61
84(14S)	-	-	-	84.06	76.03	99.28	6.31	84.68	85.10
85(15S)	-	-	-	92.13	80.30	105.85	6.00	89.71	92.15
86(16S)	-	-	-	87.82	87.60	119.82	8.75	99.91	114.77
87	-	-	-	-	-	-	-	-	107.22
88	-	-	-	-	-	-	-	-	109.73
89	-	-	-	-	-	-	-	-	112.67
90	-	-	-	-	-	-	-	-	77.28
119B	-	-	-	-	75.92	107.68	8.97	82.81	81.09
119Ctrl	-	-	-	-	77.75	101.84	7.10	85.34	85.21
120East	-	-	-	-	78.11	112.79	10.09	87.66	83.36
121 (ISFSI)	-	-	-	-	177.76	377.80	69.63	304.24	297.94
122 (ISFSI)	-	-	-	-	76.29	164.53	32.53	112.11	161.43
123 (ISFSI)	-	-	-	-	126.22	627.95	198.77	443.62	593.21
124 (ISFSI)	-	-	-	-	128.66	714.20	242.67	529.41	692.52
125 (ISFSI)	-	-	-	-	119.59	520.11	154.33	383.15	498.64
126 (ISFSI)	-	-	-	-	123.06	482.43	112.35	269.49	524.95
127 (ISFSI)	-	-	-	-	120.60	350.83	71.24	220.57	373.82
128 (ISFSI)	-	-	-	-	112.96	596.87	156.07	288.34	667.70
129 (ISFSI)	-	-	-	-	121.78	463.59	110.29	240.09	480.98
136A (ISFSI)	-	-	-	-	119.31	637.58	174.88	256.28	763.67
137A (ISFSI)	-	-	-	-	124.36	734.29	207.62	281.01	865.22
138A (ISFSI)	-	-	-	-	122.70	577.56	157.38	238.63	688.04
150 (Site 1)	-	-	-	-	68.59	73.97	2.77	70.91	71.95
151 (Site 4)	-	-	-	-	46.44	68.26	12.54	60.92	73.33

**Table 5-4 Notes:**

The preoperational period was from 1982-1983. Only one annual preoperational exchange was made at some locations. Stations 49-56 were first monitored during the Fourth Quarter of 1983. Stations 65 was added in 1997. Stations 119B, 119Ctrl, and 120 were added in 1995. Stations 121 and 122 were added in 1998 to gather baseline data for the ISFSI. Stations 123-129 and 136A-138A were added in the 2nd Quarter of 2002. Stations Site 1 and 4 were added in 2006. Stations 58 and 87 to 90 were added in 2008 to monitor remediation work at DOE 618-11 burial site.



**6.0 QUALITY ASSURANCE AND QUALITY CONTROL**

## **6.0 QUALITY ASSURANCE AND QUALITY CONTROL**

The REMP is designed to meet the quality assurance (QA) and quality control (QC) criteria of the NRC Regulatory Guide 4.15<sup>(4)</sup> and 10 CFR 50 Appendix B<sup>(10)</sup>. The contractors used for sample analysis, Energy Northwest Environmental Services and Battelle PNNL, maintain quality control programs to ensure that analytical results are accurate, precise, and defensible. The following sections summarize the quality assurance and quality control aspects of the TLD, sample collection, and sample analysis components of the REMP.

### **6.1 Quality Control for the Energy Northwest Environmental TLD Program**

The Quality Control program for the Energy Northwest REMP TLDs covers the preparation, transportation, deployment, collection, storage, processing, and evaluation.

From the time the TLDs are annealed to the time they are placed in the field, they are stored and transported with control TLDs. Two sets of control TLDs are used, the building controls and the transportation (trip) controls. The building controls monitor the exposure that the TLDs receive while being transported to and from the TLD vendor and while in storage awaiting deployment and analysis. The trip controls accompany the field TLD set while they are being transported to and from the vendor and also while they are being deployed and collected in the field. The building controls and trip controls are stored in a low background lead shield while the field TLDs are deployed. If the trip control results are greater than the building control results, the difference between the two is subtracted from the field dosimeters to account for exposure during transit.

Reader QC dosimeters are prepared by Battelle at the Pacific Northwest National Laboratory and serve as indicators that the reader calibration is satisfactory and that the TLDs were processed correctly. These TLDs are annealed and then given a known exposure (typically 100 mR) to a cesium-137 source. The number of QC dosimeters used during each processing is generally 10% of the number of field dosimeters. Evaluation of the 2009 reader QC dosimeter results indicated satisfactory agreement for all periods. The average reader QC results are presented in Table 6-1.

TLDs designated as spikes are prepared by the Energy Northwest Radiation Protection Department by exposing the TLDs to a calibrated source to produce a known exposure. The spiked dosimeters are submitted and processed with the field dosimeters to further verify the accuracy and precision of the environmental TLD results. Quarterly spikes receive a target exposure of 22 mR and annual spikes receive a target exposure of 88 mR. Additional spiked TLDs were prepared in the 1<sup>st</sup> and 2<sup>nd</sup> quarters to test the calibrated source mechanism at different exposure times and distances. Evaluation of the 2009 spiked dosimeter results indicated satisfactory agreement for all periods. Spiked TLD results are presented in Table 6-1.

### **6.2 Quality Control for the Environmental Sample Program**

Quality control for the environmental sample program encompasses both the sample collection and sample analysis processes. Results are reviewed for correctness, reasonableness, and data entry errors. Sample results that are suspect are normally investigated. A crosscheck program utilizing blind samples supplied by an outside vendor is maintained for all the sample media routinely analyzed.

### 6.2.1 Sample Collection Quality Control

Duplicate samples are collected and submitted for analysis when practical. The duplicate samples are used to assess the repeatability of the sample collection process and the precision of the analytical method.

### 6.2.2 Laboratory Instruments Quality Control

**Analytical Balances** - Analytical balances used in the laboratory for sample preparations are calibrated every six months. Performance checks are performed prior to use and span the range of intended use. Performance check results are documented on the sample preparation forms and are kept with the analytical results.

**Analytical Instruments** – Analytical instruments used for determining radioactive emissions in samples are calibrated for efficiency annually using standard reference material traceable to the National Institute of Standards and Technology (NIST). Below is a summary of the routine QC practices for the different analytical instruments.

- **Gas-flow Proportional Counter:** QC and background checks are performed daily when in use. Control charts are maintained with two and three-sigma limits specified; the checks must fall within the two-sigma warning limits prior to use. Mid batch and end of batch performance checks are normally performed.
- **Gamma Spectrometers:** Checked daily for efficiency, energy per channel relationship, peak resolution, and background when in use. The checks are performed and plotted for both a low and high energy peak. Efficiency checks are held within two-sigma control limits. Long duration background checks are performed periodically.
- **Liquid Scintillation Counter:** Background and performance checks are performed daily when in use. A QC check in the same matrix as the samples is performed and trended. A low level check standard is analyzed with each batch of samples analyzed.

### 6.2.3 Sample Batch Quality Control

Sample batch analysis is normally performed with sample blanks and known-addition samples (or spiked samples) included. The type of known addition sample used is dictated by the sample media being analyzed, the primary analytes of interest, and the method being used. The following is a summary of sample batch QC activities.

**Iodine-131 Cartridges** - At least one known-addition sample was analyzed with each batch. In most cases, a charcoal cartridge of the same type used for sample collection but spiked with Ba-133 is used. The 356 keV peak of Ba-133 serves as a proxy for the 364 keV peak of I-131.

**Gross Beta Filters** - At least one unused blank air particulate filter and at least one known-addition air particulate filter was analyzed with each batch.

**Aqueous Samples** – In most cases, samples collected from the control locations were analyzed as blanks. A known-addition sample was analyzed with each batch of samples.

**Gross Alpha/Beta in Water** - Blank samples were prepared from reagent grade water and analyzed with each batch of samples. One known addition sample and one replicate sample is normally analyzed with each batch.

**Tritium in Water** – A blank and a low level known addition sample are typically analyzed with each batch. A replicate sample was prepared and analyzed inside of each batch in most cases.

### **6.3 Laboratory Intercomparison Program Participation and Results**

Participation in cross check intercomparison studies is mandatory for laboratories performing analyses of CGS REMP samples. Intercomparison studies provide a consistent and effective means to evaluate the accuracy and precision of analyses performed by a laboratory. Study results should fall within specified control limits, results that fall outside the control limits should be investigated and corrective action taken.

The Energy Northwest Environmental Services Laboratory participated in both RAD and MRAD proficiency testing studies provided by Environmental Resource Associates (ERA) during 2009. The Laboratories intercomparison program was further supplemented by additional cross check media provided by Analytics, Inc. The Laboratories intercomparison program results for 2009 are shown in Table 6-2; results for all media and analytes tested were acceptable. Participation in the ERA and Analytics studies serves to meet the intercomparison program requirements specified in the ODCM. The Laboratory did not participate in a MAPEP study during 2009.

In addition to the studies noted above, the CGS REMP maintains a split sample program with the State of Washington Department of Health. Split samples are sent to a State of Washington Lab on a scheduled frequency where they are independently analyzed. This program provides an additional check on the accuracy and precision of the results reported in this document.

TABLE 6-1  
2009 ENVIRONMENTAL SPIKED DOSIMETER RESULTS

PERIOD	SPIKE ID	KNOWN EXPOSURE (mR)	REPORTED EXPOSURE (mR)	BIAS (%)
1st Quarter	ENW Spike	22	22.33	1.5%
	ENW Spike	22	21.23	-3.5%
	ENW Spike	22	22.55	2.5%
	ENW Spike	22	21.18	-3.7%
	ENW Spike	22	22.95	4.3%
	ENW Spike	22	23.42	6.5%
	PNNL Avg. Reader	100	102.2	2.2%
2nd Quarter	ENW Spike	22	21.64	-1.7%
	ENW Spike	22	22.70	3.2%
	ENW Spike	22	21.07	-4.2%
	ENW Spike	22	23.88	8.6%
	ENW Spike	22	23.70	7.7%
	ENW Spike	22	22.23	1.0%
	PNNL Avg. Reader	100	102.1	2.1%
3rd Quarter	ENW Spike	22	20.52	0.5%
	ENW Spike	22	19.32	-5.4%
	ENW Spike	22	20.50	0.4%
	PNNL Avg. Reader	100	102.3	2.3%
4th Quarter	ENW Spike	22	22.02	0.1%
	ENW Spike	22	23.18	5.4%
	ENW Spike	22	21.08	-4.2%
	PNNL Avg. Reader	100	102.6	2.6%
Annual	ENW Spike	88	88.46	0.5%
	ENW Spike	88	86.17	-2.1%
	ENW Spike	88	82.84	-5.9%
	PNNL Avg. Reader	100	103.8	3.8%

TABLE 6-2  
ENW REMP PROGRAM CROSS CHECKS PERFORMANCE RESULTS

<b>ERA MRAD-10 Results Spring 2009</b>					
<b>Standard/Analyte</b>	<b>Units</b>	<b>Reported Value</b>	<b>Assigned Value</b>	<b>Acceptance Limits</b>	<b>Performance Evaluation</b>
<b>Air Filter Radionuclides</b>					
Americium-241	pCi/Filter	60.2	55.4	32.4 - 76.0	Acceptable
Cesium-134	pCi/Filter	852	865	563 - 1070	Acceptable
Cesium-137	pCi/Filter	755	724	544 - 951	Acceptable
Cobalt-60	pCi/Filter	504	490	379 - 612	Acceptable
Manganese-54	pCi/Filter	< 5	0		Acceptable
Zinc-65	pCi/Filter	204	185	128 - 256	Acceptable
<b>Air Filter Gross Alpha/Beta</b>					
Gross Alpha	pCi/Filter	77.7	63.8	33.1 - 96.0	Acceptable
Gross Beta	pCi/Filter	63.3	80.7	49.7 - 118	Acceptable
<b>Water Radionuclides</b>					
Americium-241	pCi/L	125	132	90.4 - 178	Acceptable
Cesium-134	pCi/L	716	790	584 - 907	Acceptable
Cesium-137	pCi/L	914	913	776 - 1090	Acceptable
Cobalt-60	pCi/L	1200	1230	1070 - 1450	Acceptable
Manganese-54	pCi/L	< 8	0		Acceptable
Zinc-65	pCi/L	667	631	535 - 786	Acceptable
<b>Water Gross Alpha/Beta</b>					
Gross Alpha	pCi/L	64.6	112	49.7 - 166	Acceptable
Gross Beta	pCi/L	83.1	81.5	47.7 - 120	Acceptable
<b>Water Tritium</b>					
Tritium	pCi/L	11659	11800	7680 - 17400	Acceptable
<b>Soil Radionuclides</b>					
Actinium-228	pCi/kg	1250	1330	860 - 1880	Acceptable
Americium-241	pCi/kg	1430	1660	992 - 2130	Acceptable
Bismuth-212	pCi/kg	790	1550	406 - 2310	Acceptable
Bismuth-214	pCi/kg	1290	1420	872 - 2050	Acceptable
Cesium-134	pCi/kg	4690	5170	3330 - 6220	Acceptable
Cesium-137	pCi/kg	4970	4970	3500 - 6460	Acceptable
Cobalt-60	pCi/kg	7400	7520	5470 - 10100	Acceptable
Lead-212	pCi/kg	1140	1260	820 - 1780	Acceptable
Lead-214	pCi/kg	1370	1510	902 - 2260	Acceptable
Manganese-54	pCi/kg	< 41	0		Acceptable
Potassium-40	pCi/kg	10200	11200	8060 - 15100	Acceptable
Zinc-65	pCi/kg	2030	1940	1540 - 2600	Acceptable
<b>Vegetation Radionuclides</b>					
Americium-241	pCi/kg	4410	3660	2090 - 5030	Acceptable
Cesium-134	pCi/kg	1920	1880	1080 - 2600	Acceptable
Cesium-137	pCi/kg	2410	1800	1320 - 2500	Acceptable
Cobalt-60	pCi/kg	1890	1710	1160 - 2460	Acceptable
Manganese-54	pCi/kg	< 45	0		Acceptable
Potassium-40	pCi/kg	30700	30800	22300 - 43700	Acceptable
Zinc-65	pCi/kg	1070	878	634 - 1200	Acceptable

TABLE 6-2  
ENW REMP PROGRAM CROSS CHECKS PERFORMANCE RESULTS

ERA MRAD-11 Results Fall 2009					
Standard/Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation
<b>Air Filter Radionuclides</b>					
Americium-241	pCi/Filter	76	67.8	39.7 - 93	Acceptable
Cesium-134	pCi/Filter	456.4	524	341 - 648	Acceptable
Cesium-137	pCi/Filter	468.7	405	304 - 532	Acceptable
Cobalt-60	pCi/Filter	740.5	694	537 - 867	Acceptable
Manganese-54	pCi/Filter	< 9	0		Acceptable
Zinc-65	pCi/Filter	621.5	490	339 - 679	Acceptable
<b>Air Filter Gross Alpha/Beta</b>					
Gross Alpha	pCi/Filter	62.9	56.7	29.4 - 85.3	Acceptable
Gross Beta	pCi/Filter	60.1	62.5	38.5 - 679	Acceptable
<b>Water Radionuclides</b>					
Americium-241	pCi/L	161.3	152	104 - 205	Acceptable
Cesium-134	pCi/L	578.3	653	482 - 750	Acceptable
Cesium-137	pCi/L	683.1	690	586 - 827	Acceptable
Cobalt-60	pCi/L	813.4	837	729 - 989	Acceptable
Manganese-54	pCi/L	< 8.5	0		Acceptable
Zinc-65	pCi/L	664.6	636	539 - 793	Acceptable
<b>Water Gross Alpha/Beta</b>					
Gross Alpha	pCi/L	55.55	80.0	35.5 - 119	Acceptable
Gross Beta	pCi/L	51.7	67.4	39.4 - 98.9	Acceptable
<b>Water Tritium</b>					
Tritium	pCi/L	18189.2	18300	11900 - 27000	Acceptable
<b>Soil Radionuclides</b>					
Actinium-228	pCi/kg	1240.3	1380	885 - 1940	Acceptable
Americium-241	pCi/kg	1726.6	1790	1070 - 2300	Acceptable
Bismuth-212	pCi/kg	965.1	1670	438 - 2500	Acceptable
Bismuth-214	pCi/kg	1221.5	1330	816 - 1910	Acceptable
Cesium-134	pCi/kg	2053.9	2320	1490 - 2790	Acceptable
Cesium-137	pCi/kg	2039.4	2180	1670 - 2830	Acceptable
Cobalt-60	pCi/kg	1922.7	2000	1460 - 2680	Acceptable
Lead-212	pCi/kg	1234.4	1360	877 - 1910	Acceptable
Lead-214	pCi/kg	1212.3	1310	784 - 1950	Acceptable
Manganese-54	pCi/kg	< 54	0		Acceptable
Potassium-40	pCi/kg	9812.4	10800	7830 - 14600	Acceptable
Zinc-65	pCi/kg	2278.0	2260	1790 - 3030	Acceptable
<b>Vegetation Radionuclides</b>					
Americium-241	pCi/kg	3170	3850	2190 - 5290	Acceptable
Cesium-134	pCi/kg	1330	1780	1020 - 2470	Acceptable
Cesium-137	pCi/kg	1160	1460	1070 - 2030	Acceptable
Cobalt-60	pCi/kg	1730	2170	1470 - 3120	Acceptable
Manganese-54	pCi/kg	< 50	0		Acceptable
Potassium-40	pCi/kg	29500	34400	24700 - 48700	Acceptable
Zinc-65	pCi/kg	1190	1300	939 - 1780	Acceptable

TABLE 6-2  
ENW REMP PROGRAM CROSS CHECKS PERFORMANCE RESULTS

2009 Analytics Crosscheck Results I-131 Charcoal Cartridge						
Sample ID	Analysis	Units	Result	Ref Value	Acceptance Limits	Performance Evaluation
E6552-723	I-131	pCi	70.3	79.6	67.7 – 91.5	Acceptable
A 23925-88	I-131	uCi	0.285	0.299	0.254 - 0.344	Acceptable

ERA MRAD-77 Results Fall 2009 I-131 in Milk						
Sample ID	Analysis	Units	Result	Ref Value	Acceptance Limits	Performance Evaluation
RAD-77	I-131	pCi	25.2	26.1	21.7 – 30.8	Acceptable



## **7.0 REFERENCES**

## 7.0 REFERENCES

1. U.S. Nuclear Regulatory Commission, "Programs For Monitoring Radioactivity in the Environs of Nuclear Power Plants," Regulatory Guide 4.1, Revision 1, April 1975.
2. U.S. Nuclear Regulatory Commission, "Environmental Technical Specifications For Nuclear Power Plants," Regulatory Guide 4.8, December 1975.
3. U.S. Nuclear Regulatory Commission, "An Acceptable Radiological Environmental Monitoring Program," Assessment Branch Technical Position Revision 1, November 1979.
4. U.S. Nuclear Regulatory Commission, "Quality Assurance For Radiological Environmental Monitoring Program (Normal Operations), Effluent Streams and the Environment," Regulatory Guide 4.15, Revision 1, February 1979.
5. U.S. Nuclear Regulatory Commission, "Performance, Testing and Procedural Specifications For Thermoluminescence Dosimetry-Environmental Applications," Regulatory Guide 4.13, Revision 1, July 1977.
6. Energy Facility Site Evaluation Council, Resolution No. 260, January 1992.
7. Energy Northwest Nuclear Columbia Generating Station, Operating License NPF-21, "Technical Specifications" Sections 5.5.1 and 5.6.1
8. Columbia Generating Station Offsite Dose Calculation Manual (ODCM).
9. Code of Federal Regulations, Title 10 Part 20, "Standards for Protection against Radiation."
10. Code of Federal Regulations, Title 10 Part 50, "Domestic Licensing of Production and Utilization Facilities."
11. US DOE, 1995, *Hanford Site Background: Evaluation of Existing Soil Radionuclide Data*, DOE/RL-95-55, US Dept. of Energy, Richland, WA.
12. Washington Administrative Code 173-200-040, "Water Quality Standards for Ground Water of the State of Washington - Criteria."
13. Washington Administrative Code 173-201A, "Water Quality Standards for Surface Waters of the State of Washington."
14. Reference number not used.
15. Energy Facility Site Evaluation Council, Resolution No. 300, approved September 10, 2001.
16. Energy Facility Site Evaluation Council, Resolution No. 299, approved August 13, 2001.

17. Energy Northwest, "Columbia Generating Station Final Safety Analysis Report," Section 2.3.1.1.
18. Reference number not used.
19. PNNL, 2009, *Hanford Site Environmental Monitoring Report for Calendar Year 2008*, PNNL-18427, Pacific Northwest National Laboratory, Richland, WA.
20. PNNL, 2007, *Summary of Hydrogeology and Evaluation of Existing Groundwater Monitoring Wells for Outfalls 002 and 003 at the Columbia generating Station*, PNWD-3845, Pacific Northwest National Laboratory, Richland, WA.
21. Nuclear Energy Institute, *Industry Ground Water Protection Initiative – Final Guidance Document*, NEI 07-07, Nuclear Energy Institute, 1776 I Street N. W., Suite 400, Washington D.C.

**8.0 ERRATA**

**8.0**    **ERRATA**

No corrections to the Columbia Generating Stations previous Annual Radiological Environmental Monitoring Reports were identified.



## **APPENDIX A**

### **2009 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT COLUMBIA GENERATING STATION**

#### **DATA TABLES A and B**

**Covers Sample Collection Period Starting January 2009 Through December 2009**

#### **RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM**

**Prepared by:**

**Energy Northwest - Environmental Services Staff  
Richland, WA**

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## FORWARD

Since mid-1984, the results of the REMP analyses have been presented as net results calculated from total counts minus the observed background counts of the detection method. Counting results for low level samples are often within the counting error of the background determination; consequently results can range from negative to positive values in these samples. Though most of the analytical results presented in this Appendix are below the detection limit, listing the actual calculated value, even when it is negative or below the detection limit, prevents positive biases and loss of individual results inherent in the use of "less than" (<) values. It is standard practice to report radiological environmental data in this manner.

Most results listed in this Appendix are accompanied by a plus or minus ( $\pm$ ) error value. In most cases the error value represents the two sigma counting uncertainty determined for that particular analysis. These error values are in the same units as the listed activity values. The two sigma error value represents the range that a recount of the same sample would be expected to fall within 95% of the time, based on the statistics encountered in the original count.

Also included in most cases are the analysis specific, minimum detectable activity (MDA) values. Though similar in concept to the LLD, these values are based on the statistics encountered in the specific sample count itself and not a blank determination. As such, they are a *a posteriori* (after the fact) determination where the LLD is a *a priori* (before the fact) determination. These values were included as they represent the level of activity that would have needed to be present in the sample for a positive identification to be made.

TABLE A-1.1  
**2009 QUARTERLY & ANNUAL TLD RESULTS**  
 Results in milli-Roentgen (mR)

Station ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Quarterly Sum	Annual TLD Result	Ratio Quarterly Sum / Annual
1	21.02	21.43	21.00	22.08	85.54	83.03	1.03
2	21.65	19.32	21.82	20.56	83.35	82.31	1.01
3	19.13	19.43	19.77	20.05	78.37	76.67	1.02
4	17.91	19.72	17.61	20.59	75.83	78.66	0.96
5	19.80	18.45	19.49	19.04	76.79	77.48	0.99
6	18.88	19.20	18.68	19.82	76.58	76.16	1.01
7	20.37	18.78	19.94	20.09	79.18	76.36	1.04
8	22.36	20.95	22.84	22.64	88.80	84.52	1.05
9	19.64	19.66	19.24	19.83	78.38	78.46	1.00
10	18.84	20.57	19.43	21.64	80.48	81.62	0.99
11	20.12	21.45	20.80	22.88	85.24	81.52	1.05
12	21.42	23.36	21.68	23.97	90.43	88.84	1.02
13	19.66	19.94	20.01	21.07	80.69	82.12	0.98
14	20.56	20.78	20.84	21.48	83.66	84.89	0.99
15	22.32	22.69	22.41	23.41	90.82	89.56	1.01
16	20.11	21.01	20.53	21.64	83.29	88.49	0.94
17	21.45	22.00	23.15	22.84	89.45	84.82	1.05
18	20.71	21.09	21.05	22.55	85.39	86.97	0.98
19	19.98	21.53	21.54	22.75	85.80	85.77	1.00
20	20.32	19.74	22.10	21.53	83.69	85.34	0.98
21	19.37	20.08	19.60	20.90	79.95	79.73	1.00
22	20.57	21.91	21.30	22.57	86.35	80.40	1.07
23	19.92	19.33	20.68	19.96	79.88	78.73	1.01
24	19.68	23.85	19.80	18.28	81.61	81.32	1.00
25	21.10	23.53	21.85	19.16	85.64	91.11	0.94
40	18.84	19.27	17.66	19.99	75.76	74.34	1.02
41	20.23	22.18	20.48	22.46	85.35	83.40	1.02
42	20.42	20.50	21.71	20.77	83.40	81.72	1.02
43	21.02	22.13	22.09	23.10	88.34	84.46	1.05
44	18.67	20.04	18.59	20.82	78.12	80.54	0.97
45	19.07	20.81	19.77	21.25	80.90	79.23	1.02
46	22.82	26.07	25.29	27.77	101.95	103.68	0.98
47	18.95	19.37	18.70	20.97	77.99	79.51	0.98
49	20.52	22.90	21.80	23.75	88.97	83.54	1.07
50	19.30	22.02	20.03	21.92	83.27	79.79	1.04
51	20.84	20.66	19.82	20.64	81.96	83.04	0.99
53	21.19	21.85	22.25	23.05	88.34	85.90	1.03
54	18.47	21.39	19.13	22.19	81.19	84.41	0.96
55	19.91	21.32	20.15	22.69	84.07	81.83	1.03
56	19.92	21.38	20.24	22.27	83.81	83.72	1.00
65	19.12	20.31	18.79	20.54	78.76	76.47	1.03

TABLE A-1.1  
**2009 QUARTERLY & ANNUAL TLD RESULTS**  
 Results in milli-Roentgen (mR)

Station ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Quarterly Sum	Annual TLD Result	Ratio Quarterly Sum / Annual
71	24.24	23.88	23.92	27.40	99.43	100.20	0.99
72	23.08	22.00	23.34	24.89	93.32	93.64	1.00
73	20.70	19.85	21.05	21.32	82.92	80.70	1.03
74	21.73	21.31	23.14	22.74	88.92	91.36	0.97
75	19.72	22.05	21.02	23.17	85.96	82.89	1.04
76	21.46	19.66	21.81	21.96	84.89	85.55	0.99
77	20.17	21.43	21.10	21.95	84.65	83.99	1.01
78	20.00	21.82	19.93	22.32	84.06	82.33	1.02
79	20.49	21.37	21.31	21.83	85.01	85.12	1.00
80	19.25	20.07	20.12	20.43	79.88	79.56	1.00
81	20.77	20.76	20.73	21.73	84.00	84.36	1.00
82	21.20	21.94	21.92	22.54	87.60	84.93	1.03
83	22.13	20.27	21.34	21.71	85.45	85.61	1.00
84	20.46	20.61	20.93	21.93	83.93	85.10	0.99
85	20.95	21.30	21.53	23.60	87.38	92.15	0.95
86	28.23	28.16	28.52	30.62	115.52	114.77	1.01

TABLE A-1.2  
**2009 QUARTERLY & ANNUAL TLD RESULTS- SUMMARY**  
 Results in milli-Roentgen (mR)

Location	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
Quarterly Indicator TLDs	21.21	17.61	30.62	224	224
Quarterly Control TLDs	19.59	19.24	19.83	4	4
Annual Indicator TLDs	84.36	74.34	114.77	56	56
Annual Control TLDs	78.46	78.46	78.46	1	1

Table A-2.1  
**GROSS BETA ON AIR PARTICULATE FILTERS**  
 Results in pCi per Cubic Meter

Collection Period	Station 01		Station 04		Station 05	
	Result	Error	Result	Error	Result	Error
12/30/08 - 01/06/09	9.18E-03	± 6.13E-04	8.65E-03	± 5.99E-04	6.93E-03	± 5.43E-04
01/06/09 - 01/13/09	8.01E-03	± 5.74E-04	9.03E-03	± 6.04E-04	6.18E-03	± 5.14E-04
01/13/09 - 01/20/09	2.39E-02	± 9.60E-04	2.44E-02	± 9.70E-04	2.25E-02	± 9.32E-04
01/20/09 - 01/27/09	5.29E-02	± 1.44E-03	4.61E-02	± 1.34E-03	4.62E-02	± 1.34E-03
01/27/09 - 02/03/09	2.13E-02	± 8.98E-04	1.90E-02	± 8.49E-04	1.59E-02	± 7.82E-04
02/03/09 - 02/10/09	3.58E-02	± 1.16E-03	3.29E-02	± 1.11E-03	3.10E-02	± 1.08E-03
02/10/09 - 02/17/09	1.77E-02	± 8.23E-04	1.57E-02	± 7.77E-04	1.66E-02	± 7.94E-04
02/17/09 - 02/24/09	3.29E-02	± 1.12E-03	2.93E-02	± 1.06E-03	2.56E-02	± 9.93E-04
02/24/09 - 03/03/09	8.22E-03	± 5.90E-04	9.46E-03	± 6.24E-04	7.82E-03	± 5.75E-04
03/03/09 - 03/10/09	1.09E-02	± 6.63E-04	9.89E-03	± 6.37E-04	1.01E-02	± 6.42E-04
03/10/09 - 03/17/09	2.06E-02	± 8.81E-04	1.72E-02	± 8.09E-04	1.66E-02	± 7.97E-04
03/17/09 - 03/24/09	9.09E-03	± 6.09E-04	8.58E-03	± 5.94E-04	7.46E-03	± 5.63E-04
03/24/09 - 03/31/09	9.49E-03	± 6.30E-04	7.68E-03	± 5.77E-04	6.86E-03	± 5.53E-04
03/31/09 - 04/07/09	7.79E-03	± 5.78E-04	9.55E-03	± 6.30E-04	8.88E-03	± 6.12E-04
04/07/09 - 04/14/09	8.34E-03	± 6.00E-04	6.83E-03	± 5.54E-04	6.29E-03	± 5.41E-04
04/14/09 - 04/21/09	1.36E-02	± 7.38E-04	1.18E-02	± 6.94E-04	1.22E-02	± 7.00E-04
04/21/09 - 04/28/09	1.39E-02	± 7.30E-04	1.07E-02	± 6.51E-04	1.11E-02	± 6.63E-04
04/28/09 - 05/05/09	1.19E-02	± 6.97E-04	8.39E-03	± 6.04E-04	9.99E-03	± 6.46E-04
05/05/09 - 05/12/09	4.39E-03	± 4.91E-04	5.19E-03	± 5.20E-04	3.97E-03	± 4.75E-04
05/12/09 - 05/19/09	9.88E-03	± 6.30E-04	1.13E-02	± 6.67E-04	8.30E-03	± 5.82E-04
05/19/09 - 05/26/09	1.35E-02	± 7.14E-04	1.60E-02	± 7.76E-04	1.37E-02	± 7.20E-04
05/26/09 - 06/02/09	1.41E-02	± 7.39E-04	1.47E-02	± 7.51E-04	1.49E-02	± 7.57E-04
06/02/09 - 06/09/09	1.53E-02	± 7.61E-04	1.43E-02	± 7.37E-04	1.45E-02	± 7.43E-04
06/09/09 - 06/16/09	1.71E-02	± 8.15E-04	1.58E-02	± 7.81E-04	1.52E-02	± 7.70E-04
06/16/09 - 06/23/09	7.59E-03	± 5.74E-04	7.47E-03	± 5.74E-04	6.83E-03	± 5.48E-04
06/23/09 - 06/30/09	1.11E-02	± 6.67E-04	1.19E-02	± 6.87E-04	1.05E-02	± 6.55E-04
06/30/09 - 07/07/09	1.54E-02	± 7.85E-04	1.63E-02	± 8.06E-04	1.43E-02	± 7.60E-04
07/07/09 - 07/14/09	1.21E-02	± 6.83E-04	1.38E-02	± 7.27E-04	1.21E-02	± 6.83E-04
07/14/09 - 07/21/09	1.44E-02	± 7.45E-04	1.55E-02	± 7.73E-04	1.48E-02	± 7.57E-04
07/21/09 - 07/28/09	1.30E-02	± 7.20E-04	1.38E-02	± 7.38E-04	1.43E-02	± 7.52E-04
07/28/09 - 08/04/09	2.00E-02	± 8.77E-04	1.89E-02	± 8.54E-04	1.68E-02	± 8.06E-04
08/04/09 - 08/11/09	1.21E-02	± 7.08E-04	1.24E-02	± 7.16E-04	9.97E-03	± 6.54E-04
08/11/09 - 08/18/09	1.21E-02	± 8.03E-04	8.17E-03	± 5.86E-04	6.25E-03	± 5.27E-04
08/18/09 - 08/25/09	1.92E-02	± 9.40E-04	1.87E-02	± 8.56E-04	1.42E-02	± 7.57E-04
08/25/09 - 09/01/09	2.39E-02	± 9.54E-04	2.02E-02	± 8.76E-04	1.72E-02	± 8.18E-04
09/01/09 - 09/08/09	1.18E-02	± 6.83E-04	9.39E-03	± 6.18E-04	8.16E-03	± 5.83E-04
09/08/09 - 09/15/09	2.04E-02	± 8.82E-04	1.79E-02	± 8.32E-04	1.47E-02	± 7.63E-04
09/15/09 - 09/22/09	1.24E-02	± 7.06E-04	9.71E-03	± 6.37E-04	7.82E-03	± 5.80E-04
09/22/09 - 09/29/09	2.43E-02	± 9.52E-04	2.30E-02	± 9.30E-04	1.57E-02	± 7.76E-04
09/29/09 - 10/06/09	1.32E-02	± 7.29E-04	1.09E-02	± 6.69E-04	9.74E-03	± 6.38E-04
10/06/09 - 10/13/09	1.77E-02	± 8.24E-04	2.17E-02	± 9.07E-04	1.99E-02	± 8.71E-04
10/13/09 - 10/20/09	1.92E-02	± 8.56E-04	1.81E-02	± 8.30E-04	1.88E-02	± 8.47E-04
10/20/09 - 10/27/09	1.41E-02	± 7.38E-04	1.15E-02	± 6.79E-04	1.08E-02	± 6.61E-04
10/27/09 - 11/03/09	8.10E-03	± 6.06E-04	8.02E-03	± 6.05E-04	NVS	
11/03/09 - 11/10/09	1.70E-02	± 8.04E-04	1.67E-02	± 7.95E-04	1.74E-02	± 8.13E-04
11/10/09 - 11/17/09	1.25E-02	± 7.00E-04	1.34E-02	± 7.25E-04	1.19E-02	± 6.91E-04
11/17/09 - 11/24/09	7.06E-03	± 5.46E-04	7.50E-03	± 5.65E-04	8.45E-03	± 5.92E-04
11/24/09 - 12/01/09	2.28E-02	± 9.29E-04	2.82E-02	± 1.04E-03	2.07E-02	± 8.78E-04
12/01/09 - 12/08/09	2.36E-02	± 9.41E-04	2.80E-02	± 1.02E-03	2.60E-02	± 1.01E-03
12/08/09 - 12/15/09	5.26E-02	± 1.42E-03	6.19E-02	± 1.56E-03	NVS	
12/15/09 - 12/22/09	2.61E-02	± 9.94E-04	3.03E-02	± 1.08E-03	2.11E-02	± 8.93E-04
12/22/09 - 12/29/09	3.97E-02	± 1.22E-03	4.58E-02	± 1.31E-03	4.26E-02	± 1.28E-03

NVS = Valid sample not obtained due to sampler failure.  
 Average MDA for analysis listed in Table A-2.1 was 9.5E-04.

Table A-2.1  
**GROSS BETA ON AIR PARTICULATE FILTERS**  
 Results in pCi per Cubic Meter

Collection Period	Station 06		Station 07		Station 08	
	Result	Error	Result	Error	Result	Error
12/30/08 - 01/06/09	1.12E-02	± 6.64E-04	1.19E-02	± 6.87E-04	1.03E-02	± 6.41E-04
01/06/09 - 01/13/09	7.47E-03	± 5.54E-04	1.21E-02	± 6.84E-04	5.72E-03	± 5.00E-04
01/13/09 - 01/20/09	2.70E-02	± 1.02E-03	3.02E-02	± 1.08E-03	2.66E-02	± 1.01E-03
01/20/09 - 01/27/09	5.78E-02	± 1.51E-03	6.61E-02	± 1.62E-03	5.33E-02	± 1.44E-03
01/27/09 - 02/03/09	2.08E-02	± 8.89E-04	2.56E-02	± 9.82E-04	1.88E-02	± 8.46E-04
02/03/09 - 02/10/09	3.97E-02	± 1.23E-03	4.26E-02	± 1.27E-03	3.26E-02	± 1.11E-03
02/10/09 - 02/17/09	1.79E-02	± 8.25E-04	2.33E-02	± 9.33E-04	1.70E-02	± 8.05E-04
02/17/09 - 02/24/09	3.68E-02	± 1.19E-03	3.95E-02	± 1.23E-03	3.09E-02	± 1.09E-03
02/24/09 - 03/03/09	1.05E-02	± 6.52E-04	1.41E-02	± 7.44E-04	1.04E-02	± 6.50E-04
03/03/09 - 03/10/09	1.12E-02	± 6.72E-04	1.17E-02	± 6.86E-04	1.09E-02	± 6.63E-04
03/10/09 - 03/17/09	2.10E-02	± 8.90E-04	2.60E-02	± 9.86E-04	2.11E-02	± 8.92E-04
03/17/09 - 03/24/09	9.63E-03	± 6.26E-04	1.19E-02	± 6.82E-04	8.81E-03	± 6.01E-04
03/24/09 - 03/31/09	8.08E-03	± 5.90E-04	9.44E-03	± 6.31E-04	8.22E-03	± 5.93E-04
03/31/09 - 04/07/09	1.09E-02	± 6.63E-04	1.18E-02	± 6.87E-04	9.43E-03	± 6.27E-04
04/07/09 - 04/14/09	8.54E-03	± 6.09E-04	7.79E-03	± 5.87E-04	7.11E-03	± 5.66E-04
04/14/09 - 04/21/09	1.39E-02	± 7.46E-04	1.58E-02	± 7.88E-04	1.32E-02	± 7.26E-04
04/21/09 - 04/28/09	1.34E-02	± 7.21E-04	1.47E-02	± 7.53E-04	1.31E-02	± 7.15E-04
04/28/09 - 05/05/09	1.01E-02	± 6.49E-04	1.33E-02	± 7.32E-04	1.08E-02	± 6.65E-04
05/05/09 - 05/12/09	5.66E-03	± 5.36E-04	6.06E-03	± 5.44E-04	5.54E-03	± 5.28E-04
05/12/09 - 05/19/09	9.08E-03	± 6.05E-04	1.04E-02	± 6.43E-04	9.56E-03	± 6.20E-04
05/19/09 - 05/26/09	1.34E-02	± 7.12E-04	1.45E-02	± 7.38E-04	1.31E-02	± 7.06E-04
05/26/09 - 06/02/09	1.54E-02	± 7.68E-04	1.93E-02	± 8.58E-04	1.56E-02	± 7.73E-04
06/02/09 - 06/09/09	1.60E-02	± 7.80E-04	1.51E-02	± 7.60E-04	1.21E-02	± 6.84E-04
06/09/09 - 06/16/09	1.54E-02	± 7.75E-04	1.95E-02	± 8.62E-04	1.59E-02	± 7.86E-04
06/16/09 - 06/23/09	8.54E-03	± 6.04E-04	8.99E-03	± 6.15E-04	6.10E-03	± 5.27E-04
06/23/09 - 06/30/09	1.06E-02	± 6.50E-04	1.24E-02	± 6.98E-04	9.19E-03	± 6.18E-04
06/30/09 - 07/07/09	1.56E-02	± 7.88E-04	1.75E-02	± 8.33E-04	1.38E-02	± 7.45E-04
07/07/09 - 07/14/09	1.16E-02	± 6.73E-04	1.40E-02	± 7.33E-04	1.28E-02	± 7.02E-04
07/14/09 - 07/21/09	1.58E-02	± 7.82E-04	1.50E-02	± 7.61E-04	1.39E-02	± 7.36E-04
07/21/09 - 07/28/09	1.61E-02	± 7.91E-04	1.69E-02	± 8.08E-04	1.73E-02	± 8.20E-04
07/28/09 - 08/04/09	1.93E-02	± 8.64E-04	2.12E-02	± 9.01E-04	2.05E-02	± 8.86E-04
08/04/09 - 08/11/09	1.26E-02	± 7.19E-04	1.24E-02	± 7.15E-04	1.34E-02	± 7.37E-04
08/11/09 - 08/18/09	7.48E-03	± 5.65E-04	6.35E-03	± 5.29E-04	8.11E-03	± 5.86E-04
08/18/09 - 08/25/09	1.81E-02	± 8.41E-04	2.02E-02	± 8.87E-04	1.92E-02	± 8.71E-04
08/25/09 - 09/01/09	2.11E-02	± 8.97E-04	2.36E-02	± 9.47E-04	2.13E-02	± 9.06E-04
09/01/09 - 09/08/09	9.92E-03	± 6.32E-04	1.06E-02	± 6.52E-04	1.16E-02	± 6.80E-04
09/08/09 - 09/15/09	1.77E-02	± 8.27E-04	1.84E-02	± 8.42E-04	1.82E-02	± 8.39E-04
09/15/09 - 09/22/09	1.10E-02	± 6.67E-04	1.04E-02	± 6.52E-04	1.07E-02	± 6.64E-04
09/22/09 - 09/29/09	1.99E-02	± 8.66E-04	2.00E-02	± 8.67E-04	2.01E-02	± 8.69E-04
09/29/09 - 10/06/09	1.11E-02	± 6.76E-04	1.61E-02	± 7.95E-04	1.09E-02	± 6.69E-04
10/06/09 - 10/13/09	1.50E-02	± 7.60E-04	1.72E-02	± 8.14E-04	1.88E-02	± 8.43E-04
10/13/09 - 10/20/09	1.75E-02	± 8.19E-04	1.69E-02	± 8.08E-04	1.85E-02	± 8.40E-04
10/20/09 - 10/27/09	9.31E-03	± 6.20E-04	1.18E-02	± 6.83E-04	1.24E-02	± 7.00E-04
10/27/09 - 11/03/09	7.33E-03	± 5.84E-04	7.39E-03	± 5.86E-04	7.45E-03	± 5.87E-04
11/03/09 - 11/10/09	1.52E-02	± 7.66E-04	1.49E-02	± 7.55E-04	1.55E-02	± 7.71E-04
11/10/09 - 11/17/09	9.30E-03	± 6.20E-04	1.14E-02	± 6.76E-04	1.26E-02	± 7.06E-04
11/17/09 - 11/24/09	7.43E-03	± 5.58E-04	6.58E-03	± 5.34E-04	6.28E-03	± 5.26E-04
11/24/09 - 12/01/09	2.25E-02	± 9.16E-04	1.74E-02	± 8.60E-04	1.94E-02	± 8.51E-04
12/01/09 - 12/08/09	2.48E-02	± 9.70E-04	2.19E-02	± 9.12E-04	2.50E-02	± 9.97E-04
12/08/09 - 12/15/09	5.08E-02	± 1.40E-03	6.20E-02	± 1.56E-03	4.94E-02	± 1.37E-03
12/15/09 - 12/22/09	2.70E-02	± 1.01E-03	3.07E-02	± 1.08E-03	2.16E-02	± 9.04E-04
12/22/09 - 12/29/09	3.60E-02	± 1.17E-03	4.36E-02	± 1.29E-03	3.65E-02	± 1.18E-03

NVS = Valid sample not obtained due to sampler failure.  
 Average MDA for analysis listed in Table A-2.1 was 9.5E-04.

Table A-2.1  
**GROSS BETA ON AIR PARTICULATE FILTERS**  
 Results in pCi per Cubic Meter

Collection Period	Station 09		Station 21		Station 23	
	Result	Error	Result	Error	Result	Error
12/30/08 - 01/06/09	8.16E-03	± 5.81E-04	9.75E-03	± 6.27E-04	1.09E-02	± 6.57E-04
01/06/09 - 01/13/09	7.87E-03	± 5.70E-04	6.50E-03	± 5.28E-04	6.53E-03	± 5.29E-04
01/13/09 - 01/20/09	2.01E-02	± 8.86E-04	2.42E-02	± 9.64E-04	2.54E-02	± 9.88E-04
01/20/09 - 01/27/09	4.51E-02	± 1.32E-03	5.20E-02	± 1.42E-03	5.80E-02	± 1.51E-03
01/27/09 - 02/03/09	9.82E-03	± 6.29E-04	1.97E-02	± 8.65E-04	2.05E-02	± 8.85E-04
02/03/09 - 02/10/09	3.40E-02	± 1.13E-03	3.32E-02	± 1.12E-03	4.14E-02	± 1.26E-03
02/10/09 - 02/17/09	1.32E-02	± 7.24E-04	1.52E-02	± 7.63E-04	2.11E-02	± 8.95E-04
02/17/09 - 02/24/09	2.90E-02	± 1.07E-03	2.65E-02	± 1.01E-03	3.55E-02	± 1.17E-03
02/24/09 - 03/03/09	1.00E-02	± 6.40E-04	9.96E-03	± 6.38E-04	1.21E-02	± 6.92E-04
03/03/09 - 03/10/09	8.41E-03	± 5.95E-04	1.04E-02	± 6.51E-04	1.35E-02	± 7.30E-04
03/10/09 - 03/17/09	1.61E-02	± 7.85E-04	2.08E-02	± 8.87E-04	2.28E-02	± 9.28E-04
03/17/09 - 03/24/09	5.58E-03	± 5.01E-04	6.71E-03	± 5.37E-04	9.38E-03	± 6.17E-04
03/24/09 - 03/31/09	7.52E-03	± 5.76E-04	8.30E-03	± 5.97E-04	9.74E-03	± 6.39E-04
03/31/09 - 04/07/09	9.84E-03	± 6.36E-04	9.83E-03	± 6.36E-04	1.35E-02	± 7.33E-04
04/07/09 - 04/14/09	8.05E-03	± 5.96E-04	7.67E-03	± 5.80E-04	1.07E-02	± 6.67E-04
04/14/09 - 04/21/09	1.25E-02	± 7.08E-04	1.41E-02	± 7.48E-04	1.59E-02	± 7.92E-04
04/21/09 - 04/28/09	1.34E-02	± 7.20E-04	1.29E-02	± 7.06E-04	1.69E-02	± 8.04E-04
04/28/09 - 05/05/09	1.17E-02	± 6.91E-04	1.70E-02	± 8.16E-04	1.34E-02	± 7.36E-04
05/05/09 - 05/12/09	5.23E-03	± 5.24E-04	9.86E-03	± 6.54E-04	6.62E-03	± 5.64E-04
05/12/09 - 05/19/09	9.89E-03	± 6.28E-04	1.36E-02	± 7.29E-04	1.18E-02	± 6.81E-04
05/19/09 - 05/26/09	1.40E-02	± 7.29E-04	2.01E-02	± 8.65E-04	1.41E-02	± 7.28E-04
05/26/09 - 06/02/09	1.74E-02	± 8.15E-04	2.31E-02	± 9.34E-04	1.91E-02	± 8.54E-04
06/02/09 - 06/09/09	1.64E-02	± 7.88E-04	1.90E-02	± 8.45E-04	1.58E-02	± 7.75E-04
06/09/09 - 06/16/09	1.81E-02	± 8.33E-04	2.29E-02	± 9.32E-04	1.81E-02	± 8.34E-04
06/16/09 - 06/23/09	8.68E-03	± 6.03E-04	1.12E-02	± 6.79E-04	9.24E-03	± 6.23E-04
06/23/09 - 06/30/09	1.07E-02	± 6.56E-04	1.51E-02	± 7.63E-04	1.20E-02	± 6.89E-04
06/30/09 - 07/07/09	1.55E-02	± 7.90E-04	2.35E-02	± 9.59E-04	1.81E-02	± 8.46E-04
07/07/09 - 07/14/09	1.11E-02	± 6.59E-04	1.79E-02	± 8.23E-04	1.14E-02	± 6.71E-04
07/14/09 - 07/21/09	1.48E-02	± 7.56E-04	2.20E-02	± 9.12E-04	1.74E-02	± 8.12E-04
07/21/09 - 07/28/09	1.53E-02	± 7.78E-04	2.21E-02	± 9.19E-04	1.54E-02	± 7.78E-04
07/28/09 - 08/04/09	2.06E-02	± 8.88E-04	2.65E-02	± 1.00E-03	2.09E-02	± 8.97E-04
08/04/09 - 08/11/09	1.04E-02	± 6.63E-04	1.88E-02	± 8.60E-04	1.29E-02	± 7.24E-04
08/11/09 - 08/18/09	7.34E-03	± 5.63E-04	5.12E-03	± 4.89E-04	7.64E-03	± 5.71E-04
08/18/09 - 08/25/09	1.85E-02	± 8.51E-04	2.55E-02	± 9.92E-04	1.75E-02	± 8.29E-04
08/25/09 - 09/01/09	1.80E-02	± 8.35E-04	2.69E-02	± 1.01E-03	2.24E-02	± 9.26E-04
09/01/09 - 09/08/09	1.07E-02	± 6.56E-04	1.61E-02	± 7.84E-04	1.19E-02	± 6.86E-04
09/08/09 - 09/15/09	1.63E-02	± 7.98E-04	2.61E-02	± 9.97E-04	1.70E-02	± 8.15E-04
09/15/09 - 09/22/09	8.84E-03	± 6.13E-04	1.68E-02	± 8.08E-04	1.01E-02	± 6.45E-04
09/22/09 - 09/29/09	1.84E-02	± 8.36E-04	2.75E-02	± 1.01E-03	2.00E-02	± 8.68E-04
09/29/09 - 10/06/09	8.99E-03	± 6.19E-04	1.68E-02	± 8.11E-04	1.05E-02	± 6.58E-04
10/06/09 - 10/13/09	2.00E-02	± 8.73E-04	2.19E-02	± 9.11E-04	1.67E-02	± 8.03E-04
10/13/09 - 10/20/09	1.45E-02	± 7.49E-04	2.19E-02	± 9.09E-04	1.75E-02	± 8.19E-04
10/20/09 - 10/27/09	8.97E-03	± 6.13E-04	1.59E-02	± 7.82E-04	1.09E-02	± 6.62E-04
10/27/09 - 11/03/09	6.55E-03	± 5.60E-04	8.28E-03	± 6.11E-04	5.34E-03	± 5.22E-04
11/03/09 - 11/10/09	1.32E-02	± 7.13E-04	2.02E-02	± 8.73E-04	1.53E-02	± 7.65E-04
11/10/09 - 11/17/09	1.13E-02	± 6.74E-04	1.42E-02	± 7.44E-04	9.68E-03	± 6.31E-04
11/17/09 - 11/24/09	6.13E-03	± 5.17E-04	6.23E-03	± 5.25E-04	NVS	
11/24/09 - 12/01/09	1.97E-02	± 8.59E-04	2.62E-02	± 9.92E-04	2.37E-02	± 9.45E-04
12/01/09 - 12/08/09	2.32E-02	± 9.43E-04	2.90E-02	± 1.05E-03	2.91E-02	± 1.05E-03
12/08/09 - 12/15/09	5.06E-02	± 1.39E-03	6.12E-02	± 1.55E-03	5.96E-02	± 1.64E-03
12/15/09 - 12/22/09	2.95E-02	± 1.05E-03	3.05E-02	± 1.07E-03	1.41E-02	± 7.38E-04
12/22/09 - 12/29/09	3.62E-02	± 1.17E-03	4.48E-02	± 1.31E-03	4.55E-02	± 1.32E-03

NVS = Valid sample not obtained due to sampler failure.  
 Average MDA for analysis listed in Table A-2.1 was 9.5E-04.

Table A-2.1  
**GROSS BETA ON AIR PARTICULATE FILTERS**  
 Results in pCi per Cubic Meter

Collection Period	Station 40		Station 48		Station 57	
	Result	Error	Result	Error	Result	Error
12/30/08 - 01/06/09	1.29E-02	± 7.11E-04	1.12E-02	± 6.64E-04	9.33E-03	± 6.14E-04
01/06/09 - 01/13/09	1.04E-02	± 6.39E-04	6.98E-03	± 5.41E-04	8.01E-03	± 5.73E-04
01/13/09 - 01/20/09	3.73E-02	± 1.20E-03	2.63E-02	± 1.01E-03	3.05E-02	± 1.08E-03
01/20/09 - 01/27/09	7.78E-02	± 1.78E-03	5.55E-02	± 1.47E-03	5.27E-02	± 1.43E-03
01/27/09 - 02/03/09	2.51E-02	± 9.74E-04	2.05E-02	± 8.83E-04	1.88E-02	± 8.45E-04
02/03/09 - 02/10/09	4.95E-02	± 1.38E-03	3.84E-02	± 1.21E-03	3.42E-02	± 1.14E-03
02/10/09 - 02/17/09	2.62E-02	± 9.92E-04	1.92E-02	± 8.52E-04	1.69E-02	± 8.04E-04
02/17/09 - 02/24/09	4.35E-02	± 1.30E-03	3.04E-02	± 1.08E-03	3.18E-02	± 1.11E-03
02/24/09 - 03/03/09	1.45E-02	± 7.52E-04	1.13E-02	± 6.74E-04	3.83E-03	± 7.65E-04
03/03/09 - 03/10/09	1.43E-02	± 7.52E-04	1.06E-02	± 6.58E-04	9.40E-03	± 6.23E-04
03/10/09 - 03/17/09	2.51E-02	± 9.72E-04	1.84E-02	± 8.38E-04	2.31E-02	± 9.31E-04
03/17/09 - 03/24/09	1.14E-02	± 6.73E-04	9.24E-03	± 6.13E-04	9.48E-03	± 6.20E-04
03/24/09 - 03/31/09	1.02E-02	± 6.54E-04	7.80E-03	± 5.82E-04	9.33E-03	± 6.27E-04
03/31/09 - 04/07/09	1.24E-02	± 7.06E-04	1.05E-02	± 6.55E-04	1.02E-02	± 6.47E-04
04/07/09 - 04/14/09	1.14E-02	± 6.84E-04	7.02E-03	± 5.61E-04	8.77E-03	± 6.13E-04
04/14/09 - 04/21/09	1.81E-02	± 8.38E-04	1.36E-02	± 7.35E-04	1.33E-02	± 7.27E-04
04/21/09 - 04/28/09	1.61E-02	± 7.83E-04	1.29E-02	± 7.08E-04	1.24E-02	± 6.94E-04
04/28/09 - 05/05/09	1.46E-02	± 7.62E-04	1.01E-02	± 6.50E-04	1.26E-02	± 7.14E-04
05/05/09 - 05/12/09	7.90E-03	± 6.00E-04	4.91E-03	± 5.10E-04	4.76E-03	± 5.05E-04
05/12/09 - 05/19/09	1.13E-02	± 6.65E-04	8.23E-03	± 5.81E-04	9.17E-03	± 6.09E-04
05/19/09 - 05/26/09	1.77E-02	± 8.15E-04	1.16E-02	± 6.74E-04	1.29E-02	± 7.02E-04
05/26/09 - 06/02/09	1.49E-02	± 7.58E-04	1.44E-02	± 7.48E-04	1.87E-02	± 3.63E-01
06/02/09 - 06/09/09	1.43E-02	± 7.40E-04	1.19E-02	± 6.79E-04	1.50E-02	± 7.57E-04
06/09/09 - 06/16/09	1.60E-02	± 7.90E-04	1.62E-02	± 7.91E-04	1.89E-02	± 8.50E-04
06/16/09 - 06/23/09	8.49E-03	± 6.01E-04	5.52E-03	± 5.10E-04	7.59E-03	± 5.72E-04
06/23/09 - 06/30/09	1.05E-02	± 6.53E-04	8.48E-03	± 5.95E-04	1.20E-02	± 6.90E-04
06/30/09 - 07/07/09	1.54E-02	± 7.89E-04	1.29E-02	± 7.25E-04	1.92E-02	± 8.66E-04
07/07/09 - 07/14/09	1.19E-02	± 6.81E-04	6.70E-03	± 5.31E-04	1.27E-02	± 7.02E-04
07/14/09 - 07/21/09	1.49E-02	± 7.59E-04	1.56E-02	± 7.74E-04	1.80E-02	± 8.29E-04
07/21/09 - 07/28/09	1.54E-02	± 7.77E-04	1.52E-02	± 7.72E-04	1.74E-02	± 8.25E-04
07/28/09 - 08/04/09	1.91E-02	± 8.59E-04	1.87E-02	± 8.51E-04	2.32E-02	± 9.41E-04
08/04/09 - 08/11/09	1.17E-02	± 6.96E-04	1.12E-02	± 6.84E-04	1.54E-02	± 7.82E-04
08/11/09 - 08/18/09	6.67E-03	± 5.44E-04	7.51E-03	± 5.66E-04	7.30E-03	± 5.62E-04
08/18/09 - 08/25/09	1.43E-02	± 7.59E-04	1.88E-02	± 8.60E-04	1.93E-02	± 8.70E-04
08/25/09 - 09/01/09	1.95E-02	± 8.66E-04	2.08E-02	± 8.92E-04	2.24E-02	± 9.23E-04
09/01/09 - 09/08/09	9.15E-03	± 6.14E-04	1.34E-02	± 9.19E-04	1.05E-02	± 6.50E-04
09/08/09 - 09/15/09	1.74E-02	± 8.23E-04	1.89E-02	± 8.57E-04	1.94E-02	± 8.64E-04
09/15/09 - 09/22/09	1.12E-02	± 6.72E-04	1.15E-02	± 6.82E-04	1.11E-02	± 6.72E-04
09/22/09 - 09/29/09	1.75E-02	± 8.13E-04	2.05E-02	± 8.78E-04	2.04E-02	± 8.75E-04
09/29/09 - 10/06/09	1.14E-02	± 6.82E-04	1.67E-02	± 8.08E-04	1.15E-02	± 6.86E-04
10/06/09 - 10/13/09	1.53E-02	± 7.69E-04	2.07E-02	± 8.87E-04	1.78E-02	± 8.28E-04
10/13/09 - 10/20/09	1.49E-02	± 7.60E-04	1.84E-02	± 8.40E-04	1.87E-02	± 8.43E-04
10/20/09 - 10/27/09	9.51E-03	± 6.23E-04	1.30E-02	± 7.16E-04	1.09E-02	± 6.61E-04
10/27/09 - 11/03/09	6.40E-03	± 5.58E-04	7.38E-03	± 5.86E-04	7.03E-03	± 5.76E-04
11/03/09 - 11/10/09	1.41E-02	± 7.37E-04	1.36E-02	± 7.26E-04	1.64E-02	± 7.90E-04
11/10/09 - 11/17/09	1.04E-02	± 6.48E-04	1.38E-02	± 7.35E-04	1.05E-02	± 6.52E-04
11/17/09 - 11/24/09	7.41E-03	± 5.59E-04	6.56E-03	± 5.33E-04	5.41E-03	± 4.93E-04
11/24/09 - 12/01/09	2.16E-02	± 8.96E-04	2.16E-02	± 8.97E-04	2.01E-02	± 8.74E-04
12/01/09 - 12/08/09	2.88E-02	± 1.17E-03	2.41E-02	± 9.57E-04	2.29E-02	± 9.32E-04
12/08/09 - 12/15/09	5.29E-02	± 1.43E-03	5.25E-02	± 1.42E-03	4.50E-02	± 1.31E-03
12/15/09 - 12/22/09	2.18E-02	± 9.06E-04	2.54E-02	± 9.77E-04	2.22E-02	± 9.18E-04
12/22/09 - 12/29/09	4.21E-02	± 1.27E-03	3.97E-02	± 1.23E-03	3.28E-02	± 1.11E-03

NVS = Valid sample not obtained due to sampler failure.  
 Average MDA for analysis listed in Table A-2.1 was 9.5E-04.

Table A-2.2  
**GROSS BETA ON AIR PARTICULATE FILTERS - SUMMARY**  
 Results in pCi per cubic meter

<u>LOCATION</u>	<u>Average Activity</u>	<u>Activity Low</u>	<u>Activity High</u>	<u>Number of Samples</u>	<u>Number of Positive IDs</u>
Gross Beta Indicators	1.74E-02	-8.73E-04	7.78E-02	569	569
Gross Beta Controls	1.55E-02	5.23E-03	5.06E-02	52	52



TABLE A-3.1

**GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS**

Results in pCi/cubic meter, results decay corrected for decay during sample collection period

Location and Quarter					Station 1	1st Q 09	Location and Quarter					Station 1	2nd Q 09
Nuclide	RQ	Activity	Error	MDA			Nuclide	RQ	Activity	Error	MDA		
BE-7	+	1.04E-01 ±	1.57E-02	9.72E-03			BE-7	+	1.63E-01 ±	1.89E-02	8.95E-03		
K-40		-1.40E-03 ±	1.05E-02	1.30E-02			K-40		-1.13E-03 ±	8.00E-03	1.15E-02		
MN-54		1.95E-04 ±	5.24E-04	8.00E-04			MN-54		1.20E-04 ±	5.39E-04	8.50E-04		
FE-59		0.00E+00 ±	3.23E-03	5.38E-03			FE-59		1.24E-03 ±	2.85E-03	4.21E-03		
CO-60		-2.93E-05 ±	6.30E-04	1.03E-03			CO-60		0.00E+00 ±	1.66E-04	2.77E-04		
ZN-65		0.00E+00 ±	2.37E-03	3.96E-03			ZN-65		0.00E+00 ±	1.68E-03	2.79E-03		
ZRNB-95		-3.56E-04 ±	8.33E-04	1.27E-03			ZRNB-95		2.02E-05 ±	6.13E-04	1.00E-03		
CS-134		5.01E-06 ±	5.00E-04	8.22E-04			CS-134		-7.47E-05 ±	4.45E-04	7.13E-04		
CS-137		-1.83E-04 ±	5.98E-04	9.41E-04			CS-137		9.82E-05 ±	3.99E-04	6.21E-04		
BALA140		0.00E+00 ±	3.23E-03	5.39E-03			BALA140		-2.93E-03 ±	1.10E-02	1.70E-02		
RU-106		-1.55E-03 ±	5.13E-03	8.06E-03			RU-106		9.35E-04 ±	4.12E-03	6.49E-03		

Location and Quarter					Station 1	3rd Q 09	Location and Quarter					Station 1	4th Q 09
Nuclide	RQ	Activity	Error	MDA			Nuclide	RQ	Activity	Error	MDA		
BE-7	+	1.94E-01 ±	2.17E-02	9.78E-03			BE-7	+	1.06E-01 ±	1.41E-02	6.94E-03		
K-40		-2.20E-03 ±	1.18E-02	1.21E-02			K-40		1.10E-03 ±	4.12E-03	7.99E-03		
MN-54		0.00E+00 ±	5.06E-04	8.43E-04			MN-54		-1.49E-04 ±	5.51E-04	8.71E-04		
FE-59		1.01E-03 ±	3.15E-03	4.79E-03			FE-59		8.90E-04 ±	1.88E-03	2.62E-03		
CO-60		0.00E+00 ±	8.36E-04	1.39E-03			CO-60		1.78E-04 ±	3.88E-04	5.64E-04		
ZN-65		-1.78E-04 ±	1.18E-03	1.87E-03			ZN-65		0.00E+00 ±	1.57E-03	2.62E-03		
ZRNB-95		1.95E-05 ±	6.94E-04	1.13E-03			ZRNB-95		0.00E+00 ±	1.63E-04	2.71E-04		
CS-134		3.79E-06 ±	5.92E-04	9.73E-04			CS-134		1.49E-04 ±	3.73E-04	5.77E-04		
CS-137		1.26E-04 ±	4.31E-04	6.67E-04			CS-137		6.64E-06 ±	3.51E-04	5.75E-04		
BALA140		-1.84E-03 ±	1.57E-02	2.52E-02			BALA140		0.00E+00 ±	4.01E-03	6.69E-03		
RU-106		0.00E+00 ±	5.56E-03	9.26E-03			RU-106		-7.85E-04 ±	3.56E-03	5.64E-03		

Location and Quarter					Station 4	1st Q 09	Location and Quarter					Station 4	2nd Q 09
Nuclide	RQ	Activity	Error	MDA			Nuclide	RQ	Activity	Error	MDA		
BE-7	+	9.10E-02 ±	1.53E-02	1.06E-02			BE-7	+	1.56E-01 ±	1.94E-02	1.14E-02		
K-40		-6.00E-03 ±	4.70E+00	1.37E-02			K-40		-2.48E-03 ±	1.45E-02	1.26E-02		
MN-54		-5.65E-05 ±	5.99E-04	9.70E-04			MN-54		-7.78E-05 ±	5.94E-04	9.56E-04		
FE-59		0.00E+00 ±	8.89E-04	1.48E-03			FE-59		0.00E+00 ±	3.27E-03	5.46E-03		
CO-60		1.92E-04 ±	4.74E-04	6.95E-04			CO-60		0.00E+00 ±	1.66E-04	2.77E-04		
ZN-65		0.00E+00 ±	2.06E-03	3.44E-03			ZN-65		-4.24E-04 ±	1.33E-03	2.06E-03		
ZRNB-95		3.43E-04 ±	6.52E-04	9.45E-04			ZRNB-95		0.00E+00 ±	1.28E-03	2.14E-03		
CS-134		-1.25E-06 ±	4.25E-04	6.99E-04			CS-134		-3.66E-06 ±	4.87E-04	8.00E-04		
CS-137		-7.94E-05 ±	5.71E-04	9.20E-04			CS-137		-8.52E-06 ±	4.99E-04	8.18E-04		
BALA140		0.00E+00 ±	3.42E-03	5.69E-03			BALA140		3.61E-03 ±	1.03E-02	1.55E-02		
RU-106		-1.35E-03 ±	5.53E-03	8.79E-03			RU-106		-4.47E-04 ±	4.41E-03	7.13E-03		

Location and Quarter					Station 4	3rd Q 09	Location and Quarter					Station 4	4th Q 09
Nuclide	RQ	Activity	Error	MDA			Nuclide	RQ	Activity	Error	MDA		
BE-7	+	1.94E-01 ±	2.17E-02	9.78E-03			BE-7	+	1.14E-01 ±	1.44E-02	4.01E-03		
K-40		-2.20E-03 ±	1.18E-02	1.21E-02			K-40		-3.69E-03 ±	5.42E-02	1.00E-02		
MN-54		0.00E+00 ±	5.06E-04	8.43E-04			MN-54		4.68E-05 ±	4.25E-04	6.85E-04		
FE-59		1.01E-03 ±	3.15E-03	4.79E-03			FE-59		1.27E-03 ±	1.88E-03	2.34E-03		
CO-60		0.00E+00 ±	8.36E-04	1.39E-03			CO-60		1.06E-04 ±	4.47E-04	6.99E-04		
ZN-65		-1.78E-04 ±	1.18E-03	1.87E-03			ZN-65		-2.29E-04 ±	8.56E-04	1.31E-03		
ZRNB-95		1.95E-05 ±	6.94E-04	1.13E-03			ZRNB-95		2.55E-04 ±	5.96E-04	8.90E-04		
CS-134		3.79E-06 ±	5.92E-04	9.73E-04			CS-134		-2.17E-06 ±	3.37E-04	5.54E-04		
CS-137		1.26E-04 ±	4.31E-04	6.67E-04			CS-137		-1.06E-04 ±	3.84E-04	6.02E-04		
BALA140		-1.84E-03 ±	1.57E-02	2.52E-02			BALA140		0.00E+00 ±	4.98E-03	8.30E-03		
RU-106		0.00E+00 ±	5.56E-03	9.26E-03			RU-106		4.40E-04 ±	3.77E-03	6.09E-03		

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.

1st Q 1/1/09 to 3/31/09 - 2nd Q 3/31/09 to 6/30/09 - 3rd Q 6/30/09 to 9/29/09 - 4th Q 9/29/09 to 12/29/09

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TABLE A-3.1

**GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS**

Results in pCi/cubic meter, results decay corrected for decay during sample collection period

Location and Quarter		Station 5		1st Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	8.24E-02 ±	1.49E-02	1.09E-02
K-40		-3.51E-03 ±	2.72E-02	1.44E-02
MN-54		-9.26E-05 ±	6.03E-04	9.67E-04
FE-59		-1.89E-04 ±	2.54E-03	4.09E-03
CO-60		-3.59E-06 ±	4.41E-04	7.23E-04
ZN-65		0.00E+00 ±	1.19E-03	1.98E-03
ZRNB-95		-7.33E-05 ±	7.83E-04	1.27E-03
CS-134		-4.07E-05 ±	4.47E-04	7.25E-04
CS-137		1.86E-04 ±	3.71E-04	5.37E-04
BALA140		0.00E+00 ±	3.43E-03	5.71E-03
RU-106		0.00E+00 ±	3.89E-03	6.49E-03

Location and Quarter		Station 5		2nd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.54E-01 ±	1.89E-02	9.62E-03
K-40		-2.20E-03 ±	1.25E-02	1.23E-02
MN-54		1.12E-04 ±	3.92E-04	5.97E-04
FE-59		1.02E-03 ±	2.31E-03	3.30E-03
CO-60		0.00E+00 ±	8.11E-04	1.35E-03
ZN-65		1.22E-04 ±	1.27E-03	2.04E-03
ZRNB-95		-9.97E-05 ±	8.37E-04	1.35E-03
CS-134		-7.78E-05 ±	5.14E-04	8.28E-04
CS-137		2.70E-05 ±	3.72E-04	6.02E-04
BALA140		0.00E+00 ±	3.41E-03	5.69E-03
RU-106		5.49E-04 ±	3.88E-03	6.20E-03

Location and Quarter		Station 5		3rd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.54E-01 ±	1.89E-02	8.59E-03
K-40		-4.61E-03 ±	4.17E-02	1.25E-02
MN-54		1.46E-04 ±	5.22E-04	8.11E-04
FE-59		-1.34E-03 ±	3.95E-03	6.10E-03
CO-60		0.00E+00 ±	5.74E-04	9.57E-04
ZN-65		-8.13E-05 ±	1.08E-03	1.74E-03
ZRNB-95		1.53E-04 ±	8.71E-04	1.39E-03
CS-134		1.57E-05 ±	4.86E-04	7.96E-04
CS-137		-2.64E-05 ±	4.30E-04	6.98E-04
BALA140		0.00E+00 ±	2.69E-02	4.48E-02
RU-106		-1.35E-03 ±	4.95E-03	7.80E-03

Location and Quarter		Station 5		4th Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.79E-02 ±	1.52E-02	8.20E-03
K-40		2.00E-03 ±	5.32E-03	9.82E-03
MN-54		0.00E+00 ±	3.41E-04	5.68E-04
FE-59		0.00E+00 ±	4.66E-03	7.77E-03
CO-60		2.38E-04 ±	4.73E-04	6.83E-04
ZN-65		-1.28E-04 ±	1.41E-03	2.28E-03
ZRNB-95		1.67E-04 ±	6.82E-04	1.06E-03
CS-134		2.69E-06 ±	3.20E-04	5.26E-04
CS-137		0.00E+00 ±	3.69E-04	6.15E-04
BALA140		0.00E+00 ±	2.97E-02	4.96E-02
RU-106		-4.81E-04 ±	3.77E-03	6.05E-03

Location and Quarter		Station 6		1st Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.05E-01 ±	1.62E-02	1.04E-02
K-40		-1.43E-03 ±	1.20E-02	1.42E-02
MN-54		1.10E-04 ±	5.23E-04	8.26E-04
FE-59		0.00E+00 ±	8.91E-04	1.48E-03
CO-60		3.14E-04 ±	5.18E-04	7.24E-04
ZN-65		-3.76E-04 ±	1.19E-03	1.82E-03
ZRNB-95		-3.55E-05 ±	8.36E-04	1.36E-03
CS-134		1.18E-04 ±	4.38E-04	6.88E-04
CS-137		-2.61E-05 ±	4.49E-04	7.31E-04
BALA140		3.12E-03 ±	1.07E-02	1.63E-02
RU-106		9.28E-04 ±	4.31E-03	6.82E-03

Location and Quarter		Station 6		2nd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.45E-01 ±	2.00E-02	1.38E-02
K-40		-2.70E-03 ±	2.15E-02	1.56E-02
MN-54		0.00E+00 ±	7.62E-04	1.27E-03
FE-59		3.49E-04 ±	2.88E-03	4.60E-03
CO-60		-1.14E-04 ±	5.03E-04	7.82E-04
ZN-65		4.32E-04 ±	1.12E-03	1.68E-03
ZRNB-95		-1.95E-04 ±	8.26E-04	1.30E-03
CS-134		-1.23E-04 ±	5.22E-04	8.31E-04
CS-137		0.00E+00 ±	4.38E-04	7.30E-04
BALA140		0.00E+00 ±	1.44E-02	2.41E-02
RU-106		0.00E+00 ±	5.50E-03	9.16E-03

Location and Quarter		Station 6		3rd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.56E-01 ±	2.01E-02	1.22E-02
K-40		5.67E-04 ±	6.83E-03	1.29E-02
MN-54		-6.64E-05 ±	6.15E-04	9.94E-04
FE-59		0.00E+00 ±	3.58E-03	5.97E-03
CO-60		-4.41E-05 ±	4.90E-04	7.87E-04
ZN-65		-6.73E-04 ±	1.82E-03	2.82E-03
ZRNB-95		-2.41E-04 ±	1.01E-03	1.60E-03
CS-134		-2.18E-04 ±	6.23E-04	9.84E-04
CS-137		-7.12E-05 ±	5.70E-04	9.20E-04
BALA140		-3.31E-03 ±	1.61E-02	2.53E-02
RU-106		-1.17E-03 ±	4.86E-03	7.69E-03

Location and Quarter		Station 6		4th Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.32E-02 ±	1.41E-02	8.30E-03
K-40		4.97E-04 ±	5.31E-03	9.88E-03
MN-54		8.77E-05 ±	4.47E-04	7.10E-04
FE-59		-4.50E-04 ±	3.04E-03	4.85E-03
CO-60		1.38E-04 ±	3.84E-04	5.75E-04
ZN-65		0.00E+00 ±	1.84E-03	3.07E-03
ZRNB-95		0.00E+00 ±	7.80E-04	1.30E-03
CS-134		-1.54E-06 ±	3.32E-04	5.45E-04
CS-137		0.00E+00 ±	3.88E-04	6.46E-04
BALA140		-1.82E-03 ±	1.42E-02	2.26E-02
RU-106		-3.38E-05 ±	3.56E-03	5.85E-03

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.

1st Q 1/1/09 to 3/31/09 - 2nd Q 3/31/09 to 6/30/09 - 3rd Q 6/30/09 to 9/29/09 - 4th Q 9/29/09 to 12/29/09

TABLE A-3.1

**GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS**

Results in pCi/cubic meter, results decay corrected for decay during sample collection period

Location and Quarter Station 7 1st Q 09					Location and Quarter Station 7 2nd Q 09				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.30E-01 ±	1.72E-02	9.26E-03	BE-7	+	1.80E-01 ±	2.01E-02	1.06E-02
K-40		2.95E-04 ±	4.96E-03	1.04E-02	K-40		-1.79E-03 ±	1.18E-02	1.29E-02
MN-54		-2.93E-04 ±	6.55E-04	1.00E-03	MN-54		7.32E-05 ±	4.90E-04	7.81E-04
FE-59		0.00E+00 ±	3.32E-03	5.54E-03	FE-59		-4.08E-05 ±	2.93E-03	4.81E-03
CO-60		0.00E+00 ±	1.66E-04	2.77E-04	CO-60		8.32E-05 ±	5.99E-04	9.56E-04
ZN-65		0.00E+00 ±	2.07E-03	3.44E-03	ZN-65		-1.15E-05 ±	1.47E-03	2.41E-03
ZRNB-95		3.85E-04 ±	8.65E-04	1.32E-03	ZRNB-95		4.82E-05 ±	7.46E-04	1.21E-03
CS-134		1.47E-05 ±	3.80E-04	6.20E-04	CS-134		2.08E-06 ±	4.56E-04	7.50E-04
CS-137		-2.39E-04 ±	5.54E-04	8.49E-04	CS-137		1.40E-04 ±	5.06E-04	7.94E-04
BALA140		0.00E+00 ±	3.58E-03	5.97E-03	BALA140		-8.11E-05 ±	7.80E-03	1.28E-02
RU-106		0.00E+00 ±	5.36E-03	8.94E-03	RU-106		-3.76E-04 ±	4.05E-03	6.54E-03

Location and Quarter Station 7 3rd Q 09					Location and Quarter Station 7 4th Q 09				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.78E-01 ±	2.07E-02	1.09E-02	BE-7	+	1.00E-01 ±	1.39E-02	6.58E-03
K-40		-5.97E-03 ±	2.31E+00	1.56E-02	K-40		3.80E-03 ±	5.91E-03	9.88E-03
MN-54		-1.40E-05 ±	5.38E-04	8.80E-04	MN-54		0.00E+00 ±	2.94E-04	4.90E-04
FE-59		-1.60E-04 ±	3.45E-03	5.62E-03	FE-59		0.00E+00 ±	7.89E-04	1.31E-03
CO-60		4.53E-05 ±	5.03E-04	8.09E-04	CO-60		1.60E-04 ±	3.94E-04	5.83E-04
ZN-65		0.00E+00 ±	2.42E-03	4.03E-03	ZN-65		-3.38E-04 ±	1.19E-03	1.86E-03
ZRNB-95		-5.54E-05 ±	1.01E-03	1.65E-03	ZRNB-95		1.19E-04 ±	6.56E-04	1.04E-03
CS-134		0.00E+00 ±	6.47E-04	1.08E-03	CS-134		-9.86E-06 ±	3.31E-04	5.42E-04
CS-137		-6.59E-05 ±	5.26E-04	8.47E-04	CS-137		-6.87E-05 ±	3.09E-04	4.85E-04
BALA140		0.00E+00 ±	1.98E-02	3.31E-02	BALA140		-3.10E-04 ±	1.26E-02	2.07E-02
RU-106		9.46E-04 ±	4.64E-03	7.37E-03	RU-106		0.00E+00 ±	4.69E-03	7.81E-03

Location and Quarter Station 8 1st Q 09					Location and Quarter Station 8 2nd Q 09				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.09E-01 ±	1.62E-02	9.76E-03	BE-7	+	1.53E-01 ±	1.91E-02	1.11E-02
K-40		-6.01E-03 ±	1.36E-01	1.54E-02	K-40		-5.99E-03 ±	5.34E+00	1.47E-02
MN-54		1.19E-04 ±	4.76E-04	7.41E-04	MN-54		2.03E-06 ±	4.54E-04	7.45E-04
FE-59		-1.02E-03 ±	3.23E-03	4.96E-03	FE-59		9.86E-04 ±	2.84E-03	4.28E-03
CO-60		0.00E+00 ±	1.66E-04	2.77E-04	CO-60		-1.51E-05 ±	4.86E-04	7.94E-04
ZN-65		3.37E-04 ±	1.15E-03	1.76E-03	ZN-65		2.99E-04 ±	1.28E-03	2.00E-03
ZRNB-95		-2.71E-04 ±	8.87E-04	1.39E-03	ZRNB-95		0.00E+00 ±	8.93E-04	1.49E-03
CS-134		-4.75E-05 ±	3.91E-04	6.28E-04	CS-134		7.45E-06 ±	5.02E-04	8.23E-04
CS-137		1.17E-05 ±	4.74E-04	7.77E-04	CS-137		0.00E+00 ±	6.66E-04	1.11E-03
BALA140		1.33E-03 ±	1.18E-02	1.89E-02	BALA140		3.44E-05 ±	9.89E-03	1.63E-02
RU-106		4.44E-04 ±	4.36E-03	7.05E-03	RU-106		2.54E-04 ±	4.48E-03	7.30E-03

Location and Quarter Station 8 3rd Q 09					Location and Quarter Station 8 4th Q 09				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.66E-01 ±	2.19E-02	1.44E-02	BE-7	+	8.89E-02 ±	1.35E-02	7.33E-03
K-40		-6.57E-04 ±	9.11E-03	1.39E-02	K-40		9.49E-04 ±	4.87E-03	9.11E-03
MN-54		6.17E-05 ±	5.50E-04	8.86E-04	MN-54		2.04E-04 ±	3.59E-04	5.14E-04
FE-59		0.00E+00 ±	3.59E-03	5.99E-03	FE-59		0.00E+00 ±	8.22E-04	1.37E-03
CO-60		0.00E+00 ±	5.74E-04	9.57E-04	CO-60		9.43E-05 ±	3.62E-04	5.54E-04
ZN-65		3.08E-04 ±	1.12E-03	1.73E-03	ZN-65		-9.40E-05 ±	8.68E-04	1.39E-03
ZRNB-95		-2.56E-04 ±	9.38E-04	1.47E-03	ZRNB-95		2.15E-04 ±	7.15E-04	1.11E-03
CS-134		1.39E-05 ±	4.86E-04	7.95E-04	CS-134		-9.86E-05 ±	4.18E-04	6.66E-04
CS-137		-5.85E-05 ±	5.27E-04	8.51E-04	CS-137		-9.51E-05 ±	4.11E-04	6.51E-04
BALA140		-4.80E-03 ±	1.46E-02	2.22E-02	BALA140		2.43E-03 ±	1.03E-02	1.55E-02
RU-106		-1.51E-04 ±	5.34E-03	8.75E-03	RU-106		7.54E-04 ±	3.48E-03	5.50E-03

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.

1st Q 1/1/09 to 3/31/09 - 2nd Q 3/31/09 to 6/30/09 - 3rd Q 6/30/09 to 9/29/09 - 4th Q 9/29/09 to 12/29/09

TABLE A-3.1  
**GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS**  
 Results in pCi/cubic meter, results decay corrected for decay during sample collection period

Location and Quarter		Station 9 1st Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.95E-02 ±	1.55E-02	9.20E-03
K-40		-2.65E-03 ±	1.82E-02	1.41E-02
MN-54		2.47E-05 ±	4.92E-04	8.01E-04
FE-59		-7.74E-04 ±	2.96E-03	4.59E-03
CO-60		9.02E-05 ±	6.04E-04	9.63E-04
ZN-65		0.00E+00 ±	1.20E-03	1.99E-03
ZRNB-95		2.92E-04 ±	8.10E-04	1.25E-03
CS-134		-1.10E-04 ±	4.37E-04	6.90E-04
CS-137		-4.36E-05 ±	5.05E-04	8.19E-04
BALA140		6.11E-04 ±	1.18E-02	1.91E-02
RU-106		-4.30E-04 ±	4.77E-03	7.73E-03

Location and Quarter		Station 9 2nd Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.62E-01 ±	1.95E-02	1.07E-02
K-40		-6.36E-04 ±	8.39E-03	1.31E-02
MN-54		0.00E+00 ±	5.39E-04	8.99E-04
FE-59		0.00E+00 ±	3.32E-03	5.53E-03
CO-60		2.02E-04 ±	4.09E-04	5.68E-04
ZN-65		1.40E-05 ±	1.36E-03	2.23E-03
ZRNB-95		-2.61E-04 ±	9.91E-04	1.57E-03
CS-134		4.61E-06 ±	3.85E-04	6.31E-04
CS-137		-2.55E-04 ±	5.84E-04	8.99E-04
BALA140		-2.49E-04 ±	1.03E-02	1.68E-02
RU-106		4.90E-04 ±	2.89E-03	4.54E-03

Location and Quarter		Station 9 3rd Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.82E-01 ±	2.15E-02	1.18E-02
K-40		-5.99E-03 ±	5.06E+00	1.50E-02
MN-54		3.55E-04 ±	5.26E-04	7.47E-04
FE-59		1.18E-03 ±	2.63E-03	3.75E-03
CO-60		6.03E-05 ±	2.42E-04	3.46E-04
ZN-65		1.34E-05 ±	7.16E-04	1.17E-03
ZRNB-95		-1.72E-04 ±	8.33E-04	1.32E-03
CS-134		0.00E+00 ±	7.66E-04	1.28E-03
CS-137		6.24E-06 ±	5.10E-04	8.37E-04
BALA140		2.39E-03 ±	1.17E-02	1.79E-02
RU-106		1.40E-03 ±	4.15E-03	6.39E-03

Location and Quarter		Station 9 4th Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.04E-01 ±	1.46E-02	8.39E-03
K-40		-1.58E-03 ±	9.33E-03	9.19E-03
MN-54		4.11E-05 ±	3.36E-04	5.38E-04
FE-59		1.08E-04 ±	1.58E-03	2.53E-03
CO-60		-3.64E-06 ±	3.36E-04	5.51E-04
ZN-65		0.00E+00 ±	1.58E-03	2.63E-03
ZRNB-95		8.44E-05 ±	7.19E-04	1.16E-03
CS-134		-1.94E-04 ±	4.70E-04	7.35E-04
CS-137		-1.04E-04 ±	3.47E-04	5.38E-04
BALA140		7.21E-03 ±	1.04E-02	1.31E-02
RU-106		2.07E-03 ±	3.37E-03	4.92E-03

Location and Quarter		Station 21 1st Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.02E-01 ±	1.59E-02	1.00E-02
K-40		3.75E-04 ±	6.89E-03	1.30E-02
MN-54		2.61E-04 ±	4.24E-04	5.92E-04
FE-59		-7.61E-04 ±	2.93E-03	4.52E-03
CO-60		2.09E-04 ±	5.27E-04	7.85E-04
ZN-65		0.00E+00 ±	2.07E-03	3.44E-03
ZRNB-95		1.31E-06 ±	7.54E-04	1.24E-03
CS-134		7.08E-07 ±	4.15E-04	6.81E-04
CS-137		-8.99E-05 ±	4.51E-04	7.14E-04
BALA140		1.73E-03 ±	1.12E-02	1.77E-02
RU-106		1.09E-03 ±	4.46E-03	7.02E-03

Location and Quarter		Station 21 2nd Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	2.13E-01 ±	2.14E-02	8.78E-03
K-40		-2.52E-03 ±	1.39E-02	1.22E-02
MN-54		-2.46E-05 ±	3.73E-04	6.03E-04
FE-59		0.00E+00 ±	9.00E-04	1.50E-03
CO-60		0.00E+00 ±	1.66E-04	2.77E-04
ZN-65		1.60E-04 ±	1.07E-03	1.70E-03
ZRNB-95		8.06E-05 ±	6.27E-04	1.00E-03
CS-134		-1.34E-04 ±	5.18E-04	8.22E-04
CS-137		2.83E-05 ±	4.17E-04	6.77E-04
BALA140		-2.58E-04 ±	8.84E-03	1.44E-02
RU-106		9.86E-04 ±	3.61E-03	5.60E-03

Location and Quarter		Station 21 3rd Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	2.26E-01 ±	2.33E-02	1.07E-02
K-40		9.59E-04 ±	6.92E-03	1.29E-02
MN-54		2.55E-04 ±	5.23E-04	7.78E-04
FE-59		1.71E-03 ±	2.64E-03	3.49E-03
CO-60		0.00E+00 ±	5.75E-04	9.58E-04
ZN-65		-4.80E-04 ±	1.76E-03	2.77E-03
ZRNB-95		9.14E-06 ±	6.46E-04	1.06E-03
CS-134		-1.18E-04 ±	5.13E-04	8.17E-04
CS-137		-8.78E-05 ±	4.56E-04	7.24E-04
BALA140		4.51E-03 ±	1.85E-02	2.90E-02
RU-106		-1.07E-03 ±	5.16E-03	8.23E-03

Location and Quarter		Station 21 4th Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.13E-01 ±	1.45E-02	6.61E-03
K-40		1.46E-03 ±	4.47E-03	8.37E-03
MN-54		-5.26E-05 ±	3.67E-04	5.86E-04
FE-59		0.00E+00 ±	7.74E-04	1.29E-03
CO-60		3.75E-04 ±	4.79E-04	6.58E-04
ZN-65		1.32E-04 ±	8.37E-04	1.32E-03
ZRNB-95		1.15E-04 ±	6.45E-04	1.02E-03
CS-134		1.07E-04 ±	3.76E-04	5.92E-04
CS-137		-4.20E-05 ±	3.96E-04	6.40E-04
BALA140		-2.68E-03 ±	1.11E-02	1.71E-02
RU-106		-6.15E-04 ±	3.40E-03	5.41E-03

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.

TABLE A-3.1

**GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS**

Results in pCi/cubic meter, results decay corrected for decay during sample collection period

Location and Quarter Station 23 1st Q 09					Location and Quarter Station 23 2nd Q 09				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.05E-01 ±	1.66E-02	1.13E-02	BE-7	+	1.77E-01 ±	1.98E-02	9.39E-03
K-40		-6.01E-03 ±	1.92E-01	1.98E-02	K-40		-2.62E-03 ±	1.76E-02	1.38E-02
MN-54		-8.46E-06 ±	4.65E-04	7.62E-04	MN-54		-1.90E-04 ±	6.21E-04	9.70E-04
FE-59		7.93E-04 ±	3.14E-03	4.89E-03	FE-59		5.83E-04 ±	2.95E-03	4.63E-03
CO-60		0.00E+00 ±	1.66E-04	2.77E-04	CO-60		5.39E-05 ±	5.26E-04	8.45E-04
ZN-65		5.06E-05 ±	1.13E-03	1.85E-03	ZN-65		0.00E+00 ±	1.19E-03	1.99E-03
ZRNB-95		2.29E-04 ±	7.85E-04	1.22E-03	ZRNB-95		-1.81E-04 ±	8.10E-04	1.28E-03
CS-134		1.41E-04 ±	4.67E-04	7.33E-04	CS-134		-5.07E-05 ±	3.39E-04	5.41E-04
CS-137		2.27E-05 ±	4.01E-04	6.51E-04	CS-137		-4.78E-05 ±	4.52E-04	7.29E-04
BALA140		1.39E-03 ±	9.01E-03	1.41E-02	BALA140		1.59E-04 ±	1.05E-02	1.72E-02
RU-106		-8.16E-04 ±	4.17E-03	6.62E-03	RU-106		1.96E-03 ±	3.91E-03	5.79E-03

Location and Quarter Station 23 3rd Q 09					Location and Quarter Station 23 4th Q 09				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.87E-01 ±	2.18E-02	1.18E-02	BE-7	+	9.90E-02 ±	1.46E-02	8.39E-03
K-40		-6.46E-03 ±	1.83E-01	1.43E-02	K-40		1.88E-03 ±	5.50E-03	9.93E-03
MN-54		0.00E+00 ±	6.28E-04	1.05E-03	MN-54		9.03E-05 ±	4.05E-04	6.35E-04
FE-59		0.00E+00 ±	3.70E-03	6.17E-03	FE-59		2.76E-04 ±	2.17E-03	3.44E-03
CO-60		0.00E+00 ±	1.67E-04	2.78E-04	CO-60		2.33E-04 ±	3.86E-04	5.27E-04
ZN-65		-6.74E-04 ±	1.78E-03	2.76E-03	ZN-65		3.27E-04 ±	1.07E-03	1.64E-03
ZRNB-95		9.89E-05 ±	9.26E-04	1.49E-03	ZRNB-95		-1.26E-04 ±	6.48E-04	1.02E-03
CS-134		-3.40E-04 ±	6.54E-04	1.01E-03	CS-134		-7.30E-05 ±	4.06E-04	6.50E-04
CS-137		1.31E-04 ±	4.58E-04	7.13E-04	CS-137		1.22E-04 ±	3.39E-04	5.15E-04
BALA140		0.00E+00 ±	2.22E-02	3.70E-02	BALA140		-2.02E-03 ±	1.27E-02	2.00E-02
RU-106		6.62E-04 ±	4.09E-03	6.52E-03	RU-106		5.15E-04 ±	3.54E-03	5.66E-03

Location and Quarter Station 40 1st Q 09					Location and Quarter Station 40 2nd Q 09				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.05E-01 ±	1.66E-02	1.13E-02	BE-7	+	1.78E-01 ±	2.00E-02	9.61E-03
K-40		-6.01E-03 ±	1.92E-01	1.98E-02	K-40		-6.00E-03 ±	2.40E-02	9.28E-03
MN-54		-8.46E-06 ±	4.65E-04	7.62E-04	MN-54		6.58E-05 ±	4.46E-04	7.09E-04
FE-59		7.93E-04 ±	3.14E-03	4.89E-03	FE-59		0.00E+00 ±	3.33E-03	5.55E-03
CO-60		0.00E+00 ±	1.66E-04	2.77E-04	CO-60		0.00E+00 ±	1.66E-04	2.77E-04
ZN-65		5.06E-05 ±	1.13E-03	1.85E-03	ZN-65		0.00E+00 ±	1.19E-03	1.99E-03
ZRNB-95		2.29E-04 ±	7.85E-04	1.22E-03	ZRNB-95		-2.54E-06 ±	7.43E-04	1.22E-03
CS-134		1.41E-04 ±	4.67E-04	7.33E-04	CS-134		0.00E+00 ±	7.24E-04	1.21E-03
CS-137		2.27E-05 ±	4.01E-04	6.51E-04	CS-137		-2.01E-05 ±	4.17E-04	6.78E-04
BALA140		1.39E-03 ±	9.01E-03	1.41E-02	BALA140		0.00E+00 ±	3.60E-03	6.01E-03
RU-106		-8.16E-04 ±	4.17E-03	6.62E-03	RU-106		-1.01E-03 ±	4.34E-03	6.85E-03

Location and Quarter Station 40 3rd Q 09					Location and Quarter Station 40 4th Q 09				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.61E-01 ±	2.08E-02	1.28E-02	BE-7	+	9.42E-02 ±	1.45E-02	8.78E-03
K-40		-1.18E-03 ±	9.83E-03	1.30E-02	K-40		9.44E-04 ±	4.68E-03	8.87E-03
MN-54		-1.45E-04 ±	6.28E-04	9.95E-04	MN-54		-1.20E-04 ±	5.04E-04	7.98E-04
FE-59		2.76E-05 ±	3.58E-03	5.87E-03	FE-59		0.00E+00 ±	7.98E-04	1.33E-03
CO-60		0.00E+00 ±	1.67E-04	2.78E-04	CO-60		2.93E-04 ±	3.94E-04	5.21E-04
ZN-65		-3.45E-04 ±	1.63E-03	2.59E-03	ZN-65		0.00E+00 ±	9.26E-04	1.54E-03
ZRNB-95		-3.80E-04 ±	1.26E-03	2.00E-03	ZRNB-95		-1.69E-04 ±	7.56E-04	1.20E-03
CS-134		0.00E+00 ±	1.10E-03	1.83E-03	CS-134		1.22E-05 ±	3.22E-04	5.27E-04
CS-137		0.00E+00 ±	6.48E-04	1.08E-03	CS-137		2.49E-05 ±	2.74E-04	4.40E-04
BALA140		0.00E+00 ±	4.45E-02	7.41E-02	BALA140		0.00E+00 ±	1.83E-02	3.06E-02
RU-106		-1.51E-03 ±	4.46E-03	6.91E-03	RU-106		5.02E-04 ±	3.36E-03	5.38E-03

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.

1st Q 1/1/09 to 3/31/09 - 2nd Q 3/31/09 to 6/30/09 - 3rd Q 6/30/09 to 9/29/09 - 4th Q 9/29/09 to 12/29/09

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TABLE A-3.1

**GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS**

Results in pCi/cubic meter, results decay corrected for decay during sample collection period

Location and Quarter		Station 48 1st Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.63E-02 ±	1.55E-02	9.51E-03
K-40		-6.01E-03 ±	1.36E-01	1.54E-02
MN-54		4.03E-05 ±	6.02E-04	9.80E-04
FE-59		0.00E+00 ±	3.38E-03	5.63E-03
CO-60		-1.73E-07 ±	4.48E-04	7.34E-04
ZN-65		-5.23E-04 ±	1.64E-03	2.57E-03
ZRNB-95		-7.46E-06 ±	6.84E-04	1.12E-03
CS-134		0.00E+00 ±	7.25E-04	1.21E-03
CS-137		-5.08E-05 ±	5.45E-04	8.83E-04
BALA140		0.00E+00 ±	3.78E-03	6.29E-03
RU-106		2.59E-04 ±	4.79E-03	7.81E-03

Location and Quarter		Station 48 2nd Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.34E-01 ±	1.73E-02	8.59E-03
K-40		-5.86E-03 ±	4.56E-01	1.28E-02
MN-54		-1.13E-05 ±	4.49E-04	7.34E-04
FE-59		0.00E+00 ±	9.02E-04	1.50E-03
CO-60		-2.06E-06 ±	5.28E-04	8.67E-04
ZN-65		-8.58E-05 ±	1.37E-03	2.22E-03
ZRNB-95		1.38E-05 ±	6.83E-04	1.12E-03
CS-134		4.63E-05 ±	3.95E-04	6.35E-04
CS-137		1.26E-04 ±	4.06E-04	6.24E-04
BALA140		0.00E+00 ±	1.53E-02	2.54E-02
RU-106		9.66E-04 ±	4.16E-03	6.55E-03

Location and Quarter		Station 48 3rd Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.70E-01 ±	2.17E-02	1.18E-02
K-40		3.56E-03 ±	6.53E-03	1.16E-02
MN-54		0.00E+00 ±	4.02E-04	6.70E-04
FE-59		8.18E-04 ±	3.51E-03	5.47E-03
CO-60		0.00E+00 ±	5.91E-04	9.84E-04
ZN-65		-3.48E-04 ±	1.22E-03	1.87E-03
ZRNB-95		8.07E-05 ±	7.88E-04	1.27E-03
CS-134		4.67E-05 ±	4.13E-04	6.66E-04
CS-137		1.11E-04 ±	4.88E-04	7.70E-04
BALA140		0.00E+00 ±	6.68E-03	1.11E-02
RU-106		-4.92E-05 ±	4.07E-03	6.68E-03

Location and Quarter		Station 48 4th Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.01E-01 ±	1.40E-02	7.31E-03
K-40		-2.52E-03 ±	1.48E-02	8.96E-03
MN-54		-7.05E-06 ±	2.73E-04	4.46E-04
FE-59		-6.83E-04 ±	2.37E-03	3.62E-03
CO-60		-7.22E-05 ±	4.09E-04	6.45E-04
ZN-65		0.00E+00 ±	9.10E-04	1.52E-03
ZRNB-95		5.05E-06 ±	6.72E-04	1.10E-03
CS-134		-1.77E-05 ±	3.65E-04	5.96E-04
CS-137		-7.27E-05 ±	3.61E-04	5.72E-04
BALA140		0.00E+00 ±	4.04E-03	6.73E-03
RU-106		-6.10E-04 ±	3.66E-03	5.86E-03

Location and Quarter		Station 57 1st Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.24E-02 ±	1.60E-02	1.15E-02
K-40		-2.03E-03 ±	1.31E-02	1.35E-02
MN-54		0.00E+00 ±	5.09E-04	8.48E-04
FE-59		3.21E-04 ±	1.91E-03	2.94E-03
CO-60		1.46E-04 ±	5.02E-04	7.64E-04
ZN-65		8.29E-05 ±	1.42E-03	2.30E-03
ZRNB-95		0.00E+00 ±	7.61E-04	1.27E-03
CS-134		-6.88E-06 ±	4.69E-04	7.69E-04
CS-137		0.00E+00 ±	6.95E-04	1.16E-03
BALA140		0.00E+00 ±	3.95E-03	6.59E-03
RU-106		0.00E+00 ±	4.90E-03	8.16E-03

Location and Quarter		Station 57 2nd Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.67E-01 ±	2.01E-02	1.15E-02
K-40		-6.00E-03 ±	1.35E-01	1.54E-02
MN-54		4.15E-05 ±	5.56E-04	9.01E-04
FE-59		0.00E+00 ±	3.33E-03	5.55E-03
CO-60		-1.67E-04 ±	5.44E-04	8.32E-04
ZN-65		-3.41E-04 ±	1.38E-03	2.16E-03
ZRNB-95		-6.68E-05 ±	6.05E-04	9.69E-04
CS-134		3.75E-05 ±	5.37E-04	8.75E-04
CS-137		4.96E-05 ±	4.42E-04	7.11E-04
BALA140		4.15E-05 ±	9.48E-03	1.56E-02
RU-106		2.00E-03 ±	4.67E-03	7.14E-03

Location and Quarter		Station 57 3rd Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.80E-01 ±	2.20E-02	1.18E-02
K-40		-3.87E-03 ±	2.58E-02	1.25E-02
MN-54		1.26E-04 ±	6.14E-04	9.75E-04
FE-59		0.00E+00 ±	1.07E-03	1.78E-03
CO-60		-1.57E-04 ±	5.30E-04	8.11E-04
ZN-65		-1.57E-04 ±	1.15E-03	1.83E-03
ZRNB-95		-1.50E-04 ±	1.19E-03	1.92E-03
CS-134		-1.20E-06 ±	4.11E-04	6.77E-04
CS-137		2.04E-04 ±	4.05E-04	5.93E-04
BALA140		1.11E-02 ±	1.84E-02	2.51E-02
RU-106		-6.63E-04 ±	4.76E-03	7.66E-03

Location and Quarter		Station 57 4th Q 09		
Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.29E-02 ±	1.42E-02	8.22E-03
K-40		3.50E-03 ±	5.48E-03	9.26E-03
MN-54		-1.16E-05 ±	4.35E-04	7.11E-04
FE-59		-7.99E-04 ±	2.83E-03	4.38E-03
CO-60		7.85E-05 ±	3.50E-04	5.41E-04
ZN-65		-1.39E-04 ±	9.84E-04	1.57E-03
ZRNB-95		0.00E+00 ±	6.37E-04	1.06E-03
CS-134		0.00E+00 ±	4.19E-04	6.99E-04
CS-137		1.00E-05 ±	3.26E-04	5.33E-04
BALA140		-5.47E-03 ±	1.71E-02	2.61E-02
RU-106		9.55E-04 ±	3.43E-03	5.36E-03

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.

1st Q 1/1/09 to 3/31/09 - 2nd Q 3/31/09 to 6/30/09 - 3rd Q 6/30/09 to 9/29/09 - 4th Q 9/29/09 to 12/29/09

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TABLE A-3.2  
**GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS  
SUMMARY**

Results in pCi per cubic meter, corrected for decay during collection period

<b>Nuclide</b>		<b>Average Activity</b>	<b>Activity Low</b>	<b>Activity High</b>	<b>Average MDA</b>	<b>Number of Samples</b>	<b>Number of Positive IDs</b>
BALA140	Ind	7.99E-05	-5.47E-03	1.11E-02	1.96E-02	44	0
BALA140	Cntl	2.49E-03	-2.49E-04	7.21E-03	1.67E-02	4	0
BE-7	Ind	1.37E-01	8.24E-02	2.26E-01	9.83E-03	44	44
BE-7	Cntl	1.37E-01	9.95E-02	1.82E-01	1.00E-02	4	4
CO-60	Ind	5.30E-05	-1.67E-04	3.75E-04	6.87E-04	44	0
CO-60	Cntl	8.72E-05	-3.64E-06	2.02E-04	6.07E-04	4	0
CS-134	Ind	-1.30E-05	-3.40E-04	1.49E-04	7.77E-04	44	0
CS-134	Cntl	-7.49E-05	-1.94E-04	4.61E-06	8.33E-04	4	0
CS-137	Ind	3.04E-06	-2.39E-04	2.04E-04	7.21E-04	44	0
CS-137	Cntl	-9.89E-05	-2.55E-04	6.24E-06	7.73E-04	4	0
FE-59	Ind	1.74E-04	-1.34E-03	1.71E-03	4.13E-03	44	0
FE-59	Cntl	1.28E-04	-7.74E-04	1.18E-03	4.10E-03	4	0
K-40	Ind	-2.03E-03	-6.46E-03	3.80E-03	1.25E-02	44	0
K-40	Cntl	-2.71E-03	-5.99E-03	-6.36E-04	1.28E-02	4	0
MN-54	Ind	1.88E-05	-2.93E-04	2.61E-04	7.98E-04	44	0
MN-54	Cntl	1.05E-04	0.00E+00	3.55E-04	7.46E-04	4	0
RU-106	Ind	6.97E-06	-1.55E-03	2.00E-03	7.00E-03	44	0
RU-106	Cntl	8.84E-04	-4.30E-04	2.07E-03	5.90E-03	4	0
ZN-65	Ind	-7.96E-05	-6.74E-04	4.32E-04	2.22E-03	44	0
ZN-65	Cntl	6.87E-06	0.00E+00	1.40E-05	2.01E-03	4	0
ZRNB-95	Ind	-1.37E-06	-3.80E-04	3.85E-04	1.25E-03	44	0
ZRNB-95	Cntl	-1.41E-05	-2.61E-04	2.92E-04	1.32E-03	4	0

TABLE A-4.1  
**GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS**

Results in pCi/cubic meter, corrected for decay during collection period

Collection Period	Station 1			Station 9				
	RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
12/30/2008 - 1/6/2009		0.00E+00 ±	1.33E-02	2.22E-02		-9.96E-04 ±	1.14E-02	1.86E-02
1/6/2009 - 1/13/2009		-2.58E-03 ±	1.05E-02	1.68E-02		0.00E+00 ±	1.12E-02	1.86E-02
1/13/2009 - 1/20/2009		3.20E-04 ±	6.77E-03	1.10E-02		1.12E-03 ±	9.26E-03	1.50E-02
1/20/2009 - 1/27/2009		9.97E-03 ±	1.06E-02	1.54E-02		-1.35E-03 ±	1.05E-02	1.70E-02
1/27/2009 - 2/3/2009		-1.29E-04 ±	1.06E-02	1.74E-02		0.00E+00 ±	1.54E-02	2.56E-02
2/3/2009 - 2/10/2009		-3.97E-04 ±	8.30E-03	1.36E-02		0.00E+00 ±	9.00E-03	1.50E-02
2/10/2009 - 2/17/2009		-2.21E-03 ±	9.64E-03	1.54E-02		-7.17E-04 ±	1.10E-02	1.79E-02
2/17/2009 - 2/24/2009		4.65E-03 ±	7.80E-03	1.15E-02		-5.32E-04 ±	8.92E-03	1.45E-02
2/24/2009 - 3/3/2009		0.00E+00 ±	1.05E-02	1.75E-02		2.69E-04 ±	9.81E-03	1.61E-02
3/3/2009 - 3/10/2009		-2.23E-03 ±	1.10E-02	1.76E-02		1.34E-03 ±	9.47E-03	1.53E-02
3/10/2009 - 3/17/2009		2.33E-03 ±	1.04E-02	1.67E-02		1.02E-03 ±	8.94E-03	1.45E-02
3/17/2009 - 3/24/2009		0.00E+00 ±	1.02E-02	1.70E-02		-3.58E-03 ±	1.30E-02	2.08E-02
3/24/2009 - 3/31/2009		-1.91E-04 ±	1.01E-02	1.65E-02		-7.46E-04 ±	9.02E-03	1.46E-02
3/31/2009 - 4/7/2009		5.93E-04 ±	1.04E-02	1.70E-02		4.50E-04 ±	1.06E-02	1.73E-02
4/7/2009 - 4/14/2009		-1.32E-03 ±	7.72E-03	1.23E-02		1.52E-03 ±	9.35E-03	1.50E-02
4/14/2009 - 4/21/2009		4.32E-04 ±	8.43E-03	1.38E-02		9.31E-04 ±	9.95E-03	1.62E-02
4/21/2009 - 4/28/2009		4.37E-03 ±	8.03E-03	1.21E-02		-1.29E-03 ±	1.01E-02	1.63E-02
4/28/2009 - 5/5/2009		2.22E-04 ±	9.34E-03	1.53E-02		2.79E-03 ±	9.41E-03	1.49E-02
5/5/2009 - 5/12/2009		-3.05E-03 ±	9.98E-03	1.58E-02		2.13E-03 ±	8.26E-03	1.30E-02
5/12/2009 - 5/19/2009		-1.06E-03 ±	9.76E-03	1.58E-02		3.30E-03 ±	9.68E-03	1.52E-02
5/19/2009 - 5/26/2009		-3.15E-04 ±	9.01E-03	1.47E-02		2.06E-03 ±	9.70E-03	1.55E-02
5/26/2009 - 6/2/2009		-5.12E-05 ±	1.00E-02	1.65E-02		-1.80E-03 ±	1.09E-02	1.76E-02
6/2/2009 - 6/9/2009		-2.54E-04 ±	9.35E-03	1.53E-02		-2.13E-04 ±	9.83E-03	1.61E-02
6/9/2009 - 6/16/2009		3.95E-03 ±	8.00E-03	1.21E-02		-2.82E-03 ±	1.10E-02	1.76E-02
6/16/2009 - 6/23/2009		-3.34E-03 ±	9.93E-03	1.56E-02		0.00E+00 ±	9.68E-03	1.61E-02
6/23/2009 - 6/30/2009		-1.78E-04 ±	7.92E-03	1.30E-02		0.00E+00 ±	7.98E-03	1.33E-02
6/30/2009 - 7/7/2009		1.53E-03 ±	9.06E-03	1.46E-02		-4.72E-04 ±	9.76E-03	1.59E-02
7/7/2009 - 7/14/2009		2.50E-03 ±	9.29E-03	1.47E-02		1.89E-04 ±	9.47E-03	1.55E-02
7/14/2009 - 7/21/2009		0.00E+00 ±	1.19E-02	1.99E-02		-1.04E-03 ±	9.41E-03	1.53E-02
7/21/2009 - 7/28/2009		2.04E-03 ±	1.05E-02	1.68E-02		-4.15E-03 ±	1.23E-02	1.96E-02
7/28/2009 - 8/4/2009		2.41E-03 ±	9.20E-03	1.46E-02		3.25E-04 ±	1.03E-02	1.69E-02
8/4/2009 - 8/11/2009		6.69E-04 ±	6.80E-03	1.10E-02		7.62E-05 ±	7.94E-03	1.30E-02
8/11/2009 - 8/18/2009		7.22E-03 ±	9.72E-03	1.44E-02		5.91E-03 ±	7.37E-03	1.06E-02
8/18/2009 - 8/25/2009		4.20E-04 ±	9.64E-03	1.58E-02		-1.67E-03 ±	9.66E-03	1.55E-02
8/25/2009 - 9/1/2009		-3.88E-03 ±	1.07E-02	1.69E-02		6.37E-03 ±	8.58E-03	1.24E-02
9/1/2009 - 9/8/2009		-3.21E-03 ±	1.12E-02	1.78E-02		-2.91E-04 ±	9.32E-03	1.53E-02
9/8/2009 - 9/15/2009		-2.71E-03 ±	1.07E-02	1.71E-02		-1.94E-03 ±	8.52E-03	1.36E-02
9/15/2009 - 9/22/2009		0.00E+00 ±	1.17E-02	1.94E-02		-3.81E-04 ±	9.71E-03	1.59E-02
9/22/2009 - 9/29/2009		-1.58E-04 ±	8.97E-03	1.47E-02		-1.97E-04 ±	1.03E-02	1.70E-02
9/29/2009 - 10/6/2009		1.07E-04 ±	1.03E-02	1.70E-02		0.00E+00 ±	1.39E-02	2.32E-02
10/6/2009 - 10/13/2009		-2.06E-04 ±	9.77E-03	1.60E-02		5.73E-03 ±	1.09E-02	1.69E-02
10/13/2009 - 10/20/2009		1.58E-03 ±	8.80E-03	1.41E-02		2.32E-03 ±	1.05E-02	1.68E-02
10/20/2009 - 10/27/2009		4.27E-03 ±	9.20E-03	1.41E-02		-2.11E-03 ±	1.02E-02	1.63E-02
10/27/2009 - 11/3/2009		8.77E-04 ±	1.25E-02	2.04E-02		0.00E+00 ±	1.30E-02	2.17E-02
11/3/2009 - 11/10/2009		1.04E-03 ±	8.90E-03	1.44E-02		-7.93E-05 ±	9.37E-03	1.54E-02
11/10/2009 - 11/17/2009		-2.84E-03 ±	1.20E-02	1.92E-02		5.30E-04 ±	1.01E-02	1.64E-02
11/17/2009 - 11/24/2009		-6.99E-04 ±	8.43E-03	1.37E-02		1.20E-03 ±	7.97E-03	1.28E-02
11/24/2009 - 12/1/2009		1.03E-03 ±	9.72E-03	1.57E-02		0.00E+00 ±	1.35E-02	2.24E-02
12/1/2009 - 12/8/2009		-4.71E-03 ±	1.30E-02	2.05E-02		0.00E+00 ±	1.30E-02	2.17E-02
12/8/2009 - 12/15/2009		-2.86E-03 ±	1.07E-02	1.71E-02		-1.67E-03 ±	1.15E-02	1.86E-02
12/15/2009 - 12/22/2009		-9.95E-04 ±	9.82E-03	1.59E-02		0.00E+00 ±	9.00E-03	1.50E-02
12/22/2009 - 12/29/2009		-4.04E-03 ±	1.11E-02	1.75E-02		-2.84E-03 ±	1.17E-02	1.88E-02



TABLE A-4.1  
**GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS**

Results in pCi/cubic meter, corrected for decay during collection period

Collection Period	Station 4				Station 21			
	RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
12/30/2008 - 1/6/2009		0.00E+00 ±	1.33E-02	2.22E-02		-9.96E-04 ±	1.14E-02	1.86E-02
1/6/2009 - 1/13/2009		-2.58E-03 ±	1.05E-02	1.68E-02		0.00E+00 ±	1.12E-02	1.86E-02
1/13/2009 - 1/20/2009		3.20E-04 ±	6.77E-03	1.10E-02		1.12E-03 ±	9.26E-03	1.50E-02
1/20/2009 - 1/27/2009		9.97E-03 ±	1.06E-02	1.54E-02		-1.35E-03 ±	1.05E-02	1.70E-02
1/27/2009 - 2/3/2009		-1.29E-04 ±	1.06E-02	1.74E-02		0.00E+00 ±	1.54E-02	2.56E-02
2/3/2009 - 2/10/2009		-3.97E-04 ±	8.30E-03	1.36E-02		0.00E+00 ±	9.00E-03	1.50E-02
2/10/2009 - 2/17/2009		-2.21E-03 ±	9.64E-03	1.54E-02		-7.17E-04 ±	1.10E-02	1.79E-02
2/17/2009 - 2/24/2009		4.65E-03 ±	7.80E-03	1.15E-02		-5.32E-04 ±	8.92E-03	1.45E-02
2/24/2009 - 3/3/2009		0.00E+00 ±	1.05E-02	1.75E-02		2.69E-04 ±	9.81E-03	1.61E-02
3/3/2009 - 3/10/2009		-2.23E-03 ±	1.10E-02	1.76E-02		1.34E-03 ±	9.47E-03	1.53E-02
3/10/2009 - 3/17/2009		2.33E-03 ±	1.04E-02	1.67E-02		1.02E-03 ±	8.94E-03	1.45E-02
3/17/2009 - 3/24/2009		0.00E+00 ±	1.02E-02	1.70E-02		-3.58E-03 ±	1.30E-02	2.08E-02
3/24/2009 - 3/31/2009		-1.91E-04 ±	1.01E-02	1.65E-02		-7.46E-04 ±	9.02E-03	1.46E-02
3/31/2009 - 4/7/2009		5.93E-04 ±	1.04E-02	1.70E-02		4.50E-04 ±	1.06E-02	1.73E-02
4/7/2009 - 4/14/2009		-1.32E-03 ±	7.72E-03	1.23E-02		1.52E-03 ±	9.35E-03	1.50E-02
4/14/2009 - 4/21/2009		4.32E-04 ±	8.43E-03	1.38E-02		9.31E-04 ±	9.95E-03	1.62E-02
4/21/2009 - 4/28/2009		4.37E-03 ±	8.03E-03	1.21E-02		-1.29E-03 ±	1.01E-02	1.63E-02
4/28/2009 - 5/5/2009		2.22E-04 ±	9.34E-03	1.53E-02		2.79E-03 ±	9.41E-03	1.49E-02
5/5/2009 - 5/12/2009		-3.05E-03 ±	9.98E-03	1.58E-02		2.13E-03 ±	8.26E-03	1.30E-02
5/12/2009 - 5/19/2009		-1.06E-03 ±	9.76E-03	1.58E-02		3.30E-03 ±	9.68E-03	1.52E-02
5/19/2009 - 5/26/2009		-3.15E-04 ±	9.01E-03	1.47E-02		2.06E-03 ±	9.70E-03	1.55E-02
5/26/2009 - 6/2/2009		-5.12E-05 ±	1.00E-02	1.65E-02		-1.80E-03 ±	1.09E-02	1.76E-02
6/2/2009 - 6/9/2009		-2.54E-04 ±	9.35E-03	1.53E-02		-2.13E-04 ±	9.83E-03	1.61E-02
6/9/2009 - 6/16/2009		3.95E-03 ±	8.00E-03	1.21E-02		-2.82E-03 ±	1.10E-02	1.76E-02
6/16/2009 - 6/23/2009		-3.34E-03 ±	9.93E-03	1.56E-02		0.00E+00 ±	9.68E-03	1.61E-02
6/23/2009 - 6/30/2009		-1.78E-04 ±	7.92E-03	1.30E-02		0.00E+00 ±	7.98E-03	1.33E-02
6/30/2009 - 7/7/2009		1.53E-03 ±	9.06E-03	1.46E-02		-4.72E-04 ±	9.76E-03	1.59E-02
7/7/2009 - 7/14/2009		2.50E-03 ±	9.29E-03	1.47E-02		1.89E-04 ±	9.47E-03	1.55E-02
7/14/2009 - 7/21/2009		0.00E+00 ±	1.19E-02	1.99E-02		-1.04E-03 ±	9.41E-03	1.53E-02
7/21/2009 - 7/28/2009		2.04E-03 ±	1.05E-02	1.68E-02		-4.15E-03 ±	1.23E-02	1.96E-02
7/28/2009 - 8/4/2009		2.41E-03 ±	9.20E-03	1.46E-02		3.25E-04 ±	1.03E-02	1.69E-02
8/4/2009 - 8/11/2009		6.69E-04 ±	6.80E-03	1.10E-02		7.62E-05 ±	7.94E-03	1.30E-02
8/11/2009 - 8/18/2009		7.22E-03 ±	9.72E-03	1.44E-02		5.91E-03 ±	7.37E-03	1.06E-02
8/18/2009 - 8/25/2009		4.20E-04 ±	9.64E-03	1.58E-02		-1.67E-03 ±	9.66E-03	1.55E-02
8/25/2009 - 9/1/2009		-3.88E-03 ±	1.07E-02	1.69E-02		6.37E-03 ±	8.58E-03	1.24E-02
9/1/2009 - 9/8/2009		-3.21E-03 ±	1.12E-02	1.78E-02		-2.91E-04 ±	9.32E-03	1.53E-02
9/8/2009 - 9/15/2009		-2.71E-03 ±	1.07E-02	1.71E-02		-1.94E-03 ±	8.52E-03	1.36E-02
9/15/2009 - 9/22/2009		0.00E+00 ±	1.17E-02	1.94E-02		-3.81E-04 ±	9.71E-03	1.59E-02
9/22/2009 - 9/29/2009		-1.58E-04 ±	8.97E-03	1.47E-02		-1.97E-04 ±	1.03E-02	1.70E-02
9/29/2009 - 10/6/2009		1.07E-04 ±	1.03E-02	1.70E-02		0.00E+00 ±	1.39E-02	2.32E-02
10/6/2009 - 10/13/2009		-2.06E-04 ±	9.77E-03	1.60E-02		5.73E-03 ±	1.09E-02	1.69E-02
10/13/2009 - 10/20/2009		1.58E-03 ±	8.80E-03	1.41E-02		2.32E-03 ±	1.05E-02	1.68E-02
10/20/2009 - 10/27/2009		4.27E-03 ±	9.20E-03	1.41E-02		-2.11E-03 ±	1.02E-02	1.63E-02
10/27/2009 - 11/3/2009		8.77E-04 ±	1.25E-02	2.04E-02		0.00E+00 ±	1.30E-02	2.17E-02
11/3/2009 - 11/10/2009		1.04E-03 ±	8.90E-03	1.44E-02		-7.93E-05 ±	9.37E-03	1.54E-02
11/10/2009 - 11/17/2009		-2.84E-03 ±	1.20E-02	1.92E-02		5.30E-04 ±	1.01E-02	1.64E-02
11/17/2009 - 11/24/2009		-6.99E-04 ±	8.43E-03	1.37E-02		1.20E-03 ±	7.97E-03	1.28E-02
11/24/2009 - 12/1/2009		1.03E-03 ±	9.72E-03	1.57E-02		0.00E+00 ±	1.35E-02	2.24E-02
12/1/2009 - 12/8/2009		-4.71E-03 ±	1.30E-02	2.05E-02		0.00E+00 ±	1.30E-02	2.17E-02
12/8/2009 - 12/15/2009		-2.86E-03 ±	1.07E-02	1.71E-02		-1.67E-03 ±	1.15E-02	1.86E-02
12/15/2009 - 12/22/2009		-9.95E-04 ±	9.82E-03	1.59E-02		0.00E+00 ±	9.00E-03	1.50E-02
12/22/2009 - 12/29/2009		-4.04E-03 ±	1.11E-02	1.75E-02		-2.84E-03 ±	1.17E-02	1.88E-02

TABLE A-4.1  
**GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS**

Results in pCi/cubic meter, corrected for decay during collection period

Collection Period	Station 5				Station 23			
	RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
12/30/2008 - 1/6/2009		0.00E+00 ±	1.33E-02	2.22E-02		2.66E-04 ±	1.06E-02	1.74E-02
1/6/2009 - 1/13/2009		-2.58E-03 ±	1.05E-02	1.68E-02		2.64E-03 ±	1.01E-02	1.59E-02
1/13/2009 - 1/20/2009		3.20E-04 ±	6.77E-03	1.10E-02		-6.19E-03 ±	1.43E-02	2.25E-02
1/20/2009 - 1/27/2009		9.97E-03 ±	1.06E-02	1.54E-02		4.66E-03 ±	1.00E-02	1.55E-02
1/27/2009 - 2/3/2009		-1.29E-04 ±	1.06E-02	1.74E-02		6.00E-03 ±	1.09E-02	1.66E-02
2/3/2009 - 2/10/2009		-3.97E-04 ±	8.30E-03	1.36E-02		3.93E-03 ±	7.97E-03	1.21E-02
2/10/2009 - 2/17/2009		-2.21E-03 ±	9.64E-03	1.54E-02		2.34E-03 ±	1.05E-02	1.67E-02
2/17/2009 - 2/24/2009		4.65E-03 ±	7.80E-03	1.15E-02		0.00E+00 ±	1.50E-02	2.50E-02
2/24/2009 - 3/3/2009		0.00E+00 ±	1.05E-02	1.75E-02		4.18E-03 ±	1.08E-02	1.69E-02
3/3/2009 - 3/10/2009		-2.23E-03 ±	1.10E-02	1.76E-02		4.89E-05 ±	8.84E-03	1.45E-02
3/10/2009 - 3/17/2009		2.33E-03 ±	1.04E-02	1.67E-02		0.00E+00 ±	1.06E-02	1.76E-02
3/17/2009 - 3/24/2009		0.00E+00 ±	1.02E-02	1.70E-02		-2.85E-03 ±	1.09E-02	1.74E-02
3/24/2009 - 3/31/2009		-1.91E-04 ±	1.01E-02	1.65E-02		-1.45E-03 ±	9.08E-03	1.46E-02
3/31/2009 - 4/7/2009		5.93E-04 ±	1.04E-02	1.70E-02		-3.45E-03 ±	1.15E-02	1.83E-02
4/7/2009 - 4/14/2009		-1.32E-03 ±	7.72E-03	1.23E-02		-4.05E-03 ±	1.06E-02	1.67E-02
4/14/2009 - 4/21/2009		4.32E-04 ±	8.43E-03	1.38E-02		5.46E-03 ±	1.14E-02	1.77E-02
4/21/2009 - 4/28/2009		4.37E-03 ±	8.03E-03	1.21E-02		1.77E-03 ±	9.90E-03	1.59E-02
4/28/2009 - 5/5/2009		2.22E-04 ±	9.34E-03	1.53E-02		1.48E-03 ±	8.64E-03	1.38E-02
5/5/2009 - 5/12/2009		-3.05E-03 ±	9.98E-03	1.58E-02		-9.29E-04 ±	9.93E-03	1.61E-02
5/12/2009 - 5/19/2009		-1.06E-03 ±	9.76E-03	1.58E-02		-6.07E-05 ±	9.03E-03	1.48E-02
5/19/2009 - 5/26/2009		-3.15E-04 ±	9.01E-03	1.47E-02		-2.46E-03 ±	1.04E-02	1.67E-02
5/26/2009 - 6/2/2009		-5.12E-05 ±	1.00E-02	1.65E-02		4.02E-03 ±	9.87E-03	1.53E-02
6/2/2009 - 6/9/2009		-2.54E-04 ±	9.35E-03	1.53E-02		4.14E-03 ±	9.17E-03	1.41E-02
6/9/2009 - 6/16/2009		3.95E-03 ±	8.00E-03	1.21E-02		-4.12E-03 ±	1.16E-02	1.83E-02
6/16/2009 - 6/23/2009		-3.34E-03 ±	9.93E-03	1.56E-02		-2.51E-03 ±	1.07E-02	1.71E-02
6/23/2009 - 6/30/2009		-1.78E-04 ±	7.92E-03	1.30E-02		0.00E+00 ±	1.34E-02	2.23E-02
6/30/2009 - 7/7/2009		1.53E-03 ±	9.06E-03	1.46E-02		-3.52E-05 ±	1.02E-02	1.67E-02
7/7/2009 - 7/14/2009		2.50E-03 ±	9.29E-03	1.47E-02		-3.87E-03 ±	1.38E-02	2.21E-02
7/14/2009 - 7/21/2009		0.00E+00 ±	1.19E-02	1.99E-02		1.49E-03 ±	8.06E-03	1.29E-02
7/21/2009 - 7/28/2009		2.04E-03 ±	1.05E-02	1.68E-02		2.63E-03 ±	8.54E-03	1.33E-02
7/28/2009 - 8/4/2009		2.41E-03 ±	9.20E-03	1.46E-02		2.22E-03 ±	1.17E-02	1.88E-02
8/4/2009 - 8/11/2009		6.69E-04 ±	6.80E-03	1.10E-02		6.63E-04 ±	9.24E-03	1.50E-02
8/11/2009 - 8/18/2009		7.22E-03 ±	9.72E-03	1.44E-02		-4.66E-04 ±	8.46E-03	1.38E-02
8/18/2009 - 8/25/2009		4.20E-04 ±	9.64E-03	1.58E-02		8.45E-04 ±	8.54E-03	1.38E-02
8/25/2009 - 9/1/2009		-3.88E-03 ±	1.07E-02	1.69E-02		-1.80E-04 ±	1.03E-02	1.69E-02
9/1/2009 - 9/8/2009		-3.21E-03 ±	1.12E-02	1.78E-02		-4.32E-04 ±	9.69E-03	1.58E-02
9/8/2009 - 9/15/2009		-2.71E-03 ±	1.07E-02	1.71E-02		-2.61E-03 ±	1.07E-02	1.71E-02
9/15/2009 - 9/22/2009		0.00E+00 ±	1.17E-02	1.94E-02		-1.42E-05 ±	1.02E-02	1.67E-02
9/22/2009 - 9/29/2009		-1.58E-04 ±	8.97E-03	1.47E-02		5.72E-03 ±	1.10E-02	1.70E-02
9/29/2009 - 10/6/2009		1.07E-04 ±	1.03E-02	1.70E-02		-3.02E-03 ±	1.16E-02	1.85E-02
10/6/2009 - 10/13/2009		-2.06E-04 ±	9.77E-03	1.60E-02		-2.44E-03 ±	1.15E-02	1.85E-02
10/13/2009 - 10/20/2009		1.58E-03 ±	8.80E-03	1.41E-02		0.00E+00 ±	1.33E-02	2.22E-02
10/20/2009 - 10/27/2009		4.27E-03 ±	9.20E-03	1.41E-02		-1.42E-03 ±	1.01E-02	1.62E-02
10/27/2009 - 11/3/2009		NVS				-5.97E-04 ±	1.10E-02	1.79E-02
11/3/2009 - 11/10/2009		1.04E-03 ±	8.90E-03	1.44E-02		-2.53E-05 ±	8.33E-03	1.37E-02
11/10/2009 - 11/17/2009		-2.84E-03 ±	1.20E-02	1.92E-02		3.41E-04 ±	9.36E-03	1.53E-02
11/17/2009 - 11/24/2009		-6.99E-04 ±	8.43E-03	1.37E-02		NVS		
11/24/2009 - 12/1/2009		1.03E-03 ±	9.72E-03	1.57E-02		2.24E-03 ±	1.02E-02	1.63E-02
12/1/2009 - 12/8/2009		-4.71E-03 ±	1.30E-02	2.05E-02		4.75E-03 ±	1.17E-02	1.83E-02
12/8/2009 - 12/15/2009		NVS				4.83E-03 ±	1.11E-02	1.71E-02
12/15/2009 - 12/22/2009		0.00E+00 ±	9.00E-03	1.50E-02		-2.36E-03 ±	1.08E-02	1.72E-02
12/22/2009 - 12/29/2009		-4.04E-03 ±	1.11E-02	1.75E-02		4.28E-03 ±	1.24E-02	1.96E-02

NVS = Valid sample not obtained due to sampler failure.

TABLE A-4.1  
**GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS**

Results in pCi/cubic meter, corrected for decay during collection period

Collection Period	Station 6				Station 40			
	RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
12/30/2008 - 1/6/2009		0.00E+00	± 1.33E-02	2.22E-02		2.66E-04	± 1.06E-02	1.74E-02
1/6/2009 - 1/13/2009		-2.58E-03	± 1.05E-02	1.68E-02		2.64E-03	± 1.01E-02	1.59E-02
1/13/2009 - 1/20/2009		3.20E-04	± 6.77E-03	1.10E-02		-6.19E-03	± 1.43E-02	2.25E-02
1/20/2009 - 1/27/2009		9.97E-03	± 1.06E-02	1.54E-02		4.66E-03	± 1.00E-02	1.55E-02
1/27/2009 - 2/3/2009		-1.29E-04	± 1.06E-02	1.74E-02		6.00E-03	± 1.09E-02	1.66E-02
2/3/2009 - 2/10/2009		-3.97E-04	± 8.30E-03	1.36E-02		3.93E-03	± 7.97E-03	1.21E-02
2/10/2009 - 2/17/2009		-2.21E-03	± 9.64E-03	1.54E-02		2.34E-03	± 1.05E-02	1.67E-02
2/17/2009 - 2/24/2009		4.65E-03	± 7.80E-03	1.15E-02		0.00E+00	± 1.50E-02	2.50E-02
2/24/2009 - 3/3/2009		0.00E+00	± 1.05E-02	1.75E-02		4.18E-03	± 1.08E-02	1.69E-02
3/3/2009 - 3/10/2009		-2.23E-03	± 1.10E-02	1.76E-02		4.89E-05	± 8.84E-03	1.45E-02
3/10/2009 - 3/17/2009		2.33E-03	± 1.04E-02	1.67E-02		0.00E+00	± 1.06E-02	1.76E-02
3/17/2009 - 3/24/2009		0.00E+00	± 1.02E-02	1.70E-02		-2.85E-03	± 1.09E-02	1.74E-02
3/24/2009 - 3/31/2009		-1.91E-04	± 1.01E-02	1.65E-02		-1.45E-03	± 9.08E-03	1.46E-02
3/31/2009 - 4/7/2009		5.93E-04	± 1.04E-02	1.70E-02		-3.45E-03	± 1.15E-02	1.83E-02
4/7/2009 - 4/14/2009		-1.32E-03	± 7.72E-03	1.23E-02		-4.05E-03	± 1.06E-02	1.67E-02
4/14/2009 - 4/21/2009		4.32E-04	± 8.43E-03	1.38E-02		5.46E-03	± 1.14E-02	1.77E-02
4/21/2009 - 4/28/2009		4.37E-03	± 8.03E-03	1.21E-02		1.77E-03	± 9.90E-03	1.59E-02
4/28/2009 - 5/5/2009		2.22E-04	± 9.34E-03	1.53E-02		1.48E-03	± 8.64E-03	1.38E-02
5/5/2009 - 5/12/2009		-3.05E-03	± 9.98E-03	1.58E-02		-9.29E-04	± 9.93E-03	1.61E-02
5/12/2009 - 5/19/2009		-1.06E-03	± 9.76E-03	1.58E-02		-6.07E-05	± 9.03E-03	1.48E-02
5/19/2009 - 5/26/2009		-3.15E-04	± 9.01E-03	1.47E-02		-2.46E-03	± 1.04E-02	1.67E-02
5/26/2009 - 6/2/2009		-5.12E-05	± 1.00E-02	1.65E-02		4.02E-03	± 9.87E-03	1.53E-02
6/2/2009 - 6/9/2009		-2.54E-04	± 9.35E-03	1.53E-02		4.14E-03	± 9.17E-03	1.41E-02
6/9/2009 - 6/16/2009		3.95E-03	± 8.00E-03	1.21E-02		-4.12E-03	± 1.16E-02	1.83E-02
6/16/2009 - 6/23/2009		-3.34E-03	± 9.93E-03	1.56E-02		-2.51E-03	± 1.07E-02	1.71E-02
6/23/2009 - 6/30/2009		-1.78E-04	± 7.92E-03	1.30E-02		0.00E+00	± 1.34E-02	2.23E-02
6/30/2009 - 7/7/2009		1.53E-03	± 9.06E-03	1.46E-02		-3.52E-05	± 1.02E-02	1.67E-02
7/7/2009 - 7/14/2009		2.50E-03	± 9.29E-03	1.47E-02		-3.87E-03	± 1.38E-02	2.21E-02
7/14/2009 - 7/21/2009		0.00E+00	± 1.19E-02	1.99E-02		1.49E-03	± 8.06E-03	1.29E-02
7/21/2009 - 7/28/2009		2.04E-03	± 1.05E-02	1.68E-02		2.63E-03	± 8.54E-03	1.33E-02
7/28/2009 - 8/4/2009		2.41E-03	± 9.20E-03	1.46E-02		2.22E-03	± 1.17E-02	1.88E-02
8/4/2009 - 8/11/2009		6.69E-04	± 6.80E-03	1.10E-02		6.63E-04	± 9.24E-03	1.50E-02
8/11/2009 - 8/18/2009		7.22E-03	± 9.72E-03	1.44E-02		-4.66E-04	± 8.46E-03	1.38E-02
8/18/2009 - 8/25/2009		4.20E-04	± 9.64E-03	1.58E-02		8.45E-04	± 8.54E-03	1.38E-02
8/25/2009 - 9/1/2009		-3.88E-03	± 1.07E-02	1.69E-02		-1.80E-04	± 1.03E-02	1.69E-02
9/1/2009 - 9/8/2009		-3.21E-03	± 1.12E-02	1.78E-02		-4.32E-04	± 9.69E-03	1.58E-02
9/8/2009 - 9/15/2009		-2.71E-03	± 1.07E-02	1.71E-02		-2.61E-03	± 1.07E-02	1.71E-02
9/15/2009 - 9/22/2009		0.00E+00	± 1.17E-02	1.94E-02		-1.42E-05	± 1.02E-02	1.67E-02
9/22/2009 - 9/29/2009		-1.58E-04	± 8.97E-03	1.47E-02		5.72E-03	± 1.10E-02	1.70E-02
9/29/2009 - 10/6/2009		1.07E-04	± 1.03E-02	1.70E-02		-3.02E-03	± 1.16E-02	1.85E-02
10/6/2009 - 10/13/2009		-2.06E-04	± 9.77E-03	1.60E-02		-2.44E-03	± 1.15E-02	1.85E-02
10/13/2009 - 10/20/2009		1.58E-03	± 8.80E-03	1.41E-02		0.00E+00	± 1.33E-02	2.22E-02
10/20/2009 - 10/27/2009		4.27E-03	± 9.20E-03	1.41E-02		-1.42E-03	± 1.01E-02	1.62E-02
10/27/2009 - 11/3/2009		8.77E-04	± 1.25E-02	2.04E-02		-5.97E-04	± 1.10E-02	1.79E-02
11/3/2009 - 11/10/2009		1.04E-03	± 8.90E-03	1.44E-02		-2.53E-05	± 8.33E-03	1.37E-02
11/10/2009 - 11/17/2009		-2.84E-03	± 1.20E-02	1.92E-02		3.41E-04	± 9.36E-03	1.53E-02
11/17/2009 - 11/24/2009		-6.99E-04	± 8.43E-03	1.37E-02		4.23E-05	± 7.36E-03	1.21E-02
11/24/2009 - 12/1/2009		1.03E-03	± 9.72E-03	1.57E-02		2.24E-03	± 1.02E-02	1.63E-02
12/1/2009 - 12/8/2009		-4.71E-03	± 1.30E-02	2.05E-02		5.87E-03	± 1.45E-02	2.27E-02
12/8/2009 - 12/15/2009		-2.86E-03	± 1.07E-02	1.71E-02		4.14E-03	± 9.54E-03	1.47E-02
12/15/2009 - 12/22/2009		-9.95E-04	± 9.82E-03	1.59E-02		-2.36E-03	± 1.08E-02	1.72E-02
12/22/2009 - 12/29/2009		-4.04E-03	± 1.11E-02	1.75E-02		4.28E-03	± 1.24E-02	1.96E-02

TABLE A-4.1  
**GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS**

Results in pCi/cubic meter, corrected for decay during collection period

Collection Period	Station 7				Station 48			
	RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
12/30/2008 - 1/6/2009		-9.96E-04 ±	1.14E-02	1.86E-02		2.66E-04 ±	1.06E-02	1.74E-02
1/6/2009 - 1/13/2009		0.00E+00 ±	1.12E-02	1.86E-02		2.64E-03 ±	1.01E-02	1.59E-02
1/13/2009 - 1/20/2009		1.12E-03 ±	9.26E-03	1.50E-02		-6.19E-03 ±	1.43E-02	2.25E-02
1/20/2009 - 1/27/2009		-1.35E-03 ±	1.05E-02	1.70E-02		4.66E-03 ±	1.00E-02	1.55E-02
1/27/2009 - 2/3/2009		0.00E+00 ±	1.54E-02	2.56E-02		6.00E-03 ±	1.09E-02	1.66E-02
2/3/2009 - 2/10/2009		0.00E+00 ±	9.00E-03	1.50E-02		3.93E-03 ±	7.97E-03	1.21E-02
2/10/2009 - 2/17/2009		-7.17E-04 ±	1.10E-02	1.79E-02		2.34E-03 ±	1.05E-02	1.67E-02
2/17/2009 - 2/24/2009		-5.32E-04 ±	8.92E-03	1.45E-02		0.00E+00 ±	1.50E-02	2.50E-02
2/24/2009 - 3/3/2009		2.69E-04 ±	9.81E-03	1.61E-02		4.18E-03 ±	1.08E-02	1.69E-02
3/3/2009 - 3/10/2009		1.34E-03 ±	9.47E-03	1.53E-02		4.89E-05 ±	8.84E-03	1.45E-02
3/10/2009 - 3/17/2009		1.02E-03 ±	8.94E-03	1.45E-02		0.00E+00 ±	1.06E-02	1.76E-02
3/17/2009 - 3/24/2009		-3.58E-03 ±	1.30E-02	2.08E-02		-2.85E-03 ±	1.09E-02	1.74E-02
3/24/2009 - 3/31/2009		-7.46E-04 ±	9.02E-03	1.46E-02		-1.45E-03 ±	9.08E-03	1.46E-02
3/31/2009 - 4/7/2009		4.50E-04 ±	1.06E-02	1.73E-02		-3.45E-03 ±	1.15E-02	1.83E-02
4/7/2009 - 4/14/2009		1.52E-03 ±	9.35E-03	1.50E-02		-4.05E-03 ±	1.06E-02	1.67E-02
4/14/2009 - 4/21/2009		9.31E-04 ±	9.95E-03	1.62E-02		5.46E-03 ±	1.14E-02	1.77E-02
4/21/2009 - 4/28/2009		-1.29E-03 ±	1.01E-02	1.63E-02		1.77E-03 ±	9.90E-03	1.59E-02
4/28/2009 - 5/5/2009		2.79E-03 ±	9.41E-03	1.49E-02		1.48E-03 ±	8.64E-03	1.38E-02
5/5/2009 - 5/12/2009		2.13E-03 ±	8.26E-03	1.30E-02		-9.29E-04 ±	9.93E-03	1.61E-02
5/12/2009 - 5/19/2009		3.30E-03 ±	9.68E-03	1.52E-02		-6.07E-05 ±	9.03E-03	1.48E-02
5/19/2009 - 5/26/2009		2.06E-03 ±	9.70E-03	1.55E-02		-2.46E-03 ±	1.04E-02	1.67E-02
5/26/2009 - 6/2/2009		-1.80E-03 ±	1.09E-02	1.76E-02		4.02E-03 ±	9.87E-03	1.53E-02
6/2/2009 - 6/9/2009		-2.13E-04 ±	9.83E-03	1.61E-02		4.14E-03 ±	9.17E-03	1.41E-02
6/9/2009 - 6/16/2009		-2.82E-03 ±	1.10E-02	1.76E-02		-4.12E-03 ±	1.16E-02	1.83E-02
6/16/2009 - 6/23/2009		0.00E+00 ±	9.68E-03	1.61E-02		-2.51E-03 ±	1.07E-02	1.71E-02
6/23/2009 - 6/30/2009		0.00E+00 ±	7.98E-03	1.33E-02		0.00E+00 ±	1.34E-02	2.23E-02
6/30/2009 - 7/7/2009		-4.72E-04 ±	9.76E-03	1.59E-02		-3.52E-05 ±	1.02E-02	1.67E-02
7/7/2009 - 7/14/2009		1.89E-04 ±	9.47E-03	1.55E-02		-3.87E-03 ±	1.38E-02	2.21E-02
7/14/2009 - 7/21/2009		-1.04E-03 ±	9.41E-03	1.53E-02		1.49E-03 ±	8.06E-03	1.29E-02
7/21/2009 - 7/28/2009		-4.15E-03 ±	1.23E-02	1.96E-02		2.63E-03 ±	8.54E-03	1.33E-02
7/28/2009 - 8/4/2009		3.25E-04 ±	1.03E-02	1.69E-02		2.22E-03 ±	1.17E-02	1.88E-02
8/4/2009 - 8/11/2009		7.62E-05 ±	7.94E-03	1.30E-02		6.63E-04 ±	9.24E-03	1.50E-02
8/11/2009 - 8/18/2009		5.91E-03 ±	7.37E-03	1.06E-02		-4.66E-04 ±	8.46E-03	1.38E-02
8/18/2009 - 8/25/2009		-1.67E-03 ±	9.66E-03	1.55E-02		8.45E-04 ±	8.54E-03	1.38E-02
8/25/2009 - 9/1/2009		6.37E-03 ±	8.58E-03	1.24E-02		-1.80E-04 ±	1.03E-02	1.69E-02
9/1/2009 - 9/8/2009		-2.91E-04 ±	9.32E-03	1.53E-02		-4.32E-04 ±	9.69E-03	1.58E-02
9/8/2009 - 9/15/2009		-1.94E-03 ±	8.52E-03	1.36E-02		-2.61E-03 ±	1.07E-02	1.71E-02
9/15/2009 - 9/22/2009		-3.81E-04 ±	9.71E-03	1.59E-02		-1.42E-05 ±	1.02E-02	1.67E-02
9/22/2009 - 9/29/2009		-1.97E-04 ±	1.03E-02	1.70E-02		5.72E-03 ±	1.10E-02	1.70E-02
9/29/2009 - 10/6/2009		0.00E+00 ±	1.39E-02	2.32E-02		-3.02E-03 ±	1.16E-02	1.85E-02
10/6/2009 - 10/13/2009		5.73E-03 ±	1.09E-02	1.69E-02		-2.44E-03 ±	1.15E-02	1.85E-02
10/13/2009 - 10/20/2009		2.32E-03 ±	1.05E-02	1.68E-02		0.00E+00 ±	1.33E-02	2.22E-02
10/20/2009 - 10/27/2009		-2.11E-03 ±	1.02E-02	1.63E-02		-1.42E-03 ±	1.01E-02	1.62E-02
10/27/2009 - 11/3/2009		0.00E+00 ±	1.30E-02	2.17E-02		-5.97E-04 ±	1.10E-02	1.79E-02
11/3/2009 - 11/10/2009		-7.93E-05 ±	9.37E-03	1.54E-02		-2.53E-05 ±	8.33E-03	1.37E-02
11/10/2009 - 11/17/2009		5.30E-04 ±	1.01E-02	1.64E-02		3.41E-04 ±	9.36E-03	1.53E-02
11/17/2009 - 11/24/2009		1.20E-03 ±	7.97E-03	1.28E-02		4.23E-05 ±	7.36E-03	1.21E-02
11/24/2009 - 12/1/2009		0.00E+00 ±	1.48E-02	2.47E-02		2.24E-03 ±	1.02E-02	1.63E-02
12/1/2009 - 12/8/2009		0.00E+00 ±	1.30E-02	2.17E-02		4.75E-03 ±	1.17E-02	1.83E-02
12/8/2009 - 12/15/2009		-1.67E-03 ±	1.15E-02	1.86E-02		4.14E-03 ±	9.54E-03	1.47E-02
12/15/2009 - 12/22/2009		-9.95E-04 ±	9.82E-03	1.59E-02		-2.36E-03 ±	1.08E-02	1.72E-02
12/22/2009 - 12/29/2009		-2.84E-03 ±	1.17E-02	1.88E-02		4.28E-03 ±	1.24E-02	1.96E-02

TABLE A-4.1  
**GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS**

Results in pCi/cubic meter, corrected for decay during collection period

Collection Period	Station 8				Station 57			
	RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
12/30/2008 - 1/6/2009		-9.96E-04	± 1.14E-02	1.86E-02		2.66E-04	± 1.06E-02	1.74E-02
1/6/2009 - 1/13/2009		0.00E+00	± 1.12E-02	1.86E-02		2.64E-03	± 1.01E-02	1.59E-02
1/13/2009 - 1/20/2009		1.12E-03	± 9.26E-03	1.50E-02		-6.19E-03	± 1.43E-02	2.25E-02
1/20/2009 - 1/27/2009		-1.35E-03	± 1.05E-02	1.70E-02		4.66E-03	± 1.00E-02	1.55E-02
1/27/2009 - 2/3/2009		0.00E+00	± 1.54E-02	2.56E-02		6.00E-03	± 1.09E-02	1.66E-02
2/3/2009 - 2/10/2009		0.00E+00	± 9.00E-03	1.50E-02		3.93E-03	± 7.97E-03	1.21E-02
2/10/2009 - 2/17/2009		-7.17E-04	± 1.10E-02	1.79E-02		2.34E-03	± 1.05E-02	1.67E-02
2/17/2009 - 2/24/2009		-5.32E-04	± 8.92E-03	1.45E-02		0.00E+00	± 1.50E-02	2.50E-02
2/24/2009 - 3/3/2009		2.69E-04	± 9.81E-03	1.61E-02		8.95E-03	± 2.32E-02	3.63E-02
3/3/2009 - 3/10/2009		1.34E-03	± 9.47E-03	1.53E-02		4.89E-05	± 8.84E-03	1.45E-02
3/10/2009 - 3/17/2009		1.02E-03	± 8.94E-03	1.45E-02		0.00E+00	± 1.06E-02	1.76E-02
3/17/2009 - 3/24/2009		-3.58E-03	± 1.30E-02	2.08E-02		-2.85E-03	± 1.09E-02	1.74E-02
3/24/2009 - 3/31/2009		-7.46E-04	± 9.02E-03	1.46E-02		-1.45E-03	± 9.08E-03	1.46E-02
3/31/2009 - 4/7/2009		4.50E-04	± 1.06E-02	1.73E-02		-3.45E-03	± 1.15E-02	1.83E-02
4/7/2009 - 4/14/2009		1.52E-03	± 9.35E-03	1.50E-02		-4.05E-03	± 1.06E-02	1.67E-02
4/14/2009 - 4/21/2009		9.31E-04	± 9.95E-03	1.62E-02		5.46E-03	± 1.14E-02	1.77E-02
4/21/2009 - 4/28/2009		-1.29E-03	± 1.01E-02	1.63E-02		1.77E-03	± 9.90E-03	1.59E-02
4/28/2009 - 5/5/2009		2.79E-03	± 9.41E-03	1.49E-02		1.48E-03	± 8.64E-03	1.38E-02
5/5/2009 - 5/12/2009		2.13E-03	± 8.26E-03	1.30E-02		-9.29E-04	± 9.93E-03	1.61E-02
5/12/2009 - 5/19/2009		3.30E-03	± 9.68E-03	1.52E-02		-6.07E-05	± 9.03E-03	1.48E-02
5/19/2009 - 5/26/2009		2.06E-03	± 9.70E-03	1.55E-02		-2.46E-03	± 1.04E-02	1.67E-02
5/26/2009 - 6/2/2009		-1.80E-03	± 1.09E-02	1.76E-02		4.02E-03	± 9.87E-03	1.53E-02
6/2/2009 - 6/9/2009		-2.13E-04	± 9.83E-03	1.61E-02		4.14E-03	± 9.17E-03	1.41E-02
6/9/2009 - 6/16/2009		-2.82E-03	± 1.10E-02	1.76E-02		-4.12E-03	± 1.16E-02	1.83E-02
6/16/2009 - 6/23/2009		0.00E+00	± 9.68E-03	1.61E-02		-2.51E-03	± 1.07E-02	1.71E-02
6/23/2009 - 6/30/2009		0.00E+00	± 7.98E-03	1.33E-02		0.00E+00	± 1.34E-02	2.23E-02
6/30/2009 - 7/7/2009		-4.72E-04	± 9.76E-03	1.59E-02		-3.52E-05	± 1.02E-02	1.67E-02
7/7/2009 - 7/14/2009		1.89E-04	± 9.47E-03	1.55E-02		-3.87E-03	± 1.38E-02	2.21E-02
7/14/2009 - 7/21/2009		-1.04E-03	± 9.41E-03	1.53E-02		1.49E-03	± 8.06E-03	1.29E-02
7/21/2009 - 7/28/2009		-4.15E-03	± 1.23E-02	1.96E-02		2.63E-03	± 8.54E-03	1.33E-02
7/28/2009 - 8/4/2009		3.25E-04	± 1.03E-02	1.69E-02		2.22E-03	± 1.17E-02	1.88E-02
8/4/2009 - 8/11/2009		7.62E-05	± 7.94E-03	1.30E-02		6.63E-04	± 9.24E-03	1.50E-02
8/11/2009 - 8/18/2009		5.91E-03	± 7.37E-03	1.06E-02		-4.66E-04	± 8.46E-03	1.38E-02
8/18/2009 - 8/25/2009		-1.67E-03	± 9.66E-03	1.55E-02		8.45E-04	± 8.54E-03	1.38E-02
8/25/2009 - 9/1/2009		6.37E-03	± 8.58E-03	1.24E-02		-1.80E-04	± 1.03E-02	1.69E-02
9/1/2009 - 9/8/2009		-2.91E-04	± 9.32E-03	1.53E-02		-4.32E-04	± 9.69E-03	1.58E-02
9/8/2009 - 9/15/2009		-1.94E-03	± 8.52E-03	1.36E-02		-2.61E-03	± 1.07E-02	1.71E-02
9/15/2009 - 9/22/2009		-3.81E-04	± 9.71E-03	1.59E-02		-1.42E-05	± 1.02E-02	1.67E-02
9/22/2009 - 9/29/2009		-1.97E-04	± 1.03E-02	1.70E-02		5.72E-03	± 1.10E-02	1.70E-02
9/29/2009 - 10/6/2009		0.00E+00	± 1.39E-02	2.32E-02		-3.02E-03	± 1.16E-02	1.85E-02
10/6/2009 - 10/13/2009		5.73E-03	± 1.09E-02	1.69E-02		-2.44E-03	± 1.15E-02	1.85E-02
10/13/2009 - 10/20/2009		2.32E-03	± 1.05E-02	1.68E-02		0.00E+00	± 1.33E-02	2.22E-02
10/20/2009 - 10/27/2009		-2.11E-03	± 1.02E-02	1.63E-02		-1.42E-03	± 1.01E-02	1.62E-02
10/27/2009 - 11/3/2009		0.00E+00	± 1.30E-02	2.17E-02		-5.97E-04	± 1.10E-02	1.79E-02
11/3/2009 - 11/10/2009		-7.93E-05	± 9.37E-03	1.54E-02		-2.53E-05	± 8.33E-03	1.37E-02
11/10/2009 - 11/17/2009		5.30E-04	± 1.01E-02	1.64E-02		3.41E-04	± 9.36E-03	1.53E-02
11/17/2009 - 11/24/2009		1.20E-03	± 7.97E-03	1.28E-02		4.23E-05	± 7.36E-03	1.21E-02
11/24/2009 - 12/1/2009		0.00E+00	± 1.35E-02	2.24E-02		2.24E-03	± 1.02E-02	1.63E-02
12/1/2009 - 12/8/2009		0.00E+00	± 1.37E-02	2.28E-02		4.75E-03	± 1.17E-02	1.83E-02
12/8/2009 - 12/15/2009		-1.67E-03	± 1.15E-02	1.86E-02		4.14E-03	± 9.54E-03	1.47E-02
12/15/2009 - 12/22/2009		0.00E+00	± 9.00E-03	1.50E-02		-2.36E-03	± 1.08E-02	1.72E-02

TABLE A-4.2  
**I-131 ON CHARCOAL FILTERS - SUMMARY**

Results in pCi per cubic meter, corrected for decay during collection period

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
I-131	Ind	2.98E-04	-6.19E-03	9.97E-03	1.64E-02	569	0
I-131	Cntl	1.67E-04	-4.15E-03	6.37E-03	1.65E-02	52	0

Table A-5.1  
**GROSS BETA IN WATER**  
 Results in pCi per liter

Collection Period	ST 26 River/Drinking Cntl				ST 29 River/Drinking Ind			
	RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
01/05/09 - 02/02/09		1.22E+00 ±	7.71E-01	2.49E+00		1.31E+00 ±	7.99E-01	2.49E+00
02/02/09 - 03/02/09		-1.11E-01 ±	8.08E-01	2.88E+00		2.57E-01 ±	7.73E-01	2.72E+00
03/02/09 - 04/06/09		-1.97E-01 ±	6.52E-01	2.33E+00		9.35E-01 ±	7.06E-01	2.38E+00
04/06/09 - 05/06/09		7.23E-01 ±	6.98E-01	2.31E+00		2.81E-01 ±	6.62E-01	2.31E+00
05/04/09 - 06/01/09		-1.75E+00 ±	8.53E-01	2.66E+00		-8.64E-01 ±	8.06E-01	2.66E+00
06/02/09 - 07/01/09		2.94E-01 ±	6.18E-01	2.20E+00		1.50E+00 ±	7.07E-01	2.19E+00
07/01/09 - 08/03/09		8.26E-01 ±	7.43E-01	2.50E+00		3.82E-01 ±	7.06E-01	2.49E+00
08/03/09 - 08/31/09		1.33E+00 ±	7.03E-01	2.23E+00		3.24E-01 ±	6.35E-01	2.22E+00
08/31/09 - 10/05/09		9.25E-01 ±	6.94E-01	2.26E+00		1.41E+00 ±	7.19E-01	2.26E+00
10/05/09 - 11/02/09		4.86E-01 ±	6.54E-01	2.24E+00		1.20E+00 ±	7.39E-01	2.24E+00
11/02/09 - 11/30/09		7.92E-01 ±	7.74E-01	2.56E+00		-2.59E-01 ±	7.27E-01	2.53E+00
11/30/09 - 01/04/10		1.26E+00 ±	6.29E-01	1.96E+00	+	2.32E+00 ±	7.08E-01	1.96E+00

Collection Period	ST 27 CW Discharge			
	RQ	Activity	Error	MDA
01/05/09 - 02/02/09	+	3.64E+00 ±	1.00E+00	2.67E+00
02/02/09 - 03/02/09	+	4.56E+00 ±	1.03E+00	2.84E+00
03/02/09 - 04/06/09	+	5.07E+00 ±	9.93E-01	2.40E+00
04/06/09 - 05/06/09	+	2.67E+00 ±	8.71E-01	2.53E+00
05/04/09 - 06/01/09		1.51E+00 ±	8.87E-01	2.79E+00
06/02/09 - 07/01/09		9.37E-01 ±	6.84E-01	2.22E+00
07/01/09 - 08/03/09	+	2.72E+00 ±	9.16E-01	2.71E+00
08/03/09 - 08/31/09		1.58E+00 ±	7.25E-01	2.25E+00
08/31/09 - 10/05/09	+	3.43E+00 ±	9.17E-01	2.52E+00
10/05/09 - 11/02/09	+	5.28E+00 ±	1.05E+00	2.58E+00
11/02/09 - 11/30/09	+	4.17E+00 ±	1.06E+00	2.97E+00
11/30/09 - 01/04/10	+	8.66E+00 ±	1.15E+00	2.30E+00

TABLE A-5.2  
**GROSS BETA IN WATER - SUMMARY**  
 Results in pCi per liter

Location	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
ST 26 Control	4.83E-01	-1.75E+00	1.33E+00	12	0
ST 29 Indicator	7.32E-01	-8.64E-01	2.32E+00	12	1
ST 27 Discharge	3.69E+00	9.37E-01	8.66E+00	12	9

TABLE A-6.1  
**TRITIUM IN WATER**

Results in pCi per liter, MDA for all samples is 300 pCi/l

Location	Description	Collection Period	RQ	Activity	Error
26	River/Drinking Control	01/05/09 - 04/06/09		6.61E+01 ±	9.34E+01
		04/06/09 - 07/01/09		1.27E+02 ±	9.49E+01
		07/01/09 - 10/05/09		7.32E+01 ±	9.56E+01
		10/05/09 - 01/04/10		1.16E+02 ±	9.82E+01
29	River/Drinking Indicator	01/05/09 - 04/06/09		9.85E+01 ±	9.72E+01
		04/06/09 - 07/01/09		1.62E+02 ±	9.54E+01
		07/01/09 - 10/05/09		4.37E+01 ±	9.41E+01
		10/05/09 - 01/04/10		1.18E+02 ±	9.80E+01
27	Plant Discharge	01/05/09 - 04/06/09		1.01E+02 ±	9.69E+01
		04/06/09 - 07/01/09		1.04E+02 ±	9.47E+01
		07/01/09 - 10/05/09		1.02E+02 ±	9.54E+01
		10/05/09 - 01/04/10		1.03E+02 ±	9.74E+01
31	Ground Water Well 1	03/02/09		5.97E+01 ±	9.47E+01
		06/01/09		1.09E+02 ±	9.56E+01
		08/31/09		-2.36E+01 ±	9.94E+01
		11/30/09		1.88E+02 ±	9.78E+01
32	Ground Water Well 2	03/02/09		1.24E+01 ±	9.68E+01
		06/01/09		3.72E+01 ±	9.59E+01
		08/31/09		-5.86E+01 ±	9.31E+01
		11/30/09		8.90E+01 ±	9.42E+01
52	Ground Water Well 3	03/02/09		2.37E+02 ±	1.00E+02
		06/01/09		1.59E+02 ±	9.81E+01
		08/31/09		-1.25E+02 ±	9.18E+01
		11/30/09		1.61E+02 ±	9.69E+01

TABLE A-6.2  
**TRITIUM IN WATER - Summary**

Results in pCi per liter

Location Description	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
River/Drinking Control	9.55E+01	6.61E+01	1.27E+02	4	0
River/Drinking Indicator	1.05E+02	4.37E+01	1.62E+02	4	0
Discharge Indicator	1.03E+02	1.01E+02	1.04E+02	4	0
Ground Water Indicator	7.04E+01	-1.25E+02	2.37E+02	12	0

Quarterly tritium values reported for ST-26, 27, and 29 are average of monthly analysis values.  
 RQ= results Qualifier. If blank, result is less than detection limit. If "+", result is above the detection limit.



**Table A-7.1**  
**GAMMA SPECTROMETRY RESULTS OF WATER**  
**STATION 26 - River/Drinking Control**

Results in pCi/liter, corrected for decay during collection period

Location 26 collected 2/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.77E+01 ±	3.66E+01	5.08E+01
CR-51		-7.15E-01 ±	2.07E+01	3.40E+01
MN-54		1.40E+00 ±	1.66E+00	2.50E+00
CO-58		2.98E-01 ±	1.97E+00	3.20E+00
FE-59		-1.54E-01 ±	5.38E+00	8.82E+00
CO-60		9.69E-01 ±	1.66E+00	2.54E+00
ZN-65		-1.23E+00 ±	4.31E+00	6.92E+00
ZRNB-95		5.42E-02 ±	1.86E+00	3.05E+00
I-131		1.28E+00 ±	4.92E+00	7.96E+00
CS-134		-1.24E-01 ±	1.47E+00	2.40E+00
CS-137		-8.27E-01 ±	1.95E+00	3.10E+00
BALA140		1.02E+00 ±	4.63E+00	7.41E+00
BI-214	+	9.21E+00 ±	4.79E+00	8.00E+00
RA-226		-2.37E+01 ±	6.29E+01	7.33E+01

Location 26 collected 3/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.57E+01 ±	5.27E+01	4.93E+01
CR-51		1.66E+00 ±	1.89E+01	3.09E+01
MN-54		-1.71E-01 ±	1.58E+00	2.56E+00
CO-58		-1.04E-01 ±	1.78E+00	2.90E+00
FE-59		-6.35E-01 ±	6.08E+00	9.90E+00
CO-60		3.82E-01 ±	1.51E+00	2.41E+00
ZN-65		-1.03E+00 ±	3.85E+00	6.17E+00
ZRNB-95		-2.56E-02 ±	1.79E+00	2.94E+00
I-131		0.00E+00 ±	5.67E+00	9.45E+00
CS-134		6.13E-01 ±	1.51E+00	2.40E+00
CS-137		3.56E-01 ±	1.72E+00	2.77E+00
BALA140		-3.11E-02 ±	4.06E+00	6.66E+00
BI-214		1.23E+00 ±	3.86E+00	7.29E+00
RA-226		-5.59E+00 ±	4.30E+01	7.05E+01

Location 26 collected 4/6/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.33E+00 ±	2.71E+01	5.13E+01
CR-51		9.43E+00 ±	1.93E+01	3.08E+01
MN-54		7.28E-01 ±	1.69E+00	2.68E+00
CO-58		2.05E+00 ±	1.37E+00	1.79E+00
FE-59		-1.04E+00 ±	5.65E+00	9.10E+00
CO-60		-3.44E-01 ±	1.73E+00	2.79E+00
ZN-65		0.00E+00 ±	6.76E+00	1.13E+01
ZRNB-95		5.22E-02 ±	2.22E+00	3.64E+00
I-131		2.54E+00 ±	6.10E+00	9.78E+00
CS-134		5.52E-02 ±	1.85E+00	3.04E+00
CS-137		0.00E+00 ±	1.87E+00	3.12E+00
BALA140		-1.89E+00 ±	5.30E+00	8.34E+00
BI-214		2.18E+00 ±	4.38E+00	7.96E+00
RA-226		-6.91E+00 ±	4.58E+01	7.28E+01

Location 26 collected 5/6/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-4.47E+01 ±	8.03E+01	5.17E+01
CR-51		0.00E+00 ±	2.33E+01	3.88E+01
MN-54		1.25E+00 ±	1.89E+00	2.95E+00
CO-58		3.96E-01 ±	2.03E+00	3.29E+00
FE-59		-1.08E+00 ±	6.12E+00	9.90E+00
CO-60		7.62E-01 ±	1.88E+00	2.96E+00
ZN-65		-1.91E+00 ±	4.43E+00	7.03E+00
ZRNB-95		7.81E-01 ±	2.02E+00	3.22E+00
I-131		0.00E+00 ±	6.27E+00	1.04E+01
CS-134		1.27E-01 ±	1.73E+00	2.83E+00
CS-137		1.55E-01 ±	1.82E+00	2.97E+00
BALA140		1.18E+00 ±	4.32E+00	6.87E+00
BI-214		-1.62E+00 ±	5.89E+00	8.41E+00
RA-226		2.77E+01 ±	5.39E+01	9.42E+01

Location 26 collected 6/1/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.81E+01 ±	5.37E+01	5.40E+01
CR-51		0.00E+00 ±	2.13E+01	3.56E+01
MN-54		1.37E+00 ±	1.90E+00	2.96E+00
CO-58		-1.10E+00 ±	2.22E+00	3.51E+00
FE-59		9.46E-02 ±	4.38E+00	7.19E+00
CO-60		1.02E+00 ±	1.76E+00	2.73E+00
ZN-65		-1.59E+00 ±	4.67E+00	7.48E+00
ZRNB-95		-1.05E-01 ±	2.12E+00	3.47E+00
I-131		-1.91E-01 ±	6.12E+00	1.00E+01
CS-134		1.75E-01 ±	1.63E+00	2.66E+00
CS-137		8.89E-01 ±	2.03E+00	3.24E+00
BALA140		-5.12E-01 ±	4.80E+00	7.82E+00
BI-214		-3.10E+00 ±	7.61E+00	8.49E+00
RA-226		-7.54E+00 ±	5.71E+01	9.26E+01

Location 26 collected 7/1/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.88E+01 ±	5.22E+01	5.25E+01
CR-51		-8.70E-01 ±	2.33E+01	3.83E+01
MN-54		1.36E+00 ±	1.93E+00	3.00E+00
CO-58		2.42E-01 ±	1.87E+00	3.04E+00
FE-59		5.40E+00 ±	5.97E+00	8.95E+00
CO-60		1.19E+00 ±	1.90E+00	2.93E+00
ZN-65		-1.70E+00 ±	4.81E+00	7.70E+00
ZRNB-95		6.47E-01 ±	2.17E+00	3.50E+00
I-131		6.50E-01 ±	5.10E+00	8.33E+00
CS-134		-9.81E-01 ±	1.95E+00	3.11E+00
CS-137		0.00E+00 ±	2.44E+00	4.07E+00
BALA140		-1.44E+00 ±	5.74E+00	9.23E+00
BI-214		2.70E+00 ±	4.72E+00	8.46E+00
RA-226		-1.86E+01 ±	6.76E+01	9.54E+01

**Table A-7.1**  
**GAMMA SPECTROMETRY RESULTS OF WATER**  
**STATION 26 - River/Drinking Control**

Results in pCi/liter, corrected for decay during collection period

Location 26 collected 8/3/2009					Location 26 collected 8/31/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.08E+01 ±	4.71E+01	4.95E+01	K-40		-2.26E+01 ±	4.05E+01	5.06E+01
CR-51		4.33E-01 ±	2.07E+01	3.39E+01	CR-51		6.53E-01 ±	1.95E+01	3.21E+01
MN-54		1.15E-01 ±	1.70E+00	2.78E+00	MN-54		3.94E-01 ±	1.42E+00	2.26E+00
CO-58		-8.67E-01 ±	2.37E+00	3.80E+00	CO-58		-7.02E-01 ±	2.00E+00	3.19E+00
FE-59		-1.08E+00 ±	6.33E+00	1.02E+01	FE-59		-1.42E+00 ±	5.83E+00	9.35E+00
CO-60		7.45E-01 ±	1.83E+00	2.87E+00	CO-60		1.65E+00 ±	1.79E+00	2.65E+00
ZN-65		-1.11E-01 ±	3.35E+00	5.48E+00	ZN-65		9.57E-02 ±	3.54E+00	5.80E+00
ZRNB-95		1.40E-01 ±	1.55E+00	2.52E+00	ZRNB-95		-1.26E+00 ±	2.35E+00	3.72E+00
I-131		2.18E+00 ±	6.15E+00	9.92E+00	I-131		3.26E+00 ±	5.04E+00	7.96E+00
CS-134		-4.26E-01 ±	1.95E+00	3.16E+00	CS-134		-2.39E-01 ±	1.83E+00	2.99E+00
CS-137		8.27E-01 ±	1.70E+00	2.68E+00	CS-137		1.02E+00 ±	1.97E+00	3.11E+00
BALA140		0.00E+00 ±	6.84E+00	1.14E+01	BALA140		-2.21E+00 ±	4.76E+00	7.41E+00
BI-214		-6.74E-01 ±	4.65E+00	7.79E+00	BI-214		-4.27E-01 ±	4.97E+00	8.48E+00
RA-226		-3.23E+01 ±	7.85E+01	7.67E+01	RA-226		-4.19E+00 ±	4.48E+01	7.44E+01

Location 26 collected 10/5/2009					Location 26 collected 11/2/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.37E+01 ±	5.23E+01	5.03E+01	K-40		-2.37E+01 ±	4.08E+01	5.01E+01
CR-51		-2.37E+00 ±	2.05E+01	3.34E+01	CR-51		-1.11E+01 ±	1.99E+01	3.17E+01
MN-54		-5.16E-01 ±	2.01E+00	3.24E+00	MN-54		-8.60E-01 ±	1.84E+00	2.91E+00
CO-58		0.00E+00 ±	2.32E+00	3.87E+00	CO-58		-9.80E-01 ±	2.04E+00	3.23E+00
FE-59		-7.72E-01 ±	5.30E+00	8.56E+00	FE-59		-5.56E-02 ±	5.10E+00	8.37E+00
CO-60		1.90E+00 ±	1.69E+00	2.40E+00	CO-60		-6.40E-01 ±	1.75E+00	2.76E+00
ZN-65		-7.53E-01 ±	4.03E+00	6.50E+00	ZN-65		-2.37E+00 ±	4.50E+00	7.08E+00
ZRNB-95		-7.07E-02 ±	1.92E+00	3.15E+00	ZRNB-95		-5.34E-01 ±	1.77E+00	2.83E+00
I-131		1.67E+00 ±	6.22E+00	1.01E+01	I-131		2.89E+00 ±	5.07E+00	8.08E+00
CS-134		9.55E-01 ±	1.72E+00	2.72E+00	CS-134		-1.88E-02 ±	1.87E+00	3.07E+00
CS-137		9.65E-01 ±	2.00E+00	3.17E+00	CS-137		-2.30E-01 ±	2.00E+00	3.26E+00
BALA140		-1.53E+00 ±	5.47E+00	8.69E+00	BALA140		-8.93E-01 ±	4.62E+00	7.44E+00
BI-214		1.28E+00 ±	4.40E+00	8.06E+00	BI-214		4.58E+00 ±	4.76E+00	8.34E+00
RA-226		-2.88E+01 ±	7.34E+01	7.67E+01	RA-226		-4.59E+00 ±	4.65E+01	7.64E+01

Location 26 collected 11/30/2009					Location 26 collected 1/4/2010				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-4.09E+01 ±	7.04E+01	5.29E+01	K-40		-1.80E+01 ±	4.03E+01	4.98E+01
CR-51		4.99E+00 ±	2.12E+01	3.44E+01	CR-51		7.93E-01 ±	2.44E+01	3.90E+01
MN-54		3.27E-01 ±	1.29E+00	2.05E+00	MN-54		0.00E+00 ±	2.62E+00	4.35E+00
CO-58		0.00E+00 ±	2.44E+00	4.06E+00	CO-58		7.01E-02 ±	2.08E+00	3.38E+00
FE-59		2.90E-01 ±	5.71E+00	9.34E+00	FE-59		1.46E+00 ±	6.12E+00	9.62E+00
CO-60		9.04E-01 ±	1.98E+00	3.11E+00	CO-60		1.85E-02 ±	1.89E+00	3.11E+00
ZN-65		-1.54E+00 ±	4.62E+00	7.38E+00	ZN-65		-3.18E-02 ±	4.27E+00	6.99E+00
ZRNB-95		-1.22E+00 ±	2.28E+00	3.59E+00	ZRNB-95		-1.95E-01 ±	2.35E+00	3.80E+00
I-131		-2.34E-01 ±	6.81E+00	1.12E+01	I-131		0.00E+00 ±	8.76E+00	1.34E+01
CS-134		2.92E-02 ±	1.69E+00	2.77E+00	CS-134		-6.23E-01 ±	2.26E+00	3.65E+00
CS-137		9.76E-01 ±	1.66E+00	2.59E+00	CS-137		-4.42E-01 ±	2.08E+00	3.35E+00
BALA140		-1.66E-01 ±	3.81E+00	6.22E+00	BALA140		1.90E+00 ±	5.42E+00	7.99E+00
BI-214	+	9.88E+00 ±	4.78E+00	7.93E+00	BI-214		-1.84E+00 ±	6.53E+00	9.54E+00
RA-226		-2.99E+00 ±	4.32E+01	7.36E+01	RA-226		3.72E+00 ±	4.93E+01	9.00E+01

**Table A-7.1**  
**GAMMA SPECTROMETRY RESULTS OF WATER**  
**STATION 29 - River/Drinking Indicator**

Results in pCi/liter, corrected for decay during collection period

Location 29 collected 2/2/2009					Location 29 collected 3/2/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-4.67E+01 ±	7.60E+01	5.04E+01	K-40		-5.65E+01 ±	1.40E+02	5.42E+01
CR-51		4.12E+00 ±	1.77E+01	2.87E+01	CR-51		1.19E+01 ±	2.41E+01	3.88E+01
MN-54		2.15E-01 ±	1.68E+00	2.73E+00	MN-54		1.17E-01 ±	2.18E+00	3.57E+00
CO-58		-6.44E-01 ±	1.98E+00	3.16E+00	CO-58		1.30E+00 ±	1.98E+00	3.08E+00
FE-59		0.00E+00 ±	4.81E+00	8.01E+00	FE-59		4.53E+00 ±	6.55E+00	1.01E+01
CO-60		2.18E-03 ±	1.86E+00	3.05E+00	CO-60		3.75E-01 ±	1.85E+00	2.98E+00
ZN-65		-2.29E-02 ±	3.36E+00	5.51E+00	ZN-65		1.25E-01 ±	3.04E+00	4.97E+00
ZRNB-95		1.54E-01 ±	2.54E+00	4.16E+00	ZRNB-95		1.33E-01 ±	2.56E+00	4.19E+00
I-131		2.36E-01 ±	5.74E+00	9.41E+00	I-131		-1.77E-02 ±	6.68E+00	1.10E+01
CS-134		0.00E+00 ±	2.37E+00	3.95E+00	CS-134		-6.82E-01 ±	2.16E+00	3.49E+00
CS-137		1.64E-02 ±	1.82E+00	2.99E+00	CS-137		6.33E-01 ±	1.93E+00	3.10E+00
BALA140		0.00E+00 ±	8.94E+00	1.49E+01	BALA140		-3.89E-01 ±	4.80E+00	7.83E+00
BI-214	+	9.68E+00 ±	4.82E+00	8.02E+00	BI-214		2.95E+00 ±	5.00E+00	8.87E+00
RA-226		2.58E+00 ±	3.85E+01	6.97E+01	RA-226		3.01E+01 ±	5.39E+01	9.40E+01

Location 29 collected 4/6/2009					Location 29 collected 5/6/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.36E+01 ±	5.21E+01	5.03E+01	K-40		-3.47E+01 ±	5.19E+01	4.95E+01
CR-51		1.17E+01 ±	2.26E+01	3.61E+01	CR-51		-3.50E+00 ±	1.91E+01	3.10E+01
MN-54		9.67E-01 ±	1.62E+00	2.51E+00	MN-54		5.61E-01 ±	1.36E+00	2.12E+00
CO-58		2.85E-01 ±	1.83E+00	2.96E+00	CO-58		4.14E-01 ±	1.87E+00	3.02E+00
FE-59		-3.19E-02 ±	5.06E+00	8.31E+00	FE-59		-1.47E+00 ±	5.56E+00	8.88E+00
CO-60		9.00E-01 ±	1.66E+00	2.55E+00	CO-60		3.82E-01 ±	1.64E+00	2.62E+00
ZN-65		8.70E-01 ±	3.92E+00	6.30E+00	ZN-65		-9.66E-01 ±	3.82E+00	6.12E+00
ZRNB-95		1.30E+00 ±	1.93E+00	2.97E+00	ZRNB-95		3.91E-01 ±	2.04E+00	3.30E+00
I-131		6.17E+00 ±	5.01E+00	7.40E+00	I-131		2.47E+00 ±	4.92E+00	7.83E+00
CS-134		-9.99E-01 ±	1.95E+00	3.11E+00	CS-134		-8.49E-01 ±	1.89E+00	3.03E+00
CS-137		2.58E-01 ±	1.76E+00	2.86E+00	CS-137		-6.11E-01 ±	1.74E+00	2.78E+00
BALA140		0.00E+00 ±	9.22E-01	1.54E+00	BALA140		4.93E-02 ±	3.60E+00	5.90E+00
BI-214		1.51E+00 ±	4.15E+00	7.68E+00	BI-214		4.33E+00 ±	4.48E+00	7.93E+00
RA-226		1.33E+01 ±	3.86E+01	6.92E+01	RA-226		1.13E+01 ±	3.70E+01	6.70E+01

Location 29 collected 6/1/2009					Location 29 collected 7/1/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-4.04E+01 ±	7.04E+01	5.18E+01	K-40		-3.30E+01 ±	5.24E+01	5.09E+01
CR-51		-3.88E+00 ±	2.44E+01	3.99E+01	CR-51		0.00E+00 ±	2.17E+01	3.61E+01
MN-54		8.36E-01 ±	2.00E+00	3.19E+00	MN-54		2.90E-01 ±	1.98E+00	3.21E+00
CO-58		-6.57E-02 ±	2.00E+00	3.28E+00	CO-58		8.34E-01 ±	1.89E+00	2.97E+00
FE-59		-9.88E-01 ±	4.52E+00	7.22E+00	FE-59		1.20E+00 ±	4.89E+00	7.78E+00
CO-60		1.34E+00 ±	1.77E+00	2.68E+00	CO-60		1.26E+00 ±	1.77E+00	2.68E+00
ZN-65		1.04E-01 ±	3.92E+00	6.42E+00	ZN-65		0.00E+00 ±	7.02E+00	1.17E+01
ZRNB-95		2.03E+00 ±	2.04E+00	3.09E+00	ZRNB-95		1.59E-01 ±	2.70E+00	4.43E+00
I-131		-2.91E+00 ±	6.03E+00	9.69E+00	I-131		2.26E+00 ±	6.41E+00	1.03E+01
CS-134		1.40E-02 ±	1.99E+00	3.26E+00	CS-134		-6.04E-01 ±	1.96E+00	3.17E+00
CS-137		1.59E-01 ±	2.07E+00	3.38E+00	CS-137		-5.92E-01 ±	1.92E+00	3.08E+00
BALA140		2.15E-01 ±	4.80E+00	7.86E+00	BALA140		-4.55E-01 ±	5.19E+00	8.44E+00
BI-214		1.43E+00 ±	4.74E+00	8.59E+00	BI-214		-1.08E+00 ±	5.31E+00	8.16E+00
RA-226		-1.63E+02 ±	5.04E+03	8.92E+01	RA-226		-7.13E+00 ±	4.90E+01	7.68E+01

**Table A-7.1**  
**GAMMA SPECTROMETRY RESULTS OF WATER**  
**STATION 29 - River/Drinking Indicator**

Results in pCi/liter, corrected for decay during collection period

Location 29 collected 8/3/2009					Location 29 collected 8/31/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.06E+01 ±	5.80E+01	5.43E+01	K-40		-2.63E+01 ±	4.28E+01	4.98E+01
CR-51		-1.66E+01 ±	2.75E+01	4.42E+01	CR-51		-1.09E+01 ±	2.19E+01	3.51E+01
MN-54		-1.10E+00 ±	2.06E+00	3.27E+00	MN-54		-1.47E-01 ±	2.03E+00	3.32E+00
CO-58		1.88E+00 ±	2.00E+00	3.03E+00	CO-58		-3.11E-01 ±	1.96E+00	3.17E+00
FE-59		-6.94E-02 ±	5.82E+00	9.56E+00	FE-59		2.57E+00 ±	6.09E+00	9.58E+00
CO-60		9.13E-01 ±	2.07E+00	3.28E+00	CO-60		2.25E+00 ±	1.83E+00	2.60E+00
ZN-65		1.96E-02 ±	4.33E+00	7.12E+00	ZN-65		1.45E+00 ±	4.15E+00	6.60E+00
ZRNB-95		1.23E+00 ±	2.09E+00	3.28E+00	ZRNB-95		2.71E-01 ±	1.86E+00	3.01E+00
I-131		4.91E-01 ±	8.20E+00	1.34E+01	I-131		1.13E+00 ±	6.40E+00	1.04E+01
CS-134		-8.24E-01 ±	1.97E+00	3.17E+00	CS-134		2.14E-01 ±	1.78E+00	2.90E+00
CS-137		-1.50E-01 ±	2.15E+00	3.52E+00	CS-137		-2.03E-01 ±	1.49E+00	2.42E+00
BALA140		-5.57E-01 ±	4.62E+00	7.48E+00	BALA140		0.00E+00 ±	3.47E+00	5.79E+00
BI-214		-3.92E+00 ±	9.09E+00	8.71E+00	BI-214		-2.51E+00 ±	7.10E+00	8.40E+00
RA-226		-9.52E+00 ±	6.18E+01	9.70E+01	RA-226		-2.20E+01 ±	6.30E+01	7.54E+01

Location 29 collected 10/5/2009					Location 29 collected 11/2/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-4.33E+01 ±	6.73E+01	5.00E+01	K-40		-2.94E+01 ±	4.85E+01	5.11E+01
CR-51		-2.68E+00 ±	2.38E+01	3.88E+01	CR-51		8.70E+00 ±	1.72E+01	2.74E+01
MN-54		-8.40E-01 ±	2.04E+00	3.24E+00	MN-54		1.59E+00 ±	1.78E+00	2.70E+00
CO-58		-1.69E-01 ±	1.66E+00	2.71E+00	CO-58		8.97E-01 ±	1.81E+00	2.83E+00
FE-59		3.58E+00 ±	5.48E+00	8.30E+00	FE-59		4.20E-01 ±	5.12E+00	8.34E+00
CO-60		1.01E+00 ±	1.84E+00	2.84E+00	CO-60		1.34E+00 ±	1.99E+00	3.05E+00
ZN-65		5.92E-01 ±	3.33E+00	5.37E+00	ZN-65		1.16E-01 ±	3.78E+00	6.20E+00
ZRNB-95		-1.02E+00 ±	2.12E+00	3.34E+00	ZRNB-95		1.10E+00 ±	2.17E+00	3.43E+00
I-131		1.84E-01 ±	7.09E+00	1.16E+01	I-131		1.39E+00 ±	5.84E+00	9.49E+00
CS-134		4.66E-02 ±	1.90E+00	3.13E+00	CS-134		-8.84E-01 ±	1.41E+00	2.19E+00
CS-137		-2.25E-01 ±	1.87E+00	3.05E+00	CS-137		-1.02E+00 ±	2.09E+00	3.32E+00
BALA140		-2.31E+00 ±	5.74E+00	8.97E+00	BALA140		-2.60E-02 ±	3.91E+00	6.42E+00
BI-214		-3.88E-01 ±	4.83E+00	8.34E+00	BI-214		2.82E+00 ±	4.80E+00	8.53E+00
RA-226		-2.42E+01 ±	6.85E+01	7.80E+01	RA-226		-1.36E+01 ±	5.22E+01	7.34E+01

Location 29 collected 11/30/2009					Location 29 collected 1/4/2010				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.46E+01 ±	5.04E+01	5.05E+01	K-40		-1.20E+01 ±	3.38E+01	4.95E+01
CR-51		-6.65E+00 ±	2.42E+01	3.92E+01	CR-51		-3.51E-01 ±	2.08E+01	3.33E+01
MN-54		8.56E-01 ±	1.64E+00	2.55E+00	MN-54		-4.19E-01 ±	2.07E+00	3.34E+00
CO-58		-6.40E-01 ±	2.01E+00	3.20E+00	CO-58		8.74E-01 ±	1.94E+00	3.01E+00
FE-59		1.33E+00 ±	5.63E+00	8.98E+00	FE-59		-5.74E-01 ±	6.06E+00	9.69E+00
CO-60		-4.98E-02 ±	1.91E+00	3.13E+00	CO-60		3.10E-01 ±	2.00E+00	3.23E+00
ZN-65		5.40E-01 ±	5.39E+00	8.79E+00	ZN-65		1.41E+00 ±	4.40E+00	6.97E+00
ZRNB-95		1.34E+00 ±	2.24E+00	3.48E+00	ZRNB-95		5.46E-01 ±	2.50E+00	3.99E+00
I-131		5.72E+00 ±	6.49E+00	1.00E+01	I-131		-2.82E+00 ±	9.34E+00	1.38E+01
CS-134		-1.34E-01 ±	3.82E+00	6.27E+00	CS-134		2.44E-02 ±	2.06E+00	3.38E+00
CS-137		0.00E+00 ±	2.72E+00	4.53E+00	CS-137		-5.13E-01 ±	2.00E+00	3.21E+00
BALA140		0.00E+00 ±	5.86E+00	9.77E+00	BALA140		1.44E+00 ±	4.59E+00	6.73E+00
BI-214	+	9.42E+00 ±	5.29E+00	9.07E+00	BI-214		4.21E-01 ±	5.13E+00	9.58E+00
RA-226		3.20E+01 ±	4.92E+01	8.82E+01	RA-226		1.08E+01 ±	4.65E+01	8.55E+01

**Table A-7.1**  
**GAMMA SPECTROMETRY RESULTS OF WATER**  
**STATION 27 - Plant Discharge Water Indicator**

Results in pCi/liter, corrected for decay during collection period

Location 27 collected 2/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.13E+01 ±	5.41E+01	5.16E+01
CR-51		6.15E+00 ±	2.51E+01	4.09E+01
MN-54		1.35E+00 ±	1.95E+00	3.03E+00
CO-58		0.00E+00 ±	2.35E+00	3.92E+00
FE-59		4.65E+00 ±	5.88E+00	8.91E+00
CO-60		7.10E-01 ±	1.95E+00	3.10E+00
ZN-65		-9.99E-01 ±	4.21E+00	6.79E+00
ZRNB-95		7.55E-01 ±	2.21E+00	3.55E+00
I-131		-1.90E+00 ±	5.96E+00	9.66E+00
CS-134		-1.56E+00 ±	2.20E+00	3.49E+00
CS-137		1.66E-02 ±	1.97E+00	3.24E+00
BALA140		-9.77E-01 ±	5.42E+00	8.75E+00
BI-214		-1.47E+00 ±	5.83E+00	8.50E+00
RA-226		-2.00E+01 ±	7.15E+01	9.87E+01

Location 27 collected 3/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.04E+01 ±	3.20E+01	5.17E+01
CR-51		6.70E+00 ±	1.89E+01	3.05E+01
MN-54		2.24E-04 ±	1.93E+00	3.16E+00
CO-58		5.63E-01 ±	1.72E+00	2.74E+00
FE-59		-1.79E+00 ±	5.90E+00	9.40E+00
CO-60		-1.58E-03 ±	1.28E+00	2.10E+00
ZN-65		2.48E-01 ±	3.37E+00	5.49E+00
ZRNB-95		7.36E-01 ±	1.79E+00	2.82E+00
I-131		-7.01E-01 ±	5.24E+00	8.55E+00
CS-134		1.01E-01 ±	2.06E+00	3.38E+00
CS-137		-3.98E-01 ±	1.71E+00	2.75E+00
BALA140		-1.48E-01 ±	3.93E+00	6.43E+00
BI-214		-6.98E-01 ±	4.72E+00	7.86E+00
RA-226		-1.14E+01 ±	4.77E+01	7.04E+01

Location 27 collected 4/6/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-4.28E+01 ±	6.43E+01	4.94E+01
CR-51		1.36E+01 ±	1.61E+01	2.49E+01
MN-54		5.17E-02 ±	1.66E+00	2.72E+00
CO-58		2.14E-01 ±	1.96E+00	3.20E+00
FE-59		-1.20E+00 ±	5.72E+00	9.18E+00
CO-60		2.79E-01 ±	1.59E+00	2.56E+00
ZN-65		8.65E-02 ±	2.61E+00	4.27E+00
ZRNB-95		-2.84E-02 ±	2.01E+00	3.31E+00
I-131		-8.43E-01 ±	6.40E+00	1.04E+01
CS-134		-6.66E-01 ±	1.97E+00	3.17E+00
CS-137		9.01E-01 ±	1.82E+00	2.88E+00
BALA140		-1.05E-01 ±	4.89E+00	8.01E+00
BI-214		2.70E-01 ±	4.46E+00	8.24E+00
RA-226		-1.64E+01 ±	5.48E+01	7.32E+01

Location 27 collected 5/6/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.66E+01 ±	3.38E+01	4.93E+01
CR-51		-6.97E+00 ±	2.06E+01	3.32E+01
MN-54		-5.27E-01 ±	1.75E+00	2.80E+00
CO-58		-3.84E-01 ±	1.58E+00	2.54E+00
FE-59		1.45E+00 ±	5.07E+00	8.04E+00
CO-60		-4.99E-01 ±	1.81E+00	2.89E+00
ZN-65		-1.18E+00 ±	3.83E+00	6.11E+00
ZRNB-95		1.11E+00 ±	1.84E+00	2.85E+00
I-131		1.16E+00 ±	5.44E+00	8.85E+00
CS-134		6.86E-01 ±	1.80E+00	2.89E+00
CS-137		2.31E-01 ±	1.82E+00	2.96E+00
BALA140		-1.29E+00 ±	4.40E+00	6.97E+00
BI-214		1.67E+00 ±	4.25E+00	7.81E+00
RA-226		1.38E+01 ±	3.84E+01	6.89E+01

Location 27 collected 6/1/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		4.52E+00 ±	2.53E+01	5.09E+01
CR-51		-8.32E+00 ±	2.20E+01	3.54E+01
MN-54		2.91E-01 ±	1.62E+00	2.63E+00
CO-58		1.59E+00 ±	2.16E+00	3.34E+00
FE-59		-1.78E+00 ±	6.16E+00	9.83E+00
CO-60		1.32E+00 ±	1.87E+00	2.84E+00
ZN-65		-1.75E+00 ±	4.49E+00	7.14E+00
ZRNB-95		9.63E-01 ±	2.01E+00	3.18E+00
I-131		-3.86E+00 ±	6.40E+00	1.02E+01
CS-134		3.44E-01 ±	1.92E+00	3.13E+00
CS-137		3.09E-01 ±	1.86E+00	3.02E+00
BALA140		0.00E+00 ±	4.62E+00	7.70E+00
BI-214		5.77E+00 ±	4.89E+00	8.45E+00
RA-226		-8.99E+00 ±	5.18E+01	7.82E+01

Location 27 collected 7/1/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.03E+01 ±	3.85E+01	5.07E+01
CR-51		-3.93E+00 ±	2.19E+01	3.58E+01
MN-54		-3.68E-01 ±	1.98E+00	3.21E+00
CO-58		0.00E+00 ±	2.38E+00	3.96E+00
FE-59		-1.45E+00 ±	6.06E+00	9.72E+00
CO-60		1.96E+00 ±	1.67E+00	2.36E+00
ZN-65		-2.31E+00 ±	4.38E+00	6.87E+00
ZRNB-95		6.04E-02 ±	1.74E+00	2.85E+00
I-131		2.24E+00 ±	5.29E+00	8.48E+00
CS-134		-8.38E-01 ±	2.04E+00	3.27E+00
CS-137		-6.08E-01 ±	2.21E+00	3.57E+00
BALA140		-6.81E-01 ±	4.28E+00	6.89E+00
BI-214		-1.68E+00 ±	6.08E+00	8.37E+00
RA-226		-2.11E+01 ±	6.10E+01	7.43E+01

**Table A-7.1**  
**GAMMA SPECTROMETRY RESULTS OF WATER**  
**STATION 27 - Plant Discharge Water Indicator**

Results in pCi/liter, corrected for decay during collection period

Location 27 collected 8/3/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.88E+01 ±	4.81E+01	5.13E+01
CR-51		1.45E+01 ±	1.87E+01	2.93E+01
MN-54		5.08E-01 ±	1.89E+00	3.05E+00
CO-58		1.35E+00 ±	1.81E+00	2.75E+00
FE-59		4.33E+00 ±	5.27E+00	7.79E+00
CO-60		2.01E+00 ±	1.84E+00	2.66E+00
ZN-65		-8.26E-01 ±	3.59E+00	5.76E+00
ZRNB-95		-5.54E-01 ±	2.06E+00	3.31E+00
I-131		6.99E-01 ±	6.53E+00	1.07E+01
CS-134		5.45E-01 ±	1.95E+00	3.15E+00
CS-137		6.63E-02 ±	1.42E+00	2.33E+00
BALA140		-1.36E+00 ±	4.84E+00	7.68E+00
BI-214		-5.25E-01 ±	4.69E+00	8.01E+00
RA-226		-5.13E+00 ±	4.70E+01	7.65E+01

Location 27 collected 8/31/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.99E+01 ±	4.44E+01	5.55E+01
CR-51		2.98E+00 ±	2.18E+01	3.55E+01
MN-54		0.00E+00 ±	2.02E+00	3.36E+00
CO-58		-1.01E+00 ±	2.15E+00	3.40E+00
FE-59		0.00E+00 ±	5.61E+00	9.35E+00
CO-60		3.02E+00 ±	2.16E+00	3.08E+00
ZN-65		-8.33E-01 ±	4.58E+00	7.41E+00
ZRNB-95		1.07E+00 ±	2.12E+00	3.34E+00
I-131		-1.50E+00 ±	6.27E+00	1.02E+01
CS-134		4.74E-01 ±	2.03E+00	3.29E+00
CS-137		7.07E-01 ±	1.99E+00	3.19E+00
BALA140		-2.48E+00 ±	5.06E+00	7.87E+00
BI-214		-4.13E+00 ±	1.09E+01	9.15E+00
RA-226		-3.01E+01 ±	7.94E+01	8.00E+01

Location 27 collected 10/5/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.57E+00 ±	2.66E+01	5.12E+01
CR-51		1.21E+01 ±	1.87E+01	2.95E+01
MN-54		0.00E+00 ±	2.04E+00	3.39E+00
CO-58		0.00E+00 ±	2.33E+00	3.88E+00
FE-59		0.00E+00 ±	6.77E+00	1.13E+01
CO-60		1.33E+00 ±	1.81E+00	2.74E+00
ZN-65		4.26E-02 ±	3.32E+00	5.44E+00
ZRNB-95		1.11E+00 ±	1.97E+00	3.07E+00
I-131		2.51E+00 ±	7.23E+00	1.17E+01
CS-134		-6.00E-01 ±	2.15E+00	3.47E+00
CS-137		9.46E-01 ±	1.80E+00	2.83E+00
BALA140		3.56E-02 ±	5.52E+00	9.07E+00
BI-214		-3.05E+00 ±	7.71E+00	8.28E+00
RA-226		-3.14E+01 ±	8.10E+01	7.98E+01

Location 27 collected 11/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.01E+01 ±	3.28E+01	5.01E+01
CR-51		-9.52E+00 ±	2.26E+01	3.62E+01
MN-54		-1.43E+00 ±	2.34E+00	3.67E+00
CO-58		-2.66E-01 ±	2.20E+00	3.58E+00
FE-59		-1.82E+00 ±	5.66E+00	8.94E+00
CO-60		-1.31E+00 ±	2.18E+00	3.37E+00
ZN-65		1.58E+00 ±	4.51E+00	7.17E+00
ZRNB-95		1.87E+00 ±	2.36E+00	3.63E+00
I-131		2.65E+00 ±	6.18E+00	9.90E+00
CS-134		-2.50E-01 ±	2.41E+00	3.95E+00
CS-137		9.26E-01 ±	2.08E+00	3.29E+00
BALA140		1.92E-01 ±	4.21E+00	6.87E+00
BI-214		1.45E+00 ±	5.05E+00	9.38E+00
RA-226		1.34E+01 ±	5.02E+01	9.08E+01

Location 27 collected 11/30/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.23E+01 ±	3.64E+01	5.16E+01
CR-51		-7.80E+00 ±	2.21E+01	3.56E+01
MN-54		0.00E+00 ±	2.04E+00	3.40E+00
CO-58		1.32E+00 ±	1.67E+00	2.48E+00
FE-59		2.64E+00 ±	5.18E+00	7.92E+00
CO-60		-8.30E-01 ±	2.10E+00	3.30E+00
ZN-65		-1.06E+00 ±	4.77E+00	7.69E+00
ZRNB-95		-9.75E-03 ±	2.07E+00	3.41E+00
I-131		4.11E+00 ±	6.16E+00	9.68E+00
CS-134		1.11E+00 ±	1.85E+00	2.90E+00
CS-137		-1.77E-01 ±	1.66E+00	2.70E+00
BALA140		-5.02E-02 ±	4.97E+00	8.15E+00
BI-214		7.13E+00 ±	5.96E+00	1.03E+01
RA-226		8.68E+00 ±	5.02E+01	9.10E+01

Location 27 collected 1/4/2010				
Nuclide	RQ	Activity	Error	MDA
K-40		-9.80E+00 ±	3.18E+01	4.94E+01
CR-51		1.82E+01 ±	2.33E+01	3.55E+01
MN-54		1.13E+00 ±	1.85E+00	2.85E+00
CO-58		-2.61E-01 ±	1.95E+00	3.13E+00
FE-59		3.67E+00 ±	5.77E+00	8.55E+00
CO-60		0.00E+00 ±	2.30E+00	3.84E+00
ZN-65		-2.01E+00 ±	4.98E+00	7.87E+00
ZRNB-95		1.33E-01 ±	2.35E+00	3.81E+00
I-131		-3.82E+00 ±	8.17E+00	1.19E+01
CS-134		-1.93E+00 ±	2.69E+00	4.25E+00
CS-137		-1.23E-01 ±	2.12E+00	3.47E+00
BALA140		-1.75E-01 ±	4.94E+00	7.65E+00
BI-214		1.22E+00 ±	5.28E+00	9.74E+00
RA-226		1.18E+01 ±	4.86E+01	8.84E+01

**Table A-7.1**  
**GAMMA SPECTROMETRY RESULTS OF WATER**  
**STATION 31 - Ground Water Well #1**  
 Results in pCi/liter

Location 31 collected 3/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-5.87E+01 ±	2.59E+02	8.35E+01
CR-51		2.17E+00 ±	1.84E+01	3.00E+01
MN-54		-5.37E-01 ±	3.00E+00	4.85E+00
CO-58		8.67E-02 ±	3.02E+00	4.94E+00
FE-59		3.86E+00 ±	7.75E+00	1.20E+01
CO-60		1.16E+00 ±	3.13E+00	4.92E+00
ZN-65		-5.52E+00 ±	8.80E+00	1.38E+01
ZRNB-95		3.73E-01 ±	3.33E+00	5.43E+00
I-131		-8.72E-01 ±	3.28E+00	5.32E+00
CS-134		3.54E-01 ±	2.83E+00	4.60E+00
CS-137		-2.33E-01 ±	2.75E+00	4.49E+00
BALA140		-2.76E-01 ±	3.46E+00	5.62E+00
BI-214	+	1.42E+02 ±	1.38E+01	1.16E+01
RA-226		-1.09E+01 ±	1.04E+02	1.58E+02

Location 31 collected 6/1/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-7.08E+01 ±	6.30E+02	8.12E+01
CR-51		-4.12E+00 ±	2.91E+01	4.76E+01
MN-54		7.78E-01 ±	3.20E+00	5.15E+00
CO-58		-7.30E-01 ±	3.37E+00	5.44E+00
FE-59		-3.90E+00 ±	8.32E+00	1.30E+01
CO-60		1.20E+00 ±	3.38E+00	5.34E+00
ZN-65		-8.61E+00 ±	1.15E+01	1.81E+01
ZRNB-95		-7.94E-01 ±	3.70E+00	5.99E+00
I-131		-1.39E-01 ±	3.72E+00	6.11E+00
CS-134		1.30E+00 ±	1.90E+00	2.87E+00
CS-137		-3.76E-01 ±	2.89E+00	4.69E+00
BALA140		9.35E-02 ±	4.27E+00	7.01E+00
BI-214	+	1.77E+02 ±	1.44E+01	1.25E+01
RA-226		-1.30E+01 ±	1.11E+02	1.63E+02

Location 31 collected 8/31/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.59E+01 ±	1.01E+02	7.95E+01
CR-51		5.37E+00 ±	2.53E+01	4.11E+01
MN-54		3.17E+00 ±	3.10E+00	4.61E+00
CO-58		1.66E-01 ±	2.82E+00	4.61E+00
FE-59		-2.06E+00 ±	7.88E+00	1.26E+01
CO-60		-2.56E-01 ±	2.78E+00	4.52E+00
ZN-65		-1.94E+00 ±	7.13E+00	1.14E+01
ZRNB-95		2.91E-01 ±	3.12E+00	5.10E+00
I-131		1.70E+00 ±	2.89E+00	4.57E+00
CS-134		-7.85E-01 ±	2.93E+00	4.72E+00
CS-137		-1.05E+00 ±	3.73E+00	6.00E+00
BALA140		-1.50E-01 ±	3.64E+00	5.96E+00
BI-214	+	1.43E+02 ±	1.49E+01	1.32E+01
RA-226		6.34E+00 ±	8.67E+01	1.51E+02

Location 31 collected 11/30/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.34E+01 ±	7.11E+01	8.16E+01
CR-51		-2.48E+00 ±	2.24E+01	3.65E+01
MN-54		-1.95E-03 ±	2.78E+00	4.57E+00
CO-58		-5.50E-02 ±	2.34E+00	3.83E+00
FE-59		-2.69E-01 ±	6.34E+00	1.03E+01
CO-60		1.83E-01 ±	2.89E+00	4.71E+00
ZN-65		8.50E-01 ±	2.33E+01	3.82E+01
ZRNB-95		6.41E-01 ±	3.06E+00	4.93E+00
I-131		4.43E-01 ±	3.21E+00	5.23E+00
CS-134		-1.04E+00 ±	2.97E+00	4.73E+00
CS-137		-5.41E-01 ±	2.93E+00	4.72E+00
BALA140		-2.14E-01 ±	3.99E+00	6.50E+00
BI-214	+	9.23E+01 ±	1.21E+01	1.25E+01
RA-226		-8.78E+00 ±	7.92E+01	1.19E+02

**Table A-7.1**  
**GAMMA SPECTROMETRY RESULTS OF WATER**  
**STATION 32 - Ground Water Well #2**

Results in pCi/liter

Location 32 collected				3/2/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-3.48E+01 ±	1.01E+02	8.13E+01
CR-51		1.16E+01 ±	3.10E+01	5.02E+01
MN-54		-1.64E-02 ±	3.77E+00	6.20E+00
CO-58		5.06E-02 ±	2.86E+00	4.70E+00
FE-59		7.32E+00 ±	9.27E+00	1.40E+01
CO-60		1.79E+00 ±	3.38E+00	5.24E+00
ZN-65		0.00E+00 ±	3.95E+01	6.58E+01
ZRNB-95		-1.77E+00 ±	3.86E+00	6.14E+00
I-131		2.72E-01 ±	4.25E+00	6.97E+00
CS-134		-1.05E+00 ±	6.20E+00	1.01E+01
CS-137		-8.94E-01 ±	4.00E+00	6.48E+00
BALA140		5.64E-01 ±	3.67E+00	5.90E+00
BI-214	+	4.03E+02 ±	2.18E+01	1.27E+01
RA-226		1.42E+00 ±	1.07E+02	1.83E+02

Location 32 collected				6/1/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-1.53E+01 ±	7.10E+01	9.09E+01
CR-51		-1.99E-01 ±	3.48E+01	5.73E+01
MN-54		-3.69E+00 ±	5.34E+00	8.47E+00
CO-58		-8.30E-01 ±	3.46E+00	5.57E+00
FE-59		5.33E-01 ±	1.01E+01	1.65E+01
CO-60		-1.19E+00 ±	4.45E+00	7.16E+00
ZN-65		-1.78E+01 ±	1.59E+01	2.49E+01
ZRNB-95		-4.84E-01 ±	4.31E+00	7.03E+00
I-131		5.46E-02 ±	4.63E+00	7.61E+00
CS-134		3.99E-01 ±	1.64E+01	8.50E+00
CS-137		-5.96E+00 ±	5.91E+00	9.26E+00
BALA140		6.41E+00 ±	5.40E+00	7.84E+00
BI-214	+	7.61E+02 ±	2.94E+01	1.71E+01
RA-226		-8.31E+00 ±	1.45E+02	2.21E+02

Location 32 collected				8/31/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-3.30E+01 ±	9.33E+01	7.99E+01
CR-51		-8.91E+00 ±	3.02E+01	4.90E+01
MN-54		1.93E+00 ±	2.56E+00	3.85E+00
CO-58		2.38E-02 ±	3.16E+00	5.19E+00
FE-59		-1.32E+00 ±	7.67E+00	1.23E+01
CO-60		7.19E-01 ±	2.89E+00	4.61E+00
ZN-65		-2.06E-01 ±	8.23E+00	1.35E+01
ZRNB-95		-1.13E+00 ±	3.40E+00	5.44E+00
I-131		6.83E-01 ±	3.93E+00	6.40E+00
CS-134		-2.00E-01 ±	7.31E+00	1.20E+01
CS-137		1.13E+00 ±	2.48E+00	3.87E+00
BALA140		-1.77E-01 ±	4.21E+00	6.88E+00
BI-214	+	1.27E+02 ±	1.43E+01	1.30E+01
RA-226		-6.45E+00 ±	9.54E+01	1.53E+02

Location 32 collected				11/30/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-2.79E+01 ±	6.97E+01	7.57E+01
CR-51		-6.73E+00 ±	2.59E+01	4.20E+01
MN-54		4.51E-02 ±	2.32E+00	3.81E+00
CO-58		-8.53E-02 ±	2.52E+00	4.12E+00
FE-59		-4.43E+00 ±	9.24E+00	1.43E+01
CO-60		1.13E+00 ±	3.06E+00	4.78E+00
ZN-65		-5.56E+00 ±	1.09E+01	1.73E+01
ZRNB-95		-3.07E-01 ±	2.83E+00	4.59E+00
I-131		-1.76E+00 ±	3.85E+00	6.14E+00
CS-134		-6.58E-01 ±	3.24E+00	5.24E+00
CS-137		-6.69E-01 ±	3.11E+00	5.01E+00
BALA140		-1.82E+00 ±	4.63E+00	7.22E+00
BI-214	+	1.70E+02 ±	1.53E+01	1.20E+01
RA-226		4.03E+01 ±	7.66E+01	1.31E+02



**Table A-7.1**  
**GAMMA SPECTROMETRY RESULTS OF WATER**  
**STATION 52 - Ground Water Well #3**

Results in pCi/liter

Location 52 collected 3/2/2009					Location 52 collected 6/1/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-4.80E+01 ±	1.24E+02	7.22E+01	K-40		-5.75E+01 ±	1.83E+02	7.68E+01
CR-51		-5.88E+00 ±	2.49E+01	4.04E+01	CR-51		-6.64E+00 ±	2.09E+01	3.36E+01
MN-54		-1.21E-02 ±	2.70E+00	4.43E+00	MN-54		1.31E+00 ±	1.91E+00	2.75E+00
CO-58		-1.37E+00 ±	2.94E+00	4.61E+00	CO-58		2.07E-02 ±	2.01E+00	3.29E+00
FE-59		3.04E+00 ±	6.94E+00	1.07E+01	FE-59		4.36E+00 ±	5.77E+00	8.09E+00
CO-60		1.02E+00 ±	2.62E+00	4.07E+00	CO-60		2.57E+00 ±	2.79E+00	3.94E+00
ZN-65		-3.69E-01 ±	5.98E+00	9.76E+00	ZN-65		-2.60E+00 ±	6.48E+00	1.01E+01
ZRNB-95		5.73E-01 ±	2.79E+00	4.50E+00	ZRNB-95		0.00E+00 ±	3.11E+00	5.19E+00
I-131		2.72E+00 ±	2.90E+00	4.43E+00	I-131		1.08E+00 ±	2.80E+00	4.45E+00
CS-134		1.43E+00 ±	2.48E+00	3.87E+00	CS-134		-9.73E-02 ±	1.77E+00	2.88E+00
CS-137		-8.46E-01 ±	2.88E+00	4.60E+00	CS-137		1.83E+00 ±	2.73E+00	4.14E+00
BALA140		-1.43E+00 ±	4.33E+00	6.82E+00	BALA140		-8.40E-01 ±	3.85E+00	6.10E+00
BI-214		2.02E+00 ±	6.69E+00	1.21E+01	BI-214		2.54E+00 ±	6.86E+00	1.23E+01
RA-226		4.47E+01 ±	7.72E+01	1.34E+02	RA-226		-3.03E+01 ±	1.06E+02	1.08E+02

Location 52 collected 8/31/2009					Location 52 collected 11/30/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.64E+01 ±	1.01E+02	7.92E+01	K-40		-3.34E+01 ±	8.16E+01	7.65E+01
CR-51		2.79E+01 ±	1.73E+01	2.45E+01	CR-51		2.47E+00 ±	1.87E+01	3.04E+01
MN-54		3.84E-02 ±	2.89E+00	4.74E+00	MN-54		-3.55E-01 ±	2.40E+00	3.87E+00
CO-58		0.00E+00 ±	2.71E+00	4.51E+00	CO-58		-3.61E-01 ±	2.40E+00	3.87E+00
FE-59		-8.53E-02 ±	7.58E+00	1.24E+01	FE-59		0.00E+00 ±	1.13E+01	1.88E+01
CO-60		1.25E+00 ±	2.39E+00	3.61E+00	CO-60		8.02E-01 ±	2.61E+00	4.09E+00
ZN-65		0.00E+00 ±	9.36E+00	1.56E+01	ZN-65		-2.47E+00 ±	6.40E+00	1.00E+01
ZRNB-95		4.75E-01 ±	2.51E+00	4.05E+00	ZRNB-95		0.00E+00 ±	3.90E+00	6.50E+00
I-131		-5.11E-01 ±	3.65E+00	5.96E+00	I-131		-3.52E-01 ±	3.95E+00	6.46E+00
CS-134		-3.51E-02 ±	2.95E+00	4.85E+00	CS-134		-1.42E+00 ±	2.87E+00	4.51E+00
CS-137		-8.92E-01 ±	3.21E+00	5.15E+00	CS-137		2.00E-01 ±	2.43E+00	3.94E+00
BALA140		-1.73E+00 ±	4.27E+00	6.64E+00	BALA140		4.41E-02 ±	3.36E+00	5.51E+00
BI-214		4.10E-01 ±	6.48E+00	1.19E+01	BI-214		3.03E+00 ±	7.04E+00	1.25E+01
RA-226		1.05E+01 ±	7.89E+01	1.38E+02	RA-226		-4.06E+01 ±	1.29E+02	1.08E+02

TABLE A-7.2  
**GAMMA SPECTROMETRY RESULTS OF WATER - SUMMARY**  
 Results in pCi per liter, corrected for decay during collection period  
**RIVER/DRINKING**

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-1.69E-01	-2.31E+00	1.44E+00	7.63E+00	12	0
BALA140	Cntl	-3.81E-01	-2.21E+00	1.90E+00	7.96E+00	12	0
BI-214	Ind	2.05E+00	-3.92E+00	9.68E+00	8.49E+00	12	2
BI-214	Cntl	1.95E+00	-3.10E+00	9.88E+00	8.23E+00	12	2
CO-58	Ind	3.88E-01	-6.44E-01	1.88E+00	3.03E+00	12	0
CO-58	Cntl	-5.80E-02	-1.10E+00	2.05E+00	3.27E+00	12	0
CO-60	Ind	8.36E-01	-4.98E-02	2.25E+00	2.89E+00	12	0
CO-60	Cntl	7.14E-01	-6.40E-01	1.90E+00	2.77E+00	12	0
CR-51	Ind	-6.85E-01	-1.66E+01	1.19E+01	3.57E+01	12	0
CR-51	Cntl	2.38E-01	-1.11E+01	9.43E+00	3.44E+01	12	0
CS-134	Ind	-3.90E-01	-9.99E-01	2.14E-01	3.42E+00	12	0
CS-134	Cntl	-3.81E-02	-9.81E-01	9.55E-01	2.90E+00	12	0
CS-137	Ind	-1.88E-01	-1.02E+00	6.33E-01	3.19E+00	12	0
CS-137	Cntl	3.08E-01	-8.27E-01	1.02E+00	3.12E+00	12	0
FE-59	Ind	8.75E-01	-1.47E+00	4.53E+00	8.73E+00	12	0
FE-59	Cntl	8.43E-02	-1.42E+00	5.40E+00	9.11E+00	12	0
I-131	Ind	1.19E+00	-2.91E+00	6.17E+00	1.04E+01	12	0
I-131	Cntl	1.17E+00	-2.34E-01	3.26E+00	9.72E+00	12	0
K-40	Ind	-3.43E+01	-5.65E+01	-1.20E+01	5.10E+01	12	0
K-40	Cntl	-2.73E+01	-4.47E+01	-3.33E+00	5.11E+01	12	0
MN-54	Ind	2.44E-01	-1.10E+00	1.59E+00	2.98E+00	12	0
MN-54	Cntl	4.50E-01	-8.60E-01	1.40E+00	2.85E+00	12	0
RA-226	Ind	-1.16E+01	-1.63E+02	3.20E+01	8.03E+01	12	0
RA-226	Cntl	-8.65E+00	-3.23E+01	2.77E+01	8.05E+01	12	0
ZN-65	Ind	3.54E-01	-9.66E-01	1.45E+00	6.84E+00	12	0
ZN-65	Cntl	-1.01E+00	-2.37E+00	9.57E-02	7.15E+00	12	0
ZRNB-95	Ind	6.37E-01	-1.02E+00	2.03E+00	3.56E+00	12	0
ZRNB-95	Cntl	-1.44E-01	-1.26E+00	7.81E-01	3.29E+00	12	0

TABLE A-7.2  
**GAMMA SPECTROMETRY RESULTS OF WATER - SUMMARY**  
**DISCHARGE**

<b>Nuclide</b>		<b>Average Activity</b>	<b>Activity Low</b>	<b>Activity High</b>	<b>Average MDA</b>	<b>Number of Samples</b>	<b>Number of Positive IDs</b>
K-40	Ind	-1.67E+01	-4.28E+01	4.52E+00	5.11E+01	12	0
CR-51	Ind	3.14E+00	-9.52E+00	1.82E+01	3.35E+01	12	0
MN-54	Ind	8.42E-02	-1.43E+00	1.35E+00	3.11E+00	12	0
CO-58	Ind	2.60E-01	-1.01E+00	1.59E+00	3.24E+00	12	0
FE-59	Ind	7.25E-01	-1.82E+00	4.65E+00	9.08E+00	12	0
CO-60	Ind	6.65E-01	-1.31E+00	3.02E+00	2.90E+00	12	0
ZN-65	Ind	-7.51E-01	-2.31E+00	1.58E+00	6.50E+00	12	0
ZRNB-95	Ind	6.02E-01	-5.54E-01	1.87E+00	3.26E+00	12	0
I-131	Ind	6.26E-02	-3.86E+00	4.11E+00	1.00E+01	12	0
CS-134	Ind	-2.15E-01	-1.93E+00	1.11E+00	3.36E+00	12	0
CS-137	Ind	2.33E-01	-6.08E-01	9.46E-01	3.02E+00	12	0
BALA140	Ind	-5.87E-01	-2.48E+00	1.92E-01	7.67E+00	12	0
BI-214	Ind	4.97E-01	-4.13E+00	7.13E+00	8.68E+00	12	0
RA-226	Ind	-8.08E+00	-3.14E+01	1.38E+01	8.09E+01	12	0

**GROUNDWATER**

<b>Nuclide</b>		<b>Average Activity</b>	<b>Activity Low</b>	<b>Activity High</b>	<b>Average MDA</b>	<b>Number of Samples</b>	<b>Number of Positive IDs</b>
K-40	Ind	-3.96E+01	-5.44E+01	-2.41E+01	7.99E+01	12	0
CR-51	Ind	1.21E+00	-6.56E+00	1.49E+01	4.02E+01	12	0
MN-54	Ind	2.22E-01	-1.53E+00	2.14E+00	4.77E+00	12	0
CO-58	Ind	-2.57E-01	-9.77E-01	7.92E-02	4.56E+00	12	0
FE-59	Ind	5.87E-01	-2.81E+00	5.18E+00	1.29E+01	12	0
CO-60	Ind	8.64E-01	-2.15E-01	1.85E+00	4.75E+00	12	0
ZN-65	Ind	-3.68E+00	-9.66E+00	2.83E-01	2.07E+01	12	0
ZRNB-95	Ind	-1.78E-01	-8.54E-01	3.02E-01	5.41E+00	12	0
I-131	Ind	2.76E-01	-1.05E+00	1.70E+00	5.80E+00	12	0
CS-134	Ind	-1.49E-01	-1.17E+00	1.05E+00	7.27E+00	12	0
CS-137	Ind	-6.92E-01	-2.63E+00	9.08E-01	5.20E+00	12	0
BALA140	Ind	3.90E-02	-1.28E+00	2.18E+00	6.50E+00	12	0
BI-214	Ind	1.69E+02	7.32E+01	3.14E+02	1.28E+01	12	8
RA-226	Ind	-1.25E+00	-2.06E+01	3.04E+01	1.47E+02	12	0

**TABLE A-8.1**  
**GAMMA SPECTROMETRY RESULTS OF SOIL**

Results in pCi/kilogram

Location & Date			Station 1		6/10/2009
Nuclide	RQ	Activity	Error	MDA	
BE-7		7.42E-01 ±	2.16E+02	3.55E+02	
K-40	+	1.53E+04 ±	1.21E+03	4.66E+02	
CR-51		-4.08E+00 ±	2.14E+02	3.51E+02	
MN-54		2.53E+01 ±	3.00E+01	4.47E+01	
CO-58		-3.67E+00 ±	2.78E+01	4.50E+01	
FE-59		-2.38E+01 ±	8.66E+01	1.38E+02	
CO-60		-1.58E+00 ±	3.95E+01	6.47E+01	
ZN-65		-3.56E+01 ±	7.73E+01	1.21E+02	
ZRNB-95		3.43E+01 ±	2.45E+01	3.26E+01	
CS-134		-7.95E+00 ±	2.97E+01	4.77E+01	
CS-137	+	1.43E+02 ±	4.48E+01	5.47E+01	
BALA140		-4.93E+00 ±	3.55E+01	5.71E+01	
BI-214	+	5.74E+02 ±	9.52E+01	9.21E+01	
RA-226		1.33E+03 ±	8.53E+02	1.34E+03	

Location & Date			Station 7		6/10/2009
Nuclide	RQ	Activity	Error	MDA	
BE-7		1.34E+02 ±	1.94E+02	2.97E+02	
K-40	+	1.48E+04 ±	1.12E+03	4.64E+02	
CR-51		-7.85E+01 ±	2.15E+02	3.45E+02	
MN-54		9.27E+00 ±	2.37E+01	3.71E+01	
CO-58		5.53E-01 ±	2.47E+01	4.05E+01	
FE-59		3.19E+01 ±	6.72E+01	1.03E+02	
CO-60		1.13E+01 ±	2.90E+01	4.55E+01	
ZN-65		2.66E+01 ±	4.25E+01	6.26E+01	
ZRNB-95		-1.33E+01 ±	3.07E+01	4.85E+01	
CS-134		0.00E+00 ±	4.64E+01	7.73E+01	
CS-137		6.54E+00 ±	2.61E+01	4.18E+01	
BALA140		9.06E+00 ±	2.35E+01	3.55E+01	
BI-214	+	4.35E+02 ±	8.56E+01	9.67E+01	
RA-226		1.15E+03 ±	8.06E+02	1.28E+03	

Location & Date			Station 9a		6/10/2009
Nuclide	RQ	Activity	Error	MDA	
BE-7		2.04E+02 ±	2.45E+02	3.69E+02	
K-40	+	1.38E+04 ±	1.21E+03	5.00E+02	
CR-51		6.67E+01 ±	2.02E+02	3.23E+02	
MN-54		1.51E+01 ±	2.81E+01	4.30E+01	
CO-58		7.45E-01 ±	2.72E+01	4.45E+01	
FE-59		-2.01E+01 ±	8.69E+01	1.38E+02	
CO-60		5.28E+00 ±	3.78E+01	6.12E+01	
ZN-65		-9.87E+00 ±	2.22E+02	3.64E+02	
ZRNB-95		5.43E+00 ±	2.82E+01	4.52E+01	
CS-134		-1.15E+01 ±	3.03E+01	4.79E+01	
CS-137	+	5.18E+01 ±	3.56E+01	4.91E+01	
BALA140		0.00E+00 ±	8.28E+00	1.38E+01	
BI-214	+	5.70E+02 ±	1.09E+02	9.56E+01	
RA-226		1.18E+03 ±	8.97E+02	1.43E+03	

Location & Date			Station 21		6/10/2009
Nuclide	RQ	Activity	Error	MDA	
BE-7		1.85E+01 ±	1.97E+02	3.20E+02	
K-40	+	1.31E+04 ±	1.03E+03	4.13E+02	
CR-51		-5.69E+01 ±	1.91E+02	3.07E+02	
MN-54		-1.24E-01 ±	1.96E+01	3.22E+01	
CO-58		-1.30E+00 ±	1.94E+01	3.16E+01	
FE-59		-1.88E+01 ±	7.11E+01	1.13E+02	
CO-60		1.34E+01 ±	2.96E+01	4.61E+01	
ZN-65		-2.43E+01 ±	6.65E+01	1.05E+02	
ZRNB-95		9.90E+00 ±	2.52E+01	3.98E+01	
CS-134		3.51E+00 ±	9.59E+00	1.44E+01	
CS-137		9.25E+00 ±	2.56E+01	4.05E+01	
BALA140		-1.57E+00 ±	2.51E+01	4.08E+01	
BI-214	+	3.45E+02 ±	7.34E+01	8.11E+01	
RA-226		6.58E+02 ±	7.31E+02	1.19E+03	

Location & Date			Station 23		6/10/2009
Nuclide	RQ	Activity	Error	MDA	
BE-7		1.87E+02 ±	2.18E+02	3.31E+02	
K-40	+	1.43E+04 ±	1.09E+03	3.77E+02	
CR-51		-1.39E+01 ±	1.90E+02	3.11E+02	
MN-54		1.96E+01 ±	2.25E+01	3.26E+01	
CO-58		-9.62E+00 ±	2.44E+01	3.82E+01	
FE-59		1.33E+01 ±	7.55E+01	1.22E+02	
CO-60		-1.66E+00 ±	2.70E+01	4.40E+01	
ZN-65		1.05E+00 ±	6.37E+01	1.04E+02	
ZRNB-95		2.67E+00 ±	2.38E+01	3.87E+01	
CS-134		-4.18E+00 ±	2.29E+01	3.69E+01	
CS-137		4.39E+01 ±	3.44E+01	5.03E+01	
BALA140		0.00E+00 ±	3.93E+01	6.55E+01	
BI-214	+	4.75E+02 ±	8.65E+01	9.19E+01	
RA-226		7.65E+02 ±	7.67E+02	1.24E+03	

TABLE A-8.2  
**GAMMA SPECTROMETRY RESULTS OF SOIL - SUMMARY**

Results in pCi/kilogram

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	6.40E-01	-4.93E+00	9.06E+00	4.98E+01	4	0
BALA140	Cntl	0.00E+00	0.00E+00	0.00E+00	1.38E+01	1	0
BE-7	Ind	8.49E+01	7.42E-01	1.87E+02	3.26E+02	4	0
BE-7	Cntl	2.04E+02	2.04E+02	2.04E+02	3.69E+02	1	0
BI-214	Ind	4.57E+02	3.45E+02	5.74E+02	9.04E+01	4	4
BI-214	Cntl	5.70E+02	5.70E+02	5.70E+02	9.56E+01	1	1
CO-58	Ind	-3.51E+00	-9.62E+00	5.53E-01	3.88E+01	4	0
CO-58	Cntl	7.45E-01	7.45E-01	7.45E-01	4.45E+01	1	0
CO-60	Ind	5.35E+00	-1.66E+00	1.34E+01	5.01E+01	4	0
CO-60	Cntl	5.28E+00	5.28E+00	5.28E+00	6.12E+01	1	0
CR-51	Ind	-3.84E+01	-7.85E+01	-4.08E+00	3.28E+02	4	0
CR-51	Cntl	6.67E+01	6.67E+01	6.67E+01	3.23E+02	1	0
CS-134	Ind	-2.16E+00	-7.95E+00	3.51E+00	4.41E+01	4	0
CS-134	Cntl	-1.15E+01	-1.15E+01	-1.15E+01	4.79E+01	1	0
CS-137	Ind	5.07E+01	6.54E+00	1.43E+02	4.68E+01	4	1
CS-137	Cntl	5.18E+01	5.18E+01	5.18E+01	4.91E+01	1	1
FE-59	Ind	6.50E-01	-2.38E+01	3.19E+01	1.19E+02	4	0
FE-59	Cntl	-2.01E+01	-2.01E+01	-2.01E+01	1.38E+02	1	0
K-40	Ind	1.44E+04	1.31E+04	1.53E+04	4.30E+02	4	4
K-40	Cntl	1.38E+04	1.38E+04	1.38E+04	5.00E+02	1	1
MN-54	Ind	1.35E+01	-1.24E-01	2.53E+01	3.66E+01	4	0
MN-54	Cntl	1.51E+01	1.51E+01	1.51E+01	4.30E+01	1	0
RA-226	Ind	9.76E+02	6.58E+02	1.33E+03	1.26E+03	4	0
RA-226	Cntl	1.18E+03	1.18E+03	1.18E+03	1.43E+03	1	0
ZN-65	Ind	-8.05E+00	-3.56E+01	2.66E+01	9.84E+01	4	0
ZN-65	Cntl	-9.87E+00	-9.87E+00	-9.87E+00	3.64E+02	1	0
ZRNB-95	Ind	8.40E+00	-1.33E+01	3.43E+01	3.99E+01	4	0
ZRNB-95	Cntl	5.43E+00	5.43E+00	5.43E+00	4.52E+01	1	0

TABLE A-9.1  
**GAMMA SPECTROMETRY RESULTS OF SEDIMENT**

Results in pCi/kilogram

**Station 33 Upstream Control**

Location & Date					Location & Date				
Station 33					Station 33				
3/25/2009					10/22/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7		1.35E+02 ±	1.81E+02	2.79E+02	BE-7		1.63E+02 ±	2.65E+02	4.12E+02
K-40	+	1.71E+04 ±	1.06E+03	3.69E+02	K-40	+	1.69E+04 ±	1.28E+03	4.76E+02
CR-51		0.00E+00 ±	2.16E+02	3.60E+02	CR-51		-3.47E+01 ±	2.82E+02	4.60E+02
MN-54		6.16E+00 ±	2.04E+01	3.25E+01	MN-54		1.19E+01 ±	2.73E+01	4.24E+01
CO-58		-5.32E-02 ±	1.82E+01	2.99E+01	CO-58		2.20E+00 ±	2.03E+01	3.28E+01
FE-59		2.33E-01 ±	4.58E+01	7.52E+01	FE-59		2.44E+01 ±	7.74E+01	1.21E+02
CO-60		-9.92E+00 ±	2.97E+01	4.73E+01	CO-60		-1.11E+00 ±	4.01E+01	6.58E+01
ZN-65		-1.97E+01 ±	6.38E+01	1.02E+02	ZN-65		-3.08E+01 ±	8.35E+01	1.32E+02
ZRNB-95		-8.45E+00 ±	2.63E+01	4.21E+01	ZRNB-95		-1.29E+01 ±	3.46E+01	5.48E+01
CS-134		1.22E+00 ±	1.97E+01	3.21E+01	CS-134		5.33E-01 ±	1.95E+01	3.20E+01
CS-137		3.68E+01 ±	2.79E+01	4.07E+01	CS-137	+	5.18E+01 ±	3.25E+01	4.39E+01
BALA140		2.67E+00 ±	2.25E+01	3.60E+01	BALA140		-1.25E+01 ±	4.65E+01	7.31E+01
BI-214	+	5.12E+02 ±	7.47E+01	6.67E+01	BI-214	+	5.08E+02 ±	9.27E+01	9.35E+01
RA-226	+	1.38E+03 ±	6.05E+02	8.02E+02	RA-226		1.03E+03 ±	9.04E+02	1.45E+03

**Station 34 Downstream Indicator**

Location & Date					Location & Date				
Station 34					Station 34				
3/25/2009					10/22/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7		1.19E+02 ±	1.67E+02	2.54E+02	BE-7		1.18E+02 ±	2.59E+02	4.08E+02
K-40	+	1.71E+04 ±	1.07E+03	2.66E+02	K-40	+	1.71E+04 ±	1.33E+03	5.57E+02
CR-51		5.51E+01 ±	1.77E+02	2.84E+02	CR-51		-7.57E+01 ±	2.89E+02	4.67E+02
MN-54		-8.90E-02 ±	2.06E+01	3.39E+01	MN-54		2.17E+01 ±	3.30E+01	5.05E+01
CO-58		-5.75E+00 ±	2.31E+01	3.69E+01	CO-58		3.43E+00 ±	2.34E+01	3.76E+01
FE-59		3.75E-01 ±	6.56E+01	1.08E+02	FE-59		2.19E+01 ±	8.81E+01	1.40E+02
CO-60		3.95E+00 ±	1.96E+01	3.12E+01	CO-60		-1.21E+00 ±	3.42E+01	5.60E+01
ZN-65		-3.06E+01 ±	7.29E+01	1.16E+02	ZN-65		-2.41E+01 ±	8.80E+01	1.41E+02
ZRNB-95		-8.71E+00 ±	2.51E+01	3.99E+01	ZRNB-95		-1.50E+01 ±	4.00E+01	6.37E+01
CS-134		7.42E+00 ±	2.06E+01	3.28E+01	CS-134		-1.14E+01 ±	2.94E+01	4.66E+01
CS-137	+	1.45E+02 ±	3.37E+01	3.08E+01	CS-137	+	1.71E+02 ±	5.40E+01	5.22E+01
BALA140		-2.84E+00 ±	3.37E+01	5.47E+01	BALA140		0.00E+00 ±	4.48E+01	7.46E+01
BI-214	+	4.94E+02 ±	7.82E+01	7.69E+01	BI-214	+	6.86E+02 ±	1.03E+02	9.11E+01
RA-226		7.89E+02 ±	5.86E+02	9.26E+02	RA-226		1.05E+03 ±	9.25E+02	1.49E+03

TABLE A-9.2  
**GAMMA SPECTROMETRY RESULTS OF SEDIMENT - SUMMARY**

Results in pCi/kilogram

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-1.42E+00	-2.84E+00	0.00E+00	6.47E+01	2	0
BALA140	Cntl	-4.89E+00	-1.25E+01	2.67E+00	5.45E+01	2	0
BE-7	Ind	1.19E+02	1.18E+02	1.19E+02	3.31E+02	2	0
BE-7	Cntl	1.49E+02	1.35E+02	1.63E+02	3.45E+02	2	0
BI-214	Ind	5.90E+02	4.94E+02	6.86E+02	8.40E+01	2	2
BI-214	Cntl	5.10E+02	5.08E+02	5.12E+02	8.01E+01	2	2
CO-58	Ind	-1.16E+00	-5.75E+00	3.43E+00	3.73E+01	2	0
CO-58	Cntl	1.08E+00	-5.32E-02	2.20E+00	3.14E+01	2	0
CO-60	Ind	1.37E+00	-1.21E+00	3.95E+00	4.36E+01	2	0
CO-60	Cntl	-5.51E+00	-9.92E+00	-1.11E+00	5.65E+01	2	0
CR-51	Ind	-1.03E+01	-7.57E+01	5.51E+01	3.76E+02	2	0
CR-51	Cntl	-1.74E+01	-3.47E+01	0.00E+00	4.10E+02	2	0
CS-134	Ind	-2.00E+00	-1.14E+01	7.42E+00	3.97E+01	2	0
CS-134	Cntl	8.77E-01	5.33E-01	1.22E+00	3.21E+01	2	0
CS-137	Ind	1.58E+02	1.45E+02	1.71E+02	4.15E+01	2	2
CS-137	Cntl	4.43E+01	3.68E+01	5.18E+01	4.23E+01	2	1
FE-59	Ind	1.12E+01	3.75E-01	2.19E+01	1.24E+02	2	0
FE-59	Cntl	1.23E+01	2.33E-01	2.44E+01	9.83E+01	2	0
K-40	Ind	1.71E+04	1.71E+04	1.71E+04	4.11E+02	2	2
K-40	Cntl	1.70E+04	1.69E+04	1.71E+04	4.23E+02	2	2
MN-54	Ind	1.08E+01	-8.90E-02	2.17E+01	4.22E+01	2	0
MN-54	Cntl	9.03E+00	6.16E+00	1.19E+01	3.75E+01	2	0
RA-226	Ind	9.19E+02	7.89E+02	1.05E+03	1.21E+03	2	0
RA-226	Cntl	1.20E+03	1.03E+03	1.38E+03	1.13E+03	2	1
ZN-65	Ind	-2.74E+01	-3.06E+01	-2.41E+01	1.28E+02	2	0
ZN-65	Cntl	-2.52E+01	-3.08E+01	-1.97E+01	1.17E+02	2	0
ZRNB-95	Ind	-1.19E+01	-1.50E+01	-8.71E+00	5.18E+01	2	0
ZRNB-95	Cntl	-1.07E+01	-1.29E+01	-8.45E+00	4.85E+01	2	0

TABLE A-10.1  
**GAMMA SPECTROMETRY RESULTS OF FISH**  
 Station 30 Columbia River - Station 38 Snake River  
 Results in pCi/kilogram (wet)

Location & Species	Collection Date	Nuclide	RQ	Activity	Error	MDA		
Steelhead Station 30 Indicator	10/28/09	K-40	+	3.69E+03	± 3.07E+02	1.67E+02		
		MN-54		7.17E+00	± 7.87E+00	1.12E+01		
		CO-58		1.33E+01	± 2.46E+01	3.81E+01		
		FE-59		2.95E+01	± 1.26E+02	2.01E+02		
		CO-60		7.55E+00	± 9.40E+00	1.39E+01		
		ZN-65		-1.34E+01	± 3.20E+01	5.06E+01		
		ZRNB-95		5.88E+00	± 2.87E+01	4.63E+01		
		CS-134		1.66E+00	± 9.30E+00	1.51E+01		
		CS-137		-3.08E+00	± 9.51E+00	1.52E+01		
		Bi-214		-2.64E+00	± 2.13E+01	3.53E+01		
		RA-226		-7.32E+01	± 2.79E+02	3.44E+02		
		White Fish Station 30 Indicator	11/02/09	K-40	+	2.89E+03	± 2.84E+02	1.81E+02
				MN-54		-3.83E+00	± 1.20E+01	1.91E+01
CO-58				1.60E+01	± 2.51E+01	3.83E+01		
FE-59				-1.16E-01	± 1.14E+02	1.88E+02		
CO-60				6.34E+00	± 1.04E+01	1.58E+01		
ZN-65				-1.15E+01	± 3.25E+01	5.17E+01		
ZRNB-95				-4.51E-01	± 2.67E+01	4.39E+01		
CS-134				-1.65E+00	± 9.99E+00	1.62E+01		
CS-137				5.06E+00	± 9.10E+00	1.42E+01		
Bi-214				-4.32E+00	± 2.61E+01	3.91E+01		
RA-226				-5.98E+01	± 2.48E+02	3.35E+02		
Sucker Station 30 Indicator	11/02/09			K-40	+	3.33E+03	± 2.83E+02	1.69E+02
				MN-54		1.98E+00	± 1.02E+01	1.65E+01
		CO-58		7.36E+00	± 2.12E+01	3.35E+01		
		FE-59		4.66E+01	± 1.19E+02	1.86E+02		
		CO-60		1.02E+01	± 1.09E+01	1.62E+01		
		ZN-65		-1.02E+01	± 2.90E+01	4.62E+01		
		ZRNB-95		-6.10E+00	± 2.27E+01	3.62E+01		
		CS-134		2.74E+00	± 8.53E+00	1.36E+01		
		CS-137		9.83E+00	± 7.96E+00	1.14E+01		
		Bi-214		1.21E+01	± 1.80E+01	3.21E+01		
		RA-226		-1.27E+01	± 1.83E+02	3.07E+02		



TABLE A-10.1  
**GAMMA SPECTROMETRY RESULTS OF FISH**  
 Station 30 Columbia River - Station 38 Snake River  
 Results in pCi/kilogram (wet)

Location & Species	Collection Date	Nuclide	RQ	Activity	Error	MDA
Steelhead Station 38 Control	11/03/09	K-40	+	2.53E+03	± 2.44E+02	1.55E+02
		MN-54		-2.75E-01	± 9.14E+00	1.50E+01
		CO-58		0.00E+00	± 1.89E+01	3.14E+01
		FE-59		3.37E+01	± 1.01E+02	1.58E+02
		CO-60		-6.44E-02	± 8.46E+00	1.39E+01
		ZN-65		0.00E+00	± 3.82E+01	6.36E+01
		ZRNB-95		4.53E+00	± 2.23E+01	3.58E+01
		CS-134		-1.94E+00	± 8.39E+00	1.35E+01
		CS-137		2.67E+00	± 7.43E+00	1.18E+01
		Bi-214		6.94E+00	± 1.89E+01	3.38E+01
RA-226		-5.54E+01	± 2.45E+02	3.16E+02		
Bass Station 38 Control	11/12/09	K-40	+	3.88E+03	± 3.67E+02	2.54E+02
		MN-54		-2.57E+00	± 1.40E+01	2.26E+01
		CO-58		6.22E+00	± 2.54E+01	4.08E+01
		FE-59		-4.91E+01	± 1.36E+02	2.16E+02
		CO-60		7.29E+00	± 1.35E+01	2.09E+01
		ZN-65		-1.34E+01	± 3.32E+01	5.23E+01
		ZRNB-95		0.00E+00	± 3.22E+01	5.37E+01
		CS-134		4.23E+00	± 1.43E+01	2.31E+01
		CS-137		4.78E+00	± 1.20E+01	1.91E+01
		Bi-214		4.72E+00	± 3.16E+01	5.78E+01
RA-226		-2.17E+02	± 5.34E+02	5.13E+02		
Sucker Station 38 Control	10/21/09	K-40	+	3.06E+03	± 2.73E+02	1.61E+02
		MN-54		-2.31E+00	± 1.01E+01	1.61E+01
		CO-58		1.01E+01	± 2.38E+01	3.74E+01
		FE-59		-1.64E+01	± 1.14E+02	1.84E+02
		CO-60		8.58E+00	± 8.93E+00	1.30E+01
		ZN-65		4.55E+00	± 2.39E+01	3.84E+01
		ZRNB-95		2.72E+00	± 2.96E+01	4.82E+01
		CS-134		4.20E+00	± 8.80E+00	1.39E+01
		CS-137		2.80E+00	± 7.38E+00	1.16E+01
		Bi-214		1.44E+01	± 1.91E+01	3.35E+01
RA-226		-5.98E+01	± 2.34E+02	3.00E+02		

TABLE A-10.2  
**GAMMA SPECTROMETRY RESULTS OF FISH**  
**Summary**

Results in pCi/kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
Bi-214	Ind	1.70E+00	-4.32E+00	1.21E+01	3.55E+01	3	0
Bi-214	Ind	8.69E+00	4.72E+00	1.44E+01	4.17E+01	3	0
CO-58	Ind	1.22E+01	7.36E+00	1.60E+01	3.66E+01	3	0
CO-58	Ind	5.44E+00	0.00E+00	1.01E+01	3.65E+01	3	0
CO-60	Ind	8.02E+00	6.34E+00	1.02E+01	1.53E+01	3	0
CO-60	Ind	5.27E+00	-6.44E-02	8.58E+00	1.59E+01	3	0
CS-134	Ind	9.15E-01	-1.65E+00	2.74E+00	1.50E+01	3	0
CS-134	Ind	2.17E+00	-1.94E+00	4.23E+00	1.69E+01	3	0
CS-137	Ind	3.94E+00	-3.08E+00	9.83E+00	1.36E+01	3	0
CS-137	Ind	3.42E+00	2.67E+00	4.78E+00	1.42E+01	3	0
FE-59	Ind	2.53E+01	-1.16E-01	4.66E+01	1.92E+02	3	0
FE-59	Ind	-1.06E+01	-4.91E+01	3.37E+01	1.86E+02	3	0
K-40	Ind	3.31E+03	2.89E+03	3.69E+03	1.72E+02	3	3
K-40	Ind	3.16E+03	2.53E+03	3.88E+03	1.90E+02	3	3
MN-54	Ind	1.77E+00	-3.83E+00	7.17E+00	1.56E+01	3	0
MN-54	Ind	-1.72E+00	-2.57E+00	-2.75E-01	1.79E+01	3	0
RA-226	Ind	-4.86E+01	-7.32E+01	-1.27E+01	3.29E+02	3	0
RA-226	Ind	-1.11E+02	-2.17E+02	-5.54E+01	3.76E+02	3	0
ZN-65	Ind	-1.17E+01	-1.34E+01	-1.02E+01	4.95E+01	3	0
ZN-65	Ind	-2.96E+00	-1.34E+01	4.55E+00	5.15E+01	3	0
ZRNB-95	Ind	-2.24E-01	-6.10E+00	5.88E+00	4.21E+01	3	0
ZRNB-95	Ind	2.42E+00	0.00E+00	4.53E+00	4.59E+01	3	0

TABLE A-11.1  
**IODINE 131 IN MILK**

Results in pCi/liter, decay corrected to sample collection time

Collection Date	Station 9b Control				Station 36 Indicator			
	RQ	I-131 Activity	Error	I-131 MDA	RQ	I-131 Activity	Error	I-131 MDA
01/12/09		-6.29E-02 ±	2.19E-01	3.56E-01		1.46E-01 ±	1.86E-01	2.96E-01
02/23/09		-4.79E-02 ±	2.44E-01	3.98E-01		2.66E-02 ±	2.08E-01	3.40E-01
03/16/09		4.77E-02 ±	2.53E-01	4.14E-01		1.85E-03 ±	2.41E-01	3.96E-01
04/13/09		7.36E-02 ±	2.14E-01	3.48E-01		-8.80E-02 ±	2.20E-01	3.56E-01
04/27/09		-1.16E-01 ±	2.53E-01	4.09E-01		3.85E-03 ±	2.14E-01	3.51E-01
05/11/09		-1.07E-02 ±	2.37E-01	3.89E-01		1.45E-01 ±	2.05E-01	3.29E-01
05/18/09		7.58E-02 ±	2.37E-01	3.85E-01		8.04E-02 ±	2.24E-01	3.64E-01
06/08/09		-3.17E-02 ±	2.38E-01	3.89E-01		7.70E-02 ±	2.07E-01	3.36E-01
06/22/09		-9.92E-02 ±	2.32E-01	3.75E-01		-2.53E-02 ±	2.14E-01	3.51E-01
07/13/09		7.96E-03 ±	2.30E-01	3.77E-01		-8.13E-02 ±	2.13E-01	3.46E-01
07/27/09		-1.52E-03 ±	2.25E-01	3.71E-01		1.22E-04 ±	2.02E-01	3.42E-01
08/10/09		6.60E-02 ±	2.61E-01	4.26E-01		3.98E-02 ±	2.36E-01	3.86E-01
08/24/09		-1.35E-01 ±	2.63E-01	4.25E-01		-1.85E-02 ±	2.34E-01	3.84E-01
09/14/09		1.72E-02 ±	1.80E-01	2.94E-01		9.92E-02 ±	2.34E-01	3.79E-01
09/28/09		-1.54E-01 ±	2.64E-01	4.25E-01		2.92E-02 ±	2.25E-01	3.68E-01
10/12/09		-7.19E-03 ±	2.28E-01	3.74E-01		-4.95E-02 ±	1.66E-01	2.69E-01
11/16/09		-1.12E-01 ±	2.59E-01	4.21E-01		1.90E-02 ±	2.43E-01	3.98E-01
12/14/09		5.22E-02 ±	1.60E-01	2.59E-01		-3.96E-02 ±	1.92E-01	3.14E-01

TABLE A-11.2  
**IODINE 131 IN MILK**

**Summary**

Results in pCi/liter, decay corrected to sample collection time

Location	Average Activity	Activity Low	Activity High	Average MDA	Number Samples	Number Positive IDs
Indicator- St 36	2.03E-02	-8.80E-02	1.46E-01	3.50E-01	18	0
Control - St 9b	-2.43E-02	-1.54E-01	7.58E-02	3.80E-01	18	0

TABLE A-12.1  
**GAMMA SPECTROMETRY RESULTS OF MILK**  
**STATION 9b - CONTROL**

Results in pCi per liter

Collection Date: 1/12/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-8.11E-01 ±	3.82E+00	6.19E+00
CO-60		2.29E+00 ±	4.04E+00	6.30E+00
ZN-65		-9.00E-01 ±	6.99E+00	1.13E+01
MN-54		-9.80E-02 ±	3.15E+00	5.16E+00
CS-134		-1.39E+00 ±	3.20E+00	5.10E+00
CS-137		6.84E-01 ±	3.14E+00	5.07E+00
BALA140		0.00E+00 ±	4.88E+00	8.14E+00
K-40	+	1.46E+03 ±	1.18E+02	7.29E+01
FE-59		2.76E+00 ±	7.42E+00	1.16E+01
RA-226		1.73E-01 ±	7.75E+01	1.37E+02
ZRNB-95		-1.02E+00 ±	3.22E+00	5.16E+00
BE-7		2.17E+01 ±	2.37E+01	3.63E+01

Collection Date: 2/23/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.26E-02 ±	3.11E+00	5.11E+00
CO-60		-7.94E-01 ±	3.81E+00	6.12E+00
ZN-65		-1.69E+00 ±	7.40E+00	1.19E+01
MN-54		6.59E-01 ±	2.54E+00	4.03E+00
CS-134		-1.37E+00 ±	2.86E+00	4.50E+00
CS-137		5.01E-01 ±	2.54E+00	4.07E+00
BALA140		-1.22E+00 ±	4.63E+00	7.33E+00
K-40	+	1.49E+03 ±	1.28E+02	8.09E+01
FE-59		-1.85E+00 ±	8.10E+00	1.29E+01
RA-226		-6.98E+00 ±	6.92E+01	1.09E+02
ZRNB-95		8.98E-02 ±	2.28E+00	3.73E+00
BE-7		9.70E+00 ±	2.07E+01	3.24E+01

Collection Date: 3/16/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		2.00E+00 ±	2.18E+00	3.17E+00
CO-60		-1.64E+00 ±	3.74E+00	5.85E+00
ZN-65		-4.38E+00 ±	8.73E+00	1.37E+01
MN-54		-7.44E-01 ±	2.91E+00	4.65E+00
CS-134		-1.32E+00 ±	2.92E+00	4.61E+00
CS-137		-4.41E-01 ±	2.25E+00	3.60E+00
BALA140		0.00E+00 ±	8.84E-01	1.47E+00
K-40	+	1.45E+03 ±	1.23E+02	7.79E+01
FE-59		0.00E+00 ±	8.45E+00	1.41E+01
RA-226		3.78E+00 ±	5.78E+01	1.04E+02
ZRNB-95		5.94E-01 ±	2.64E+00	4.23E+00
BE-7		-5.03E+00 ±	1.93E+01	3.08E+01

Collection Date: 4/13/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-1.32E+00 ±	3.44E+00	5.49E+00
CO-60		0.00E+00 ±	5.21E+00	8.68E+00
ZN-65		-1.57E+00 ±	7.56E+00	1.22E+01
MN-54		-8.82E-03 ±	2.80E+00	4.60E+00
CS-134		5.23E-03 ±	2.05E+00	3.38E+00
CS-137		-4.41E-01 ±	2.67E+00	4.30E+00
BALA140		0.00E+00 ±	3.79E+00	6.32E+00
K-40	+	1.50E+03 ±	1.21E+02	6.76E+01
FE-59		1.80E+00 ±	7.95E+00	1.27E+01
RA-226		2.74E+00 ±	5.65E+01	1.02E+02
ZRNB-95		8.80E-01 ±	2.60E+00	4.11E+00
BE-7		9.04E+00 ±	2.09E+01	3.28E+01

Collection Date: 4/27/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		5.32E-01 ±	3.09E+00	5.00E+00
CO-60		4.75E-01 ±	2.74E+00	4.39E+00
ZN-65		1.56E+00 ±	6.55E+00	1.05E+01
MN-54		0.00E+00 ±	2.60E+00	4.33E+00
CS-134		9.95E-01 ±	2.42E+00	3.80E+00
CS-137		-4.62E-01 ±	2.89E+00	4.66E+00
BALA140		-4.01E-01 ±	3.68E+00	5.93E+00
K-40	+	1.45E+03 ±	1.19E+02	6.91E+01
FE-59		5.31E-01 ±	8.13E+00	1.33E+01
RA-226		-1.55E+00 ±	5.91E+01	1.04E+02
ZRNB-95		3.29E-01 ±	2.40E+00	3.87E+00
BE-7		0.00E+00 ±	1.96E+01	3.26E+01

Collection Date: 5/11/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		3.20E-02 ±	2.15E+00	3.52E+00
CO-60		-1.36E+00 ±	4.21E+00	6.70E+00
ZN-65		-7.20E-02 ±	8.23E+00	1.35E+01
MN-54		-1.30E+00 ±	2.88E+00	4.49E+00
CS-134		1.60E+00 ±	3.12E+00	4.91E+00
CS-137		-6.85E-01 ±	3.13E+00	5.04E+00
BALA140		3.11E+00 ±	3.69E+00	5.12E+00
K-40	+	1.41E+03 ±	1.19E+02	7.18E+01
FE-59		-1.49E-01 ±	8.08E+00	1.33E+01
RA-226		2.61E+01 ±	6.03E+01	1.06E+02
ZRNB-95		-9.19E-02 ±	2.34E+00	3.83E+00
BE-7		1.56E+00 ±	1.93E+01	3.14E+01

TABLE A-12.1  
**GAMMA SPECTROMETRY RESULTS OF MILK**  
**STATION 9b - CONTROL**  
 Results in pCi per liter

Collection Date: 5/18/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.00E+00 ±	3.70E+00	5.96E+00
CO-60		1.87E+00 ±	3.56E+00	5.49E+00
ZN-65		-1.43E+00 ±	7.03E+00	1.13E+01
MN-54		-7.38E-01 ±	3.20E+00	5.13E+00
CS-134		5.33E-01 ±	2.79E+00	4.50E+00
CS-137		0.00E+00 ±	3.10E+00	5.17E+00
BALA140		0.00E+00 ±	3.78E+00	6.29E+00
K-40	+	1.51E+03 ±	1.24E+02	7.12E+01
FE-59		1.68E+00 ±	8.55E+00	1.37E+01
RA-226		-3.56E+00 ±	6.93E+01	1.15E+02
ZRNB-95		1.61E+00 ±	2.60E+00	3.95E+00
BE-7		-6.81E+00 ±	2.36E+01	3.78E+01

Collection Date: 6/8/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-6.53E-01 ±	3.05E+00	4.93E+00
CO-60		3.42E+00 ±	3.61E+00	5.27E+00
ZN-65		1.92E-01 ±	6.02E+00	9.85E+00
MN-54		1.19E-02 ±	2.75E+00	4.52E+00
CS-134		-4.38E-01 ±	2.78E+00	4.50E+00
CS-137		-3.21E-02 ±	2.28E+00	3.74E+00
BALA140		-8.98E-01 ±	4.56E+00	7.29E+00
K-40	+	1.60E+03 ±	1.24E+02	6.57E+01
FE-59		-2.57E+00 ±	8.23E+00	1.30E+01
RA-226		4.47E+00 ±	6.33E+01	1.12E+02
ZRNB-95		1.29E+00 ±	2.98E+00	4.68E+00
BE-7		1.37E+01 ±	1.91E+01	2.88E+01

Collection Date: 6/22/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.25E+00 ±	3.87E+00	6.22E+00
CO-60		-5.18E-01 ±	3.87E+00	6.27E+00
ZN-65		2.03E+00 ±	7.87E+00	1.26E+01
MN-54		1.52E+00 ±	2.68E+00	4.10E+00
CS-134		-1.12E+00 ±	3.17E+00	5.07E+00
CS-137		1.79E+00 ±	3.13E+00	4.85E+00
BALA140		2.10E+00 ±	3.25E+00	4.69E+00
K-40	+	1.55E+03 ±	1.22E+02	6.51E+01
FE-59		3.33E+00 ±	7.95E+00	1.23E+01
RA-226		2.46E+01 ±	5.97E+01	1.05E+02
ZRNB-95		1.27E+00 ±	2.73E+00	4.25E+00
BE-7		6.36E+00 ±	1.54E+01	2.39E+01

Collection Date: 7/13/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-1.18E+00 ±	3.07E+00	4.88E+00
CO-60		2.60E+00 ±	3.84E+00	5.84E+00
ZN-65		-2.10E+00 ±	7.15E+00	1.14E+01
MN-54		-1.99E-02 ±	2.72E+00	4.46E+00
CS-134		6.42E-01 ±	2.53E+00	4.06E+00
CS-137		2.03E+00 ±	2.63E+00	3.90E+00
BALA140		0.00E+00 ±	3.61E+00	6.01E+00
K-40	+	1.52E+03 ±	1.24E+02	7.12E+01
FE-59		-3.04E-01 ±	8.88E+00	1.45E+01
RA-226		-2.52E+01 ±	1.07E+02	1.18E+02
ZRNB-95		1.42E+00 ±	3.04E+00	4.76E+00
BE-7		-6.42E-01 ±	2.02E+01	3.31E+01

Collection Date: 7/27/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.50E-01 ±	3.22E+00	5.27E+00
CO-60		1.44E-01 ±	3.53E+00	5.78E+00
ZN-65		-1.27E+00 ±	6.44E+00	1.03E+01
MN-54		3.44E-01 ±	3.04E+00	4.94E+00
CS-134		0.00E+00 ±	3.48E+00	5.79E+00
CS-137		-2.57E-01 ±	2.73E+00	4.44E+00
BALA140		-9.70E-01 ±	4.00E+00	6.32E+00
K-40	+	1.48E+03 ±	1.21E+02	6.84E+01
FE-59		-1.44E+00 ±	9.27E+00	1.50E+01
RA-226		-1.41E+00 ±	6.46E+01	1.12E+02
ZRNB-95		-1.22E-02 ±	2.52E+00	4.14E+00
BE-7		-5.23E+00 ±	2.39E+01	3.85E+01

Collection Date: 8/10/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.56E+00 ±	3.75E+00	5.98E+00
CO-60		5.30E-01 ±	3.56E+00	5.75E+00
ZN-65		2.02E+00 ±	6.86E+00	1.09E+01
MN-54		-7.12E-02 ±	2.59E+00	4.24E+00
CS-134		-6.33E-01 ±	2.64E+00	4.25E+00
CS-137		3.56E-01 ±	2.88E+00	4.67E+00
BALA140		2.70E-01 ±	3.55E+00	5.75E+00
K-40	+	1.45E+03 ±	1.20E+02	6.96E+01
FE-59		-2.86E+00 ±	9.40E+00	1.49E+01
RA-226		4.24E+00 ±	6.14E+01	1.10E+02
ZRNB-95		-1.03E-01 ±	2.82E+00	4.62E+00
BE-7		4.81E+00 ±	2.35E+01	3.79E+01

TABLE A-12.1  
**GAMMA SPECTROMETRY RESULTS OF MILK**  
**STATION 9b - CONTROL**

Results in pCi per liter

Collection Date: 8/24/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.60E+00 ±	3.03E+00	4.74E+00
CO-60		1.36E+00 ±	3.62E+00	5.70E+00
ZN-65		3.94E+00 ±	6.65E+00	1.02E+01
MN-54		-1.17E+00 ±	3.57E+00	5.70E+00
CS-134		1.65E+00 ±	2.70E+00	4.18E+00
CS-137		2.00E-01 ±	2.57E+00	4.18E+00
BALA140		-6.88E-01 ±	3.99E+00	6.37E+00
K-40	+	1.64E+03 ±	1.29E+02	7.33E+01
FE-59		4.53E+00 ±	8.71E+00	1.34E+01
RA-226		2.68E+01 ±	6.19E+01	1.08E+02
ZRNB-95		1.12E-02 ±	3.03E+00	4.98E+00
BE-7		5.42E+00 ±	2.37E+01	3.81E+01

Collection Date: 9/14/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-1.15E-01 ±	3.59E+00	5.89E+00
CO-60		1.82E+00 ±	3.34E+00	5.12E+00
ZN-65		0.00E+00 ±	1.40E+01	2.33E+01
MN-54		5.48E-01 ±	2.65E+00	4.25E+00
CS-134		-6.25E-01 ±	2.77E+00	4.45E+00
CS-137		-5.90E-01 ±	3.11E+00	5.01E+00
BALA140		-6.14E-02 ±	3.43E+00	5.61E+00
K-40	+	1.45E+03 ±	1.24E+02	7.73E+01
FE-59		-8.25E-02 ±	6.58E+00	1.08E+01
RA-226		-9.31E+00 ±	7.65E+01	1.15E+02
ZRNB-95		-9.37E-01 ±	2.82E+00	4.47E+00
BE-7		-6.93E+00 ±	2.33E+01	3.73E+01

Collection Date: 9/28/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		2.16E+00 ±	2.97E+00	4.56E+00
CO-60		-9.85E-01 ±	4.04E+00	6.49E+00
ZN-65		-4.55E-02 ±	6.92E+00	1.14E+01
MN-54		-3.50E-01 ±	2.52E+00	4.07E+00
CS-134		-1.61E+00 ±	3.18E+00	5.02E+00
CS-137		-1.66E+00 ±	3.36E+00	5.27E+00
BALA140		2.05E-01 ±	2.95E+00	4.78E+00
K-40	+	1.41E+03 ±	1.20E+02	7.24E+01
FE-59		-8.74E-02 ±	7.70E+00	1.26E+01
RA-226		-2.77E+01 ±	1.16E+02	1.22E+02
ZRNB-95		-3.76E-01 ±	2.65E+00	4.29E+00
BE-7		7.20E+00 ±	2.10E+01	3.34E+01

Collection Date: 10/12/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-5.09E-01 ±	2.40E+00	3.86E+00
CO-60		8.65E-01 ±	3.23E+00	5.12E+00
ZN-65		7.93E-01 ±	6.92E+00	1.12E+01
MN-54		-1.35E+00 ±	3.29E+00	5.20E+00
CS-134		-1.42E-01 ±	2.72E+00	4.45E+00
CS-137		1.24E+00 ±	3.07E+00	4.84E+00
BALA140		-1.49E+00 ±	4.23E+00	6.58E+00
K-40	+	1.41E+03 ±	1.15E+02	6.25E+01
FE-59		-6.09E-02 ±	8.49E+00	1.39E+01
RA-226		-1.56E+01 ±	8.51E+01	1.14E+02
ZRNB-95		-1.11E+00 ±	3.20E+00	5.08E+00
BE-7		1.57E+00 ±	1.79E+01	2.91E+01

Collection Date: 11/16/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-9.13E-02 ±	3.48E+00	5.70E+00
CO-60		2.18E+00 ±	3.76E+00	5.79E+00
ZN-65		1.36E+00 ±	6.14E+00	9.81E+00
MN-54		-9.82E-02 ±	2.87E+00	4.70E+00
CS-134		-6.60E-01 ±	2.83E+00	4.56E+00
CS-137		-8.69E-01 ±	3.26E+00	5.22E+00
BALA140		-8.15E-01 ±	3.52E+00	5.55E+00
K-40	+	1.45E+03 ±	1.19E+02	6.70E+01
FE-59		-1.10E-01 ±	6.06E+00	9.93E+00
RA-226		-3.30E+01 ±	1.17E+02	1.13E+02
ZRNB-95		-7.59E-01 ±	2.94E+00	4.70E+00
BE-7		3.67E+00 ±	2.40E+01	3.89E+01

Collection Date: 12/14/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-2.09E+00 ±	3.69E+00	5.81E+00
CO-60		1.11E+00 ±	3.62E+00	5.74E+00
ZN-65		-1.82E+00 ±	7.66E+00	1.23E+01
MN-54		2.54E-01 ±	2.35E+00	3.81E+00
CS-134		1.83E-01 ±	3.07E+00	5.03E+00
CS-137		-2.60E-01 ±	2.68E+00	4.36E+00
BALA140		-7.83E-01 ±	3.48E+00	5.51E+00
K-40	+	1.40E+03 ±	1.19E+02	7.32E+01
FE-59		3.64E+00 ±	8.24E+00	1.28E+01
RA-226		5.81E+00 ±	6.21E+01	1.11E+02
ZRNB-95		1.34E-01 ±	2.62E+00	4.29E+00
BE-7		-6.56E+00 ±	2.43E+01	3.90E+01

TABLE A-12.1  
**GAMMA SPECTROMETRY RESULTS OF MILK**  
**STATION 36 - INDICATOR**  
 Results in pCi per liter

Collection Date: 1/12/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		-1.54E+00 ±	4.46E+00	7.20E+00
CO-60		2.19E+00 ±	3.63E+00	5.61E+00
ZN-65		-2.76E+00 ±	6.55E+00	1.03E+01
MN-54		1.67E+00 ±	2.73E+00	4.21E+00
CS-134		-6.66E-01 ±	2.66E+00	4.28E+00
CS-137		-7.80E-01 ±	3.49E+00	5.64E+00
BALA140		-3.95E-01 ±	3.86E+00	6.25E+00
K-40	+	1.62E+03 ±	1.29E+02	8.37E+01
FE-59		-5.39E+00 ±	9.86E+00	1.54E+01
RA-226		-3.15E+00 ±	8.11E+01	1.38E+02
ZRNB-95		1.08E+00 ±	2.88E+00	4.57E+00
BE-7		1.06E+01 ±	2.45E+01	3.91E+01

Collection Date: 2/23/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		1.62E+00 ±	2.74E+00	4.25E+00
CO-60		2.25E-01 ±	3.17E+00	5.16E+00
ZN-65		1.25E+00 ±	6.41E+00	1.03E+01
MN-54		8.59E-02 ±	2.78E+00	4.56E+00
CS-134		-1.12E+00 ±	2.64E+00	4.17E+00
CS-137		-3.78E-02 ±	2.57E+00	4.22E+00
BALA140		-4.03E-01 ±	3.23E+00	5.18E+00
K-40	+	1.43E+03 ±	1.21E+02	7.33E+01
FE-59		-3.60E-01 ±	8.15E+00	1.33E+01
RA-226		-9.37E+00 ±	7.40E+01	1.12E+02
ZRNB-95		1.84E+00 ±	2.79E+00	4.25E+00
BE-7		-3.80E-01 ±	1.91E+01	3.13E+01

Collection Date: 3/16/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		-2.51E-02 ±	3.50E+00	5.75E+00
CO-60		-8.55E-01 ±	4.28E+00	6.91E+00
ZN-65		8.70E-02 ±	7.98E+00	1.31E+01
MN-54		8.32E-01 ±	3.23E+00	5.18E+00
CS-134		2.15E-01 ±	4.05E+00	6.63E+00
CS-137		-5.17E-01 ±	3.59E+00	5.82E+00
BALA140		-3.21E-01 ±	4.22E+00	6.87E+00
K-40	+	1.39E+03 ±	1.22E+02	7.73E+01
FE-59		1.99E+00 ±	7.09E+00	1.12E+01
RA-226		-1.02E+01 ±	7.32E+01	1.09E+02
ZRNB-95		5.92E-01 ±	2.94E+00	4.73E+00
BE-7		1.62E+00 ±	2.20E+01	3.60E+01

Collection Date: 4/13/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		1.40E+00 ±	3.15E+00	4.99E+00
CO-60		-5.57E-01 ±	3.29E+00	5.30E+00
ZN-65		0.00E+00 ±	9.22E+00	1.54E+01
MN-54		7.27E-01 ±	2.53E+00	4.01E+00
CS-134		1.69E-01 ±	2.51E+00	4.11E+00
CS-137		-7.00E-01 ±	3.26E+00	5.24E+00
BALA140		-1.63E+00 ±	4.06E+00	6.27E+00
K-40	+	1.39E+03 ±	1.23E+02	7.86E+01
FE-59		-1.67E-01 ±	7.63E+00	1.25E+01
RA-226		-4.62E+01 ±	1.52E+02	1.11E+02
ZRNB-95		-1.09E-01 ±	2.88E+00	4.72E+00
BE-7		1.02E+01 ±	2.30E+01	3.64E+01

Collection Date: 4/27/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		1.25E-02 ±	2.25E+00	3.70E+00
CO-60		1.28E-01 ±	3.28E+00	5.37E+00
ZN-65		-3.04E+00 ±	7.06E+00	1.11E+01
MN-54		7.78E-01 ±	2.53E+00	4.00E+00
CS-134		7.82E-01 ±	2.59E+00	4.12E+00
CS-137		-2.73E-01 ±	2.76E+00	4.48E+00
BALA140		9.14E-01 ±	3.86E+00	6.10E+00
K-40	+	1.61E+03 ±	1.26E+02	7.05E+01
FE-59		2.59E+00 ±	7.86E+00	1.24E+01
RA-226		2.44E+01 ±	6.08E+01	1.07E+02
ZRNB-95		4.61E-01 ±	2.84E+00	4.58E+00
BE-7		2.86E+00 ±	2.06E+01	3.34E+01

Collection Date: 5/11/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		1.08E+00 ±	2.54E+00	3.99E+00
CO-60		1.64E+00 ±	3.75E+00	5.86E+00
ZN-65		-1.43E+00 ±	7.51E+00	1.21E+01
MN-54		1.11E+00 ±	2.49E+00	3.86E+00
CS-134		-1.17E+00 ±	2.78E+00	4.40E+00
CS-137		3.90E-01 ±	2.86E+00	4.63E+00
BALA140		0.00E+00 ±	6.24E+00	1.04E+01
K-40	+	1.38E+03 ±	1.20E+02	7.54E+01
FE-59		1.93E+00 ±	8.57E+00	1.37E+01
RA-226		-6.40E+00 ±	6.68E+01	1.07E+02
ZRNB-95		-4.47E-02 ±	2.55E+00	4.19E+00
BE-7		-6.62E+00 ±	2.57E+01	4.14E+01

TABLE A-12.1  
**GAMMA SPECTROMETRY RESULTS OF MILK**  
**STATION 36 - INDICATOR**

Results in pCi per liter

Collection Date: 5/18/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-1.32E+00 ±	3.75E+00	6.01E+00
CO-60		9.14E-01 ±	3.77E+00	6.03E+00
ZN-65		0.00E+00 ±	6.88E+00	1.15E+01
MN-54		-7.03E-01 ±	2.93E+00	4.69E+00
CS-134		-2.16E-01 ±	3.14E+00	5.13E+00
CS-137		-4.49E-02 ±	2.48E+00	4.06E+00
BALA140		-9.37E-02 ±	3.82E+00	6.26E+00
K-40	+	1.72E+03 ±	1.28E+02	6.55E+01
FE-59		0.00E+00 ±	8.35E+00	1.39E+01
RA-226		-3.06E+00 ±	6.65E+01	1.12E+02
ZRNB-95		2.24E+00 ±	2.80E+00	4.18E+00
BE-7		-4.05E+00 ±	2.00E+01	3.22E+01

Collection Date: 6/8/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.42E+00 ±	3.26E+00	5.17E+00
CO-60		-1.96E-01 ±	3.84E+00	6.28E+00
ZN-65		-2.12E+00 ±	7.87E+00	1.26E+01
MN-54		-1.64E-01 ±	2.54E+00	4.14E+00
CS-134		1.65E+00 ±	2.52E+00	3.87E+00
CS-137		0.00E+00 ±	2.46E+00	4.09E+00
BALA140		0.00E+00 ±	7.97E-01	1.33E+00
K-40	+	1.54E+03 ±	1.24E+02	7.05E+01
FE-59		-1.95E+00 ±	9.13E+00	1.46E+01
RA-226		-2.23E+01 ±	9.96E+01	1.17E+02
ZRNB-95		9.58E-04 ±	2.69E+00	4.43E+00
BE-7		1.31E+01 ±	2.41E+01	3.77E+01

Collection Date: 6/22/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.94E+00 ±	3.35E+00	5.25E+00
CO-60		0.00E+00 ±	4.57E+00	7.62E+00
ZN-65		-2.25E+00 ±	8.05E+00	1.29E+01
MN-54		-7.18E-01 ±	2.67E+00	4.25E+00
CS-134		8.13E-01 ±	2.00E+00	3.11E+00
CS-137		-4.51E-01 ±	2.82E+00	4.56E+00
BALA140		-1.32E+00 ±	3.90E+00	6.09E+00
K-40	+	1.51E+03 ±	1.21E+02	6.75E+01
FE-59		3.57E+00 ±	7.10E+00	1.08E+01
RA-226		-1.59E+01 ±	8.84E+01	1.17E+02
ZRNB-95		1.63E-01 ±	1.94E+00	3.14E+00
BE-7		-3.49E+00 ±	2.19E+01	3.54E+01

Collection Date: 7/13/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		4.09E-02 ±	3.39E+00	5.56E+00
CO-60		2.06E+00 ±	3.71E+00	5.72E+00
ZN-65		-1.02E+00 ±	7.30E+00	1.18E+01
MN-54		2.94E-01 ±	2.59E+00	4.20E+00
CS-134		-6.37E-01 ±	2.73E+00	4.38E+00
CS-137		7.97E-01 ±	2.60E+00	4.11E+00
BALA140		-6.88E-01 ±	3.20E+00	5.05E+00
K-40	+	1.40E+03 ±	1.21E+02	7.45E+01
FE-59		-2.56E+00 ±	8.06E+00	1.27E+01
RA-226		1.29E+01 ±	6.18E+01	1.10E+02
ZRNB-95		-1.40E-01 ±	2.63E+00	4.29E+00
BE-7		9.09E+00 ±	1.99E+01	3.12E+01

Collection Date: 7/27/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		-7.43E-01 ±	3.53E+00	5.71E+00
CO-60		3.37E+00 ±	3.40E+00	4.89E+00
ZN-65		1.27E+00 ±	6.89E+00	1.11E+01
MN-54		-1.82E-01 ±	2.73E+00	4.46E+00
CS-134		8.98E-02 ±	2.09E+00	3.42E+00
CS-137		-9.59E-01 ±	3.19E+00	5.08E+00
BALA140		-1.07E+00 ±	3.81E+00	5.98E+00
K-40	+	1.52E+03 ±	1.23E+02	6.87E+01
FE-59		8.37E-01 ±	7.69E+00	1.25E+01
RA-226		-3.88E+00 ±	6.75E+01	1.12E+02
ZRNB-95		1.65E+00 ±	2.85E+00	4.39E+00
BE-7		-2.13E-01 ±	2.25E+01	3.69E+01

Collection Date: 8/10/2009				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.58E-02 ±	2.94E+00	4.83E+00
CO-60		6.51E-02 ±	3.54E+00	5.81E+00
ZN-65		-1.05E+00 ±	5.93E+00	9.53E+00
MN-54		7.15E-01 ±	2.88E+00	4.61E+00
CS-134		-1.20E+00 ±	3.27E+00	5.22E+00
CS-137		3.13E-01 ±	3.46E+00	5.64E+00
BALA140		8.19E-01 ±	3.44E+00	5.41E+00
K-40	+	1.59E+03 ±	1.27E+02	7.19E+01
FE-59		2.23E+00 ±	8.02E+00	1.27E+01
RA-226		-2.65E+01 ±	1.04E+02	1.13E+02
ZRNB-95		0.00E+00 ±	3.87E+00	6.45E+00
BE-7		7.14E+00 ±	2.11E+01	3.35E+01



TABLE A-12.1  
**GAMMA SPECTROMETRY RESULTS OF MILK**  
**STATION 36 - INDICATOR**  
 Results in pCi per liter

Collection Date: 8/24/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		1.16E+00 ±	2.82E+00	4.46E+00
CO-60		-2.69E-01 ±	3.20E+00	5.20E+00
ZN-65		-1.38E+00 ±	6.85E+00	1.10E+01
MN-54		-6.41E-01 ±	2.88E+00	4.62E+00
CS-134		-9.05E-01 ±	2.94E+00	4.70E+00
CS-137		1.06E+00 ±	2.38E+00	3.68E+00
BALA140		7.79E-02 ±	2.89E+00	4.72E+00
K-40	+	1.35E+03 ±	1.17E+02	7.24E+01
FE-59		-2.70E+00 ±	9.10E+00	1.44E+01
RA-226		3.37E+00 ±	6.42E+01	1.14E+02
ZRNB-95		-4.93E-01 ±	3.02E+00	4.88E+00
BE-7		0.00E+00 ±	2.52E+01	4.19E+01

Collection Date: 9/14/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		-1.31E+00 ±	3.60E+00	5.76E+00
CO-60		7.92E-02 ±	3.37E+00	5.53E+00
ZN-65		3.57E+00 ±	7.41E+00	1.16E+01
MN-54		-5.26E-01 ±	2.43E+00	3.89E+00
CS-134		0.00E+00 ±	3.34E+00	5.57E+00
CS-137		-1.52E-01 ±	2.35E+00	3.83E+00
BALA140		-1.65E+00 ±	4.49E+00	7.01E+00
K-40	+	1.37E+03 ±	1.17E+02	7.03E+01
FE-59		-1.11E-01 ±	7.93E+00	1.30E+01
RA-226		2.63E+01 ±	6.41E+01	1.12E+02
ZRNB-95		0.00E+00 ±	3.86E+00	6.44E+00
BE-7		9.49E+00 ±	2.18E+01	3.43E+01

Collection Date: 9/28/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		0.00E+00 ±	3.71E+00	6.19E+00
CO-60		0.00E+00 ±	4.32E+00	7.20E+00
ZN-65		-2.35E-01 ±	6.65E+00	1.09E+01
MN-54		1.69E+00 ±	2.23E+00	3.24E+00
CS-134		-1.42E-01 ±	2.87E+00	4.70E+00
CS-137		1.23E+00 ±	3.00E+00	4.72E+00
BALA140		-2.85E-01 ±	3.61E+00	5.85E+00
K-40	+	1.56E+03 ±	1.22E+02	6.49E+01
FE-59		1.06E-01 ±	7.54E+00	1.24E+01
RA-226		-1.32E+01 ±	7.76E+01	1.09E+02
ZRNB-95		1.60E+00 ±	2.81E+00	4.32E+00
BE-7		2.42E-01 ±	2.20E+01	3.61E+01

Collection Date: 10/12/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		1.17E+00 ±	3.20E+00	5.10E+00
CO-60		4.35E+00 ±	3.52E+00	4.90E+00
ZN-65		-3.42E+00 ±	8.62E+00	1.37E+01
MN-54		0.00E+00 ±	2.87E+00	4.78E+00
CS-134		-9.37E-01 ±	2.85E+00	4.55E+00
CS-137		-3.45E-02 ±	2.97E+00	4.87E+00
BALA140		-6.33E-02 ±	3.87E+00	6.35E+00
K-40	+	1.45E+03 ±	1.21E+02	7.05E+01
FE-59		3.92E+00 ±	8.08E+00	1.24E+01
RA-226		-1.26E+01 ±	8.75E+01	1.22E+02
ZRNB-95		2.67E-01 ±	2.53E+00	4.10E+00
BE-7		-7.70E+00 ±	2.34E+01	3.73E+01

Collection Date: 11/16/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		-1.13E+00 ±	3.71E+00	5.97E+00
CO-60		1.72E+00 ±	3.60E+00	5.59E+00
ZN-65		5.12E-02 ±	5.53E+00	9.08E+00
MN-54		6.21E-01 ±	2.76E+00	4.42E+00
CS-134		-3.61E-01 ±	2.84E+00	4.62E+00
CS-137		3.35E-01 ±	2.89E+00	4.70E+00
BALA140		6.92E-01 ±	3.64E+00	5.79E+00
K-40	+	1.45E+03 ±	1.20E+02	6.83E+01
FE-59		3.10E+00 ±	8.31E+00	1.30E+01
RA-226		-6.24E+00 ±	6.68E+01	1.07E+02
ZRNB-95		-8.09E-01 ±	3.09E+00	4.95E+00
BE-7		0.00E+00 ±	2.59E+01	4.31E+01

Collection Date: 12/14/2009

Nuclide	RQ	Activity	Error	MDA
BA-133		1.58E+00 ±	3.27E+00	5.16E+00
CO-60		3.77E+00 ±	3.49E+00	4.97E+00
ZN-65		-3.31E+00 ±	7.58E+00	1.19E+01
MN-54		1.03E+00 ±	2.55E+00	3.97E+00
CS-134		0.00E+00 ±	2.87E+00	4.79E+00
CS-137		1.79E-01 ±	2.93E+00	4.79E+00
BALA140		-2.59E-01 ±	3.18E+00	5.15E+00
K-40	+	1.55E+03 ±	1.23E+02	6.91E+01
FE-59		-1.77E+00 ±	7.97E+00	1.27E+01
RA-226		-3.77E+00 ±	6.99E+01	1.16E+02
ZRNB-95		5.25E-02 ±	2.97E+00	4.88E+00
BE-7		1.32E+01 ±	2.17E+01	3.37E+01

TABLE A-12.2  
**GAMMA SPECTROMETRY RESULTS OF MILK - SUMMARY**  
 Results in pCi per liter

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BA-133	Ind	2.98E-01	-1.54E+00	1.94E+00	5.00E+00	18	0
BA-133	Cntl	1.96E-01	-2.09E+00	2.16E+00	4.86E+00	18	0
BALA140	Ind	-3.15E-01	-1.65E+00	9.14E-01	5.58E+00	18	0
BALA140	Cntl	-9.10E-02	-1.49E+00	3.11E+00	5.53E+00	18	0
BE-7	Ind	3.06E+00	-7.70E+00	1.32E+01	3.42E+01	18	0
BE-7	Cntl	2.97E+00	-6.93E+00	2.17E+01	3.22E+01	18	0
CO-60	Ind	1.04E+00	-8.55E-01	4.35E+00	5.47E+00	18	0
CO-60	Cntl	7.43E-01	-1.64E+00	3.42E+00	5.60E+00	18	0
CS-134	Ind	-2.02E-01	-1.20E+00	1.65E+00	4.30E+00	18	0
CS-134	Cntl	-2.06E-01	-1.61E+00	1.65E+00	4.32E+00	18	0
CS-137	Ind	1.98E-02	-9.59E-01	1.23E+00	4.43E+00	18	0
CS-137	Cntl	6.13E-02	-1.66E+00	2.03E+00	4.34E+00	18	0
FE-59	Ind	2.92E-01	-5.39E+00	3.92E+00	1.23E+01	18	0
FE-59	Cntl	4.87E-01	-2.86E+00	4.53E+00	1.24E+01	18	0
K-40	Ind	1.49E+03	1.35E+03	1.72E+03	6.80E+01	18	18
K-40	Cntl	1.48E+03	1.40E+03	1.64E+03	6.72E+01	18	18
MN-54	Ind	3.68E-01	-7.18E-01	1.69E+00	4.06E+00	18	0
MN-54	Cntl	-1.45E-01	-1.35E+00	1.52E+00	4.34E+00	18	0
RA-226	Ind	-6.43E+00	-4.62E+01	2.63E+01	1.08E+02	18	0
RA-226	Cntl	-1.43E+00	-3.30E+01	2.68E+01	1.06E+02	18	0
ZN-65	Ind	-8.77E-01	-3.42E+00	3.57E+00	1.10E+01	18	0
ZN-65	Cntl	-1.88E-01	-4.38E+00	3.94E+00	1.15E+01	18	0
ZRNB-95	Ind	4.63E-01	-8.09E-01	2.24E+00	4.39E+00	18	0
ZRNB-95	Cntl	1.79E-01	-1.11E+00	1.61E+00	4.16E+00	18	0

TABLE A-15.1  
**GAMMA SPECTROMETRY RESULTS OF ROOTS**

Results in pCi/ kilogram (wet)  
 Station 37 is Indicator - Station 9c is Control

Station 37 Onion collected 6/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.75E+03 ±	2.41E+02	1.45E+02
MN-54		-7.42E-01 ±	5.21E+00	8.32E+00
CO-58		-7.64E-01 ±	4.64E+00	7.35E+00
FE-59		2.01E+00 ±	2.11E+01	3.42E+01
CO-60		4.29E+00 ±	7.42E+00	1.09E+01
ZN-65		-5.47E+00 ±	1.56E+01	2.41E+01
ZRNB-95		-1.95E-01 ±	6.09E+00	9.97E+00
I-131		3.32E+00 ±	4.31E+00	6.17E+00
CS-134		7.42E-01 ±	4.64E+00	7.40E+00
CS-137		-1.55E+00 ±	6.29E+00	9.93E+00
BALA140		8.68E-01 ±	5.73E+00	8.97E+00

Station 9c Onion collected 6/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.14E+03 ±	2.09E+02	1.39E+02
MN-54		0.00E+00 ±	1.16E+01	1.93E+01
CO-58		-1.75E+00 ±	6.60E+00	1.03E+01
FE-59		-5.41E+00 ±	1.86E+01	2.88E+01
CO-60		-8.85E-01 ±	8.87E+00	1.43E+01
ZN-65		1.88E-01 ±	1.61E+01	2.64E+01
ZRNB-95		7.50E-01 ±	5.68E+00	9.10E+00
I-131		1.69E+00 ±	5.30E+00	8.31E+00
CS-134		0.00E+00 ±	7.85E+00	1.31E+01
CS-137		-8.32E-01 ±	6.77E+00	1.09E+01
BALA140		0.00E+00 ±	2.78E+00	4.63E+00

Station 37 Potato collected 7/20/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	3.93E+03 ±	3.24E+02	1.19E+02
MN-54		1.05E+00 ±	5.69E+00	9.08E+00
CO-58		8.87E-02 ±	5.11E+00	8.38E+00
FE-59		-3.10E+00 ±	2.34E+01	3.78E+01
CO-60		1.79E+00 ±	8.29E+00	1.32E+01
ZN-65		-7.50E-01 ±	1.37E+01	2.23E+01
ZRNB-95		1.44E-01 ±	5.30E+00	8.68E+00
I-131		1.11E+00 ±	5.44E+00	8.73E+00
CS-134		-1.31E-01 ±	4.12E+00	6.73E+00
CS-137		-4.42E-02 ±	4.80E+00	7.88E+00
BALA140		-7.05E-01 ±	6.11E+00	9.73E+00

Station 9c Potato collected 7/20/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	3.95E+03 ±	3.23E+02	1.08E+02
MN-54		-1.16E+00 ±	5.60E+00	8.89E+00
CO-58		-7.34E-03 ±	5.58E+00	9.18E+00
FE-59		-6.34E+00 ±	2.25E+01	3.56E+01
CO-60		2.42E+00 ±	8.45E+00	1.33E+01
ZN-65		-4.22E+00 ±	1.57E+01	2.48E+01
ZRNB-95		-2.94E+00 ±	5.23E+00	7.76E+00
I-131		1.63E-02 ±	4.84E+00	7.95E+00
CS-134		3.57E-01 ±	4.80E+00	7.81E+00
CS-137		3.63E-02 ±	5.51E+00	9.05E+00
BALA140		-2.40E+00 ±	7.87E+00	1.21E+01

Station 37 Potato collected 8/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	3.49E+03 ±	3.01E+02	1.07E+02
MN-54		0.00E+00 ±	6.47E+00	1.08E+01
CO-58		1.54E+00 ±	5.91E+00	9.34E+00
FE-59		-1.64E+00 ±	1.82E+01	2.95E+01
CO-60		-1.50E+00 ±	8.61E+00	1.38E+01
ZN-65		-9.16E+00 ±	1.85E+01	2.86E+01
ZRNB-95		6.49E-01 ±	5.94E+00	9.61E+00
I-131		0.00E+00 ±	5.81E+00	9.69E+00
CS-134		-1.97E+00 ±	6.30E+00	9.99E+00
CS-137		-4.67E-01 ±	6.43E+00	1.05E+01
BALA140		-1.61E-02 ±	5.56E+00	9.14E+00

Station 9c Potato collected 8/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	4.29E+03 ±	3.50E+02	1.28E+02
MN-54		-8.62E-01 ±	6.40E+00	1.03E+01
CO-58		-3.90E-01 ±	3.35E+00	5.32E+00
FE-59		9.19E+00 ±	1.86E+01	2.80E+01
CO-60		2.99E-01 ±	8.97E+00	1.47E+01
ZN-65		6.05E+00 ±	1.46E+01	2.24E+01
ZRNB-95		5.06E-02 ±	5.83E+00	9.56E+00
I-131		0.00E+00 ±	4.87E+00	8.12E+00
CS-134		-1.04E-01 ±	6.12E+00	1.00E+01
CS-137		0.00E+00 ±	8.12E+00	1.35E+01
BALA140		-1.59E+00 ±	7.72E+00	1.21E+01

Station 37 Potato collected 9/23/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	4.20E+03 ±	3.75E+02	1.21E+02
MN-54		1.51E-02 ±	7.96E+00	1.31E+01
CO-58		-1.32E+00 ±	6.02E+00	9.47E+00
FE-59		-9.93E-02 ±	2.24E+01	3.69E+01
CO-60		1.58E+00 ±	1.02E+01	1.64E+01
ZN-65		1.21E+01 ±	1.93E+01	2.87E+01
ZRNB-95		0.00E+00 ±	1.25E+01	2.08E+01
I-131		1.57E+00 ±	5.92E+00	9.38E+00
CS-134		-2.49E-02 ±	6.22E+00	1.02E+01
CS-137		3.17E+00 ±	8.26E+00	1.29E+01
BALA140		-3.17E-01 ±	7.64E+00	1.24E+01

Station 9c Potato collected 9/23/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	4.58E+03 ±	4.06E+02	1.47E+02
MN-54		-2.28E+00 ±	9.28E+00	1.48E+01
CO-58		3.82E+00 ±	7.66E+00	1.16E+01
FE-59		8.26E-01 ±	2.32E+01	3.79E+01
CO-60		1.46E-01 ±	1.10E+01	1.80E+01
ZN-65		-9.30E+00 ±	2.20E+01	3.40E+01
ZRNB-95		1.85E+00 ±	7.49E+00	1.18E+01
I-131		1.19E-01 ±	6.40E+00	1.05E+01
CS-134		2.98E+00 ±	6.16E+00	9.34E+00
CS-137		3.40E+00 ±	8.59E+00	1.33E+01
BALA140		2.84E+00 ±	9.45E+00	1.44E+01

TABLE A-15.2  
**GAMMA SPECTROMETRY RESULTS OF ROOTS- SUMMARY**

Results in pCi/ kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-4.26E-02	-7.05E-01	8.68E-01	1.01E+01	4	0
BALA140	Cntl	-2.89E-01	-2.40E+00	2.84E+00	1.08E+01	4	0
CO-58	Ind	-1.14E-01	-1.32E+00	1.54E+00	8.63E+00	4	0
CO-58	Cntl	4.17E-01	-1.75E+00	3.82E+00	9.11E+00	4	0
CO-60	Ind	1.54E+00	-1.50E+00	4.29E+00	1.36E+01	4	0
CO-60	Cntl	4.95E-01	-8.85E-01	2.42E+00	1.51E+01	4	0
CS-134	Ind	-3.45E-01	-1.97E+00	7.42E-01	8.59E+00	4	0
CS-134	Cntl	8.07E-01	-1.04E-01	2.98E+00	1.01E+01	4	0
CS-137	Ind	2.79E-01	-1.55E+00	3.17E+00	1.03E+01	4	0
CS-137	Cntl	6.52E-01	-8.32E-01	3.40E+00	1.17E+01	4	0
FE-59	Ind	-7.09E-01	-3.10E+00	2.01E+00	3.46E+01	4	0
FE-59	Cntl	-4.31E-01	-6.34E+00	9.19E+00	3.26E+01	4	0
I-131	Ind	1.50E+00	0.00E+00	3.32E+00	8.49E+00	4	0
I-131	Cntl	4.56E-01	0.00E+00	1.69E+00	8.72E+00	4	0
K-40	Ind	3.34E+03	1.75E+03	4.20E+03	1.23E+02	4	4
K-40	Cntl	3.49E+03	1.14E+03	4.58E+03	1.31E+02	4	4
MN-54	Ind	8.01E-02	-7.42E-01	1.05E+00	1.03E+01	4	0
MN-54	Cntl	-1.08E+00	-2.28E+00	0.00E+00	1.33E+01	4	0
ZN-65	Ind	-8.23E-01	-9.16E+00	1.21E+01	2.59E+01	4	0
ZN-65	Cntl	-1.82E+00	-9.30E+00	6.05E+00	2.69E+01	4	0
ZRNB-95	Ind	1.50E-01	-1.95E-01	6.49E-01	1.23E+01	4	0
ZRNB-95	Cntl	-7.12E-02	-2.94E+00	1.85E+00	9.56E+00	4	0

TABLE A-16.1  
**GAMMA SPECTROMETRY RESULTS OF FRUIT**

Results in pCi/ kilogram (wet)

Station 37 Strawberries collected 6/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.43E+03 ±	2.18E+02	1.26E+02
MN-54		0.00E+00 ±	1.44E+00	2.40E+00
CO-58		-8.49E-01 ±	6.52E+00	1.05E+01
FE-59		-1.28E-01 ±	1.79E+01	2.94E+01
CO-60		0.00E+00 ±	1.10E+01	1.84E+01
ZN-65		0.00E+00 ±	2.34E+01	3.91E+01
ZRNB-95		1.33E+00 ±	6.10E+00	9.68E+00
I-131		2.53E+00 ±	5.17E+00	7.94E+00
CS-134		2.75E-01 ±	5.30E+00	8.65E+00
CS-137		1.47E+00 ±	5.42E+00	8.44E+00
BALA140		0.00E+00 ±	1.51E+01	2.52E+01

Station 9c Strawberries collected 6/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.79E+03 ±	2.13E+02	1.02E+02
MN-54		-2.68E-01 ±	4.86E+00	7.92E+00
CO-58		0.00E+00 ±	5.63E+00	9.38E+00
FE-59		0.00E+00 ±	2.21E+01	3.68E+01
CO-60		1.24E+00 ±	6.94E+00	1.11E+01
ZN-65		-1.62E+00 ±	1.21E+01	1.94E+01
ZRNB-95		5.30E-01 ±	4.64E+00	7.48E+00
I-131		3.86E+00 ±	4.07E+00	5.74E+00
CS-134		0.00E+00 ±	4.78E+00	7.96E+00
CS-137		1.13E+00 ±	5.25E+00	8.32E+00
BALA140		-4.51E-01 ±	5.99E+00	9.67E+00

Station 37 Apricots collected 7/20/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.54E+03 ±	2.87E+02	1.57E+02
MN-54		0.00E+00 ±	6.01E+00	1.00E+01
CO-58		-2.40E+00 ±	6.53E+00	1.01E+01
FE-59		3.14E+00 ±	1.88E+01	3.00E+01
CO-60		0.00E+00 ±	1.04E+01	1.73E+01
ZN-65		-5.78E+00 ±	1.87E+01	2.94E+01
ZRNB-95		3.33E+00 ±	6.73E+00	1.03E+01
I-131		3.18E+00 ±	4.92E+00	7.31E+00
CS-134		-1.67E+00 ±	5.69E+00	8.97E+00
CS-137		1.05E+00 ±	6.47E+00	1.04E+01
BALA140		-1.02E-01 ±	7.69E+00	1.26E+01

Station 9c Apricots collected 7/20/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.37E+03 ±	2.57E+02	1.21E+02
MN-54		-1.28E+00 ±	6.11E+00	9.73E+00
CO-58		6.65E-01 ±	4.88E+00	7.81E+00
FE-59		-4.34E+00 ±	1.99E+01	3.17E+01
CO-60		1.82E+00 ±	6.55E+00	1.02E+01
ZN-65		-3.04E+00 ±	1.48E+01	2.36E+01
ZRNB-95		1.14E+00 ±	5.18E+00	8.19E+00
I-131		7.60E-01 ±	4.81E+00	7.74E+00
CS-134		8.88E-01 ±	5.11E+00	8.19E+00
CS-137		1.04E+00 ±	6.09E+00	9.76E+00
BALA140		0.00E+00 ±	2.31E+00	3.85E+00

Station 37 Peaches collected 8/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.33E+03 ±	1.91E+02	1.23E+02
MN-54		-8.23E-03 ±	5.06E+00	8.32E+00
CO-58		-1.58E+00 ±	5.25E+00	8.20E+00
FE-59		0.00E+00 ±	1.98E+01	3.30E+01
CO-60		1.94E+00 ±	6.53E+00	1.02E+01
ZN-65		-4.85E+00 ±	1.55E+01	2.44E+01
ZRNB-95		4.89E-01 ±	4.86E+00	7.85E+00
I-131		0.00E+00 ±	3.65E+00	6.08E+00
CS-134		4.25E-02 ±	4.28E+00	7.03E+00
CS-137		7.65E-01 ±	5.11E+00	8.18E+00
BALA140		0.00E+00 ±	8.90E+00	1.48E+01

Station 9c Peaches collected 8/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.46E+03 ±	2.02E+02	1.11E+02
MN-54		3.97E-01 ±	4.76E+00	7.69E+00
CO-58		1.24E+00 ±	5.44E+00	8.59E+00
FE-59		-3.58E+00 ±	1.82E+01	2.89E+01
CO-60		3.90E+00 ±	7.72E+00	1.17E+01
ZN-65		0.00E+00 ±	2.04E+01	3.40E+01
ZRNB-95		3.41E+00 ±	4.34E+00	5.89E+00
I-131		-3.90E-01 ±	4.83E+00	7.86E+00
CS-134		3.51E-01 ±	4.54E+00	7.37E+00
CS-137		-4.92E-01 ±	5.31E+00	8.59E+00
BALA140		0.00E+00 ±	1.35E+01	2.25E+01

Station 37 Peaches collected 9/23/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.08E+03 ±	2.70E+02	1.45E+02
MN-54		-8.26E-01 ±	6.98E+00	1.13E+01
CO-58		-5.19E-01 ±	6.06E+00	9.81E+00
FE-59		0.00E+00 ±	2.56E+01	4.26E+01
CO-60		0.00E+00 ±	9.33E+00	1.55E+01
ZN-65		-2.49E+00 ±	1.65E+01	2.64E+01
ZRNB-95		1.01E+00 ±	7.29E+00	1.18E+01
I-131		-1.44E+00 ±	7.60E+00	1.23E+01
CS-134		-2.62E+00 ±	7.04E+00	1.10E+01
CS-137		-1.68E+00 ±	6.85E+00	1.08E+01
BALA140		5.71E-01 ±	8.48E+00	1.37E+01

Station 9c Peaches collected 9/23/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.54E+03 ±	2.22E+02	1.12E+02
MN-54		2.09E+00 ±	5.06E+00	7.57E+00
CO-58		0.00E+00 ±	1.47E+00	2.44E+00
FE-59		-8.42E-01 ±	1.49E+01	2.42E+01
CO-60		1.42E+00 ±	8.86E+00	1.42E+01
ZN-65		8.95E-02 ±	9.60E+00	1.57E+01
ZRNB-95		-1.10E-01 ±	5.74E+00	9.41E+00
I-131		6.75E-01 ±	5.36E+00	8.66E+00
CS-134		8.79E-01 ±	5.71E+00	9.17E+00
CS-137		2.15E-03 ±	5.35E+00	8.77E+00
BALA140		0.00E+00 ±	2.70E+00	4.50E+00

TABLE A-16.1  
**GAMMA SPECTROMETRY RESULTS OF FRUIT**  
 Results in pCi/ kilogram (wet)

Station 92 Apples collected 9/22/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.11E+03 ±	2.10E+02	1.80E+02
MN-54		7.54E+00 ±	6.60E+00	8.50E+00
CO-58		3.96E+00 ±	6.68E+00	9.83E+00
FE-59		6.72E+00 ±	1.59E+01	2.35E+01
CO-60		4.06E+00 ±	5.97E+00	8.04E+00
ZN-65		0.00E+00 ±	3.52E+01	5.87E+01
ZRNB-95		1.04E+00 ±	5.47E+00	8.65E+00
I-131		2.05E+00 ±	5.36E+00	8.30E+00
CS-134		1.77E+00 ±	4.52E+00	6.84E+00
CS-137		1.86E-02 ±	5.01E+00	8.23E+00
BALA140		-2.01E+00 ±	8.70E+00	1.35E+01

TABLE A - 16.2  
**GAMMA SPECTROMETRY RESULTS OF FRUIT- SUMMARY**  
 Results in pCi/ kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-3.09E-01	-2.01E+00	5.71E-01	1.60E+01	5	0
BALA140	Cntl	-1.13E-01	-4.51E-01	0.00E+00	1.01E+01	4	0
CO-58	Ind	-2.78E-01	-2.40E+00	3.96E+00	9.69E+00	5	0
CO-58	Cntl	4.77E-01	0.00E+00	1.24E+00	7.06E+00	4	0
CO-60	Ind	1.20E+00	0.00E+00	4.06E+00	1.39E+01	5	0
CO-60	Cntl	2.09E+00	1.24E+00	3.90E+00	1.18E+01	4	0
CS-134	Ind	-4.42E-01	-2.62E+00	1.77E+00	8.50E+00	5	0
CS-134	Cntl	5.29E-01	0.00E+00	8.88E-01	8.17E+00	4	0
CS-137	Ind	3.24E-01	-1.68E+00	1.47E+00	9.21E+00	5	0
CS-137	Cntl	4.19E-01	-4.92E-01	1.13E+00	8.86E+00	4	0
FE-59	Ind	1.95E+00	-1.28E-01	6.72E+00	3.17E+01	5	0
FE-59	Cntl	-2.19E+00	-4.34E+00	0.00E+00	3.04E+01	4	0
I-131	Ind	1.26E+00	-1.44E+00	3.18E+00	8.38E+00	5	0
I-131	Cntl	1.23E+00	-3.90E-01	3.86E+00	7.50E+00	4	0
K-40	Ind	1.70E+03	1.11E+03	2.54E+03	1.46E+02	5	5
K-40	Cntl	1.79E+03	1.46E+03	2.37E+03	1.12E+02	4	4
MN-54	Ind	1.34E+00	-8.26E-01	7.54E+00	8.10E+00	5	0
MN-54	Cntl	2.35E-01	-1.28E+00	2.09E+00	8.23E+00	4	0
ZN-65	Ind	-2.62E+00	-5.78E+00	0.00E+00	3.56E+01	5	0
ZN-65	Cntl	-1.14E+00	-3.04E+00	8.95E-02	2.32E+01	4	0
ZRNB-95	Ind	1.44E+00	4.89E-01	3.33E+00	9.64E+00	5	0
ZRNB-95	Cntl	1.24E+00	-1.10E-01	3.41E+00	7.74E+00	4	0

Ind = Indicator stations Cntl = Control Stations

TABLE A-17.1  
**GAMMA SPECTROMETRY RESULTS OF VEGETABLES**

Results in pCi/ kilogram (wet)

Station 37 Asparagus collected 4/20/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.16E+03 ±	2.78E+02	1.43E+02
MN-54		4.40E+00 ±	6.85E+00	9.92E+00
CO-58		7.92E-02 ±	6.06E+00	9.95E+00
FE-59		-4.02E+00 ±	2.42E+01	3.88E+01
CO-60		3.60E-02 ±	8.35E+00	1.37E+01
ZN-65		-4.37E+00 ±	1.81E+01	2.85E+01
ZRNB-95		-1.10E+00 ±	7.33E+00	1.18E+01
I-131		-9.12E-02 ±	5.32E+00	8.73E+00
CS-134		-2.38E+00 ±	6.96E+00	1.09E+01
CS-137		0.00E+00 ±	8.99E+00	1.50E+01
BALA140		-4.86E-01 ±	6.40E+00	1.03E+01

Station 37 Cabbage collected 8/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.53E+03 ±	2.95E+02	1.38E+02
MN-54		2.79E+00 ±	7.49E+00	1.16E+01
CO-58		4.14E+00 ±	6.88E+00	1.01E+01
FE-59		-1.82E-01 ±	2.12E+01	3.47E+01
CO-60		-2.44E+00 ±	1.10E+01	1.75E+01
ZN-65		-4.74E+00 ±	1.43E+01	2.19E+01
ZRNB-95		9.01E-01 ±	4.50E+00	7.02E+00
I-131		3.43E+00 ±	5.20E+00	7.67E+00
CS-134		2.90E-02 ±	6.22E+00	1.02E+01
CS-137		0.00E+00 ±	6.76E+00	1.13E+01
BALA140		1.37E-01 ±	6.42E+00	1.05E+01

Station 37 Asparagus collected 5/15/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.28E+03 ±	2.99E+02	1.65E+02
MN-54		-1.37E+00 ±	8.13E+00	1.30E+01
CO-58		-1.31E+00 ±	6.69E+00	1.06E+01
FE-59		0.00E+00 ±	5.97E+00	9.95E+00
CO-60		2.48E+00 ±	7.79E+00	1.19E+01
ZN-65		-3.09E+00 ±	1.75E+01	2.79E+01
ZRNB-95		3.89E+00 ±	5.59E+00	7.63E+00
I-131		-1.64E+00 ±	8.05E+00	1.29E+01
CS-134		-1.47E+00 ±	6.51E+00	1.03E+01
CS-137		-1.26E+00 ±	6.93E+00	1.10E+01
BALA140		0.00E+00 ±	3.60E+00	6.00E+00

Station 37 Green Peppers collected 9/23/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.76E+03 ±	2.59E+02	1.35E+02
MN-54		0.00E+00 ±	5.07E+00	8.45E+00
CO-58		4.62E-01 ±	4.84E+00	7.76E+00
FE-59		-2.35E+00 ±	2.04E+01	3.28E+01
CO-60		1.27E+00 ±	8.67E+00	1.39E+01
ZN-65		-1.70E+00 ±	1.83E+01	2.96E+01
ZRNB-95		-2.55E+00 ±	7.01E+00	1.08E+01
I-131		7.22E-01 ±	6.84E+00	1.11E+01
CS-134		-1.16E+00 ±	6.78E+00	1.09E+01
CS-137		1.72E+00 ±	7.50E+00	1.18E+01
BALA140		0.00E+00 ±	1.38E+01	2.30E+01

Station 37 Cabbage collected 6/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.77E+03 ±	2.99E+02	1.75E+02
MN-54		8.66E-01 ±	9.68E+00	1.57E+01
CO-58		-4.30E-01 ±	8.19E+00	1.33E+01
FE-59		2.13E+00 ±	3.02E+01	4.90E+01
CO-60		-3.41E+00 ±	1.33E+01	2.09E+01
ZN-65		4.56E+00 ±	1.92E+01	3.00E+01
ZRNB-95		3.46E-01 ±	8.75E+00	1.43E+01
I-131		-1.65E-01 ±	8.91E+00	1.46E+01
CS-134		1.38E+00 ±	7.52E+00	1.20E+01
CS-137		2.25E+00 ±	6.92E+00	1.05E+01
BALA140		-1.31E+00 ±	1.38E+01	2.22E+01

Station 9c Asparagus collected 4/20/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.61E+03 ±	3.21E+02	1.70E+02
MN-54		-1.01E+00 ±	6.65E+00	1.06E+01
CO-58		-1.26E+00 ±	7.78E+00	1.25E+01
FE-59		0.00E+00 ±	5.67E+00	9.44E+00
CO-60		9.14E-01 ±	9.55E+00	1.54E+01
ZN-65		3.24E+00 ±	1.90E+01	3.04E+01
ZRNB-95		1.65E+00 ±	6.66E+00	1.05E+01
I-131		1.39E+00 ±	5.65E+00	8.95E+00
CS-134		-1.27E+00 ±	6.81E+00	1.09E+01
CS-137		-2.76E+00 ±	6.97E+00	1.06E+01
BALA140		0.00E+00 ±	3.07E+00	5.11E+00

Station 37 Cabbage collected 7/20/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.92E+03 ±	3.21E+02	1.42E+02
MN-54		5.65E-01 ±	5.65E+00	9.08E+00
CO-58		8.37E-01 ±	5.44E+00	8.64E+00
FE-59		-2.80E+00 ±	2.49E+01	4.02E+01
CO-60		1.38E+00 ±	9.76E+00	1.57E+01
ZN-65		2.22E+00 ±	1.73E+01	2.78E+01
ZRNB-95		9.66E-01 ±	6.17E+00	9.85E+00
I-131		-2.28E-01 ±	6.38E+00	1.04E+01
CS-134		-1.14E+00 ±	8.16E+00	1.32E+01
CS-137		-8.50E-04 ±	6.64E+00	1.10E+01
BALA140		0.00E+00 ±	1.83E+01	3.04E+01

Station 9c Asparagus collected 5/18/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.96E+03 ±	3.25E+02	1.44E+02
MN-54		1.21E-01 ±	5.72E+00	9.36E+00
CO-58		7.67E-01 ±	6.90E+00	1.11E+01
FE-59		7.75E+00 ±	2.14E+01	3.28E+01
CO-60		1.94E+00 ±	7.90E+00	1.23E+01
ZN-65		-5.02E-01 ±	2.03E+01	3.32E+01
ZRNB-95		0.00E+00 ±	7.06E+00	1.18E+01
I-131		7.15E-01 ±	5.77E+00	9.33E+00
CS-134		-4.81E-01 ±	5.74E+00	9.31E+00
CS-137		5.64E-01 ±	7.87E+00	1.28E+01
BALA140		4.31E+00 ±	8.07E+00	1.13E+01

TABLE A-17.1  
**GAMMA SPECTROMETRY RESULTS OF VEGETABLES**

Results in pCi/ kilogram (wet)

Station 9c Cabbage collected 6/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.81E+03 ±	2.34E+02	1.21E+02
MN-54		-1.79E-01 ±	5.55E+00	9.08E+00
CO-58		-1.92E+00 ±	6.36E+00	9.95E+00
FE-59		0.00E+00 ±	1.64E+01	2.73E+01
CO-60		2.99E+00 ±	6.89E+00	1.04E+01
ZN-65		-1.04E-02 ±	1.06E+01	1.74E+01
ZRNB-95		0.00E+00 ±	5.94E+00	9.90E+00
I-131		-1.08E-01 ±	3.99E+00	6.52E+00
CS-134		1.85E+00 ±	4.82E+00	7.39E+00
CS-137		1.18E+00 ±	5.98E+00	9.51E+00
BALA140		0.00E+00 ±	2.46E+00	4.10E+00

Station 102g Broad Leaf Vegetable collected 7/27/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	4.86E+03 ±	6.08E+02	2.99E+02
MN-54		-1.51E+00 ±	1.45E+01	2.34E+01
CO-58		-1.98E+00 ±	1.50E+01	2.42E+01
FE-59		-7.54E-01 ±	4.08E+01	6.68E+01
CO-60		1.40E+01 ±	2.06E+01	3.02E+01
ZN-65		-8.62E+00 ±	4.02E+01	6.40E+01
ZRNB-95		2.57E+00 ±	1.55E+01	2.48E+01
I-131		6.05E+00 ±	1.37E+01	2.11E+01
CS-134		0.00E+00 ±	1.34E+01	2.24E+01
CS-137		9.91E-03 ±	1.53E+01	2.51E+01
BALA140		-4.91E+00 ±	1.87E+01	2.86E+01

Station 9c Cabbage collected 7/20/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.56E+03 ±	2.95E+02	1.37E+02
MN-54		-2.35E+00 ±	8.15E+00	1.28E+01
CO-58		-1.37E+00 ±	7.40E+00	1.18E+01
FE-59		1.03E+01 ±	1.55E+01	2.09E+01
CO-60		3.18E+00 ±	7.38E+00	1.10E+01
ZN-65		-1.84E+00 ±	1.70E+01	2.75E+01
ZRNB-95		-1.82E+00 ±	7.08E+00	1.12E+01
I-131		3.29E-02 ±	5.86E+00	9.63E+00
CS-134		1.47E+00 ±	5.14E+00	8.02E+00
CS-137		2.49E+00 ±	6.89E+00	1.06E+01
BALA140		-2.72E+00 ±	9.41E+00	1.44E+01

Station 102g Broad Leaf Vegetable collected 8/24/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	3.84E+03 ±	4.84E+02	2.60E+02
MN-54		-1.46E+00 ±	1.19E+01	1.92E+01
CO-58		-2.90E+00 ±	1.17E+01	1.85E+01
FE-59		3.49E-01 ±	3.00E+01	4.92E+01
CO-60		4.30E+00 ±	1.45E+01	2.26E+01
ZN-65		-1.29E+01 ±	3.67E+01	5.75E+01
ZRNB-95		1.77E-01 ±	1.25E+01	2.05E+01
I-131		-9.50E-02 ±	8.86E+00	1.45E+01
CS-134		5.30E+00 ±	8.17E+00	1.16E+01
CS-137		-2.71E-01 ±	1.38E+01	2.26E+01
BALA140		-4.12E+00 ±	1.72E+01	2.68E+01

Station 9c Cabbage collected 8/17/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.11E+03 ±	2.78E+02	1.46E+02
MN-54		3.71E-01 ±	6.93E+00	1.13E+01
CO-58		0.00E+00 ±	6.62E+00	1.10E+01
FE-59		-4.66E+00 ±	2.20E+01	3.47E+01
CO-60		3.08E+00 ±	9.37E+00	1.45E+01
ZN-65		7.86E-01 ±	1.49E+01	2.43E+01
ZRNB-95		-3.37E+00 ±	7.80E+00	1.20E+01
I-131		-7.23E-02 ±	5.51E+00	9.04E+00
CS-134		-1.88E+00 ±	6.74E+00	1.06E+01
CS-137		-8.33E-01 ±	6.70E+00	1.08E+01
BALA140		-2.00E+00 ±	9.26E+00	1.44E+01

Station 102g Broad Leaf Vegetable collected 9/30/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	5.12E+03 ±	6.23E+02	2.96E+02
MN-54		0.00E+00 ±	1.85E+01	3.08E+01
CO-58		1.70E-01 ±	1.61E+01	2.64E+01
FE-59		0.00E+00 ±	4.16E+01	6.93E+01
CO-60		9.32E-02 ±	2.16E+01	3.55E+01
ZN-65		1.14E+01 ±	3.58E+01	5.57E+01
ZRNB-95		2.54E+00 ±	1.29E+01	2.05E+01
I-131		3.80E+00 ±	1.39E+01	2.21E+01
CS-134		-3.70E+00 ±	1.24E+01	1.93E+01
CS-137		-5.70E+00 ±	1.70E+01	2.65E+01
BALA140		-1.95E+00 ±	1.61E+01	2.55E+01

Station 9c Green Peppers collected 9/23/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.65E+03 ±	2.63E+02	1.57E+02
MN-54		-8.70E-01 ±	7.21E+00	1.16E+01
CO-58		0.00E+00 ±	8.22E+00	1.37E+01
FE-59		3.19E+00 ±	2.13E+01	3.40E+01
CO-60		2.50E+00 ±	9.17E+00	1.43E+01
ZN-65		-4.72E+00 ±	2.10E+01	3.33E+01
ZRNB-95		-5.61E-01 ±	7.59E+00	1.23E+01
I-131		-8.94E-01 ±	5.79E+00	9.29E+00
CS-134		-3.91E+00 ±	9.19E+00	1.44E+01
CS-137		4.39E-01 ±	8.27E+00	1.35E+01
BALA140		3.09E+00 ±	5.46E+00	6.39E+00

Station 103A Broad Leaf Vegetable collected 9/30/2009				
Nuclide	RQ	Activity	Error	MDA
K-40	+	4.81E+03 ±	6.84E+02	3.70E+02
MN-54		6.98E+00 ±	1.84E+01	2.82E+01
CO-58		9.22E+00 ±	1.43E+01	2.00E+01
FE-59		-6.05E+00 ±	5.61E+01	9.05E+01
CO-60		7.47E+00 ±	2.42E+01	3.77E+01
ZN-65		0.00E+00 ±	4.97E+01	8.28E+01
ZRNB-95		3.54E+00 ±	1.54E+01	2.42E+01
I-131		-4.62E+00 ±	1.87E+01	2.99E+01
CS-134		5.02E+00 ±	1.47E+01	2.27E+01
CS-137		0.00E+00 ±	2.21E+01	3.68E+01
BALA140		1.20E+01 ±	2.89E+01	4.35E+01



TABLE A-17.2  
**GAMMA SPECTROMETRY RESULTS OF VEGETABLES- SUMMARY**

Results in pCi/ kilogram (wet)

<b>Nuclide</b>		<b>Average Activity</b>	<b>Activity Low</b>	<b>Activity High</b>	<b>Average MDA</b>	<b>Number of Samples</b>	<b>Number of Positive IDs</b>
BALA140	Ind	-6.03E-02	-4.91E+00	1.20E+01	2.27E+01	10	0
BALA140	Cntl	4.48E-01	-2.72E+00	4.31E+00	9.29E+00	6	0
CO-58	Ind	8.29E-01	-2.90E+00	9.22E+00	1.49E+01	10	0
CO-58	Cntl	-6.32E-01	-1.92E+00	7.67E-01	1.17E+01	6	0
CO-60	Ind	2.52E+00	-3.41E+00	1.40E+01	2.20E+01	10	0
CO-60	Cntl	2.43E+00	9.14E-01	3.18E+00	1.30E+01	6	0
CS-134	Ind	1.89E-01	-3.70E+00	5.30E+00	1.43E+01	10	0
CS-134	Cntl	-7.04E-01	-3.91E+00	1.85E+00	1.01E+01	6	0
CS-137	Ind	-3.26E-01	-5.70E+00	2.25E+00	1.82E+01	10	0
CS-137	Cntl	1.80E-01	-2.76E+00	2.49E+00	1.13E+01	6	0
FE-59	Ind	-1.37E+00	-6.05E+00	2.13E+00	4.81E+01	10	0
FE-59	Cntl	2.76E+00	-4.66E+00	1.03E+01	2.65E+01	6	0
I-131	Ind	7.16E-01	-4.62E+00	6.05E+00	1.53E+01	10	0
I-131	Cntl	1.77E-01	-8.94E-01	1.39E+00	8.79E+00	6	0
K-40	Ind	3.20E+03	1.76E+03	5.12E+03	2.12E+02	10	10
K-40	Cntl	2.28E+03	1.65E+03	2.96E+03	1.46E+02	6	6
MN-54	Ind	1.13E+00	-1.51E+00	6.98E+00	1.69E+01	10	0
MN-54	Cntl	-6.53E-01	-2.35E+00	3.71E-01	1.08E+01	6	0
ZN-65	Ind	-1.73E+00	-1.29E+01	1.14E+01	4.26E+01	10	0
ZN-65	Cntl	-5.09E-01	-4.72E+00	3.24E+00	2.77E+01	6	0
ZRNB-95	Ind	1.13E+00	-2.55E+00	3.89E+00	1.51E+01	10	0
ZRNB-95	Cntl	-6.82E-01	-3.37E+00	1.65E+00	1.13E+01	6	0

TABLE B-1.1  
**2009 QUARTERLY & ANNUAL SPECIAL INTEREST TLD RESULTS**

Results in milli-Roentgen (mR)

Station ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Quarterly Sum	Annual	Ratio Quarterly Sum / Annual
58	NA	19.20	18.52	19.93	NA	NA	NA
87	26.85	22.78	25.13	32.67	107.4	107.2	1.00
88	30.68	24.53	25.67	29.54	110.4	109.7	1.01
89	29.38	23.22	24.64	27.04	104.3	112.7	0.93
90	18.65	18.37	18.54	19.50	75.1	77.3	0.97
119B	21.16	22.16	20.73	23.70	87.8	81.1	1.08
119C	22.06	20.87	21.60	22.40	86.9	85.2	1.02
120 (East)	21.34	21.96	21.77	23.52	88.6	83.4	1.06
121	97.13	49.51	62.07	86.63	295.3	297.9	0.99
122	40.32	38.80	37.93	40.66	157.7	161.4	0.98
123	154.80	141.66	144.40	139.93	580.8	593.2	0.98
124	181.62	178.29	170.02	175.47	705.4	692.5	1.02
125	128.56	122.14	120.62	124.56	495.9	498.6	0.99
126	137.51	124.77	126.92	123.44	512.6	524.9	0.98
127	96.76	89.23	89.38	90.68	366.1	373.8	0.98
128	177.42	157.10	160.73	156.13	651.4	667.7	0.98
129	131.18	119.39	120.71	120.94	492.2	481.0	1.02
136A	199.12	186.51	183.87	180.18	749.7	763.7	0.98
137A	224.98	205.23	205.17	197.33	832.7	865.2	0.96
138A	181.04	159.90	163.54	158.70	663.2	688.0	0.96
150 (Site 1)	19.63	18.05	19.21	19.19	76.1	72.0	1.06
151 (Site 4)	19.36	18.98	19.58	19.87	77.8	73.3	1.06

TABLE B-1.2  
**2009 QUARTERLY & ANNUAL SPECIAL INTEREST TLD RESULTS- SUMMARY**

Results in milli-Roentgen (mR)

Location	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
ST 119 Quarterly Ind	21.9	20.7	23.7	4	4
ST 119 Quarterly Cntl	21.7	20.9	22.4	4	4
ST 120 Quarterly Ind	22.1	21.3	23.5	4	4
ISFSI Quarterly Ind	135.5	37.9	225.0	48	48
ISFSI Annual Ind	550.7	161.4	865.2	12	12
SITE 1 & 4 Quarterly Ind	19.2	18.0	19.9	8	8

1st Q 12/30/08 to 3/31/09 - 2nd Q 3/31/09 to 6/25/09 - 3rd Q 6/25/09 to 9/25/09 - 4th Q 9/25/09 to 12/29/09

Ind = Indicator Station Cntl = Control Station

Stations 121 through 138A are TLD locations associated with ISFSI

Stations 58 and 87 to 90 were established in 2009 to monitor exposure from remediation work at the DOE 618-11burial site.

Table B-2.1

**GAMMA SPECTROMETRY RESULTS OF STORM DRAIN WATER  
STATION 101**

Results in pCi/liter, corrected for decay during collection period

Location 101 collected 2/2/2009					Location 101 collected 3/2/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.47E+01 ±	5.85E+01	5.26E+01	K-40		-2.07E+01 ±	3.89E+01	5.07E+01
CR-51		-1.14E+01 ±	1.94E+01	3.09E+01	CR-51		-8.55E-01 ±	1.83E+01	3.01E+01
MN-54		-7.32E-01 ±	1.89E+00	3.01E+00	MN-54		-5.06E-02 ±	1.69E+00	2.78E+00
CO-58		-1.30E-03 ±	1.79E+00	2.93E+00	CO-58		1.10E+00 ±	1.65E+00	2.53E+00
FE-59		2.04E-02 ±	4.66E+00	7.66E+00	FE-59		2.16E+00 ±	4.63E+00	7.16E+00
CO-60		1.18E+00 ±	1.64E+00	2.46E+00	CO-60		-1.92E-01 ±	1.86E+00	3.03E+00
ZN-65		-3.26E-01 ±	3.73E+00	6.09E+00	ZN-65		8.16E-02 ±	2.78E+00	4.54E+00
ZRNB-95		6.90E-02 ±	2.05E+00	3.35E+00	ZRNB-95		-9.75E-02 ±	1.82E+00	2.98E+00
I-131		-1.51E+00 ±	4.07E+00	6.53E+00	I-131		1.43E+00 ±	3.28E+00	5.20E+00
CS-134		-4.85E-01 ±	1.50E+00	2.41E+00	CS-134		2.94E-01 ±	2.03E+00	3.31E+00
CS-137		6.62E-01 ±	1.55E+00	2.45E+00	CS-137		-1.02E+00 ±	2.11E+00	3.35E+00
BALA140		2.03E+00 ±	3.85E+00	5.89E+00	BALA140		1.89E-02 ±	3.85E+00	6.31E+00
BI-214		4.45E+00 ±	4.00E+00	7.19E+00	BI-214		4.41E+00 ±	4.86E+00	8.51E+00
RA-226		-4.50E+00 ±	4.04E+01	6.81E+01	RA-226		-2.31E+01 ±	6.07E+01	7.19E+01

Location 101 collected 4/6/2009					Location 101 collected 5/6/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.87E+01 ±	6.12E+01	5.09E+01	K-40		-3.36E+01 ±	4.98E+01	4.92E+01
CR-51		0.00E+00 ±	2.00E+01	3.33E+01	CR-51		-3.11E-01 ±	1.70E+01	2.79E+01
MN-54		5.17E-01 ±	1.71E+00	2.73E+00	MN-54		-4.26E-01 ±	1.98E+00	3.20E+00
CO-58		3.51E-01 ±	1.76E+00	2.84E+00	CO-58		5.05E-01 ±	1.71E+00	2.74E+00
FE-59		-1.15E+00 ±	5.53E+00	8.89E+00	FE-59		0.00E+00 ±	5.52E+00	9.20E+00
CO-60		-1.90E-01 ±	1.46E+00	2.35E+00	CO-60		0.00E+00 ±	1.16E+00	1.93E+00
ZN-65		-1.22E+00 ±	4.00E+00	6.38E+00	ZN-65		-1.62E+00 ±	4.67E+00	7.46E+00
ZRNB-95		-8.52E-01 ±	2.24E+00	3.57E+00	ZRNB-95		5.85E-01 ±	2.01E+00	3.22E+00
I-131		9.99E-02 ±	5.05E+00	8.29E+00	I-131		-1.15E+00 ±	5.11E+00	8.30E+00
CS-134		1.18E+00 ±	1.81E+00	2.85E+00	CS-134		6.52E-01 ±	1.67E+00	2.68E+00
CS-137		6.45E-01 ±	1.90E+00	3.04E+00	CS-137		7.69E-01 ±	1.70E+00	2.68E+00
BALA140		0.00E+00 ±	4.73E+00	7.89E+00	BALA140		-1.22E+00 ±	4.06E+00	6.43E+00
BI-214		3.28E+00 ±	4.68E+00	8.31E+00	BI-214		-1.71E+00 ±	6.15E+00	8.40E+00
RA-226		1.14E+01 ±	3.81E+01	6.86E+01	RA-226		1.05E+01 ±	3.65E+01	6.63E+01

Location 101 collected 6/1/2009					Location 101 collected 7/1/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.62E+01 ±	4.43E+01	5.08E+01	K-40		-5.48E+00 ±	3.05E+01	5.37E+01
CR-51		7.67E-02 ±	1.31E+01	2.15E+01	CR-51		-2.59E-01 ±	2.07E+01	3.40E+01
MN-54		-5.22E-01 ±	1.85E+00	2.96E+00	MN-54		-4.36E-01 ±	1.96E+00	3.18E+00
CO-58		-5.26E-01 ±	2.16E+00	3.49E+00	CO-58		6.83E-02 ±	1.91E+00	3.12E+00
FE-59		-3.93E-01 ±	4.36E+00	7.08E+00	FE-59		-1.34E+00 ±	5.90E+00	9.48E+00
CO-60		1.68E+00 ±	2.26E+00	3.48E+00	CO-60		0.00E+00 ±	1.87E+00	3.11E+00
ZN-65		-3.27E-02 ±	2.45E+00	4.03E+00	ZN-65		-1.30E+00 ±	3.84E+00	6.10E+00
ZRNB-95		1.43E-01 ±	1.83E+00	2.98E+00	ZRNB-95		5.31E-01 ±	2.15E+00	3.47E+00
I-131		-8.03E-01 ±	4.71E+00	7.67E+00	I-131		2.13E+00 ±	4.57E+00	7.30E+00
CS-134		9.64E-02 ±	2.07E+00	3.40E+00	CS-134		9.90E-01 ±	1.78E+00	2.81E+00
CS-137		9.26E-01 ±	1.72E+00	2.70E+00	CS-137		8.32E-01 ±	1.89E+00	3.00E+00
BALA140		-1.24E-02 ±	3.86E+00	6.35E+00	BALA140		7.35E-01 ±	4.27E+00	6.87E+00
BI-214		2.12E-01 ±	4.72E+00	8.62E+00	BI-214		-1.26E+00 ±	5.35E+00	8.03E+00
RA-226		-4.06E+00 ±	4.36E+01	7.29E+01	RA-226		1.47E+01 ±	4.17E+01	7.39E+01

Table B-2.1  
**GAMMA SPECTROMETRY RESULTS OF STORM DRAIN WATER**  
**STATION 101**

Results in pCi/liter, corrected for decay during collection period

Location 101 collected 7/9/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-4.77E+01 ±	1.29E+02	7.41E+01
CR-51		-7.50E+00 ±	3.04E+01	4.93E+01
MN-54		-6.74E-01 ±	2.74E+00	4.38E+00
CO-58		1.16E+00 ±	2.89E+00	4.54E+00
FE-59		2.79E+00 ±	5.73E+00	8.56E+00
CO-60		-2.07E-01 ±	2.60E+00	4.23E+00
ZN-65		-8.18E-01 ±	6.04E+00	9.78E+00
ZRNB-95		2.31E-02 ±	2.82E+00	4.63E+00
I-131		2.46E+00 ±	6.84E+00	1.10E+01
CS-134		1.72E+00 ±	2.33E+00	3.55E+00
CS-137		-1.15E+00 ±	3.14E+00	4.99E+00
BALA140		5.33E-01 ±	5.78E+00	9.38E+00
BI-214		2.23E+00 ±	6.11E+00	1.12E+01
RA-226		6.43E+01 ±	7.54E+01	1.30E+02

Location 101 collected 7/13/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.44E+01 ±	8.17E+01	7.56E+01
CR-51		7.32E+00 ±	2.07E+01	3.30E+01
MN-54		0.00E+00 ±	3.24E+00	5.40E+00
CO-58		1.65E+00 ±	2.66E+00	4.03E+00
FE-59		-1.40E+00 ±	7.12E+00	1.13E+01
CO-60		6.21E-01 ±	2.25E+00	3.51E+00
ZN-65		1.15E-01 ±	5.50E+00	9.01E+00
ZRNB-95		1.57E-01 ±	2.61E+00	4.26E+00
I-131		2.15E+00 ±	2.88E+00	4.37E+00
CS-134		0.00E+00 ±	3.12E+00	5.20E+00
CS-137		-1.09E-01 ±	2.66E+00	4.36E+00
BALA140		1.48E-03 ±	3.05E+00	5.03E+00
BI-214		8.24E+00 ±	7.35E+00	1.24E+01
RA-226		1.33E+01 ±	5.94E+01	1.06E+02

Location 101 collected 8/3/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-4.98E+01 ±	1.42E+02	7.48E+01
CR-51		2.52E+01 ±	3.07E+01	4.80E+01
MN-54		4.35E-01 ±	2.61E+00	4.21E+00
CO-58		1.03E+00 ±	2.92E+00	4.63E+00
FE-59		4.00E-01 ±	8.37E+00	1.37E+01
CO-60		0.00E+00 ±	3.25E+00	5.42E+00
ZN-65		7.67E-01 ±	5.60E+00	9.05E+00
ZRNB-95		-2.38E-01 ±	3.16E+00	5.16E+00
I-131		-2.95E+00 ±	7.31E+00	1.17E+01
CS-134		3.84E-02 ±	2.08E+00	3.42E+00
CS-137		1.71E+00 ±	2.80E+00	4.33E+00
BALA140		-1.69E+00 ±	6.72E+00	1.07E+01
BI-214		-6.54E-01 ±	6.62E+00	1.12E+01
RA-226		-9.03E+00 ±	8.32E+01	1.32E+02

Location 101 collected 8/31/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-4.10E+01 ±	6.60E+01	5.11E+01
CR-51		9.88E+00 ±	1.88E+01	3.00E+01
MN-54		-1.46E-01 ±	1.88E+00	3.07E+00
CO-58		7.41E-01 ±	1.74E+00	2.75E+00
FE-59		-3.71E+00 ±	6.11E+00	9.46E+00
CO-60		1.60E+00 ±	2.02E+00	3.07E+00
ZN-65		6.64E-01 ±	2.30E+00	3.60E+00
ZRNB-95		1.22E+00 ±	2.05E+00	3.20E+00
I-131		5.00E+00 ±	3.92E+00	5.88E+00
CS-134		2.52E-02 ±	1.65E+00	2.72E+00
CS-137		1.61E+00 ±	1.75E+00	2.65E+00
BALA140		-7.25E-01 ±	4.25E+00	6.85E+00
BI-214		1.31E+00 ±	4.10E+00	7.62E+00
RA-226		-1.15E+01 ±	4.79E+01	7.06E+01

Location 101 collected 10/5/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.77E+01 ±	4.82E+01	5.21E+01
CR-51		-1.37E+00 ±	2.10E+01	3.43E+01
MN-54		1.04E+00 ±	1.67E+00	2.58E+00
CO-58		-7.70E-01 ±	2.07E+00	3.30E+00
FE-59		2.22E+00 ±	5.58E+00	8.77E+00
CO-60		2.03E+00 ±	1.82E+00	2.62E+00
ZN-65		5.27E-02 ±	4.28E+00	7.03E+00
ZRNB-95		5.31E-01 ±	1.66E+00	2.64E+00
I-131		1.02E+00 ±	5.95E+00	9.69E+00
CS-134		-8.45E-01 ±	2.03E+00	3.26E+00
CS-137		-3.72E-01 ±	1.81E+00	2.93E+00
BALA140		-1.99E+00 ±	5.60E+00	8.85E+00
BI-214		-1.02E+00 ±	5.46E+00	8.42E+00
RA-226		8.45E+00 ±	4.32E+01	7.65E+01

Location 101 collected 11/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.12E+01 ±	4.99E+01	5.07E+01
CR-51		2.78E+00 ±	1.62E+01	2.63E+01
MN-54		8.00E-02 ±	1.61E+00	2.64E+00
CO-58		6.89E-01 ±	1.78E+00	2.82E+00
FE-59		3.35E-01 ±	4.57E+00	7.44E+00
CO-60		1.61E+00 ±	1.72E+00	2.52E+00
ZN-65		-3.12E+00 ±	5.29E+00	8.33E+00
ZRNB-95		6.12E-01 ±	1.78E+00	2.83E+00
I-131		2.47E+00 ±	5.10E+00	8.17E+00
CS-134		8.31E-02 ±	1.89E+00	3.09E+00
CS-137		1.26E-01 ±	1.81E+00	2.96E+00
BALA140		5.53E-02 ±	3.79E+00	6.22E+00
BI-214		+ 1.60E+01 ±	5.82E+00	8.12E+00
RA-226		-5.12E+00 ±	4.67E+01	7.61E+01

Table B-2.1  
**GAMMA SPECTROMETRY RESULTS OF STORM DRAIN WATER**  
**STATION 101**

Results in pCi/liter, corrected for decay during collection period

Location 101 collected 11/30/2009				Location 101 collected 1/4/2010					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-1.57E+01 ±	4.05E+01	5.19E+01	K-40		-2.01E+01 ±	4.07E+01	4.84E+01
CR-51		-7.08E+00 ±	2.26E+01	3.65E+01	CR-51		1.23E+01 ±	2.52E+01	4.03E+01
MN-54		5.05E-01 ±	1.70E+00	2.70E+00	MN-54		-7.37E-01 ±	2.15E+00	3.43E+00
CO-58		-1.24E+00 ±	2.15E+00	3.36E+00	CO-58		8.61E-01 ±	2.10E+00	3.32E+00
FE-59		2.51E+00 ±	5.48E+00	8.49E+00	FE-59		1.98E+00 ±	6.63E+00	1.06E+01
CO-60		-1.77E-01 ±	1.91E+00	3.11E+00	CO-60		9.85E-01 ±	1.99E+00	3.09E+00
ZN-65		-2.40E+00 ±	5.26E+00	8.33E+00	ZN-65		-8.87E-01 ±	2.34E+00	3.58E+00
ZRNB-95		2.09E+00 ±	1.92E+00	2.80E+00	ZRNB-95		2.85E+00 ±	2.16E+00	3.10E+00
I-131		-2.10E+00 ±	5.54E+00	8.88E+00	I-131		-4.82E-01 ±	6.12E+00	1.00E+01
CS-134		-1.13E+00 ±	2.24E+00	3.56E+00	CS-134		-1.78E-01 ±	2.42E+00	3.97E+00
CS-137		-2.40E-01 ±	1.70E+00	2.75E+00	CS-137		-1.03E+00 ±	2.35E+00	3.75E+00
BALA140		6.95E-01 ±	4.55E+00	7.32E+00	BALA140		7.53E-01 ±	4.97E+00	8.00E+00
BI-214		4.43E+00 ±	4.88E+00	8.88E+00	BI-214		8.07E+00 ±	5.62E+00	9.69E+00
RA-226		1.51E+01 ±	4.74E+01	8.65E+01	RA-226		7.92E+00 ±	4.96E+01	9.02E+01

TABLE B-2.2  
**GAMMA SPECTROMETRY RESULTS OF STORM DRAIN WATER - SUMMARY**  
**STATION 101**

Results in pCi/liter, corrected for decay during collection period

Nuclide	Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
K-40	-3.05E+01	-4.98E+01	-5.48E+00	5.62E+01	14	0
CR-51	2.06E+00	-1.14E+01	2.52E+01	3.40E+01	14	0
MN-54	-8.20E-02	-7.37E-01	1.04E+00	3.31E+00	14	0
CO-58	4.01E-01	-1.24E+00	1.65E+00	3.31E+00	14	0
FE-59	3.16E-01	-3.71E+00	2.79E+00	9.13E+00	14	0
CO-60	6.39E-01	-2.07E-01	2.03E+00	3.14E+00	14	0
ZN-65	-7.17E-01	-3.12E+00	7.67E-01	6.66E+00	14	0
ZRNB-95	5.45E-01	-8.52E-01	2.85E+00	3.44E+00	14	0
I-131	5.56E-01	-2.95E+00	5.00E+00	8.07E+00	14	0
CS-134	1.75E-01	-1.13E+00	1.72E+00	3.30E+00	14	0
CS-137	2.39E-01	-1.15E+00	1.71E+00	3.28E+00	14	0
BALA140	-5.79E-02	-1.99E+00	2.03E+00	7.29E+00	14	0
BI-214	3.43E+00	-1.71E+00	1.60E+01	9.04E+00	14	1
RA-226	6.31E+00	-2.31E+01	6.43E+01	8.50E+01	14	0

Table B-3.1  
**GROSS BETA IN STORM DRAIN WATER**  
 Results in pCi per liter

Location	Collection Period	RQ	Activity	Error	MDA
St 101	01/05/09 - 02/02/09		1.09E+00 ±	8.50E-01	2.58E+00
	02/02/09 - 03/02/09		1.72E+00 ±	1.02E+00	3.26E+00
	03/02/09 - 04/06/09		2.22E+00 ±	8.33E-01	2.41E+00
	04/06/09 - 05/06/09		4.73E-01 ±	7.03E-01	2.39E+00
	05/04/09 - 06/01/09		1.46E+00 ±	9.33E-01	2.76E+00
	06/02/09 - 07/01/09		2.07E+00 ±	7.77E-01	2.23E+00
	07/01/09 - 08/03/09		5.44E-01 ±	7.89E-01	2.59E+00
	08/03/09 - 08/31/09		7.10E-01 ±	7.83E-01	2.33E+00
	08/31/09 - 10/05/09		2.09E+00 ±	8.15E-01	2.32E+00
	10/05/09 - 11/02/09		1.72E+00 ±	7.87E-01	2.29E+00
	11/02/09 - 11/30/09		-4.87E-01 ±	8.29E-01	2.64E+00
	11/30/09 - 01/04/10	+	4.40E+00 ±	8.55E-01	2.03E+00

TABLE B-3.2  
**GROSS BETA IN STORM DRAIN WATER - SUMMARY**  
 Results in pCi per liter

Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
1.50E+00	-4.87E-01	4.40E+00	12	1

Table B-4.1  
**TRITIUM IN STORM DRAIN WATER**  
 Results in pCi per liter

Location	Collection Period	RQ	Activity	Error
St 101	01/05/09 - 02/02/09	+	7.21E+03 ±	2.19E+02
	02/02/09 - 03/02/09	+	5.03E+03 ±	1.90E+02
	03/02/09 - 04/06/09	+	1.73E+03 ±	1.37E+02
	04/06/09 - 05/06/09	+	3.58E+02 ±	9.88E+01
	05/04/09 - 06/01/09		1.89E+02 ±	9.68E+01
	06/02/09 - 07/01/09		1.83E+02 ±	9.64E+01
	07/01/09 - 08/03/09		1.01E+02 ±	9.37E+01
	08/03/09 - 08/31/09		4.39E+01 ±	9.79E+01
	08/31/09 - 10/05/09		2.32E+02 ±	9.72E+01
	10/05/09 - 11/02/09		2.95E+02 ±	1.06E+02
	11/02/09 - 11/30/09	+	5.02E+02 ±	1.06E+02
	11/30/09 - 01/04/10	+	5.08E+02 ±	1.09E+02

TABLE B-4.2  
**TRITIUM IN STORM DRAIN WATER - SUMMARY**  
 Results in pCi per liter

Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
1.37E+03	4.39E+01	7.21E+03	12	6

ST-101 tritium value for 7/1 to 8/3 is average of 4 analyses. All 4 Analyses were < MDA.  
 RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.

Table B-5.1  
**GROSS ALPHA IN SANITARY WASTE TREATMENT WATER**  
 Results in pCi per liter

Collection Period	ST 102A				ST 102B			
	RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
01/05/09 - 02/02/09		2.90E+00	± 1.26E+00	3.60E+00		6.56E-01	± 1.06E+00	4.23E+00
02/02/09 - 03/02/09		2.03E+00	± 1.07E+00	3.34E+00		-3.55E-01	± 9.82E-01	4.08E+00
03/02/09 - 04/06/09		6.08E-01	± 4.83E-01	1.68E+00		7.96E-01	± 6.33E-01	2.21E+00
04/06/09 - 05/06/09		1.35E-01	± 3.44E-01	1.60E+00		1.41E+00	± 9.31E-01	3.03E+00
05/04/09 - 06/01/09		-1.62E-01	± 5.48E-01	2.41E+00		-8.88E-01	± 1.32E+00	5.30E+00
06/02/09 - 07/01/09		-2.76E-01	± 5.44E-01	2.23E+00		-7.20E-01	± 8.67E-01	3.32E+00
07/01/09 - 08/03/09		3.79E-01	± 4.49E-01	1.80E+00		1.02E+00	± 6.73E-01	2.19E+00
08/03/09 - 08/31/09		-3.85E-01	± 7.10E-01	2.81E+00		-1.09E+00	± 1.01E+00	3.62E+00
08/31/09 - 10/05/09		-4.76E-01	± 5.73E-01	2.19E+00		4.76E-01	± 7.68E-01	3.07E+00
10/05/09 - 11/02/09		1.08E+00	± 6.21E-01	1.94E+00		3.18E-01	± 6.63E-01	2.87E+00
11/02/09 - 11/30/09		-1.71E-16	± 6.49E-01	2.75E+00		-1.08E+00	± 1.01E+00	3.64E+00
11/30/09 - 01/04/10		-5.79E-01	± 6.96E-01	2.59E+00		-5.32E-01	± 9.21E-01	3.56E+00

TABLE B-5.2  
**GROSS ALPHA IN SANITARY WASTE TREATMENT WATER - SUMMARY**  
 Results in pCi per liter

Location	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
ST 102A	4.38E-01	-5.79E-01	2.90E+00	12	0
ST 102B	1.07E-04	-1.09E+00	1.41E+00	12	0

Table B-6.1  
**GROSS BETA IN SANITARY WASTE TREATMENT WATER**  
 Results in pCi per liter

Collection Period	ST 102A				ST 102B			
	RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
01/05/09 - 02/02/09	+	1.34E+01	± 1.40E+00	2.78E+00	+	2.54E+01	± 1.78E+00	2.84E+00
02/02/09 - 03/02/09	+	1.28E+01	± 1.39E+00	2.91E+00	+	2.47E+01	± 1.77E+00	2.98E+00
03/02/09 - 04/06/09	+	5.52E+00	± 9.85E-01	2.43E+00	+	1.85E+01	± 1.52E+00	2.52E+00
04/06/09 - 05/06/09	+	5.50E+00	± 9.69E-01	2.42E+00	+	1.85E+01	± 1.55E+00	2.63E+00
05/04/09 - 06/01/09	+	7.87E+00	± 1.17E+00	2.84E+00	+	2.07E+01	± 1.70E+00	3.13E+00
06/02/09 - 07/01/09	+	5.58E+00	± 9.54E-01	2.31E+00	+	1.36E+01	± 1.33E+00	2.43E+00
07/01/09 - 08/03/09	+	6.82E+00	± 1.08E+00	2.65E+00	+	1.04E+01	± 1.25E+00	2.72E+00
08/03/09 - 08/31/09	+	5.32E+00	± 9.60E-01	2.37E+00	+	1.10E+01	± 1.24E+00	2.45E+00
08/31/09 - 10/05/09	+	3.44E+00	± 8.60E-01	2.37E+00	+	1.27E+01	± 1.30E+00	2.49E+00
10/05/09 - 11/02/09	+	7.30E+00	± 1.06E+00	2.37E+00	+	1.02E+01	± 1.21E+00	2.49E+00
11/02/09 - 11/30/09	+	6.00E+00	± 1.06E+00	2.69E+00	+	1.46E+01	± 1.42E+00	2.80E+00
11/30/09 - 01/04/10	+	5.43E+00	± 9.01E-01	2.04E+00	+	1.60E+01	± 1.37E+00	2.13E+00

TABLE B-6.2  
**GROSS BETA IN SANITARY WASTE TREATMENT WATER - SUMMARY**  
 Results in pCi per liter

Location	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
ST 102A	7.08E+00	3.44E+00	1.34E+01	12	12
ST 102B	1.64E+01	1.02E+01	2.54E+01	12	12

TABLE B-7.1  
**GAMMA SPECTROMETRY RESULTS OF SANITARY WASTE TREATMENT WATER**  
**STATION 102A**

Results in pCi/liter, corrected for decay during collection period

Location 102a collected 2/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.28E+01 ±	3.03E+01	4.85E+01
CR-51		3.24E-01 ±	1.68E+01	2.75E+01
MN-54		-7.72E-02 ±	1.34E+00	2.18E+00
CO-58		2.57E-01 ±	1.88E+00	3.06E+00
FE-59		-2.27E+00 ±	5.42E+00	8.50E+00
CO-60		-4.15E-01 ±	1.62E+00	2.59E+00
ZN-65		1.20E+00 ±	2.78E+00	4.31E+00
ZRNB-95		8.91E-01 ±	1.86E+00	2.93E+00
I-131		-1.39E-01 ±	4.18E+00	6.86E+00
CS-134		9.53E-01 ±	1.66E+00	2.61E+00
CS-137		9.02E-01 ±	1.48E+00	2.28E+00
BALA140		-1.21E+00 ±	4.19E+00	6.64E+00
BI-214		3.52E+00 ±	4.26E+00	7.67E+00
RA-226		-1.50E+01 ±	5.04E+01	6.98E+01

Location 102a collected 3/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		1.02E+01 ±	2.51E+01	4.99E+01
CR-51		1.80E+00 ±	1.86E+01	3.04E+01
MN-54		1.28E-01 ±	1.68E+00	2.74E+00
CO-58		1.15E+00 ±	1.74E+00	2.67E+00
FE-59		1.98E+00 ±	4.65E+00	7.23E+00
CO-60		4.02E-01 ±	1.47E+00	2.34E+00
ZN-65		2.05E+00 ±	3.22E+00	4.90E+00
ZRNB-95		3.46E-01 ±	1.99E+00	3.23E+00
I-131		3.16E+00 ±	4.02E+00	6.24E+00
CS-134		-7.36E-01 ±	1.88E+00	3.01E+00
CS-137		-1.29E+00 ±	2.13E+00	3.36E+00
BALA140		-6.03E-01 ±	4.37E+00	7.06E+00
BI-214		2.43E+00 ±	4.63E+00	8.32E+00
RA-226		1.66E+01 ±	3.92E+01	7.00E+01

Location 102a collected 4/6/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.82E+01 ±	3.83E+01	5.19E+01
CR-51		9.73E+00 ±	2.00E+01	3.20E+01
MN-54		4.52E-02 ±	1.45E+00	2.37E+00
CO-58		5.81E-02 ±	2.00E+00	3.27E+00
FE-59		0.00E+00 ±	6.22E+00	1.04E+01
CO-60		-1.94E-01 ±	1.29E+00	2.08E+00
ZN-65		1.23E-01 ±	2.62E+00	4.27E+00
ZRNB-95		1.84E+00 ±	1.53E+00	2.16E+00
I-131		2.75E+00 ±	4.90E+00	7.75E+00
CS-134		9.25E-01 ±	1.70E+00	2.69E+00
CS-137		1.63E+00 ±	1.63E+00	2.43E+00
BALA140		-1.24E+00 ±	5.30E+00	8.48E+00
BI-214		6.64E+00 ±	4.76E+00	8.16E+00
RA-226		-6.01E+00 ±	4.25E+01	6.94E+01

Location 102a collected 5/6/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.05E+01 ±	5.45E+01	5.24E+01
CR-51		-7.08E+00 ±	2.22E+01	3.60E+01
MN-54		9.41E-01 ±	2.00E+00	3.18E+00
CO-58		8.03E-01 ±	2.01E+00	3.19E+00
FE-59		2.68E+00 ±	5.69E+00	8.92E+00
CO-60		8.49E-01 ±	1.99E+00	3.14E+00
ZN-65		0.00E+00 ±	6.06E+00	1.01E+01
ZRNB-95		-1.09E-01 ±	2.05E+00	3.36E+00
I-131		-6.51E-02 ±	6.11E+00	1.00E+01
CS-134		1.11E+00 ±	1.86E+00	2.95E+00
CS-137		3.13E-01 ±	2.12E+00	3.46E+00
BALA140		-8.90E-04 ±	4.49E+00	7.29E+00
BI-214		7.18E-01 ±	4.83E+00	8.77E+00
RA-226		-9.15E+00 ±	6.07E+01	9.60E+01

Location 102a collected 6/1/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.97E+01 ±	4.08E+01	5.29E+01
CR-51		-1.22E+00 ±	1.99E+01	3.27E+01
MN-54		-6.41E-01 ±	2.06E+00	3.31E+00
CO-58		-4.89E-01 ±	1.99E+00	3.20E+00
FE-59		1.67E-01 ±	3.66E+00	5.97E+00
CO-60		1.71E+00 ±	1.79E+00	2.63E+00
ZN-65		0.00E+00 ±	6.68E+00	1.11E+01
ZRNB-95		-6.49E-01 ±	2.28E+00	3.68E+00
I-131		-2.55E+00 ±	5.13E+00	8.21E+00
CS-134		4.90E-01 ±	1.89E+00	3.06E+00
CS-137		-4.61E-02 ±	1.88E+00	3.08E+00
BALA140		-2.29E-01 ±	3.67E+00	5.98E+00
BI-214		8.11E-01 ±	4.28E+00	7.93E+00
RA-226		-9.49E+00 ±	5.03E+01	7.58E+01

Location 102a collected 7/1/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.26E+01 ±	5.92E+01	5.32E+01
CR-51		7.72E+00 ±	2.50E+01	4.06E+01
MN-54		7.25E-01 ±	1.97E+00	3.15E+00
CO-58		-8.13E-01 ±	2.11E+00	3.36E+00
FE-59		2.14E-01 ±	6.36E+00	1.04E+01
CO-60		3.49E-01 ±	1.91E+00	3.09E+00
ZN-65		6.97E-02 ±	2.98E+00	4.88E+00
ZRNB-95		5.58E-01 ±	2.27E+00	3.67E+00
I-131		-1.43E+00 ±	5.77E+00	9.38E+00
CS-134		-2.76E-01 ±	1.89E+00	3.07E+00
CS-137		1.21E+00 ±	2.24E+00	3.56E+00
BALA140		-2.15E-01 ±	4.09E+00	6.68E+00
BI-214		-4.28E+00 ±	9.96E+00	8.89E+00
RA-226		1.02E+01 ±	5.40E+01	9.51E+01



TABLE B-7.1  
**GAMMA SPECTROMETRY RESULTS OF SANITARY WASTE TREATMENT WATER**  
**STATION 102A**

Results in pCi/liter, corrected for decay during collection period

Location 102a collected 8/3/2009			
Nuclide	RQ	Activity	MDA
K-40		-3.42E+01 ± 5.55E+01	5.02E+01
CR-51		9.47E+00 ± 2.50E+01	4.05E+01
MN-54		2.00E-02 ± 1.85E+00	3.04E+00
CO-58		1.49E-01 ± 2.09E+00	3.42E+00
FE-59		-3.46E+00 ± 6.42E+00	1.00E+01
CO-60		0.00E+00 ± 2.75E+00	4.58E+00
ZN-65		-1.11E+00 ± 3.96E+00	6.35E+00
ZRNB-95		2.52E-01 ± 2.26E+00	3.69E+00
I-131		-2.13E-01 ± 5.86E+00	9.62E+00
CS-134		4.06E-01 ± 1.28E+00	2.05E+00
CS-137		1.44E+00 ± 2.08E+00	3.27E+00
BALA140		-2.31E-01 ± 5.06E+00	8.29E+00
BI-214		-1.77E-01 ± 5.16E+00	9.09E+00
RA-226		-3.16E-01 ± 5.69E+01	9.95E+01

Location 102a collected 8/31/2009			
Nuclide	RQ	Activity	MDA
K-40		-1.38E+01 ± 3.47E+01	5.19E+01
CR-51		1.40E+00 ± 2.21E+01	3.62E+01
MN-54		4.16E-02 ± 1.73E+00	2.84E+00
CO-58		1.19E+00 ± 1.59E+00	2.41E+00
FE-59		1.88E+00 ± 5.41E+00	8.55E+00
CO-60		1.61E+00 ± 1.71E+00	2.51E+00
ZN-65		-2.68E-01 ± 3.30E+00	5.38E+00
ZRNB-95		1.57E+00 ± 1.96E+00	3.00E+00
I-131		1.49E-02 ± 5.03E+00	8.27E+00
CS-134		5.75E-02 ± 1.72E+00	2.82E+00
CS-137		5.09E-01 ± 1.82E+00	2.93E+00
BALA140		-1.25E+00 ± 4.30E+00	6.82E+00
BI-214		1.54E+00 ± 4.82E+00	8.67E+00
RA-226		8.58E+00 ± 4.25E+01	7.55E+01

Location 102a collected 10/5/2009			
Nuclide	RQ	Activity	MDA
K-40		-2.87E+00 ± 2.64E+01	5.07E+01
CR-51		-1.08E+01 ± 2.36E+01	3.79E+01
MN-54		3.26E-01 ± 1.82E+00	2.95E+00
CO-58		-6.04E-02 ± 1.92E+00	3.15E+00
FE-59		0.00E+00 ± 4.97E+00	8.29E+00
CO-60		1.47E+00 ± 1.99E+00	3.03E+00
ZN-65		1.32E+00 ± 3.68E+00	5.83E+00
ZRNB-95		1.59E+00 ± 1.99E+00	3.04E+00
I-131		9.01E-01 ± 6.59E+00	1.07E+01
CS-134		1.01E-01 ± 2.37E+00	3.88E+00
CS-137		-1.54E-03 ± 1.80E+00	2.95E+00
BALA140		9.43E-01 ± 3.50E+00	5.47E+00
BI-214		2.81E-01 ± 4.63E+00	8.48E+00
RA-226		-4.85E+00 ± 4.50E+01	7.40E+01

Location 102a collected 11/2/2009			
Nuclide	RQ	Activity	MDA
K-40		-3.25E+00 ± 2.73E+01	5.02E+01
CR-51		5.94E-01 ± 2.07E+01	3.40E+01
MN-54		2.40E-02 ± 1.89E+00	3.11E+00
CO-58		-4.63E-01 ± 1.96E+00	3.14E+00
FE-59		-8.25E-01 ± 5.33E+00	8.59E+00
CO-60		5.84E-01 ± 1.97E+00	3.12E+00
ZN-65		-2.55E-01 ± 3.78E+00	6.16E+00
ZRNB-95		0.00E+00 ± 2.72E+00	4.53E+00
I-131		6.60E-01 ± 5.24E+00	8.55E+00
CS-134		0.00E+00 ± 3.47E+00	5.79E+00
CS-137		-7.69E-01 ± 1.94E+00	3.08E+00
BALA140		-6.02E-01 ± 4.74E+00	7.67E+00
BI-214		6.44E+00 ± 5.46E+00	9.59E+00
RA-226		3.92E+01 ± 4.73E+01	8.49E+01

Location 102a collected 11/30/2009			
Nuclide	RQ	Activity	MDA
K-40		-9.44E+00 ± 3.48E+01	5.27E+01
CR-51		2.35E+00 ± 1.51E+01	2.46E+01
MN-54		1.10E+00 ± 2.29E+00	3.63E+00
CO-58		-3.19E-01 ± 2.06E+00	3.33E+00
FE-59		2.99E+00 ± 4.79E+00	7.15E+00
CO-60		-3.15E-01 ± 1.72E+00	2.76E+00
ZN-65		-8.69E-01 ± 4.69E+00	7.58E+00
ZRNB-95		-5.06E-01 ± 2.57E+00	4.16E+00
I-131		1.18E+00 ± 6.48E+00	1.05E+01
CS-134		6.55E-02 ± 1.97E+00	3.24E+00
CS-137		-3.32E-01 ± 1.99E+00	3.22E+00
BALA140		7.83E-01 ± 4.58E+00	7.35E+00
BI-214		2.83E+00 ± 4.55E+00	8.53E+00
RA-226		2.06E+01 ± 4.91E+01	8.87E+01

Location 102a collected 1/4/2010			
Nuclide	RQ	Activity	MDA
K-40		-1.03E+01 ± 3.32E+01	5.04E+01
CR-51		0.00E+00 ± 2.23E+01	3.71E+01
MN-54		2.52E-01 ± 1.96E+00	3.19E+00
CO-58		-3.49E-01 ± 2.33E+00	3.79E+00
FE-59		-3.80E-02 ± 6.31E+00	1.04E+01
CO-60		-3.54E-02 ± 1.88E+00	3.09E+00
ZN-65		0.00E+00 ± 7.90E+00	1.32E+01
ZRNB-95		2.13E+00 ± 1.99E+00	2.92E+00
I-131		2.81E+00 ± 5.85E+00	9.30E+00
CS-134		1.06E+00 ± 2.14E+00	3.40E+00
CS-137		7.99E-02 ± 1.92E+00	3.15E+00
BALA140		0.00E+00 ± 9.84E+00	1.64E+01
BI-214		-1.71E+00 ± 6.56E+00	9.70E+00
RA-226		-7.41E+00 ± 5.77E+01	9.49E+01

TABLE B-7.1  
**GAMMA SPECTROMETRY RESULTS OF SANITARY WASTE TREATMENT WATER**  
**STATION 102B**

Results in pCi/liter, corrected for decay during collection period

Location 102b collected 2/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.21E+01 ±	3.11E+01	4.97E+01
CR-51		1.96E+00 ±	1.76E+01	2.87E+01
MN-54		-4.09E-02 ±	1.76E+00	2.90E+00
CO-58		6.15E-01 ±	1.65E+00	2.61E+00
FE-59		7.22E-01 ±	4.66E+00	7.51E+00
CO-60		-4.45E-01 ±	1.80E+00	2.88E+00
ZN-65		-7.13E-01 ±	3.75E+00	6.05E+00
ZRNB-95		-3.22E-01 ±	1.85E+00	3.00E+00
I-131	+	2.03E+02 ±	1.23E+01	8.14E+00
CS-134		1.13E-01 ±	1.75E+00	2.87E+00
CS-137		-4.17E-01 ±	1.70E+00	2.74E+00
BALA140		1.59E+00 ±	3.74E+00	5.78E+00
BI-214		2.02E+00 ±	4.31E+00	7.87E+00
RA-226		-1.14E+01 ±	5.27E+01	7.64E+01

Location 102b collected 3/2/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-6.05E+00 ±	2.89E+01	5.14E+01
CR-51		0.00E+00 ±	1.87E+01	3.12E+01
MN-54		6.89E-01 ±	1.53E+00	2.40E+00
CO-58		6.94E-01 ±	1.89E+00	3.01E+00
FE-59		0.00E+00 ±	2.18E+00	3.63E+00
CO-60		-1.00E-01 ±	1.63E+00	2.67E+00
ZN-65		2.33E+00 ±	2.00E+00	2.49E+00
ZRNB-95		7.23E-01 ±	2.06E+00	3.29E+00
I-131		-1.62E+00 ±	5.17E+00	8.36E+00
CS-134		-4.63E-01 ±	1.94E+00	3.15E+00
CS-137		0.00E+00 ±	2.17E+00	3.61E+00
BALA140		-1.33E-02 ±	3.62E+00	5.94E+00
BI-214		-1.76E+00 ±	5.86E+00	8.04E+00
RA-226		-2.75E+01 ±	6.38E+01	7.01E+01

Location 102b collected 4/6/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-7.23E+00 ±	2.95E+01	5.12E+01
CR-51		-8.90E+00 ±	1.98E+01	3.18E+01
MN-54		-6.89E-01 ±	1.88E+00	3.00E+00
CO-58		8.06E-01 ±	1.77E+00	2.78E+00
FE-59		-3.99E-02 ±	6.00E+00	9.86E+00
CO-60		0.00E+00 ±	1.93E+00	3.22E+00
ZN-65		3.60E-01 ±	3.43E+00	5.57E+00
ZRNB-95		-1.24E+00 ±	2.22E+00	3.50E+00
I-131		2.65E-02 ±	5.76E+00	9.46E+00
CS-134		1.48E-01 ±	1.81E+00	2.97E+00
CS-137		5.09E-01 ±	1.74E+00	2.80E+00
BALA140		-2.14E+00 ±	5.94E+00	9.40E+00
BI-214		5.46E-01 ±	4.21E+00	7.85E+00
RA-226		-1.25E+01 ±	5.11E+01	7.33E+01

Location 102b collected 5/6/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-8.86E+00 ±	2.84E+01	4.90E+01
CR-51		6.98E+00 ±	1.74E+01	2.79E+01
MN-54		2.83E-01 ±	1.60E+00	2.59E+00
CO-58		-1.04E+00 ±	2.07E+00	3.26E+00
FE-59		-1.81E+00 ±	5.24E+00	8.27E+00
CO-60		-1.94E-02 ±	1.66E+00	2.72E+00
ZN-65		-9.49E-02 ±	2.68E+00	4.39E+00
ZRNB-95		-2.47E-01 ±	2.10E+00	3.42E+00
I-131		-1.74E+00 ±	5.34E+00	8.62E+00
CS-134		-3.89E-02 ±	1.64E+00	2.69E+00
CS-137		-7.65E-01 ±	1.93E+00	3.08E+00
BALA140		1.23E+00 ±	3.71E+00	5.81E+00
BI-214		-3.09E+00 ±	7.46E+00	8.05E+00
RA-226		-2.99E+01 ±	6.77E+01	7.07E+01

Location 102b collected 6/1/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		1.96E+00 ±	2.47E+01	5.04E+01
CR-51		-9.90E+00 ±	2.01E+01	3.22E+01
MN-54		0.00E+00 ±	1.89E+00	3.15E+00
CO-58		1.07E+00 ±	1.78E+00	2.75E+00
FE-59		6.32E-01 ±	4.97E+00	8.06E+00
CO-60		1.36E-01 ±	1.91E+00	3.12E+00
ZN-65		1.94E-02 ±	3.73E+00	6.13E+00
ZRNB-95		4.48E-02 ±	2.03E+00	3.33E+00
I-131		-1.02E+00 ±	5.06E+00	8.24E+00
CS-134		3.49E-01 ±	1.80E+00	2.93E+00
CS-137		-5.52E-02 ±	1.63E+00	2.67E+00
BALA140		-8.42E-01 ±	4.15E+00	6.66E+00
BI-214		-1.63E+00 ±	5.95E+00	8.28E+00
RA-226		-2.53E+01 ±	6.59E+01	7.43E+01

Location 102b collected 7/1/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.72E+01 ±	6.02E+01	5.16E+01
CR-51		5.36E+00 ±	2.08E+01	3.37E+01
MN-54		-1.12E-04 ±	1.82E+00	2.99E+00
CO-58		-7.62E-01 ±	2.10E+00	3.35E+00
FE-59		0.00E+00 ±	6.99E+00	1.16E+01
CO-60		2.01E+00 ±	1.95E+00	2.87E+00
ZN-65		0.00E+00 ±	5.81E+00	9.68E+00
ZRNB-95		-2.55E-01 ±	1.97E+00	3.20E+00
I-131		1.89E+00 ±	3.86E+00	6.10E+00
CS-134		-6.78E-01 ±	2.11E+00	3.41E+00
CS-137		5.99E-01 ±	1.90E+00	3.05E+00
BALA140		1.15E+00 ±	4.05E+00	6.40E+00
BI-214		-2.46E+00 ±	7.38E+00	8.71E+00
RA-226		-2.46E+01 ±	6.59E+01	7.51E+01

TABLE B-7.1  
**GAMMA SPECTROMETRY RESULTS OF SANITARY WASTE TREATMENT WATER**  
**STATION 102B**

Results in pCi/liter, corrected for decay during collection period

Location 102b collected 8/3/2009			
Nuclide	RQ	Activity	MDA
K-40		-2.93E+01 ± 5.03E+01	5.22E+01
CR-51		-1.95E+01 ± 2.39E+01	3.78E+01
MN-54		0.00E+00 ± 1.89E+00	3.16E+00
CO-58		-1.01E+00 ± 2.39E+00	3.81E+00
FE-59		2.05E+00 ± 4.62E+00	7.14E+00
CO-60		1.42E+00 ± 1.97E+00	3.00E+00
ZN-65		0.00E+00 ± 6.95E+00	1.16E+01
ZRNB-95		4.64E-01 ± 2.05E+00	3.30E+00
I-131		1.38E+00 ± 5.90E+00	9.58E+00
CS-134		5.82E-01 ± 2.15E+00	3.48E+00
CS-137		7.13E-01 ± 1.86E+00	2.97E+00
BALA140		1.57E-01 ± 4.50E+00	7.37E+00
BI-214		1.32E-01 ± 4.55E+00	8.38E+00
RA-226		-1.00E+01 ± 4.85E+01	7.28E+01

Location 102b collected 8/31/2009			
Nuclide	RQ	Activity	MDA
K-40		1.54E-01 ± 2.57E+01	5.18E+01
CR-51		9.56E+00 ± 1.90E+01	3.03E+01
MN-54		1.22E+00 ± 1.86E+00	2.90E+00
CO-58		-1.20E+00 ± 2.50E+00	3.98E+00
FE-59		-2.23E-01 ± 4.91E+00	8.03E+00
CO-60		1.95E+00 ± 2.05E+00	3.06E+00
ZN-65		-2.10E-01 ± 4.04E+00	6.62E+00
ZRNB-95		-7.92E-01 ± 2.01E+00	3.19E+00
I-131		-2.83E-03 ± 5.31E+00	8.83E+00
CS-134		-3.30E-01 ± 2.05E+00	3.34E+00
CS-137		-6.06E-01 ± 2.13E+00	3.44E+00
BALA140		7.18E-01 ± 4.07E+00	6.54E+00
BI-214		1.07E-01 ± 4.64E+00	8.51E+00
RA-226		-1.28E+00 ± 4.38E+01	7.65E+01

Location 102b collected 10/5/2009			
Nuclide	RQ	Activity	MDA
K-40		-2.07E+01 ± 3.67E+01	4.91E+01
CR-51		-1.85E+00 ± 2.23E+01	3.65E+01
MN-54		1.58E+00 ± 1.60E+00	2.37E+00
CO-58		-3.24E-01 ± 2.07E+00	3.36E+00
FE-59		3.18E-02 ± 4.77E+00	7.85E+00
CO-60		4.23E-01 ± 1.94E+00	3.12E+00
ZN-65		-1.18E+00 ± 3.59E+00	5.69E+00
ZRNB-95		0.00E+00 ± 2.28E+00	3.80E+00
I-131		2.62E-01 ± 7.74E+00	1.27E+01
CS-134		-1.20E+00 ± 1.97E+00	3.12E+00
CS-137		-2.02E-01 ± 1.90E+00	3.09E+00
BALA140		2.40E+00 ± 5.09E+00	7.86E+00
BI-214		-2.63E+00 ± 7.03E+00	8.20E+00
RA-226		1.24E+01 ± 4.01E+01	7.16E+01

Location 102b collected 11/2/2009			
Nuclide	RQ	Activity	MDA
K-40		1.21E+01 ± 2.62E+01	5.04E+01
CR-51		2.02E+00 ± 2.67E+01	4.38E+01
MN-54		0.00E+00 ± 2.74E+00	4.57E+00
CO-58		-6.75E-01 ± 2.09E+00	3.33E+00
FE-59		2.66E+00 ± 5.96E+00	9.30E+00
CO-60		-6.57E-01 ± 2.09E+00	3.33E+00
ZN-65		-1.71E+00 ± 4.05E+00	6.36E+00
ZRNB-95		-3.94E-01 ± 2.23E+00	3.62E+00
I-131		3.59E-01 ± 5.33E+00	8.72E+00
CS-134		4.08E-01 ± 2.29E+00	3.73E+00
CS-137		1.45E+00 ± 2.11E+00	3.27E+00
BALA140		-2.16E+00 ± 5.55E+00	8.75E+00
BI-214		-1.07E+00 ± 5.96E+00	9.65E+00
RA-226		-1.63E+01 ± 5.96E+01	8.89E+01

Location 102b collected 11/30/2009			
Nuclide	RQ	Activity	MDA
K-40		-3.44E+00 ± 2.91E+01	5.22E+01
CR-51		-1.89E+00 ± 2.28E+01	3.73E+01
MN-54		2.99E-01 ± 1.83E+00	2.96E+00
CO-58		1.94E-02 ± 1.91E+00	3.14E+00
FE-59		1.78E+00 ± 5.65E+00	8.94E+00
CO-60		2.09E-03 ± 1.18E+00	1.94E+00
ZN-65		-3.20E+00 ± 5.38E+00	8.42E+00
ZRNB-95		0.00E+00 ± 2.03E+00	3.38E+00
I-131		7.64E-02 ± 5.73E+00	9.41E+00
CS-134		1.76E-01 ± 2.09E+00	3.42E+00
CS-137		-1.71E-01 ± 2.10E+00	3.42E+00
BALA140		1.30E+00 ± 4.86E+00	7.71E+00
BI-214		8.51E+00 ± 5.38E+00	9.29E+00
RA-226		-8.19E-01 ± 4.88E+01	8.88E+01

Location 102b collected 1/4/2010			
Nuclide	RQ	Activity	MDA
K-40		-1.91E+00 ± 2.68E+01	5.08E+01
CR-51		1.46E+00 ± 2.48E+01	3.97E+01
MN-54		2.56E-01 ± 1.71E+00	2.76E+00
CO-58		1.52E-02 ± 2.09E+00	3.40E+00
FE-59		1.93E+00 ± 6.24E+00	9.74E+00
CO-60		3.17E-01 ± 1.93E+00	3.11E+00
ZN-65		1.19E-01 ± 4.83E+00	7.90E+00
ZRNB-95		1.18E+00 ± 2.10E+00	3.22E+00
I-131		2.93E+00 ± 7.52E+00	1.10E+01
CS-134		7.34E-01 ± 1.55E+00	2.43E+00
CS-137		8.52E-01 ± 1.76E+00	2.76E+00
BALA140		-6.14E-01 ± 5.46E+00	8.37E+00
BI-214		1.03E+00 ± 4.82E+00	9.09E+00
RA-226		-1.52E+01 ± 5.96E+01	9.00E+01

TABLE B-7.2  
**GAMMA SPECTROMETRY RESULTS OF SANITARY WASTE TREATMENT WATER - SUMMARY**

Results in pCi per liter, corrected for decay during collection period

Location	Nuclide	Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
102A	K-40	-1.48E+01	-3.42E+01	1.02E+01	5.12E+01	12	0
	CR-51	1.19E+00	-1.08E+01	9.73E+00	3.41E+01	12	0
	MN-54	2.40E-01	-6.41E-01	1.10E+00	2.97E+00	12	0
	CO-58	9.25E-02	-8.13E-01	1.19E+00	3.17E+00	12	0
	FE-59	2.76E-01	-3.46E+00	2.99E+00	8.70E+00	12	0
	CO-60	5.01E-01	-4.15E-01	1.71E+00	2.91E+00	12	0
	ZN-65	1.89E-01	-1.11E+00	2.05E+00	7.01E+00	12	0
	ZRNB-95	6.59E-01	-6.49E-01	2.13E+00	3.36E+00	12	0
	I-131	5.90E-01	-2.55E+00	3.16E+00	8.79E+00	12	0
	CS-134	3.46E-01	-7.36E-01	1.11E+00	3.21E+00	12	0
	CS-137	3.03E-01	-1.29E+00	1.63E+00	3.06E+00	12	0
	BALA140	-3.21E-01	-1.25E+00	9.43E-01	7.84E+00	12	0
	BI-214	1.59E+00	-4.28E+00	6.64E+00	8.65E+00	12	0
RA-226	3.58E+00	-1.50E+01	3.92E+01	8.28E+01	12	0	
102B	K-40	-9.37E+00	-3.72E+01	1.21E+01	5.08E+01	12	0
	CR-51	-1.23E+00	-1.95E+01	9.56E+00	3.42E+01	12	0
	MN-54	3.00E-01	-6.89E-01	1.58E+00	2.98E+00	12	0
	CO-58	-1.50E-01	-1.20E+00	1.07E+00	3.23E+00	12	0
	FE-59	6.45E-01	-1.81E+00	2.66E+00	8.33E+00	12	0
	CO-60	4.19E-01	-6.57E-01	2.01E+00	2.92E+00	12	0
	ZN-65	-3.57E-01	-3.20E+00	2.33E+00	6.74E+00	12	0
	ZRNB-95	-7.00E-02	-1.24E+00	1.18E+00	3.35E+00	12	0
	I-131	1.71E+01	-1.74E+00	2.03E+02	9.10E+00	12	1
	CS-134	-1.70E-02	-1.20E+00	7.34E-01	3.13E+00	12	0
	CS-137	1.59E-01	-7.65E-01	1.45E+00	3.08E+00	12	0
	BALA140	2.31E-01	-2.16E+00	2.40E+00	7.22E+00	12	0
	BI-214	-2.44E-02	-3.09E+00	8.51E+00	8.49E+00	12	0
RA-226	-1.35E+01	-2.99E+01	1.24E+01	7.74E+01	12	0	

TABLE B-8.1  
**TRITIUM IN SANITARY WASTE TREATMENT WATER**  
 Results in pCi per liter

Location	Description	Collection Period	RQ	Activity	Error
102A	FFTF-Effluent	01/05/09 - 02/02/09	+	2.17E+03 ±	1.43E+02
		02/02/09 - 03/02/09	+	2.17E+03 ±	1.43E+02
		03/02/09 - 04/06/09	+	2.32E+03 ±	1.50E+02
		04/06/09 - 05/06/09	+	2.34E+03 ±	1.42E+02
		05/06/09 - 06/01/09	+	2.21E+03 ±	1.42E+02
		06/01/09 - 07/01/09	+	2.25E+03 ±	1.44E+02
		07/01/09 - 08/03/09	+	2.01E+03 ±	1.40E+02
		08/03/09 - 08/31/09	+	1.97E+03 ±	1.42E+02
		08/31/09 - 10/05/09	+	2.11E+03 ±	1.42E+02
		10/05/09 - 11/02/09	+	2.03E+03 ±	1.45E+02
		11/02/09 - 11/30/09	+	2.04E+03 ±	1.41E+02
		11/30/09 - 01/04/10	+	2.55E+03 ±	1.54E+02
		102B	Monthly Headworks	01/05/09 - 02/02/09	+
02/02/09 - 03/02/09	+			4.30E+02 ±	1.06E+02
03/02/09 - 04/06/09				2.44E+02 ±	1.04E+02
04/06/09 - 05/06/09	+			4.93E+02 ±	1.04E+02
05/06/09 - 06/01/09	+			4.51E+02 ±	1.04E+02
06/01/09 - 07/01/09	+			3.98E+02 ±	1.02E+02
07/01/09 - 08/03/09	+			3.98E+02 ±	1.03E+02
08/03/09 - 08/31/09	+			5.38E+02 ±	1.09E+02
08/31/09 - 10/05/09	+			6.08E+02 ±	1.07E+02
10/05/09 - 11/02/09	+			3.57E+02 ±	1.07E+02
11/02/09 - 11/30/09	+			3.86E+02 ±	1.02E+02
11/30/09 - 01/04/10	+			9.98E+02 ±	1.21E+02

TABLE B-8.2  
**TRITIUM IN SANITARY WASTE TREATMENT WATER - SUMMARY**  
 Results in pCi per liter

Location Description	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
102A & 102B	1.33E+03	2.44E+02	2.55E+03	24	23
102A FFTF Effluent	2.18E+03	1.97E+03	2.55E+03	12	12
102B Monthly Headworks	4.70E+02	2.44E+02	9.98E+02	12	11

Table B-9.1

**SPECIAL ISOTOPIC ANALYSIS RESULTS OF MONITORING WELL WATER**

All results in pCi/liter, decay corrected to collection date

**Fe-55**

1st Q 2009 Collected 1/22/09 to 1/28/09

Location	RQ	Activity	Error	MDC
MW-3		-4.16E+01 ±	9.20E+01	1.38E+02
MW-5		5.92E+00 ±	6.67E+01	1.12E+02
MW-6		4.47E+01 ±	5.57E+01	1.11E+02
MW-7		-2.00E+01 ±	6.90E+01	1.05E+02
MW-8		-3.30E+00 ±	6.96E+01	1.13E+02
MW-9		3.87E+01 ±	5.78E+01	1.13E+02
MW-10		1.71E+01 ±	6.82E+01	1.19E+02
MW-11		8.00E+01 ±	8.75E+01	1.69E+02
MW-12		5.72E+01 ±	7.51E+01	1.43E+02
MW-13		2.20E+02 ±	9.32E+01	1.66E+02
MW-14		2.74E+01 ±	6.94E+01	1.24E+02

**Fe-55**

2nd Q 2009 Collected 4/22/09 to 4/27/09

Nuclide	RQ	Activity	Error	MDC
MW-3		-2.03E+00 ±	5.77E+01	9.42E+01
MW-5		2.40E+00 ±	7.51E+01	1.24E+02
MW-6		7.25E+01 ±	7.59E+01	1.49E+02
MW-7		8.49E+01 ±	6.66E+01	1.40E+02
MW-8		1.91E+00 ±	6.26E+01	1.04E+02
MW-9		-3.33E+01 ±	6.68E+01	9.51E+01
MW-10		-2.25E+01 ±	7.99E+01	1.23E+02
MW-11		3.48E+01 ±	8.19E+01	1.46E+02
MW-12		4.41E+01 ±	6.51E+01	1.24E+02
MW-13		-2.37E+00 ±	8.68E+01	1.42E+02
MW-14		1.65E+01 ±	7.85E+01	1.35E+02

**Ni-63**

1st Q 2009 Collected 1/22/09 to 1/28/09

Nuclide	RQ	Activity	Error	MDC
MW-3		4.25E+00 ±	2.88E+00	4.50E+00
MW-5		5.54E-01 ±	2.01E+00	3.28E+00
MW-6		-4.79E-01 ±	1.96E+00	3.26E+00
MW-7		-9.59E-01 ±	2.11E+00	3.53E+00
MW-8		4.75E-01 ±	1.98E+00	3.23E+00
MW-9		2.90E+00 ±	3.02E+00	4.79E+00
MW-10		4.61E-01 ±	2.47E+00	4.04E+00
MW-11		6.58E-01 ±	2.64E+00	4.32E+00
MW-12		2.50E+00 ±	2.78E+00	4.43E+00
MW-13		2.09E+00 ±	2.95E+00	4.71E+00
MW-14		4.53E-01 ±	1.99E+00	3.25E+00

**Ni-63**

2nd Q 2009 Collected 4/22/09 to 4/27/09

Nuclide	RQ	Activity	Error	MDC
MW-3		-1.56E+00 ±	2.28E+00	3.86E+00
MW-5		-2.77E-01 ±	2.15E+00	3.57E+00
MW-6		-6.85E-01 ±	2.20E+00	3.67E+00
MW-7		0.00E+00 ±	2.08E+00	3.43E+00
MW-8		9.04E-01 ±	2.15E+00	3.48E+00
MW-9		5.04E-01 ±	2.24E+00	3.66E+00
MW-10		-1.46E+00 ±	2.56E+00	4.29E+00
MW-11		-1.99E+00 ±	2.42E+00	4.09E+00
MW-12		-4.30E-01 ±	2.13E+00	3.53E+00
MW-13		-5.71E-01 ±	2.11E+00	3.52E+00
MW-14		1.21E+00 ±	2.15E+00	3.46E+00

**Sr-90**

1st Q 2009 Collected 1/22/09 to 1/28/09

Nuclide	RQ	Activity	Error	MDC
MW-3		2.65E-01 ±	4.42E-01	6.93E-01
MW-5		-3.20E-01 ±	3.66E-01	6.43E-01
MW-6		2.22E-01 ±	3.62E-01	5.63E-01
MW-7		0.00E+00 ±	4.54E-01	7.48E-01
MW-8		-3.77E-01 ±	3.88E-01	6.82E-01
MW-9		1.53E-01 ±	4.49E-01	7.20E-01
MW-10		5.85E-02 ±	3.74E-01	6.09E-01
MW-11		-3.84E-01 ±	3.22E-01	5.77E-01
MW-12		4.48E-01 ±	5.09E-01	7.82E-01
MW-13		9.22E-02 ±	3.79E-01	6.14E-01
MW-14		-2.49E-01 ±	2.95E-01	5.15E-01

**Sr-90**

2nd Q 2009 Collected 4/22/09 to 4/27/09

Nuclide	RQ	Activity	Error	MDC
MW-3		7.82E-01 ±	5.43E-01	8.04E-01
MW-5		2.03E-02 ±	5.41E-01	8.89E-01
MW-6		1.51E-02 ±	4.01E-01	6.59E-01
MW-7		-2.14E-02 ±	2.94E-01	4.86E-01
MW-8		5.03E-01 ±	3.58E-01	5.30E-01
MW-9		3.11E-01 ±	3.80E-01	5.88E-01
MW-10		1.45E-01 ±	3.89E-01	6.24E-01
MW-11		3.96E-01 ±	2.86E-01	4.23E-01
MW-12		3.58E-01 ±	3.77E-01	5.75E-01
MW-13		3.14E-01 ±	4.31E-01	6.75E-01
MW-14		5.28E-01 ±	4.14E-01	6.20E-01

TABLE B-10.1  
**GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING SAMPLES**

Results in pCi per liter

Station MW-3 collected 1/21/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-7.79E+01 ±	1.83E+03	8.33E+01
MN-54		0.00E+00 ±	4.66E+00	7.77E+00
CO-58		-1.56E+00 ±	3.30E+00	5.18E+00
FE-59		8.08E-01 ±	7.61E+00	1.23E+01
CO-60		0.00E+00 ±	2.77E+00	4.62E+00
ZN-65		-2.54E+00 ±	3.97E+01	6.53E+01
ZRNB-95		-7.73E-01 ±	3.82E+00	6.19E+00
I-131		3.67E-01 ±	3.54E+00	5.78E+00
CS-134		-1.02E+00 ±	2.51E-01	5.85E-01
CS-137		-1.19E+00 ±	3.68E+00	5.89E+00
BALA140		-7.34E-01 ±	4.54E+00	7.32E+00
BI-214	+	3.66E+02 ±	2.20E+01	1.36E+01

Station MW-8 collected 1/21/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-8.59E+00 ±	4.65E+01	7.73E+01
MN-54		-7.36E-01 ±	2.33E+00	3.66E+00
CO-58		1.01E+00 ±	2.68E+00	4.20E+00
FE-59		-2.76E-02 ±	7.06E+00	1.16E+01
CO-60		8.27E-01 ±	2.69E+00	4.22E+00
ZN-65		3.89E-01 ±	7.34E+00	1.20E+01
ZRNB-95		-1.66E+00 ±	3.83E+00	6.06E+00
I-131		2.07E+00 ±	4.10E+00	6.47E+00
CS-134		-1.57E+00 ±	3.45E+00	5.48E+00
CS-137		1.27E-01 ±	2.65E+00	4.33E+00
BALA140		-1.06E+00 ±	5.17E+00	8.25E+00
BI-214	+	1.05E+02 ±	1.31E+01	1.30E+01

Station MW-5 collected 1/21/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.03E+01 ±	6.47E+01	8.06E+01
MN-54		0.00E+00 ±	3.45E+00	5.74E+00
CO-58		-1.45E-01 ±	3.08E+00	5.04E+00
FE-59		2.39E+00 ±	7.72E+00	1.22E+01
CO-60		-7.26E-01 ±	3.33E+00	5.33E+00
ZN-65		-5.39E+00 ±	1.14E+01	1.81E+01
ZRNB-95		-1.74E+00 ±	3.47E+00	5.45E+00
I-131		-1.62E+00 ±	3.26E+00	5.17E+00
CS-134		0.00E+00 ±	6.40E+00	1.07E+01
CS-137		1.89E-04 ±	3.70E+00	6.03E+00
BALA140		-8.27E-01 ±	4.36E+00	6.99E+00
BI-214	+	1.69E+02 ±	1.51E+01	1.07E+01

Station MW-9 collected 1/21/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.27E+01 ±	6.08E+01	7.52E+01
MN-54		-2.44E-02 ±	2.68E+00	4.40E+00
CO-58		-1.13E-01 ±	2.48E+00	4.06E+00
FE-59		-7.99E-01 ±	5.14E+00	8.17E+00
CO-60		1.65E-03 ±	2.66E+00	4.37E+00
ZN-65		3.17E+00 ±	3.19E+00	3.77E+00
ZRNB-95		-1.57E+00 ±	3.59E+00	5.67E+00
I-131		2.04E-02 ±	3.99E+00	6.55E+00
CS-134		-2.16E-01 ±	5.71E+00	9.37E+00
CS-137		0.00E+00 ±	4.91E+00	8.19E+00
BALA140		1.29E+00 ±	3.96E+00	6.11E+00
BI-214	+	1.20E+02 ±	1.39E+01	1.20E+01

Station MW-6 collected 1/21/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.05E+01 ±	6.33E+01	7.93E+01
MN-54		-1.89E+00 ±	4.21E+00	6.68E+00
CO-58		1.53E+00 ±	2.93E+00	4.54E+00
FE-59		6.86E-01 ±	8.01E+00	1.30E+01
CO-60		-1.11E+00 ±	3.90E+00	6.22E+00
ZN-65		-2.11E+01 ±	7.69E-01	1.79E+00
ZRNB-95		-1.01E-01 ±	3.38E+00	5.54E+00
I-131		7.72E-01 ±	2.32E+00	3.69E+00
CS-134		3.17E-01 ±	4.35E+00	7.12E+00
CS-137		-6.54E-01 ±	3.95E+00	6.40E+00
BALA140		-2.20E-01 ±	4.71E+00	7.70E+00
BI-214	+	3.17E+02 ±	2.07E+01	1.26E+01

Station MW-10 collected 1/28/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-1.80E+01 ±	6.19E+01	8.10E+01
MN-54		-9.27E-02 ±	3.14E+00	5.14E+00
CO-58		-7.27E-01 ±	2.88E+00	4.60E+00
FE-59		-2.49E+00 ±	8.09E+00	1.28E+01
CO-60		6.69E-01 ±	3.03E+00	4.83E+00
ZN-65		-2.79E+00 ±	7.03E+00	1.10E+01
ZRNB-95		-3.04E-01 ±	4.01E+00	6.55E+00
I-131		1.20E+00 ±	2.67E+00	4.24E+00
CS-134		-8.66E-01 ±	3.43E+00	5.54E+00
CS-137		-2.11E+00 ±	3.76E+00	5.89E+00
BALA140		9.86E-01 ±	3.75E+00	5.93E+00
BI-214	+	2.51E+02 ±	1.84E+01	1.27E+01

Station MW-7 collected 1/21/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-3.86E+01 ±	1.06E+02	8.19E+01
MN-54		0.00E+00 ±	3.47E+00	5.79E+00
CO-58		-1.17E+00 ±	3.33E+00	5.29E+00
FE-59		-2.69E+00 ±	8.15E+00	1.28E+01
CO-60		-4.30E-01 ±	2.86E+00	4.59E+00
ZN-65		9.25E-01 ±	6.21E+00	1.00E+01
ZRNB-95		9.71E-02 ±	2.60E+00	4.25E+00
I-131		2.95E+00 ±	4.04E+00	6.27E+00
CS-134		-5.46E-01 ±	2.76E+00	4.45E+00
CS-137		-6.95E-01 ±	2.95E+00	4.73E+00
BALA140		-1.47E+00 ±	5.22E+00	8.25E+00
BI-214	+	1.17E+02 ±	1.40E+01	1.19E+01

Station MW-11 collected 1/28/2009				
Nuclide	RQ	Activity	Error	MDA
K-40		-2.86E+01 ±	7.18E+01	7.63E+01
MN-54		-7.21E-01 ±	2.92E+00	4.66E+00
CO-58		9.31E-02 ±	2.00E+00	3.27E+00
FE-59		-2.78E+00 ±	7.84E+00	1.23E+01
CO-60		0.00E+00 ±	2.49E+00	4.16E+00
ZN-65		-2.97E+00 ±	7.33E+00	1.15E+01
ZRNB-95		0.00E+00 ±	3.52E+00	5.86E+00
I-131		5.38E-01 ±	3.51E+00	5.72E+00
CS-134		3.41E-01 ±	2.98E+00	4.86E+00
CS-137		-7.90E-01 ±	3.55E+00	5.72E+00
BALA140		-9.81E-01 ±	3.88E+00	6.13E+00
BI-214	+	2.59E+02 ±	1.92E+01	1.27E+01

TABLE B-10.1  
**GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING SAMPLES**  
 Results in pCi per liter

Station MW-12 collected				1/28/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-4.93E+01 ±	1.48E+02	8.12E+01
MN-54		-1.25E+00 ±	3.46E+00	5.49E+00
CO-58		-3.62E-02 ±	2.79E+00	4.58E+00
FE-59		-1.62E+00 ±	7.24E+00	1.15E+01
CO-60		-3.29E-01 ±	3.46E+00	5.63E+00
ZN-65		-1.69E+00 ±	3.52E+01	5.79E+01
ZRNB-95		-2.75E+00 ±	4.63E+00	7.32E+00
I-131		1.42E+00 ±	3.13E+00	4.97E+00
CS-134		-2.12E+00 ±	3.81E+00	6.02E+00
CS-137		-8.31E-01 ±	3.51E+00	5.65E+00
BALA140		-1.42E+00 ±	4.59E+00	7.25E+00
BI-214	+	2.46E+02 ±	1.90E+01	1.35E+01

Station MW-5 collected				4/27/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-1.53E+01 ±	5.77E+01	8.06E+01
MN-54		-4.20E-01 ±	3.09E+00	5.02E+00
CO-58		-5.54E-01 ±	2.87E+00	4.62E+00
FE-59		2.78E-01 ±	7.59E+00	1.24E+01
CO-60		-7.84E-01 ±	3.49E+00	5.58E+00
ZN-65		8.46E-01 ±	2.89E+01	4.75E+01
ZRNB-95		-3.00E+00 ±	4.68E+00	7.37E+00
I-131		1.24E+00 ±	2.62E+00	4.15E+00
CS-134		-4.81E-02 ±	2.68E+00	4.40E+00
CS-137		-2.75E-01 ±	5.27E+00	8.63E+00
BALA140		-1.16E+00 ±	4.09E+00	6.47E+00
BI-214	+	2.12E+02 ±	1.71E+01	1.24E+01

Station MW-13 collected				1/28/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-2.50E+01 ±	7.90E+01	8.52E+01
MN-54		-6.29E-01 ±	3.28E+00	5.29E+00
CO-58		4.80E-01 ±	2.58E+00	4.14E+00
FE-59		-9.94E-01 ±	7.74E+00	1.25E+01
CO-60		-2.78E-01 ±	3.37E+00	5.49E+00
ZN-65		0.00E+00 ±	3.59E+01	5.99E+01
ZRNB-95		8.15E-02 ±	2.85E+00	4.68E+00
I-131		1.42E+00 ±	3.21E+00	5.11E+00
CS-134		-1.59E+00 ±	3.83E+00	6.12E+00
CS-137		1.88E+00 ±	2.07E+00	2.91E+00
BALA140		-1.09E+00 ±	4.27E+00	6.78E+00
BI-214	+	2.64E+02 ±	1.94E+01	1.39E+01

Station MW-6 collected				4/27/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-6.44E+01 ±	3.54E+02	8.17E+01
MN-54		9.73E-01 ±	3.07E+00	4.90E+00
CO-58		-1.65E+00 ±	3.65E+00	5.79E+00
FE-59		0.00E+00 ±	8.71E+00	1.45E+01
CO-60		1.05E+00 ±	3.12E+00	4.93E+00
ZN-65		-1.01E+01 ±	1.33E+01	2.09E+01
ZRNB-95		-2.43E+00 ±	4.07E+00	6.43E+00
I-131		1.48E-01 ±	4.33E+00	7.10E+00
CS-134		6.28E-01 ±	3.25E+00	5.28E+00
CS-137		1.02E+00 ±	3.26E+00	5.22E+00
BALA140		4.74E-01 ±	4.41E+00	7.16E+00
BI-214	+	2.86E+02 ±	1.89E+01	1.38E+01

Station MW-14 collected				1/28/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-3.75E+01 ±	9.76E+01	7.94E+01
MN-54		-1.42E+00 ±	3.38E+00	5.33E+00
CO-58		6.14E-01 ±	2.56E+00	4.09E+00
FE-59		8.00E-02 ±	4.67E+00	7.64E+00
CO-60		7.46E-01 ±	3.00E+00	4.76E+00
ZN-65		-6.80E+00 ±	1.02E+01	1.59E+01
ZRNB-95		-1.27E+00 ±	3.66E+00	5.85E+00
I-131		-2.17E-01 ±	3.12E+00	5.11E+00
CS-134		-9.54E-01 ±	2.97E+00	4.75E+00
CS-137		-9.98E-01 ±	3.14E+00	5.01E+00
BALA140		-1.13E+00 ±	3.97E+00	6.24E+00
BI-214	+	1.67E+02 ±	1.61E+01	1.29E+01

Station MW-7 collected				4/27/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-1.68E+01 ±	6.78E+01	8.77E+01
MN-54		1.15E+00 ±	3.22E+00	5.10E+00
CO-58		-1.25E-02 ±	2.85E+00	4.68E+00
FE-59		1.37E-01 ±	7.87E+00	1.29E+01
CO-60		-6.71E-01 ±	3.05E+00	4.87E+00
ZN-65		1.31E-01 ±	6.94E+00	1.14E+01
ZRNB-95		-2.77E+00 ±	4.20E+00	6.57E+00
I-131		6.31E-01 ±	3.54E+00	5.75E+00
CS-134		4.30E-01 ±	7.06E+00	1.16E+01
CS-137		0.00E+00 ±	6.04E+00	1.01E+01
BALA140		8.16E-01 ±	4.53E+00	7.29E+00
BI-214	+	3.02E+02 ±	2.01E+01	1.28E+01

Station MW-3 collected				4/27/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-2.67E+01 ±	8.14E+01	8.16E+01
MN-54		-1.41E+00 ±	3.92E+00	6.27E+00
CO-58		-2.03E+00 ±	4.14E+00	6.58E+00
FE-59		0.00E+00 ±	1.30E+01	2.17E+01
CO-60		6.12E-01 ±	3.47E+00	5.61E+00
ZN-65		-7.62E+01 ±	2.60E+01	3.95E+01
ZRNB-95		-2.81E+00 ±	4.36E+00	6.89E+00
I-131		1.39E-01 ±	4.30E+00	7.06E+00
CS-134		1.59E+00 ±	1.15E+01	1.88E+01
CS-137		-2.18E+00 ±	4.18E+00	6.64E+00
BALA140		2.83E+00 ±	4.34E+00	6.61E+00
BI-214	+	4.65E+02 ±	2.38E+01	1.47E+01

Station MW-8 collected				4/27/2009
Nuclide	RQ	Activity	Error	MDA
K-40		-4.84E+01 ±	1.62E+02	8.30E+01
MN-54		-1.09E+00 ±	3.63E+00	5.83E+00
CO-58		-1.45E+00 ±	3.57E+00	5.69E+00
FE-59		-2.91E+00 ±	9.07E+00	1.44E+01
CO-60		1.55E+00 ±	3.61E+00	5.68E+00
ZN-65		0.00E+00 ±	3.25E+01	5.41E+01
ZRNB-95		-3.90E-02 ±	3.86E+00	6.33E+00
I-131		3.07E+00 ±	3.62E+00	5.68E+00
CS-134		-2.55E+00 ±	3.54E+00	5.56E+00
CS-137		1.39E+00 ±	3.41E+00	5.42E+00
BALA140		2.22E+00 ±	4.32E+00	6.67E+00
BI-214	+	2.71E+02 ±	1.84E+01	1.32E+01



TABLE B-10.1  
**GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING SAMPLES**

Results in pCi per liter

Station MW-9 collected 4/27/2009			
Nuclide	RQ	Activity	Error MDA
K-40		-4.72E+00 ±	5.04E+01 8.67E+01
MN-54		1.80E+00 ±	3.17E+00 4.91E+00
CO-58		-1.43E-02 ±	2.93E+00 4.82E+00
FE-59		1.87E+00 ±	7.28E+00 1.15E+01
CO-60		-4.84E-01 ±	3.34E+00 5.39E+00
ZN-65		-5.18E+01 ±	2.37E+01 3.61E+01
ZRNB-95		-2.44E+00 ±	4.17E+00 6.56E+00
I-131		1.48E+00 ±	3.08E+00 4.89E+00
CS-134		-1.13E-01 ±	3.24E+00 5.30E+00
CS-137		9.35E-01 ±	3.49E+00 5.59E+00
BALA140		1.34E+00 ±	4.23E+00 6.66E+00
BI-214	+	3.08E+02 ±	2.01E+01 1.23E+01

Station MW-13 collected 4/22/2009			
Nuclide	RQ	Activity	Error MDA
K-40		-1.90E+01 ±	6.81E+01 8.50E+01
MN-54		0.00E+00 ±	3.97E+00 6.61E+00
CO-58		-6.99E-01 ±	2.97E+00 4.75E+00
FE-59		-3.20E-03 ±	7.93E+00 1.31E+01
CO-60		1.61E+00 ±	3.07E+00 4.69E+00
ZN-65		-8.43E+00 ±	1.14E+01 1.77E+01
ZRNB-95		-2.72E+00 ±	4.47E+00 7.05E+00
I-131		0.00E+00 ±	3.94E+00 6.56E+00
CS-134		-1.32E+00 ±	3.27E+00 5.20E+00
CS-137		1.44E+00 ±	2.98E+00 4.65E+00
BALA140		0.00E+00 ±	8.01E-01 1.34E+00
BI-214	+	2.23E+02 ±	1.84E+01 1.32E+01

Station MW-10 collected 4/22/2009			
Nuclide	RQ	Activity	Error MDA
K-40		-3.53E+01 ±	1.04E+02 8.23E+01
MN-54		-2.43E-02 ±	2.93E+00 4.81E+00
CO-58		-6.81E-01 ±	3.22E+00 5.20E+00
FE-59		1.01E+00 ±	7.43E+00 1.20E+01
CO-60		-5.97E-02 ±	2.59E+00 4.24E+00
ZN-65		7.77E-01 ±	2.77E+01 4.55E+01
ZRNB-95		8.51E-01 ±	3.81E+00 6.17E+00
I-131		-1.94E+00 ±	3.88E+00 6.21E+00
CS-134		-2.99E+00 ±	3.90E+00 6.14E+00
CS-137		0.00E+00 ±	5.13E+00 8.55E+00
BALA140		-4.35E-01 ±	3.94E+00 6.39E+00
BI-214	+	1.87E+02 ±	1.54E+01 1.23E+01

Station MW-14 collected 4/22/2009			
Nuclide	RQ	Activity	Error MDA
K-40		-4.53E+01 ±	1.55E+02 8.66E+01
MN-54		-1.00E+00 ±	3.14E+00 5.02E+00
CO-58		2.77E-01 ±	3.40E+00 5.55E+00
FE-59		-2.23E-02 ±	7.86E+00 1.29E+01
CO-60		0.00E+00 ±	4.07E+00 6.78E+00
ZN-65		-1.16E+01 ±	6.79E-01 1.57E+00
ZRNB-95		-2.02E+00 ±	3.92E+00 6.23E+00
I-131		2.30E-01 ±	3.54E+00 5.80E+00
CS-134		-2.96E+00 ±	4.05E+00 6.39E+00
CS-137		-1.85E-01 ±	3.01E+00 4.92E+00
BALA140		8.61E-02 ±	4.13E+00 6.77E+00
BI-214	+	1.68E+02 ±	1.64E+01 1.36E+01

Station MW-11 collected 4/22/2009			
Nuclide	RQ	Activity	Error MDA
K-40		-4.33E+01 ±	1.16E+02 7.94E+01
MN-54		5.63E-02 ±	1.86E+00 3.05E+00
CO-58		-5.56E-01 ±	2.47E+00 3.95E+00
FE-59		1.71E-02 ±	8.10E+00 1.33E+01
CO-60		-1.68E-01 ±	2.94E+00 4.80E+00
ZN-65		1.70E+00 ±	2.90E+01 4.76E+01
ZRNB-95		-7.86E-01 ±	3.53E+00 5.70E+00
I-131		-2.51E-01 ±	3.09E+00 5.06E+00
CS-134		-1.56E+00 ±	3.19E+00 5.04E+00
CS-137		-1.15E-01 ±	3.06E+00 5.00E+00
BALA140		-9.65E-02 ±	4.50E+00 7.38E+00
BI-214	+	2.05E+02 ±	1.70E+01 1.26E+01

Station MW-3 collected 7/22/2009			
Nuclide	RQ	Activity	Error MDA
K-40		-4.15E+01 ±	1.31E+02 8.81E+01
MN-54		1.24E+00 ±	3.50E+00 5.56E+00
CO-58		-3.98E-01 ±	2.84E+00 4.60E+00
FE-59		1.36E+00 ±	7.63E+00 1.22E+01
CO-60		3.19E-01 ±	3.43E+00 5.58E+00
ZN-65		-1.50E+01 ±	1.46E+01 2.26E+01
ZRNB-95		-2.58E+00 ±	4.54E+00 7.17E+00
I-131		4.40E-02 ±	3.87E+00 6.35E+00
CS-134		-1.65E+00 ±	4.13E+00 6.61E+00
CS-137		5.84E-02 ±	3.80E+00 6.25E+00
BALA140		0.00E+00 ±	5.91E+00 9.85E+00
BI-214	+	3.46E+02 ±	2.12E+01 1.35E+01

Station MW-12 collected 4/22/2009			
Nuclide	RQ	Activity	Error MDA
K-40		-3.36E+01 ±	9.06E+01 8.09E+01
MN-54		-6.77E-01 ±	3.05E+00 4.90E+00
CO-58		3.27E-02 ±	2.84E+00 4.66E+00
FE-59		0.00E+00 ±	3.82E+00 6.36E+00
CO-60		1.00E-01 ±	2.88E+00 4.72E+00
ZN-65		-1.70E+00 ±	3.32E+01 5.45E+01
ZRNB-95		-1.65E+00 ±	4.11E+00 6.55E+00
I-131		0.00E+00 ±	3.47E+00 5.79E+00
CS-134		1.02E+00 ±	3.29E+00 5.28E+00
CS-137		-1.92E+00 ±	3.99E+00 6.32E+00
BALA140		1.21E+00 ±	3.63E+00 5.65E+00
BI-214	+	2.15E+02 ±	1.73E+01 1.27E+01

Station MW-5 collected 7/22/2009			
Nuclide	RQ	Activity	Error MDA
K-40		-5.59E+01 ±	1.95E+02 7.71E+01
MN-54		1.00E-01 ±	3.31E+00 5.42E+00
CO-58		-1.30E+00 ±	3.27E+00 5.19E+00
FE-59		1.05E+00 ±	6.36E+00 1.02E+01
CO-60		1.06E+00 ±	3.05E+00 4.81E+00
ZN-65		-8.45E+00 ±	1.00E+01 1.56E+01
ZRNB-95		7.13E+00 ±	3.20E+00 4.19E+00
I-131		-1.49E+00 ±	3.92E+00 6.32E+00
CS-134		-3.96E+00 ±	4.10E+00 6.39E+00
CS-137		-4.14E-01 ±	3.14E+00 5.11E+00
BALA140		-1.39E+00 ±	4.50E+00 7.14E+00
BI-214	+	1.47E+02 ±	1.36E+01 1.34E+01

TABLE B-10.1  
**GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING SAMPLES**  
 Results in pCi per liter

Station MW-6 collected 7/23/2009

Nuclide	RQ	Activity	Error	MDA
K-40		-2.24E+01 ±	6.48E+01	7.83E+01
MN-54		-1.14E-01 ±	2.78E+00	4.55E+00
CO-58		-5.40E-02 ±	2.81E+00	4.61E+00
FE-59		-4.92E-02 ±	7.98E+00	1.31E+01
CO-60		1.22E+00 ±	2.99E+00	4.64E+00
ZN-65		-8.59E+00 ±	1.08E+01	1.67E+01
ZRNB-95		-3.15E-01 ±	3.98E+00	6.50E+00
I-131		-6.31E-01 ±	4.28E+00	6.97E+00
CS-134		0.00E+00 ±	5.03E+00	8.39E+00
CS-137		-8.13E-01 ±	3.18E+00	5.10E+00
BALA140		-2.63E-02 ±	5.19E+00	8.52E+00
BI-214	+	1.69E+02 ±	1.59E+01	1.18E+01

Station MW-10 collected 7/29/2009

Nuclide	RQ	Activity	Error	MDA
K-40		-4.65E+01 ±	1.28E+02	7.53E+01
MN-54		-3.17E-02 ±	2.50E+00	4.10E+00
CO-58		1.34E+00 ±	2.36E+00	3.63E+00
FE-59		-3.35E-01 ±	6.94E+00	1.13E+01
CO-60		1.14E+00 ±	3.18E+00	5.01E+00
ZN-65		-2.58E+00 ±	8.59E+00	1.38E+01
ZRNB-95		5.42E+00 ±	3.13E+00	4.34E+00
I-131		-1.11E+00 ±	3.12E+00	5.03E+00
CS-134		9.88E-02 ±	2.17E-01	5.06E-01
CS-137		-1.42E+00 ±	3.47E+00	5.52E+00
BALA140		-9.44E-01 ±	4.47E+00	7.17E+00
BI-214	+	1.06E+02 ±	1.15E+01	1.16E+01

Station MW-7 collected 7/23/2009

Nuclide	RQ	Activity	Error	MDA
K-40		-5.82E+01 ±	2.49E+02	8.28E+01
MN-54		1.97E-01 ±	2.67E+00	4.35E+00
CO-58		-4.95E-01 ±	2.75E+00	4.43E+00
FE-59		0.00E+00 ±	1.10E+01	1.83E+01
CO-60		-3.33E-01 ±	2.92E+00	4.74E+00
ZN-65		-7.02E+00 ±	9.57E+00	1.49E+01
ZRNB-95		1.13E+00 ±	3.33E+00	5.32E+00
I-131		-1.97E+00 ±	4.83E+00	7.77E+00
CS-134		-9.92E-01 ±	3.04E+00	4.89E+00
CS-137		-1.59E+00 ±	3.37E+00	5.33E+00
BALA140		-1.17E+00 ±	4.88E+00	7.78E+00
BI-214	+	5.56E+01 ±	1.02E+01	1.31E+01

Station MW-11 collected 7/29/2009

Nuclide	RQ	Activity	Error	MDA
K-40		-4.84E+01 ±	1.56E+02	8.10E+01
MN-54		7.81E-01 ±	3.34E+00	5.38E+00
CO-58		-5.35E-01 ±	3.14E+00	5.09E+00
FE-59		1.53E+00 ±	8.38E+00	1.35E+01
CO-60		1.78E+00 ±	3.34E+00	5.17E+00
ZN-65		-1.55E+00 ±	2.93E+01	4.81E+01
ZRNB-95		1.19E-01 ±	3.84E+00	6.31E+00
I-131		1.52E+00 ±	3.23E+00	5.16E+00
CS-134		-5.98E-01 ±	1.00E+01	1.64E+01
CS-137		2.60E-01 ±	3.19E+00	5.20E+00
BALA140		3.14E-01 ±	3.49E+00	5.66E+00
BI-214	+	2.20E+02 ±	1.71E+01	1.30E+01

Station MW-8 collected 7/23/2009

Nuclide	RQ	Activity	Error	MDA
K-40		-3.92E+01 ±	9.34E+01	7.57E+01
MN-54		0.00E+00 ±	2.70E+00	4.50E+00
CO-58		-1.44E+00 ±	3.04E+00	4.74E+00
FE-59		-7.60E-01 ±	8.49E+00	1.38E+01
CO-60		1.15E+00 ±	2.92E+00	4.53E+00
ZN-65		-1.11E+00 ±	6.94E+00	1.12E+01
ZRNB-95		1.45E-01 ±	2.92E+00	4.78E+00
I-131		-2.35E+00 ±	4.86E+00	7.76E+00
CS-134		-2.97E-01 ±	3.34E+00	5.45E+00
CS-137		-9.06E-01 ±	3.29E+00	5.26E+00
BALA140		-1.02E-01 ±	4.66E+00	7.64E+00
BI-214	+	1.47E+02 ±	1.56E+01	1.31E+01

Station MW-12 collected 7/29/2009

Nuclide	RQ	Activity	Error	MDA
K-40		-2.90E+01 ±	8.72E+01	8.50E+01
MN-54		-4.90E-01 ±	2.97E+00	4.80E+00
CO-58		-1.31E+00 ±	3.27E+00	5.17E+00
FE-59		0.00E+00 ±	8.91E+00	1.49E+01
CO-60		9.96E-02 ±	2.91E+00	4.76E+00
ZN-65		8.48E-01 ±	2.92E+01	4.80E+01
ZRNB-95		-1.52E-01 ±	2.96E+00	4.84E+00
I-131		2.52E+00 ±	2.73E+00	4.13E+00
CS-134		4.70E-02 ±	3.58E+00	5.88E+00
CS-137		1.19E+00 ±	3.55E+00	5.67E+00
BALA140		3.26E-02 ±	4.16E+00	6.83E+00
BI-214	+	1.92E+02 ±	1.70E+01	1.26E+01

Station MW-9 collected 7/23/2009

Nuclide	RQ	Activity	Error	MDA
K-40		-1.85E+01 ±	6.27E+01	8.11E+01
MN-54		3.77E-01 ±	2.71E+00	4.39E+00
CO-58		3.27E-02 ±	2.80E+00	4.59E+00
FE-59		-1.42E+00 ±	7.72E+00	1.24E+01
CO-60		-3.34E-01 ±	3.09E+00	5.00E+00
ZN-65		0.00E+00 ±	2.00E+01	3.33E+01
ZRNB-95		-2.94E-02 ±	3.82E+00	6.27E+00
I-131		-1.38E+00 ±	4.46E+00	7.16E+00
CS-134		1.26E+00 ±	2.71E+00	4.26E+00
CS-137		4.83E-01 ±	2.66E+00	4.29E+00
BALA140		-1.02E+00 ±	5.27E+00	8.43E+00
BI-214	+	8.55E+01 ±	1.18E+01	1.22E+01

Station MW-13 collected 7/29/2009

Nuclide	RQ	Activity	Error	MDA
K-40		-2.96E+01 ±	9.57E+01	8.63E+01
MN-54		0.00E+00 ±	4.33E+00	7.21E+00
CO-58		-1.25E+00 ±	3.55E+00	5.67E+00
FE-59		5.55E+00 ±	8.34E+00	1.27E+01
CO-60		2.38E+00 ±	3.72E+00	5.74E+00
ZN-65		5.82E+00 ±	4.09E+00	4.91E+00
ZRNB-95		2.01E-01 ±	3.68E+00	6.03E+00
I-131		1.27E+00 ±	3.58E+00	5.77E+00
CS-134		9.97E-01 ±	9.84E+00	1.61E+01
CS-137		-7.99E-01 ±	3.37E+00	5.43E+00
BALA140		1.53E+00 ±	4.40E+00	6.93E+00
BI-214	+	2.35E+02 ±	1.67E+01	1.22E+01

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.

TABLE B-10.1  
**GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING SAMPLES**

Results in pCi per liter

Station MW-14 collected 7/29/2009			
Nuclide	RQ	Activity	MDA
K-40		-4.29E+01 ± 1.28E+02	8.09E+01
MN-54		2.76E+00 ± 3.05E+00	4.59E+00
CO-58		-1.34E+00 ± 3.18E+00	5.03E+00
FE-59		-6.76E-01 ± 5.34E+00	8.58E+00
CO-60		-9.86E-02 ± 3.18E+00	5.22E+00
ZN-65		-5.16E+00 ± 8.82E+00	1.38E+01
ZRNB-95		0.00E+00 ± 4.51E+00	7.51E+00
I-131		7.58E-01 ± 3.98E+00	6.49E+00
CS-134		-1.04E+00 ± 2.89E+00	4.62E+00
CS-137		-7.81E-01 ± 3.14E+00	5.05E+00
BALA140		1.07E-01 ± 3.59E+00	5.88E+00
BI-214	+	1.36E+02 ± 1.40E+01	1.17E+01

Station MW-7 collected 10/27/2009			
Nuclide	RQ	Activity	MDA
K-40		-6.56E+01 ± 3.71E+03	1.23E+02
MN-54		5.22E-02 ± 2.66E+00	4.37E+00
CO-58		-1.94E-01 ± 3.00E+00	4.90E+00
FE-59		2.24E+00 ± 6.33E+00	9.75E+00
CO-60		-1.12E+00 ± 3.31E+00	5.19E+00
ZN-65		-9.80E-01 ± 2.62E+01	4.31E+01
ZRNB-95		5.61E+00 ± 3.44E+00	4.69E+00
I-131		-4.87E-02 ± 2.25E+00	3.68E+00
CS-134		-5.27E-01 ± 1.10E+01	1.81E+01
CS-137		0.00E+00 ± 3.65E+00	6.08E+00
BALA140		7.44E-01 ± 3.95E+00	6.29E+00
BI-214	+	1.17E+02 ± 1.49E+01	1.37E+01

Station MW-3 collected 10/27/2009			
Nuclide	RQ	Activity	MDA
K-40		-3.32E+01 ± 1.09E+02	7.70E+01
MN-54		6.06E-01 ± 2.84E+00	4.55E+00
CO-58		1.37E+00 ± 3.18E+00	4.99E+00
FE-59		3.65E+00 ± 7.48E+00	1.14E+01
CO-60		8.87E-02 ± 3.54E+00	5.80E+00
ZN-65		-1.41E+01 ± 1.43E+01	2.21E+01
ZRNB-95		-1.68E+00 ± 4.07E+00	6.48E+00
I-131		8.60E-01 ± 3.31E+00	5.33E+00
CS-134		-1.58E+00 ± 1.44E+01	2.37E+01
CS-137		-4.12E-02 ± 3.45E+00	5.67E+00
BALA140		1.13E-01 ± 4.30E+00	7.04E+00
BI-214	+	2.36E+02 ± 1.88E+01	1.38E+01

Station MW-8 collected 10/27/2009			
Nuclide	RQ	Activity	MDA
K-40		-3.57E+01 ± 1.03E+02	7.10E+01
MN-54		-5.59E-01 ± 3.26E+00	5.26E+00
CO-58		-4.01E-01 ± 3.03E+00	4.92E+00
FE-59		2.41E-01 ± 6.27E+00	1.02E+01
CO-60		1.07E-01 ± 3.98E+00	6.53E+00
ZN-65		-8.23E+00 ± 1.14E+01	1.78E+01
ZRNB-95		-8.18E-01 ± 3.36E+00	5.39E+00
I-131		1.46E+00 ± 2.80E+00	4.37E+00
CS-134		-2.47E+00 ± 4.03E+00	6.35E+00
CS-137		-7.17E-01 ± 3.03E+00	4.85E+00
BALA140		0.00E+00 ± 1.50E+00	2.50E+00
BI-214	+	1.26E+02 ± 1.46E+01	1.25E+01

Station MW-5 collected 10/27/2009			
Nuclide	RQ	Activity	MDA
K-40		-2.19E+01 ± 7.79E+01	7.93E+01
MN-54		-1.06E+00 ± 3.36E+00	5.34E+00
CO-58		-1.04E+00 ± 2.80E+00	4.40E+00
FE-59		-3.26E+00 ± 8.30E+00	1.29E+01
CO-60		7.45E-02 ± 3.19E+00	5.22E+00
ZN-65		-7.49E+00 ± 1.15E+01	1.81E+01
ZRNB-95		-6.78E-01 ± 3.23E+00	5.21E+00
I-131		-2.07E-01 ± 3.99E+00	6.54E+00
CS-134		-2.63E-01 ± 1.16E+01	1.91E+01
CS-137		-5.84E-01 ± 3.51E+00	5.67E+00
BALA140		-1.06E+00 ± 4.40E+00	6.99E+00
BI-214	+	1.13E+02 ± 1.54E+01	1.45E+01

Station MW-9 collected 10/27/2009			
Nuclide	RQ	Activity	MDA
K-40		-8.22E+01 ± 3.45E+02	8.35E+01
MN-54		-5.65E-01 ± 2.96E+00	4.75E+00
CO-58		2.71E-02 ± 2.74E+00	4.50E+00
FE-59		4.29E+00 ± 6.63E+00	9.60E+00
CO-60		8.16E-01 ± 3.19E+00	5.06E+00
ZN-65		-8.50E+00 ± 4.81E+00	4.95E+00
ZRNB-95		1.15E+00 ± 3.21E+00	5.07E+00
I-131		-2.12E+00 ± 4.96E+00	7.88E+00
CS-134		2.93E-01 ± 2.40E+00	3.89E+00
CS-137		1.28E+00 ± 2.90E+00	4.51E+00
BALA140		-1.19E+00 ± 5.78E+00	9.24E+00
BI-214	+	1.04E+02 ± 1.28E+01	1.27E+01

Station MW-6 collected 10/27/2009			
Nuclide	RQ	Activity	MDA
K-40		-1.15E+01 ± 4.88E+01	7.15E+01
MN-54		-4.42E-01 ± 3.23E+00	5.24E+00
CO-58		-8.52E-01 ± 3.29E+00	5.26E+00
FE-59		-7.45E+00 ± 1.04E+01	1.58E+01
CO-60		2.51E-02 ± 2.84E+00	4.67E+00
ZN-65		-9.56E+00 ± 1.32E+01	2.06E+01
ZRNB-95		6.16E+00 ± 3.78E+00	5.29E+00
I-131		6.16E-01 ± 3.64E+00	5.91E+00
CS-134		-7.89E-01 ± 1.38E+01	2.27E+01
CS-137		-1.27E+00 ± 3.65E+00	5.81E+00
BALA140		0.00E+00 ± 4.98E+00	8.29E+00
BI-214	+	1.79E+02 ± 1.71E+01	1.41E+01

Station MW-10 collected 10/26/2009			
Nuclide	RQ	Activity	MDA
K-40		-7.10E-01 ± 4.24E+01	8.16E+01
MN-54		6.42E-01 ± 3.07E+00	4.94E+00
CO-58		-8.17E-01 ± 3.27E+00	5.25E+00
FE-59		-2.81E+00 ± 8.17E+00	1.28E+01
CO-60		-3.87E-01 ± 2.85E+00	4.59E+00
ZN-65		-8.45E-01 ± 2.98E+01	4.89E+01
ZRNB-95		-2.86E+00 ± 4.77E+00	7.55E+00
I-131		1.57E+00 ± 2.82E+00	4.44E+00
CS-134		-1.10E+00 ± 3.83E+00	6.17E+00
CS-137		-1.23E+00 ± 3.66E+00	5.84E+00
BALA140		-8.74E-01 ± 3.88E+00	6.18E+00
BI-214	+	1.64E+02 ± 1.70E+01	1.47E+01

TABLE B-10.1  
**GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING SAMPLES**

Results in pCi per liter

Station MW-11 collected 10/26/2009					Station MW-13 collected 10/26/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.33E+01 ±	6.91E+01	8.04E+01	K-40		-2.12E+01 ±	6.59E+01	8.04E+01
MN-54		-8.42E-01 ±	3.06E+00	4.89E+00	MN-54		5.36E-01 ±	3.07E+00	4.96E+00
CO-58		-1.39E-01 ±	2.62E+00	4.28E+00	CO-58		-8.62E-01 ±	3.09E+00	4.93E+00
FE-59		-7.16E-02 ±	6.63E+00	1.09E+01	FE-59		-1.90E+00 ±	8.16E+00	1.30E+01
CO-60		9.86E-01 ±	3.23E+00	5.10E+00	CO-60		2.29E+00 ±	3.29E+00	4.93E+00
ZN-65		8.48E-01 ±	2.87E+01	4.72E+01	ZN-65		3.23E+00 ±	6.17E+00	9.46E+00
ZRNB-95		-2.21E-01 ±	3.13E+00	5.12E+00	ZRNB-95		-1.89E+00 ±	4.21E+00	6.69E+00
I-131		-3.53E-01 ±	3.56E+00	5.81E+00	I-131		-1.51E+00 ±	3.63E+00	5.80E+00
CS-134		-3.06E+00 ±	4.31E+00	6.79E+00	CS-134		5.76E-01 ±	3.19E+00	5.17E+00
CS-137		-8.39E-01 ±	3.76E+00	6.07E+00	CS-137		-1.19E+00 ±	3.40E+00	5.42E+00
BALA140		-9.27E-01 ±	4.49E+00	7.19E+00	BALA140		-1.22E+00 ±	4.31E+00	6.80E+00
BI-214	+	2.01E+02 ±	1.82E+01	1.43E+01	BI-214	+	2.17E+02 ±	1.71E+01	1.17E+01

Station MW-12 collected 10/26/2009					Station MW-14 collected 10/26/2009				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.44E+01 ±	7.13E+01	8.05E+01	K-40		-1.22E+01 ±	5.09E+01	7.79E+01
MN-54		-1.08E+00 ±	2.98E+00	4.70E+00	MN-54		1.89E-02 ±	3.06E+00	5.03E+00
CO-58		1.36E+00 ±	2.93E+00	4.58E+00	CO-58		-7.16E-02 ±	2.23E+00	3.65E+00
FE-59		0.00E+00 ±	1.21E+01	2.02E+01	FE-59		-1.88E+00 ±	7.85E+00	1.25E+01
CO-60		1.40E+00 ±	2.70E+00	4.08E+00	CO-60		9.20E-01 ±	3.13E+00	4.95E+00
ZN-65		1.70E+00 ±	3.56E+01	5.84E+01	ZN-65		-1.04E+00 ±	5.67E+00	9.09E+00
ZRNB-95		-2.02E+00 ±	4.22E+00	6.70E+00	ZRNB-95		-1.32E+00 ±	3.54E+00	5.63E+00
I-131		-7.18E-01 ±	3.81E+00	6.19E+00	I-131		-7.19E-01 ±	3.48E+00	5.63E+00
CS-134		2.40E+00 ±	2.13E+00	2.99E+00	CS-134		-2.15E-01 ±	5.48E+00	8.99E+00
CS-137		1.23E+00 ±	2.89E+00	4.52E+00	CS-137		-1.14E+00 ±	2.69E+00	4.19E+00
BALA140		-3.64E-01 ±	4.02E+00	6.52E+00	BALA140		-6.16E-01 ±	4.06E+00	6.52E+00
BI-214	+	2.52E+02 ±	1.87E+01	1.26E+01	BI-214	+	1.36E+02 ±	1.45E+01	1.20E+01

TABLE B-10.2  
**GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING SAMPLES - SUMMARY**

Results in pCi per liter

Nuclide	Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	-1.69E-01	-1.47E+00	2.83E+00	6.84E+00	44	0
BI-214	2.02E+02	5.56E+01	4.65E+02	1.29E+01	44	44
CO-58	-3.58E-01	-2.03E+00	1.53E+00	4.77E+00	44	0
CO-60	3.57E-01	-1.12E+00	2.38E+00	5.06E+00	44	0
CS-134	-6.58E-01	-3.96E+00	2.40E+00	7.90E+00	44	0
CS-137	-3.27E-01	-2.18E+00	1.88E+00	5.65E+00	44	0
FE-59	-1.76E-01	-7.45E+00	5.55E+00	1.25E+01	44	0
I-131	2.53E-01	-2.35E+00	3.07E+00	5.76E+00	44	0
K-40	-3.33E+01	-8.22E+01	-7.10E-01	8.17E+01	44	0
MN-54	-1.20E-01	-1.89E+00	2.76E+00	5.12E+00	44	0
ZN-65	-6.43E+00	-7.62E+01	5.82E+00	2.70E+01	44	0
ZRNB-95	-3.93E-01	-3.00E+00	7.13E+00	5.96E+00	44	0

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.

TABLE B-11.1  
**TRITIUM IN MONITORING WELL SAMPLES**  
 Results in pCi per liter

Location	Collection Date	RQ	Activity	Error
MW-3	01/21/09	+	1.14E+03	± 1.21E+02
	04/27/09	+	1.42E+03	± 1.26E+02
	07/22/09	+	1.24E+03	± 1.24E+02
	10/27/09	+	1.31E+03	± 1.26E+02
MW-5	01/21/09	+	1.70E+04	± 3.19E+02
	04/27/09	+	1.70E+04	± 3.22E+02
	07/22/09	+	1.66E+04	± 3.17E+02
	10/27/09	+	1.66E+04	± 3.23E+02
MW-6	01/21/09	+	5.37E+03	± 1.95E+02
	04/27/09	+	5.23E+03	± 1.96E+02
	07/22/09	+	5.01E+03	± 1.91E+02
	10/27/09	+	5.17E+03	± 1.96E+02
MW-7	01/21/09	+	3.53E+02	± 1.02E+02
	04/27/09	+	1.95E+03	± 1.36E+02
	07/22/09		1.63E+01	± 8.90E+01
	10/27/09		1.31E+02	± 9.52E+01
MW-8	01/21/09	+	9.26E+02	± 1.16E+02
	04/27/09	+	7.35E+02	± 1.11E+02
	07/22/09	+	2.60E+03	± 1.52E+02
	10/27/09	+	9.27E+02	± 1.17E+02
MW-9	01/21/09	+	4.45E+02	± 1.04E+02
	04/27/09	+	3.31E+02	± 9.94E+01
	07/22/09		2.69E+02	± 1.01E+02
	10/27/09	+	3.86E+02	± 1.02E+02
MW-10	01/28/09	+	4.41E+02	± 1.04E+02
	04/22/09	+	5.19E+02	± 1.06E+02
	07/29/09	+	5.27E+02	± 1.03E+02
	10/26/09	+	4.53E+02	± 1.04E+02
MW-11	01/28/09	+	8.84E+02	± 1.15E+02
	04/22/09	+	7.87E+02	± 1.13E+02
	07/29/09	+	9.62E+02	± 1.14E+02
	10/26/09	+	9.45E+02	± 1.23E+02
MW-12	01/28/09	+	7.43E+02	± 1.12E+02
	04/22/09	+	7.80E+02	± 1.12E+02
	07/29/09	+	7.64E+02	± 1.10E+02
	10/26/09	+	8.13E+02	± 1.14E+02
MW-13	01/28/09	+	1.10E+04	± 2.63E+02
	04/22/09	+	1.17E+04	± 2.70E+02
	07/29/09	+	1.14E+04	± 2.64E+02
	10/26/09	+	1.19E+04	± 2.79E+02
MW-14	01/28/09	+	4.16E+02	± 1.04E+02
	04/22/09	+	3.18E+02	± 9.98E+01
	07/29/09	+	3.29E+02	± 9.78E+01
	10/26/09	+	4.79E+02	± 1.05E+02

RQ= results Qualifier. If blank, result is less than detection limit. If "+", result is above the detection limit.

Table B-12.1  
**GROSS ALPHA-BETA RESULTS OF MONITORING WELL WATER**  
 Results in pCi/liter

**Gross Beta**  
 1st Q 2009 Collected 1/22/09 to 1/28/09

Location	RQ	Activity	Error	MDC
MW-3	+	8.89E+00 ±	1.29E+00	2.69E+00
MW-5	+	1.34E+01 ±	1.33E+00	2.39E+00
MW-6	+	8.75E+00 ±	1.20E+00	2.47E+00
MW-7		1.06E+00 ±	6.92E-01	2.26E+00
MW-8	+	3.97E+00 ±	9.69E-01	2.44E+00
MW-9		6.22E-01 ±	8.11E-01	2.34E+00
MW-10	+	4.32E+00 ±	1.11E+00	2.77E+00
MW-11	+	4.44E+00 ±	1.07E+00	2.73E+00
MW-12	+	2.98E+00 ±	1.04E+00	2.77E+00
MW-13	+	1.28E+01 ±	1.39E+00	2.70E+00
MW-14	+	3.27E+00 ±	1.08E+00	2.86E+00

**Gross Beta**  
 2nd Q 2009 Collected 4/22/09 to 4/27/09

Nuclide	RQ	Activity	Error	MDC
MW-3	+	5.75E+00 ±	1.10E+00	2.30E+00
MW-5	+	1.65E+01 ±	1.40E+00	2.09E+00
MW-6	+	1.05E+01 ±	1.25E+00	2.17E+00
MW-7		1.68E+00 ±	7.02E-01	2.03E+00
MW-8	+	5.30E+00 ±	9.35E-01	2.06E+00
MW-9	+	3.59E+00 ±	1.03E+00	2.26E+00
MW-10	+	4.51E+00 ±	9.11E-01	2.14E+00
MW-11	+	4.33E+00 ±	9.96E-01	2.13E+00
MW-12	+	4.81E+00 ±	9.93E-01	2.16E+00
MW-13	+	1.58E+01 ±	1.38E+00	2.11E+00
MW-14	+	5.32E+00 ±	9.98E-01	2.24E+00

**Gross Alpha**  
 1st Q 2009 Collected 1/22/09 to 1/28/09

Nuclide	RQ	Activity	Error	MDC
MW-3	+	1.22E+01 ±	2.82E+00	5.85E+00
MW-5	+	3.93E+00 ±	1.02E+00	2.26E+00
MW-6	+	5.72E+00 ±	1.36E+00	2.86E+00
MW-7		1.38E-01 ±	3.82E-01	1.59E+00
MW-8	+	4.35E+00 ±	1.16E+00	2.63E+00
MW-9	+	5.57E+00 ±	1.09E+00	2.00E+00
MW-10	+	9.63E+00 ±	1.67E+00	2.13E+00
MW-11	+	6.18E+00 ±	1.27E+00	1.90E+00
MW-12	+	9.00E+00 ±	1.61E+00	2.11E+00
MW-13	+	6.53E+00 ±	1.25E+00	1.74E+00
MW-14	+	1.09E+01 ±	2.01E+00	2.72E+00

**Gross Alpha**  
 2nd Q 2009 Collected 4/22/09 to 4/27/09

Nuclide	RQ	Activity	Error	MDC
MW-3	+	1.37E+01 ±	2.60E+00	3.99E+00
MW-5	+	4.19E+00 ±	1.02E+00	1.89E+00
MW-6	+	8.57E+00 ±	1.63E+00	2.49E+00
MW-7		1.37E+00 ±	5.78E-01	1.55E+00
MW-8	+	2.77E+00 ±	7.91E-01	1.66E+00
MW-9	+	1.72E+01 ±	2.64E+00	3.36E+00
MW-10	+	2.91E+00 ±	9.52E-01	2.19E+00
MW-11	+	9.49E+00 ±	1.57E+00	2.14E+00
MW-12	+	7.64E+00 ±	1.50E+00	2.37E+00
MW-13	+	3.51E+00 ±	9.66E-01	1.97E+00
MW-14	+	5.53E+00 ±	1.52E+00	3.11E+00

Table B-13.1  
**GROSS BETA ON AIR PARTICULATE FILTERS - OTHER LOCATIONS**

Results in pCi per Cubic Meter

Collection Period	Station 87		Station 88	
	Result	Error	Result	Error
12/30/08 - 01/06/09	1.06E-02	± 6.49E-04	9.21E-03	± 6.12E-04
01/06/09 - 01/13/09	6.71E-03	± 5.33E-04	9.17E-03	± 6.06E-04
01/13/09 - 01/20/09	2.78E-02	± 1.03E-03	2.49E-02	± 9.83E-04
01/20/09 - 01/27/09	5.86E-02	± 1.52E-03	4.99E-02	± 1.39E-03
01/27/09 - 02/03/09	2.16E-02	± 9.02E-04	1.95E-02	± 8.59E-04
02/03/09 - 02/10/09	3.36E-02	± 1.13E-03	3.55E-02	± 1.16E-03
02/10/09 - 02/17/09	1.93E-02	± 8.53E-04	1.68E-02	± 8.00E-04
02/17/09 - 02/24/09	3.49E-02	± 1.16E-03	3.39E-02	± 1.14E-03
02/24/09 - 03/03/09	1.15E-02	± 6.79E-04	9.78E-03	± 6.34E-04
03/03/09 - 03/10/09	9.74E-03	± 6.32E-04	8.08E-03	± 5.86E-04
03/10/09 - 03/17/09	1.82E-02	± 8.31E-04	1.69E-02	± 8.03E-04
03/17/09 - 03/24/09	8.98E-03	± 6.11E-04	1.09E-02	± 6.59E-04
03/24/09 - 03/31/09	8.54E-03	± 6.03E-04	8.08E-03	± 5.95E-04
03/31/09 - 04/07/09	8.71E-03	± 6.06E-04	9.43E-03	± 6.26E-04
04/07/09 - 04/14/09	8.35E-03	± 6.05E-04	8.55E-03	± 6.05E-04
04/14/09 - 05/12/09	1.02E-02	± 3.14E-04	1.12E-02	± 3.31E-04
05/12/09 - 06/09/09	1.21E-02	± 3.40E-04	1.15E-02	± 3.31E-04
06/09/09 - 07/07/09	1.14E-02	± 3.32E-04	1.23E-02	± 3.46E-04
07/07/09 - 08/04/09	1.32E-02	± 3.59E-04	1.42E-02	± 3.73E-04
08/04/09 - 09/01/09	1.22E-02	± 3.44E-04	1.30E-02	± 3.54E-04
09/01/09 - 10/06/09	9.72E-03	± 2.74E-04	1.10E-02	± 2.92E-04
10/06/09 - 11/03/09	1.50E-02	± 5.24E-04	1.52E-02	± 3.88E-04
11/03/09 - 12/01/09	1.39E-02	± 3.82E-04	1.69E-02	± 4.09E-04
12/01/09 - 01/05/10	4.11E-02	± 6.43E-04	4.33E-02	± 6.66E-04

Collection Period	Station 89		Station 90	
	Result	Error	Result	Error
12/30/08 - 01/06/09	1.05E-02	± 6.47E-04	1.05E-02	± 6.36E-04
01/06/09 - 01/13/09	1.00E-02	± 6.33E-04	8.09E-03	± 5.75E-04
01/13/09 - 01/20/09	2.94E-02	± 1.06E-03	2.59E-02	± 1.00E-03
01/20/09 - 01/27/09	5.27E-02	± 1.44E-03	5.50E-02	± 1.47E-03
01/27/09 - 02/03/09	1.81E-02	± 8.31E-04	1.91E-02	± 8.53E-04
02/03/09 - 02/10/09	3.71E-02	± 1.19E-03	3.48E-02	± 1.15E-03
02/10/09 - 02/17/09	1.79E-02	± 8.26E-04	1.95E-02	± 8.58E-04
02/17/09 - 02/24/09	3.30E-02	± 1.13E-03	3.06E-02	± 1.09E-03
02/24/09 - 03/03/09	1.07E-02	± 6.55E-04	1.28E-02	± 7.12E-04
03/03/09 - 03/10/09	1.06E-02	± 6.55E-04	1.02E-02	± 6.48E-04
03/10/09 - 03/17/09	2.06E-02	± 8.82E-04	1.91E-02	± 8.48E-04
03/17/09 - 03/24/09	8.10E-03	± 5.84E-04	8.35E-03	± 5.87E-04
03/24/09 - 03/31/09	8.62E-03	± 6.11E-04	7.60E-03	± 5.75E-04
03/31/09 - 04/07/09	9.37E-03	± 6.23E-04	8.28E-03	± 5.93E-04
04/07/09 - 04/14/09	8.91E-03	± 6.20E-04	6.68E-03	± 5.52E-04
04/14/09 - 05/12/09	1.13E-02	± 3.33E-04	1.12E-02	± 3.31E-04
05/12/09 - 06/09/09	1.23E-02	± 3.43E-04	1.14E-02	± 3.29E-04
06/09/09 - 07/07/09	1.27E-02	± 3.52E-04	1.22E-02	± 3.44E-04
07/07/09 - 08/04/09	1.68E-02	± 4.09E-04	1.62E-02	± 4.01E-04
08/04/09 - 09/01/09	1.50E-02	± 3.84E-04	1.57E-02	± 3.93E-04
09/01/09 - 10/06/09	1.08E-02	± 2.90E-04	1.11E-02	± 2.94E-04
10/06/09 - 11/03/09	1.38E-02	± 3.70E-04	1.46E-02	± 3.81E-04
11/03/09 - 12/01/09	1.36E-02	± 3.65E-04	1.44E-02	± 3.77E-04
12/01/09 - 01/05/10	5.17E-02	± 8.08E-04	4.43E-02	± 6.76E-04

TABLE B-14.1  
**GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS**  
**OTHER LOCATIONS**

Results in pCi/cubic meter, results decay corrected for decay during sample collection period

Location and Quarter			Station 87	1st Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	8.78E-02 ±	1.46E-02	8.85E-03
K-40		-5.39E-03 ±	1.31E-01	1.48E-02
MN-54		1.05E-04 ±	4.33E-04	6.72E-04
FE-59		1.70E-03 ±	2.93E-03	4.15E-03
CO-60		-1.44E-05 ±	4.00E-04	6.50E-04
ZN-65		0.00E+00 ±	1.69E-03	2.82E-03
ZRNB-95		-1.46E-05 ±	9.00E-04	1.48E-03
CS-134		1.23E-05 ±	4.19E-04	6.86E-04
CS-137		1.24E-04 ±	4.56E-04	7.12E-04
BALA140		-4.30E-04 ±	1.19E-02	1.93E-02
RU-106		2.24E-03 ±	4.11E-03	6.06E-03

Location and Quarter			Station 87	2nd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.36E-01 ±	1.93E-02	8.74E-03
K-40		-1.78E-03 ±	1.50E-02	1.81E-02
MN-54		-1.72E-04 ±	7.20E-04	1.13E-03
FE-59		-6.26E-04 ±	3.95E-03	6.28E-03
CO-60		-1.45E-04 ±	7.54E-04	1.19E-03
ZN-65		-4.76E-04 ±	1.92E-03	3.03E-03
ZRNB-95		8.17E-04 ±	9.36E-04	1.26E-03
CS-134		-1.31E-04 ±	7.18E-04	1.15E-03
CS-137		-3.18E-05 ±	6.65E-04	1.08E-03
BALA140		-1.10E-03 ±	1.25E-02	2.01E-02
RU-106		1.31E-04 ±	5.67E-03	9.28E-03

Location and Quarter			Station 87	3rd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.22E-01 ±	1.99E-02	1.31E-02
K-40		-6.51E-03 ±	2.60E-02	1.01E-02
MN-54		6.63E-06 ±	5.75E-04	9.43E-04
FE-59		-8.71E-05 ±	3.24E-03	5.29E-03
CO-60		2.31E-04 ±	6.55E-04	9.99E-04
ZN-65		-4.51E-04 ±	1.63E-03	2.55E-03
ZRNB-95		2.68E-04 ±	7.82E-04	1.19E-03
CS-134		8.13E-05 ±	5.58E-04	8.99E-04
CS-137		0.00E+00 ±	8.48E-04	1.41E-03
BALA140		-1.09E-03 ±	2.01E-02	3.26E-02
RU-106		-1.48E-03 ±	5.64E-03	8.91E-03

Location and Quarter			Station 87	4th Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	7.07E-02 ±	1.31E-02	6.34E-03
K-40		1.81E-03 ±	4.89E-03	9.35E-03
MN-54		7.30E-05 ±	5.15E-04	8.24E-04
FE-59		0.00E+00 ±	3.55E-03	5.92E-03
CO-60		1.75E-04 ±	4.58E-04	6.80E-04
ZN-65		-4.69E-04 ±	1.40E-03	2.15E-03
ZRNB-95		3.07E-04 ±	7.99E-04	1.22E-03
CS-134		0.00E+00 ±	6.34E-04	1.06E-03
CS-137		-9.59E-05 ±	5.35E-04	8.56E-04
BALA140		-5.73E-03 ±	1.90E-02	2.90E-02
RU-106		-1.31E-03 ±	4.59E-03	7.20E-03

Location and Quarter			Station 88	1st Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.02E-01 ±	1.50E-02	6.59E-03
K-40		2.81E-04 ±	6.61E-03	1.26E-02
MN-54		4.78E-05 ±	5.77E-04	9.36E-04
FE-59		1.33E-03 ±	1.56E-03	1.53E-03
CO-60		1.95E-05 ±	5.17E-04	8.42E-04
ZN-65		-4.65E-04 ±	1.47E-03	2.28E-03
ZRNB-95		-1.03E-04 ±	8.84E-04	1.43E-03
CS-134		0.00E+00 ±	6.00E-04	1.00E-03
CS-137		2.01E-04 ±	5.38E-04	8.32E-04
BALA140		0.00E+00 ±	3.81E-03	6.35E-03
RU-106		4.83E-05 ±	4.68E-03	7.69E-03

Location and Quarter			Station 88	2nd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.22E-01 ±	1.95E-02	1.32E-02
K-40		-4.96E-03 ±	3.34E-02	1.64E-02
MN-54		-2.35E-05 ±	5.57E-04	9.06E-04
FE-59		0.00E+00 ±	1.04E-03	1.73E-03
CO-60		9.92E-05 ±	5.97E-04	9.38E-04
ZN-65		5.69E-04 ±	1.27E-03	1.83E-03
ZRNB-95		6.96E-05 ±	9.66E-04	1.57E-03
CS-134		2.65E-04 ±	6.21E-04	9.56E-04
CS-137		-1.57E-05 ±	4.66E-04	7.60E-04
BALA140		-3.31E-03 ±	1.19E-02	1.86E-02
RU-106		5.19E-05 ±	5.93E-03	9.74E-03

Location and Quarter			Station 88	3rd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.33E-01 ±	2.04E-02	1.14E-02
K-40		-4.51E-03 ±	4.17E-02	1.56E-02
MN-54		-1.55E-04 ±	7.84E-04	1.25E-03
FE-59		0.00E+00 ±	1.17E-03	1.96E-03
CO-60		-8.78E-06 ±	6.51E-04	1.07E-03
ZN-65		-1.50E-03 ±	2.55E-03	3.90E-03
ZRNB-95		1.17E-05 ±	1.13E-03	1.86E-03
CS-134		0.00E+00 ±	1.55E-03	2.58E-03
CS-137		0.00E+00 ±	6.52E-04	1.09E-03
BALA140		0.00E+00 ±	7.43E-03	1.24E-02
RU-106		1.61E-03 ±	5.12E-03	7.98E-03

Location and Quarter			Station 88	4th Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	7.03E-02 ±	1.21E-02	7.03E-03
K-40		5.33E-04 ±	4.28E-03	8.40E-03
MN-54		1.20E-04 ±	3.57E-04	5.42E-04
FE-59		-5.08E-04 ±	2.26E-03	3.48E-03
CO-60		7.36E-05 ±	4.06E-04	6.39E-04
ZN-65		-1.50E-04 ±	1.05E-03	1.67E-03
ZRNB-95		-2.38E-06 ±	6.26E-04	1.03E-03
CS-134		6.32E-05 ±	3.34E-04	5.33E-04
CS-137		6.08E-05 ±	3.20E-04	5.06E-04
BALA140		-4.68E-03 ±	1.63E-02	2.49E-02
RU-106		0.00E+00 ±	4.09E-03	6.81E-03

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.



TABLE B-14.1  
**GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS**  
**OTHER LOCATIONS**

Results in pCi/cubic meter, results decay corrected for decay during sample collection period

Location and Quarter		Station 89		1st Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.10E-02 ±	1.53E-02	1.02E-02
K-40		4.06E-05 ±	6.14E-03	1.20E-02
MN-54		0.00E+00 ±	6.64E-04	1.11E-03
FE-59		3.15E-04 ±	2.15E-03	3.37E-03
CO-60		2.00E-04 ±	5.60E-04	8.48E-04
ZN-65		7.25E-04 ±	1.30E-03	1.89E-03
ZRNB-95		-1.17E-04 ±	7.37E-04	1.17E-03
CS-134		-1.26E-04 ±	5.27E-04	8.38E-04
CS-137		-1.26E-04 ±	4.45E-04	6.93E-04
BALA140		-5.13E-03 ±	1.49E-02	2.30E-02
RU-106		2.61E-04 ±	3.79E-03	6.14E-03

Location and Quarter		Station 89		2nd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.21E-01 ±	1.87E-02	1.22E-02
K-40		-2.15E-03 ±	1.42E-02	1.64E-02
MN-54		8.55E-06 ±	5.03E-04	8.24E-04
FE-59		-7.52E-05 ±	2.99E-03	4.88E-03
CO-60		8.63E-06 ±	5.42E-04	8.87E-04
ZN-65		-6.89E-05 ±	1.82E-03	2.97E-03
ZRNB-95		2.25E-04 ±	8.43E-04	1.31E-03
CS-134		-1.37E-04 ±	6.24E-04	9.94E-04
CS-137		9.86E-05 ±	4.41E-04	6.84E-04
BALA140		-1.56E-03 ±	9.89E-03	1.57E-02
RU-106		-1.15E-03 ±	6.46E-03	1.03E-02

Location and Quarter		Station 89		3rd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.47E-01 ±	2.05E-02	9.83E-03
K-40		-1.35E-03 ±	1.12E-02	1.44E-02
MN-54		1.11E-04 ±	5.71E-04	9.03E-04
FE-59		-9.66E-04 ±	4.39E-03	6.91E-03
CO-60		-1.83E-04 ±	7.32E-04	1.15E-03
ZN-65		0.00E+00 ±	1.89E-03	3.15E-03
ZRNB-95		-3.67E-04 ±	9.90E-04	1.52E-03
CS-134		-7.05E-06 ±	5.53E-04	9.08E-04
CS-137		0.00E+00 ±	4.44E-04	7.40E-04
BALA140		8.24E-03 ±	2.24E-02	3.35E-02
RU-106		-1.18E-03 ±	5.74E-03	9.16E-03

Location and Quarter		Station 89		4th Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	7.93E-02 ±	1.27E-02	6.79E-03
K-40		-1.16E-03 ±	6.96E-03	8.64E-03
MN-54		-7.90E-05 ±	4.78E-04	7.65E-04
FE-59		8.18E-04 ±	2.72E-03	4.16E-03
CO-60		-1.44E-04 ±	5.13E-04	7.99E-04
ZN-65		1.31E-04 ±	8.52E-04	1.35E-03
ZRNB-95		0.00E+00 ±	4.51E-04	7.52E-04
CS-134		-4.63E-05 ±	3.54E-04	5.70E-04
CS-137		-1.73E-04 ±	3.93E-04	5.98E-04
BALA140		0.00E+00 ±	2.11E-02	3.52E-02
RU-106		0.00E+00 ±	3.01E-03	5.01E-03

Location and Quarter		Station 90		1st Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.92E-02 ±	1.57E-02	9.52E-03
K-40		-2.53E-03 ±	1.88E-02	1.48E-02
MN-54		-1.68E-04 ±	6.08E-04	9.55E-04
FE-59		-2.71E-04 ±	2.90E-03	4.67E-03
CO-60		4.45E-05 ±	5.73E-04	9.26E-04
ZN-65		-4.08E-05 ±	1.27E-03	2.07E-03
ZRNB-95		0.00E+00 ±	4.83E-04	8.05E-04
CS-134		5.04E-05 ±	3.48E-04	5.55E-04
CS-137		-5.34E-05 ±	5.01E-04	8.08E-04
BALA140		0.00E+00 ±	3.82E-03	6.36E-03
RU-106		-2.64E-03 ±	5.87E-03	9.09E-03

Location and Quarter		Station 90		2nd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.16E-01 ±	1.77E-02	1.05E-02
K-40		-3.46E-03 ±	2.19E-02	1.73E-02
MN-54		1.72E-04 ±	6.79E-04	1.06E-03
FE-59		-1.13E-03 ±	3.64E-03	5.59E-03
CO-60		1.84E-04 ±	5.92E-04	8.91E-04
ZN-65		0.00E+00 ±	3.39E-03	5.64E-03
ZRNB-95		-1.22E-04 ±	1.01E-03	1.63E-03
CS-134		-2.22E-04 ±	7.07E-04	1.12E-03
CS-137		2.75E-06 ±	6.28E-04	1.03E-03
BALA140		0.00E+00 ±	1.27E-02	2.12E-02
RU-106		-1.31E-03 ±	5.82E-03	9.21E-03

Location and Quarter		Station 90		3rd Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.31E-01 ±	1.96E-02	1.03E-02
K-40		-6.51E-03 ±	2.60E-02	1.01E-02
MN-54		0.00E+00 ±	3.36E-04	5.59E-04
FE-59		-5.24E-06 ±	4.18E-03	6.88E-03
CO-60		0.00E+00 ±	6.24E-04	1.04E-03
ZN-65		0.00E+00 ±	3.28E-03	5.46E-03
ZRNB-95		1.99E-04 ±	8.69E-04	1.36E-03
CS-134		-1.03E-04 ±	5.81E-04	9.32E-04
CS-137		2.46E-05 ±	4.87E-04	7.93E-04
BALA140		-5.16E-03 ±	2.07E-02	3.18E-02
RU-106		6.08E-04 ±	4.22E-03	6.74E-03

Location and Quarter		Station 90		4th Q 09
Nuclide	RQ	Activity	Error	MDA
BE-7	+	7.01E-02 ±	1.21E-02	6.69E-03
K-40		6.41E-04 ±	5.63E-03	1.03E-02
MN-54		-9.90E-05 ±	4.58E-04	7.24E-04
FE-59		0.00E+00 ±	3.00E-03	5.00E-03
CO-60		1.80E-04 ±	4.15E-04	6.13E-04
ZN-65		1.15E-04 ±	1.05E-03	1.69E-03
ZRNB-95		-2.05E-04 ±	7.36E-04	1.15E-03
CS-134		-1.44E-05 ±	3.43E-04	5.60E-04
CS-137		-1.15E-04 ±	3.92E-04	6.12E-04
BALA140		1.09E-03 ±	1.42E-02	2.29E-02
RU-106		1.28E-03 ±	3.34E-03	5.10E-03

RQ = Results Qualifier. If blank, result is less than detection limit. If "+", result is above detection limit.