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Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397
INDEPENDENT SPENT FUEL STORAGE INSTALLATION, DOCKET NO. 72-35
2013 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. 332, February 21, 2012

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,

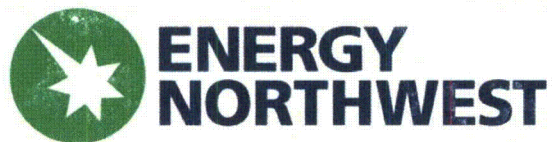
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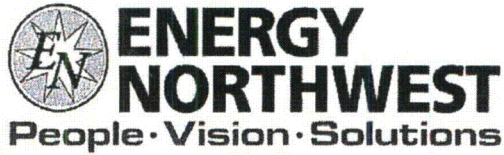
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COLUMBIA GENERATING STATION

2013 ANNUAL RADIOLOGICAL ENVIRONMENTAL
OPERATING REPORT FOR THE COLUMBIA
GENERATING STATION





COLUMBIA GENERATING STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

2013 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

For Calendar Year 2013

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Submitted Date: May 2014

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1.0 EXECUTIVE SUMMARY

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The primary 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 as an Energy Northwest initiative. The program also serves to validate CGS effluent measurements and exposure pathway models and to provide a documented, historical record of CGS impact on the environment. This report serves to document and communicate the program results and findings for calendar year 2013.

A variety of environmental samples are routinely collected and analyzed by the REMP. The types of samples collected include air, water, soil, sediment, milk, fish, and garden produce. Additionally, the program continuously monitors direct radiation at numerous locations surrounding CGS. 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 in 2013 had minimal radiological impact on the environment. The only identified radiological impact to areas outside the CGS controlled area consisted of low level tritium in one plant discharge water sample that is attributed to recapture of CGS gaseous effluent tritium. All other identified radiological impact was limited to areas within the CGS controlled area. 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. With the exception of the one tritium sample result, all radioactive material identified outside the CGS controlled area was of natural origin or known to be present in the environment around CGS in the quantities identified. The results are consistent with and verify CGS effluent measurements and modeling of the exposure pathways.

Below is a summary of the 2013 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 due to CGS operation was identified. The radionuclide activity identified in soil samples were consistent with activity levels known to exist in Hanford area soils.

Waterborne - No significant impact was identified. Low level tritium was identified in storm drain water and radionuclides related to CGS operation were identified in storm drain soil and cooling system sediment. Low level tritium was identified in one plant discharge water sample. All activity identified at these locations is attributed to recapture of CGS effluents. The 2013 data supports the longer term observation that storm drain tritium may be influencing groundwater tritium at locations near the storm drain pond. Tritium identified in sanitary waste water is attributed to discharges made from facilities operated by the Department of Energy. Tritium activity identified in groundwater was 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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a priori: refers to a “before the fact” limit that represent the capabilities of a measurement system and not a limit for a particular measurement.

a posteriori: refers to an “after the fact” limit determined for a particular measurement and not a limit for a measurement system.

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 (α): 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 (β): 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 3.7×10^{10} disintegrations per second, or 2.22×10^{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. This facility is referred to as the DOE 400 area throughout this report.

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, 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.

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

Microcurie: 3.7×10^4 disintegrations per second, or 2.22×10^6 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): 1×10^{-12} Curie or 2.22 disintegrations per minute; one millionth of a microcurie.

Radioiodine: Radioisotopes of iodine. For commercial nuclear reactors, iodine-131 to iodine-135 are the principle radioiodines of concern. Due to its longer half-life, iodine-131 is the most probable radioiodine identifiable in the environment.

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 " σ ".

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 (CGS) is a 1230 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. ⁽¹⁾ 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 potassium-40, beryllium-7, actinium-228 (present as a decay product of radium-228), and radium-226. Additionally, some relatively long lived anthropogenic radioisotopes, such as strontium-90 and cesium-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. ^(2, 3)

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, ⁽⁴⁾ 4.8, ⁽⁵⁾ and the Radiological Assessment Branch Technical Position. ⁽⁶⁾ 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 ⁽⁷⁾ and 4.13. ⁽⁸⁾ The REMP also adheres to the requirements of the Washington Energy Facility Site Evaluation Council, ⁽⁹⁾ the Columbia Generating Station Technical Specifications, ⁽¹⁰⁾ and the Offsite Dose Calculation Manual. ⁽¹¹⁾ 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 all routine REMP sampling and analyses in 2013. Thermoluminescent dosimeters (TLDs) used in the REMP were processed by the Hanford External Dosimetry Program (HEDP) operated by Mission Support Alliance (MSA).

In addition to evaluating the environmental concentrations against regulatory limits, the REMP may also compare results to state standards.^(12, 13) 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 in order to empirically quantify and qualify any radiological effect plant operation may be making on the environment. The program serves to ensure that any accumulation of radionuclides in the environment resulting from station operation will be identified promptly and before they become significant or exceed established limits.

While in-plant monitoring programs are used to ensure that 10 CFR 20⁽¹⁴⁾ and 10 CFR 50⁽¹⁵⁾ criteria for releases of radioactive effluents are met, the REMP further verifies that the measured concentrations of radioactive material and levels of radiation observed in the environment are not higher than expected based on CGS effluent measurements and modeling of the exposure pathways.

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 ten 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 one 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 four 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-foot wide by 135-foot long and each pad can hold up to 18 casks. The ISFSI is located approximately 500 meters north-northwest of the reactor building. Three security fences surround the ISFSI facility.

Direct radiation monitoring of the ISFSI is performed using TLDs placed at 10 different locations on the second of three security fences that surround the facility. The TLDs are exchanged quarterly. 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 covering the areas within a five mile radius 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 ft² 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 2013 five miles land use census are presented in Table 4-3. No significant changes from the 2012 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. All routine REMP samples collected in 2013 were prepared for analysis at the Energy Northwest Environmental Services Laboratory located 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). The TLDs are placed in the field between three and five feet above the ground. TLDs are wrapped in aluminum foil and sealed in plastic bags to prevent damage. TLDs are exchanged on a quarterly basis.

The locations of the TLD stations are listed in Table 4-2 and are shown in Figures 4-1 through 4-4. Station 9A near Sunnyside, WA serves as the environmental TLD control location. Station 119C serves as the control for Station 119B (the cooling system 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, referred to as the "S" stations, are located inside the CGS site boundary at distances that range from 0.3-0.8 miles from the reactor building centerline. The second 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 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 radioiodine (Iodine -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) serve as controls, the samples collected at all 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 monitor locations are available to monitor work at the DOE 618-11 burial site if needed.

4.4.3 Water

Water sampling is performed to meet ODCM and State of Washington EFSEC requirements, comply with NEI guidelines, or as 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; ten locations (MW-3, 5, 6 and MW-8 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 City of 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 on Energy Northwest property are used to provide deep groundwater samples. These wells are greater than 400 feet deep and provide samples from the confined aquifer under CGS. Station 52 is a deep well located 0.1 mile north of the CGS reactor building. Station 31 and 32 are deep wells at the IDC (ENW Industrial Development Complex) 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 sources of water to the pond are discharges from the potable water and plant makeup water demineralizer treatment systems. Storm water runoff from the CGS site is also directed to this location. Water discharges from CGS that have been verified to meet radiological environmental discharge limits are another potential source of water to the storm drain pond. 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 No. 300.⁽¹⁶⁾ 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. Water used at the DOE 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 around 1500-2000 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.

Routine quarterly grab samples are taken as part of the REMP from 10 shallow groundwater monitoring wells surrounding CGS. The monitoring well locations are shown in Figure 4-1. The shallow groundwater wells are all less than 100 feet deep and allow samples to be obtained 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⁽¹⁷⁾ and requirements in the CGS NPDES permit.

4.4.4 Soil

Annual soil samples are a requirement of EFSEC Resolution No. 332.⁽⁹⁾ For 2013, two soil samples were collected from locations near CGS, two samples from farmland in Franklin County east of CGS, and one sample from a control location near Sunnyside, WA. Each sample was collected from an area of approximately one square foot to a depth of approximately one inch. About two kilograms of soil was 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 No. 332.⁽⁹⁾ 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 shallow surface sediment scooped from areas known to be underwater during high water periods and where the potential for sediment accumulation is likely. Sediment samples are dried in an oven and then analyzed for gamma emitting radionuclides on a dry weight basis.

Cooling system sediment samples are collected and analyzed whenever cooling system sediment is added to the disposal cells (Station 119B, Figure 4-1). Disposal of cooling system sediment is made in accordance with EFSEC Resolution No. 299.⁽¹⁸⁾ Pre-disposal samples are collected and analyzed prior to transfer to ensure the material will be within the limits specified in the EFSEC resolution. Following transfer, the material is allowed to dry and a post-disposal sample is collected and analyzed.

4.4.6 Fish

Annual fish sampling is usually performed in the fall. Fish samples collected from the Columbia River (Station 30) serve as indicator samples, whereas fish collected on the Snake River (Station 38) serve as control samples. Only edible portions of the fish are used to prepare the samples for analysis. Fish

samples are analyzed for gamma emitting radionuclides on a wet weight basis. Three species of fish are collected; an anadromous species (salmon or steelhead), and two other species generally considered edible or potentially edible (typically carp, catfish, sucker, or whitefish). The same species are collected at each location. Electroshock techniques have historically been used for 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 more 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 2013 from two locations. Station 36 in Franklin County serves as the indicator location and is the only known dairy within a ten mile radius of CGS. Station 9B near Sunnyside, WA 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. Three types of garden produce are typically collected; root crops, fruits, and leafy vegetables. Control samples (Station 9C) are usually obtained from the lower Yakima Valley. Indicator samples (Station 37) are primarily collected from areas downstream of the CGS discharge where crops are irrigated with Columbia River water. The Riverview area of Pasco is the principle collection location for fruit and root crops. Collection of leafy vegetables is primarily made from locations that could potentially be influenced by CGS gaseous emissions. Vegetation samples may also be collected from locations closer to CGS; however none were collected in 2013. Garden and vegetable 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. All REMP TLDs in 2013 were processed by Mission Support Alliance (MSA) at the Hanford External Dosimetry Program (HEDP) facility located in Richland, WA. All routine REMP field samples were collected and analyzed by Energy Northwest Environmental Services personnel. 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 lists the ODCM required LLDs and the nominal target LLD used in the Energy Northwest REMP program.

4.5.1 Analysis of TLDs

REMP TLDs are analyzed 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 cesium-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 significantly above the mean of the control, gamma isotopic analysis is performed on the individual samples.

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 or plastic canisters. Sample results are corrected for decay during the collection period if applicable. 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. Sample aliquots are placed in 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 count and side count positions. If radioiodines are 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/m³.
- **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/m³ 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 normally done under a heat lamp. Residue mass is determined by weighing the planchet before and after mounting the sample. The planchet is counted for gross alpha and 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 Strontium-89/90, Iron-55, and Nickel-63

These "hard to detect" analytes are not routinely analyzed as part of the CGS REMP. When needed, these analyses are performed under contract by Teledyne- Brown Environmental Services Laboratory located in Knoxville, TN using the vendor's standard analysis procedures.

4.5.7 Low Level Radioiodine in Milk and Water

Four liters of sample are first equilibrated with stable iodide carrier. Anion exchange resin is then added and mixed for a period sufficient to allow any iodine present in the sample to be captured by the resin. The resin is then isolated from the liquid sample and transferred to a small counting container. The radioiodine content is 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 for these samples can be positive or negative values. 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 the preferred practice for low level environmental analyses 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 better 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 both units of mR/day and mR/standard quarter. TLD results in mR/day are calculated by taking the total exposure (in mR) determined for each TLD, correcting for storage background and any transit (or trip) exposure received during distribution and retrieval, then dividing by the number of days the TLD was in the field. The mR/standard quarter values are calculated by multiplying the mR/day value by 91.25 days (365/4). All TLD results are reported in units of exposure (Roentgen) and not in units of dose (Rem).

4.7 Changes to the Sampling Program in 2013

There were no major changes made to ODCM or EFSEC Resolution No. 332⁽⁹⁾ mandated sampling in 2013. Sampling and analysis of shallow groundwater wells around CGS was continued as a routine part of the REMP. No samples were obtained from one of the shallow groundwater wells (MW-7) in 2013 due to lack of water. The last sample obtained from this location was in the third quarter 2012. Sampling from Station 102A was terminated at the end of December. This station consisted of a composite water sampler that sampled the sanitary effluent line coming from the DOE 400 area. The effluent line was plugged in mid-December and ENW is no longer accepting sanitary waste from this location. One TLD location, Station 73, was moved in October to a new location due to construction activities. The new location is in the same geographical sector and approximately 175 feet from the old location.

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

SAMPLE TYPE^(a)	SAMPLE STATION^(b) NUMBER	SAMPLE METHOD AND COLLECTION FREQUENCY^(c)	TYPE AND FREQUENCY OF ANALYSIS
AIRBORNE			
Particulates and Radioiodine (6/12) ^(d)	1, 4-8, <u>9A</u> , 21, 23, 40, 48, and 57	Continuous sampling; weekly collection.	Weekly air filters gross beta and iodine cartridge gamma isotopic. Quarterly air filter composite gamma isotopic.
DIRECT RADIATION			
TLD ^(g) (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 collection.	Radiation exposure monitoring processed on a quarterly frequency.
WATERBORNE			
River/Drinking Water ^(h) (3/3)	<u>26</u> , 27 and 29	Composite aliquots ⁽ⁱ⁾ , monthly collection.	Monthly gamma isotopic, gross beta, and tritium. Iodine-131 ^(j) as required.
Storm Drain Water (0/1)	101	Composite aliquots ⁽ⁱ⁾ , monthly collection.	Monthly gamma isotopic, tritium, and gross beta.
Sanitary Waste Treatment Facility Water (0/2)	102A, 102B	Composite aliquots ⁽ⁱ⁾ , monthly collection.	Monthly gamma isotopic, gross beta, gross alpha, and tritium.
Ground Water (2/3) ^(k)	31, 32, and 52	Grab sample performed quarterly.	Quarterly gamma isotopic and tritium.
Ground Water Monitoring (0/10) ^(e)	MW-3, 5, 6, 8-14	Grab sample performed quarterly.	Quarterly gamma isotopic and tritium.
SOIL AND SEDIMENT			
Soil ^(l) (0/5)	<u>9A</u> , 7, 8, 23, 48	Grab sample performed annually.	Annual gamma isotopic. Strontium-90 ⁽ⁿ⁾ as required.
River Sediment (1/2) ^(l)	<u>33</u> and 34	Grab sample performed semiannually.	Semiannual gamma isotopic.
Cooling System Sediment Disposal Area (0/2)	119B, <u>119C</u>	Grab sample of dried sediment within 30 days of disposal date.	Gamma Isotopic. After disposal.
INGESTION			
Milk ^(m) (2/2)	<u>9B</u> , 36	Grab sample collected semimonthly during grazing season, monthly at other times.	Gamma isotopic, Iodine-131 each sample. Strontium-90 ⁽ⁿ⁾ as required
Fish ^(o) (2/2)	30, <u>38</u>	Grab samples collected annually.	Gamma isotopic each sample.
Garden Produce ^(p) (1/2)	<u>9C</u> , 37	Grab samples collected monthly or at time of harvest.	Gamma isotopic each sample.

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 332 requirements or as an 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 332 specifies nine. Two of the air sample stations are maintained at CGS initiative and are not requirements of either the ODCM or EFSEC Resolution 332.
- (e) Sampling is performed to meet NEI 07-07 guidelines and NPDES requirements.
- (f) Soil samples are collected from five locations to satisfy EFSEC Resolution 332 requirements. Two samples are collected from locations near CGS, two from locations in Franklin County, and one collected from a control location. Sample locations listed in Table 4-1 are the location sampled in 2013. EFSEC 332 requires strontium-90 analysis be performed if gamma analysis results are greater than a specified threshold.
- (g) 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 332 requires 25 or more TLD stations to be located within a 10-mile radius of CGS. Other instruments, such as a pressurized ion chamber (PIC), may be used in place of or in addition to TLDs as per ODCM table 6.3.1-1 (b). CGS REMP maintains a uRem meter for this purpose.
- (h) 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 location. 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 332 requires samples from at least one downstream drinking water location and samples from the plant intake and discharge water systems.
- (i) Composite samples are collected using automatic sampling equipment that collects samples based on a flow proportional or timed interval basis. If timed interval sampling is used, the interval period is short (e.g. hourly) relative to the compositing period (e.g. monthly).
- (j) When the dose calculated via ODCM methodology for consumption of water exceeds 1 mrem per year, low level iodine-131 analyses are performed on the drinking water samples.
- (k) Sampling from these locations fulfills ODCM table 6.3.1-1 3b requirements. EFSEC Resolution 332 requires sampling from at least one deep well used for fire protection and/or as a backup drinking water sources.
- (l) Downstream sampling fulfills ODCM table 6.3.1-1 3d requirements. EFSEC Resolution 332 requires annual sediment samples upstream and downstream of the plant discharge.
- (m) ODCM table 6.3.1-1 4a milk collection requirements cannot strictly be met due to the lack of milking animals near CGS. Milk samples are collected from the nearest dairy potentially impacted by CGS operation and also from a control location at the frequency specified in the ODCM. EFSEC Resolution 332 specifies sampling from at least one milk location within the 10-mile radius of CGS and also from a control location. Broadleaf vegetation can be sampled in lieu of milk if a representative milk sample is not available.
- (n) ODCM table 6.3.1-1 (k) requires that if cesium-134 or cesium-137 is measured in an individual milk sample in excess of 30 pCi/liter, then a strontium-90 analysis will also be performed.
- (o) 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 (i). 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.
- (p) 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 typically collected each sample period, when available. EFSEC Resolution 332 further specifies fruit and vegetable sampling from locations potentially impacted by CGS gaseous emissions.

**TABLE 4-2
REMP SAMPLE STATIONS AND REQUIREMENTS**

SECTOR ^(a)	STATION NUMBER ^(b)	DISTANCE MILES ^(c)	ODCM ^(d)	STATE ^(e)	OTHER ^(f)
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-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 ^(b)	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		
	32	1.27	DGW		
	51	2.14	TLD		

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

SECTOR ^(a)	STATION NUMBER ^(b)	DISTANCE MILES ^(c)	ODCM ^(d)	STATE ^(e)	OTHER ^(f)
ESE (6)(cont.)	34	3.32	SE	SE	
	23	3.03		TLD, AP/AI, SO	
	8	4.39	TLD, AP/AI	TLD, AP/AI	
	42	5.85	TLD		
	36	7.33	MI	MI	
	5	7.72	TLD		AP/AI
	38 ^(g)	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	
	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 ^(h)	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 ^(a)	STATION NUMBER ^(b)	DISTANCE MILES ^(c)	ODCM ^(d)	STATE ^(e)	OTHER ^(f)
SW (11)	13	1.26	TLD	TLD	
	81(11S)	0.74			TLD
	103A	0.63			VE
	90 ⁽ⁱ⁾	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 ⁽ⁱ⁾	32		GP	
	89 ⁽ⁱ⁾	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 ⁽ⁱ⁾	0.17			TLD, AI/AP
	MW-10	0.07			SGW
NW (15)	85 (15S)	0.43			TLD
	49	1.19	TLD	TLD	
	87 ⁽ⁱ⁾	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 are given in parentheses; i.e., TLD Stations 71-86 are also referred to as 1S-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 129 and 136A through 138A satisfy ISFSI monitoring requirements 10CFR72.44(d)(2). Sampling at MW locations performed to meet NEI 07-07 guidelines and NPDES requirements. Stations 102G and 103A are locations near CGS where vegetation samples have been collected in the past. No samples were collected from these locations in 2013.
- (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 CGS. Station 37 designation is also used for any samples collected in Franklin County that could potentially be affected by CGS liquid or gaseous effluents.
- (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.
- (j) Stations 87-90 were installed at CGS initiative to monitor remediation work at the DOE 618-11 burial ground. No remediation work that affected CGS was performed in 2013 and no air samples were obtained from these locations in 2013. See Section 5.9.6 for further discussion.

TABLE 4-3
2013 FIVE MILE LAND USE CENSUS RESULTS

SECTOR ^(a)	NEAREST RESIDENT ^(b)	GARDEN ^(d) (>500 ft ²)	DAIRY ANIMALS	LIVESTOCK ^(b,c)
NE	4.50	none	none	none
ENE	3.88	none	none	4.95
E	4.64	none	none	4.64
ESE	4.26	none	none	4.49
SE	none	none	none	none

FOOTNOTES

- (a) Within a five-mile radius of the plant, only the five sectors listed above contain activities related to land use census requirements. The other eleven sectors lay fully within the federally owned Hanford Site. Only those sectors containing potential land use census activities are presented here.
- (b) Estimated distances in miles from CGS Reactor Building based on GPS readings. Actual locations are same as identified in previous years, distance values may differ from those reported in past due to updated GPS data.
- (c) 25 to 30 beef cattle were identified in a pasture in the ENE sector. The western edge of the pasture is just within the 5 mile radius. Additional feed appears to be provided at this location. 5 cows, 2 calves, 3 horses, and some chickens were observed in a small fenced area near a residence in the E sector. The animals were observed to be fed hay. A single horse was observed in the ESE sector. There is no pasture at this location and the horse appears to be fed hay.
- (d) Though no gardens > 500 ft² were identified, commercial agriculture is extensively practiced in some parts of the sectors identified in Table 4-3. Agricultural activities observed were primarily apple and soft fruit orchards, corn, alfalfa, and grape vineyards.

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

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

^(a) 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.

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

^(c) This ENW Iodine-131 LLD achieved by anion resin separation and does not represent a direct analysis of the sample media.

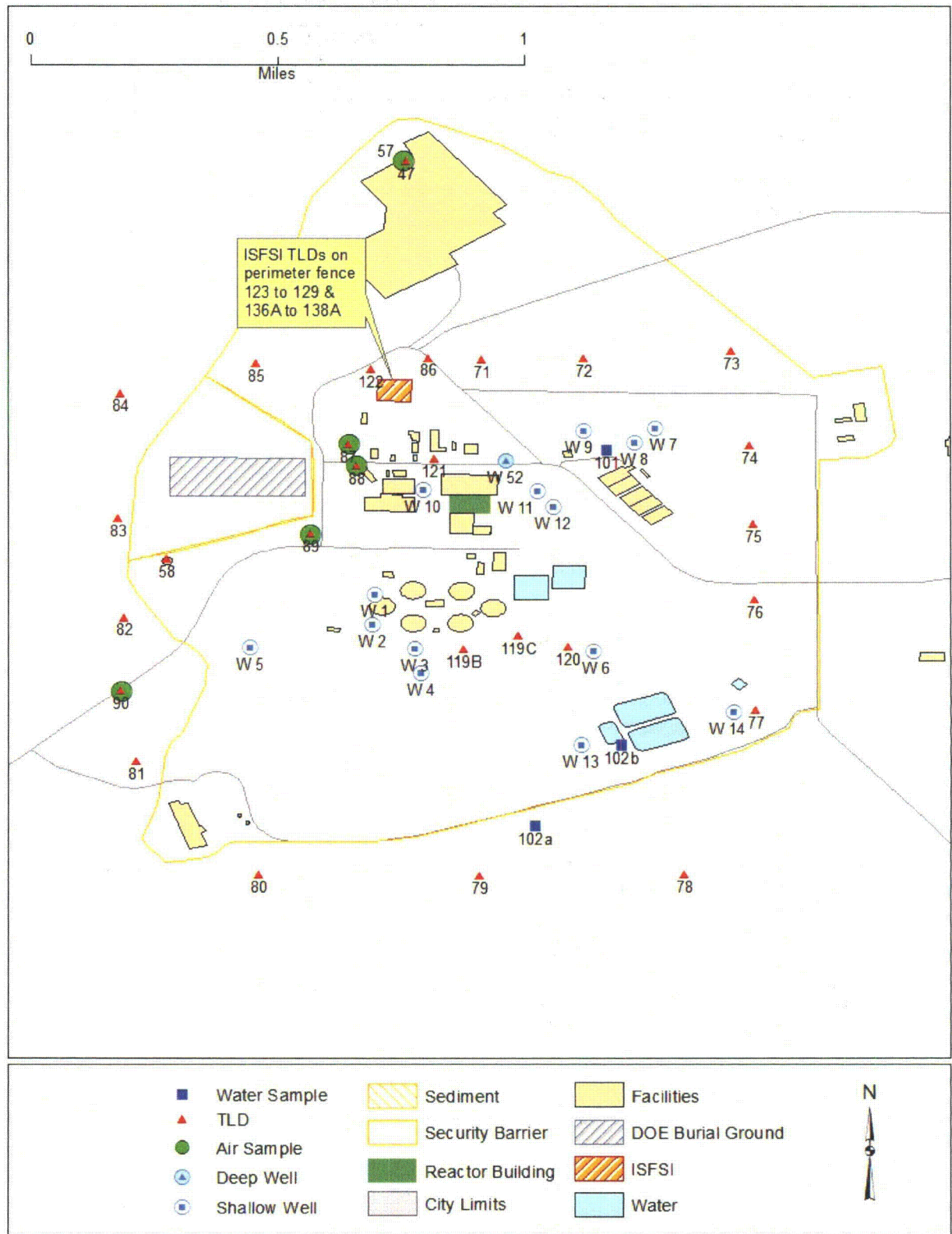


FIGURE 4-1 SELECT REMP SAMPLING LOCATIONS WITHIN 0.8 MILES OF CGS

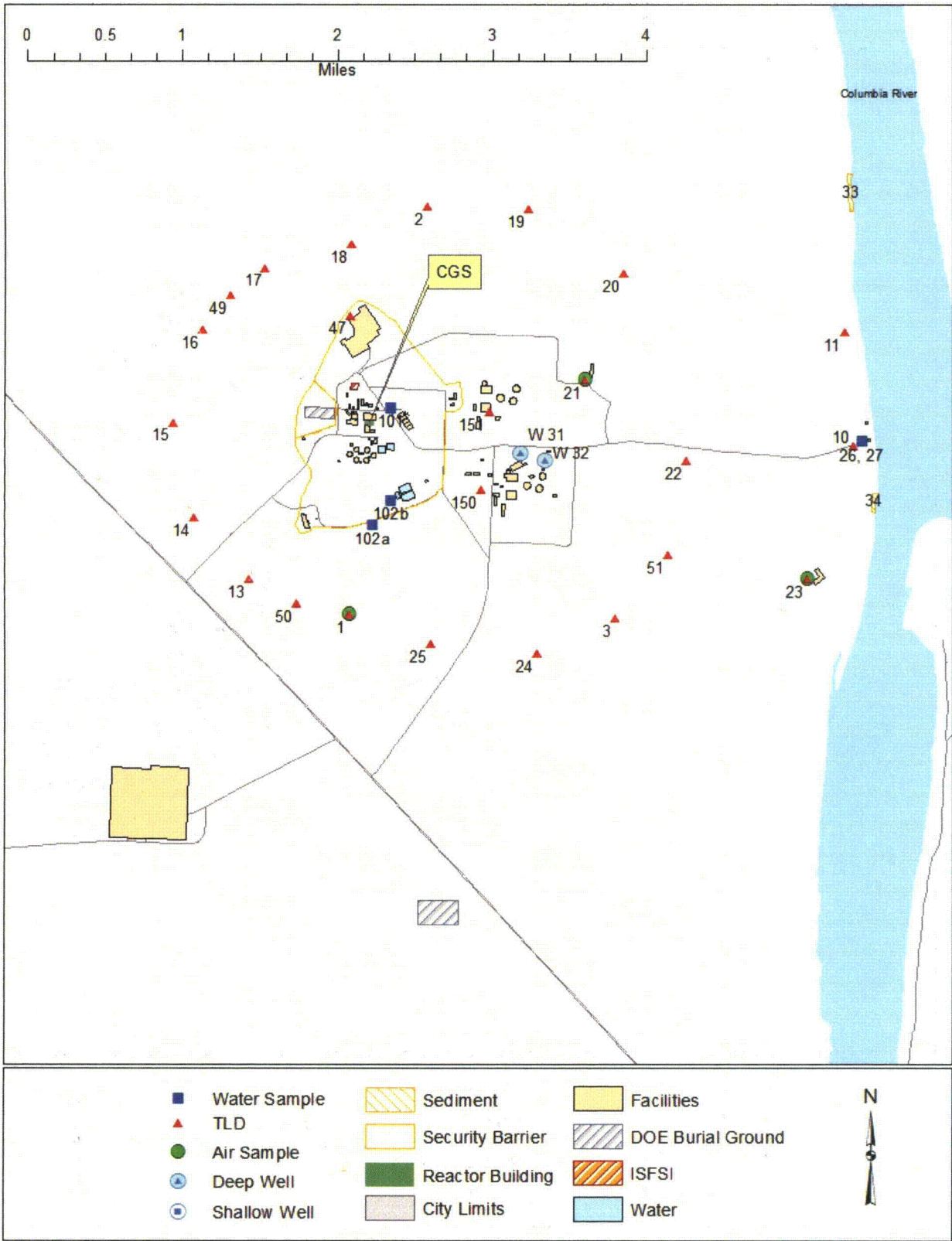


FIGURE 4-2 SELECT REMP SAMPLING LOCATIONS BETWEEN 0.8 AND 2.8 MILES

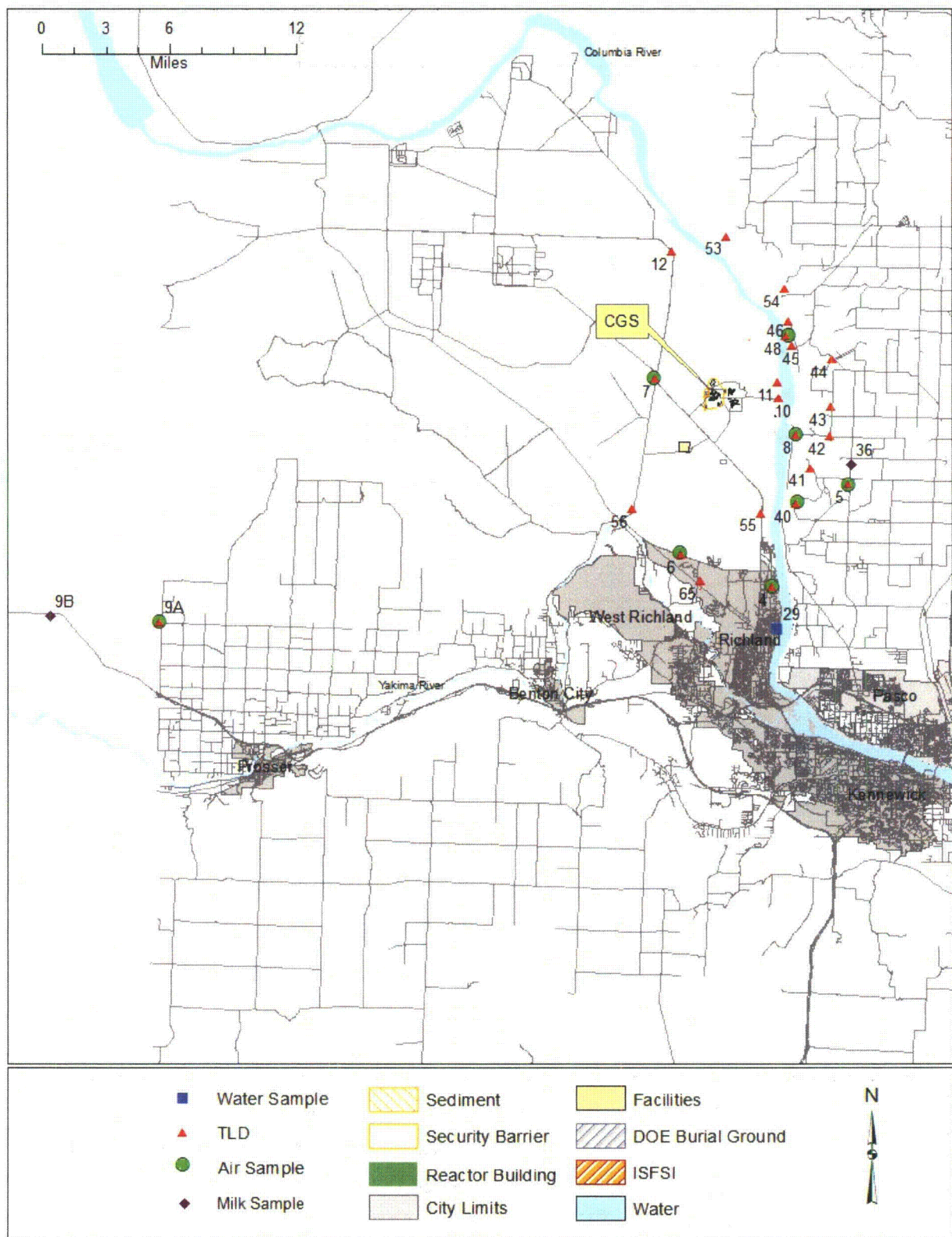


FIGURE 4-3 SELECT REMP SAMPLING LOCATIONS BEYOND 2.8 MILES

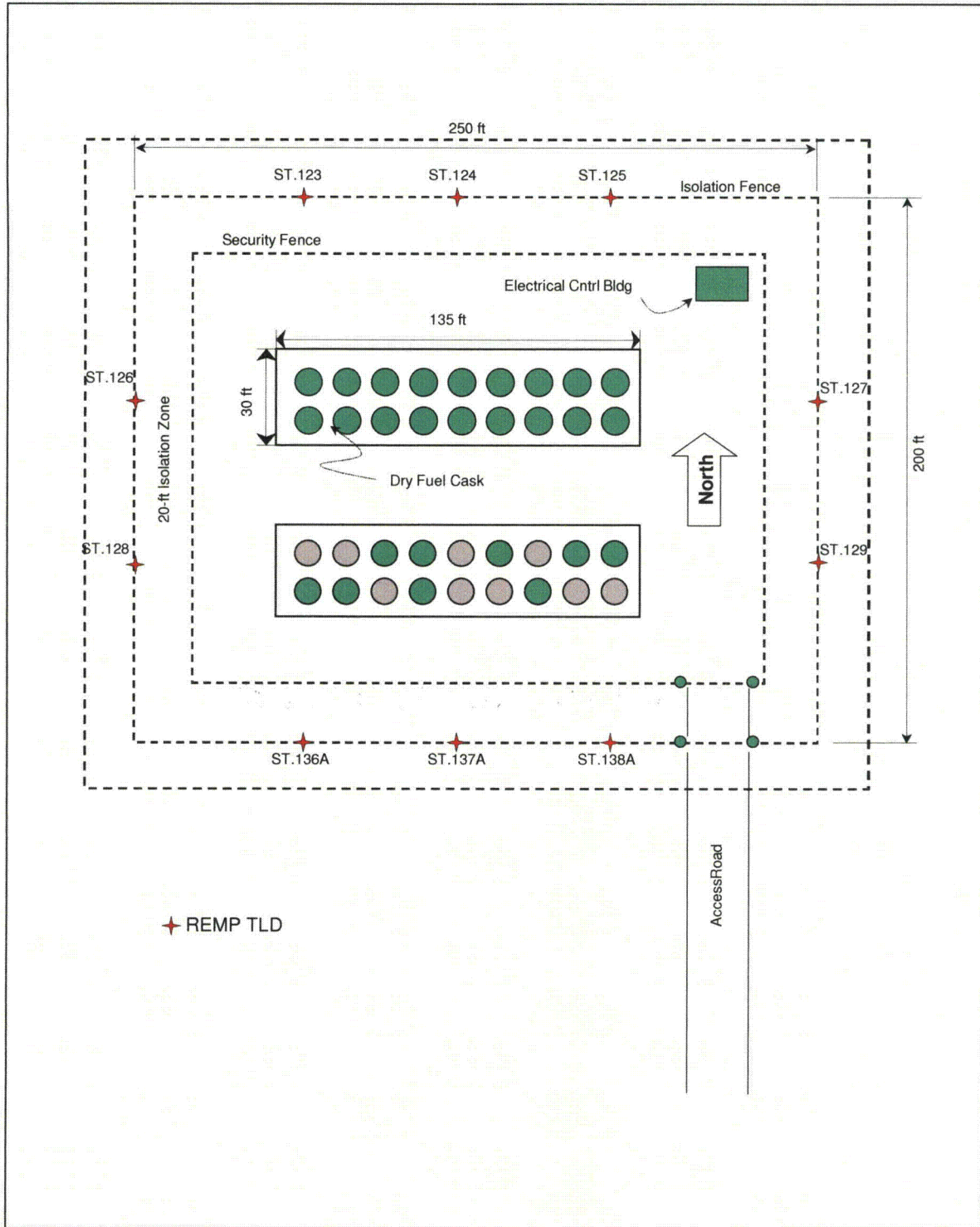


FIGURE 4-4 ISFSI TLD STATION LAYOUT

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 the Hanford External Dosimetry Program (HEDP) operated by Mission Support Alliance (MSA). All other CGS REMP samples were collected and 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 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 shows the 2013 "S" station mean quarterly TLD results separated into 16 geographical sectors around the plant. Figure 5-1 also shows the pre-operational mean and the high, low, and mean results in each sector for the 1984 - 2012 operational period for comparison. The 2013 "S" station TLD results were lower than the pre-operational mean in 11 of the 16 sectors and lower than the operational mean in 13 of the 16 sectors. TLD results from the N, NNE, and NNW sectors are slightly higher than the other "S" station locations as a result of being physically closer to the ISFSI and the CGS turbine building. Excluding the NNW sector, the average deviation relative to the pre-operational period was -1.40%; in 2012 the average deviation was -1.65%. The NNW sector is the closest "S" station to the ISFSI and the higher result here is attributed to the stations close proximity to this facility.

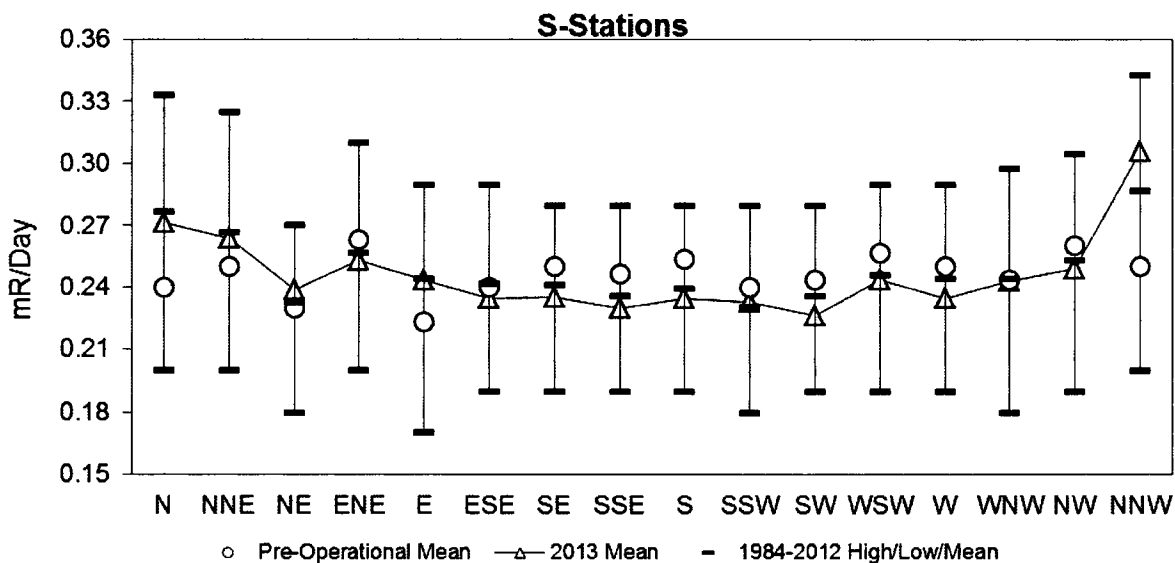


Figure 5-1 "S" Stations Quarterly TLDs 1984-2012 Hi/Low/Mean and 2013 Mean by Sector

The 19 locations designated as near plant stations are located at distances between 0.9 and 2.1 miles from the CGS reactor building, see Figure 4-2 for station locations. Figure 5-2 shows the exposure rates for the near plant TLD locations separated into sixteen geographical sectors around the plant. Figure 5-2 also shows the pre-operational mean and the high, low, and mean results in each sector for the 1984-2012 operational period for comparison. The 2013 near plant TLD results were lower than the pre-operational mean in 12 of the 16 sectors and less than or equal to the operational mean in 14 of the 16 sectors. The average deviation relative to the pre-operational period was -1.7%, in 2012 the average deviation was -3.2%.

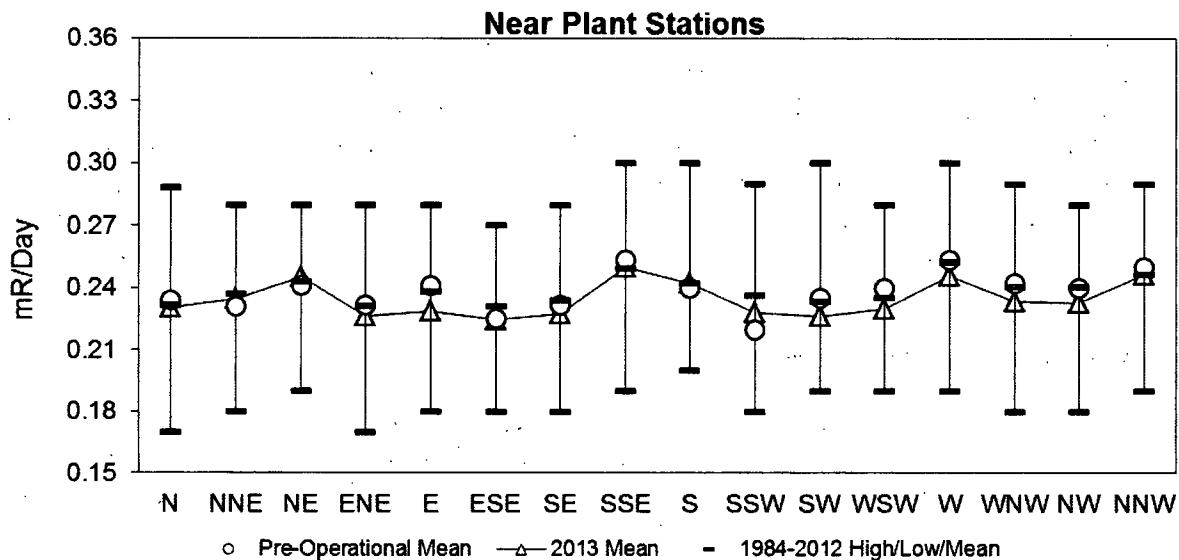


Figure 5-2 Near Plant Stations Quarterly TLDs 1984-2012 Hi/Low/Mean and 2013 Mean by Sector

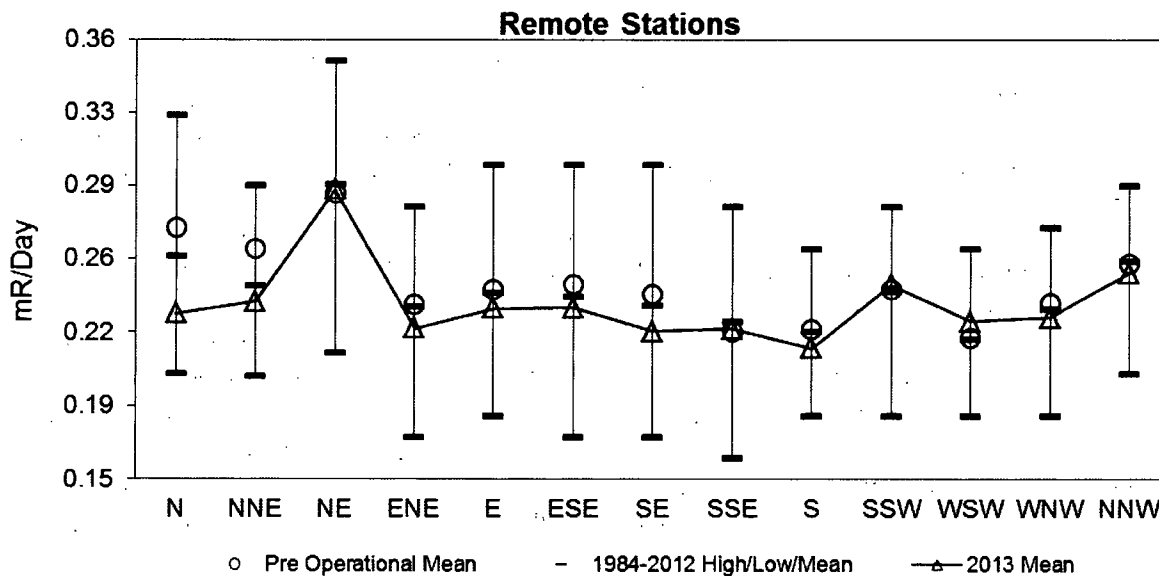


Figure 5-3 Remote Stations Quarterly TLDs 1984-2012 Hi/Low/Mean and 2013 Mean By Sector

The 22 TLD locations designated as remote locations are located between 2.83 and 28.35 miles from the CGS reactor building; see Figure 4-3 for station locations. Figure 5-3 shows the exposure rates for the remote TLD locations separated into geographical sectors around the plant. Figure 5-3 also shows the pre-operational mean and the high, low, and mean results by sector for the 1984-2012 operational period for comparison. The 2013 remote TLD results were lower than the pre-operational mean in 9 of the 13 sectors and lower than the operational mean in 11 of 13 sectors. Station 46 in the Wahluke Reserve (NE sector) remained the remote location with the highest exposure rate. This has been the case since the pre-operational measurement phase and is attributed to differences in the underlying rock and soil composition in this area. The 2013 average deviation relative to the pre-operational period was -3.7%; the average deviation in 2012 was -3.5%.

Offsite direct radiation monitoring results are consistent with previous years. The 2013 results indicate no observable dose contributions 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 2013, the pre-operational period, and the long term operational period are summarized in Tables 5-3. See also Appendix A, Tables A-1.1 and B-1.1 for the 2013 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 radioiodines on a weekly basis. Air filters are also composited and analyzed for gamma emitting nuclides quarterly.

The 2013 mean weekly particulate filter gross beta results for the five stations 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 near plant stations are similar to results from the remote locations and closely follow the trend of the control location.

Figure 5-5 is a plot of the 2013 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). Results for these remote stations are similar to results from the near plant stations and closely follow the trend of the control location. No correlation between air gross beta activity and proximity to CGS was observed.

For both near and remote air station locations, higher results and greater variability in air gross beta activity have historically been observed during fall and winter months due to weather induced background fluctuations. Gross beta levels typically increase during periods of inversion due to natural decay products being trapped near the earth surface. Gross beta results plotted over a period of several years typically show a cyclical pattern with higher results observed in the fall and winter compared to the spring and summer. Gross beta results above the normal trend range were observed in January, October, November, and December. The increases were observed at all sample locations including the control and are attributed to weather phenomena and not the result of CGS operation. The results for weeks 48-50 were among the highest gross beta air results observed by the CGS REMP. Weather conditions for this period were typical of an inversion with below normal temperatures, overcast skies, and little to no winds. The smaller spike observed in week 43 occurred during a period when fog and blowing dust was noted.

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). Beryllium -7 was positively identified in all samples at both the indicator and control locations.

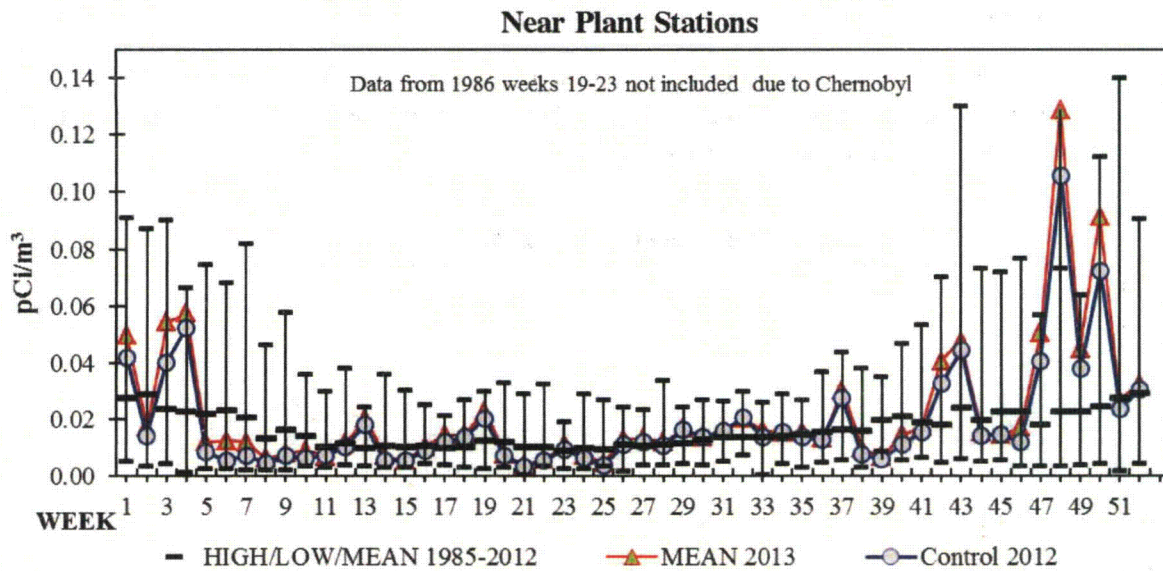


Figure 5-4 1985-2012 Weekly Hi/Low/Mean and 2013 Weekly Mean Gross Beta in Air - Near Plant Stations

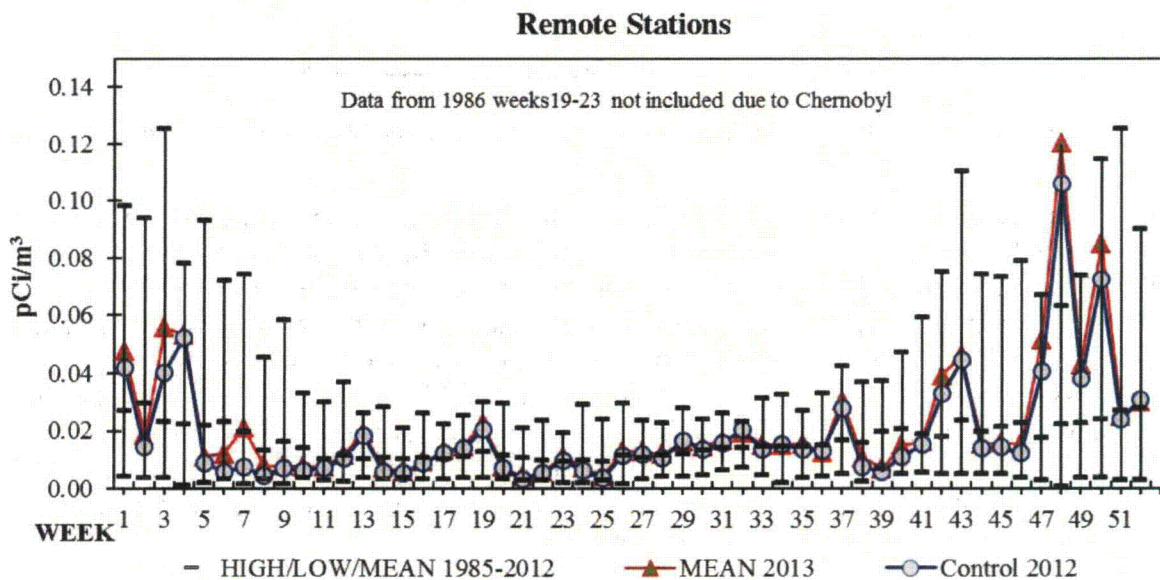


Figure 5-5 1985-2012 Weekly Hi/Low/Mean and 2013 Weekly Mean Gross Beta in Air - Remote Stations

The 2013 weekly iodine cartridge isotopic results showed no indication of radioiodines in any of the samples. Results for iodine-131 were in all cases below the lower limit of detection. (See Appendix A, Tables A-4.1, A-4.2).

The 2013 air particulate and iodine sample results show no evidence of measurable environmental radiological air quality impact that can be attributed to CGS plant operation.

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 2013 gross beta results for the plant intake, plant discharge, and river/drinking water stations are shown in Figure 5-6.

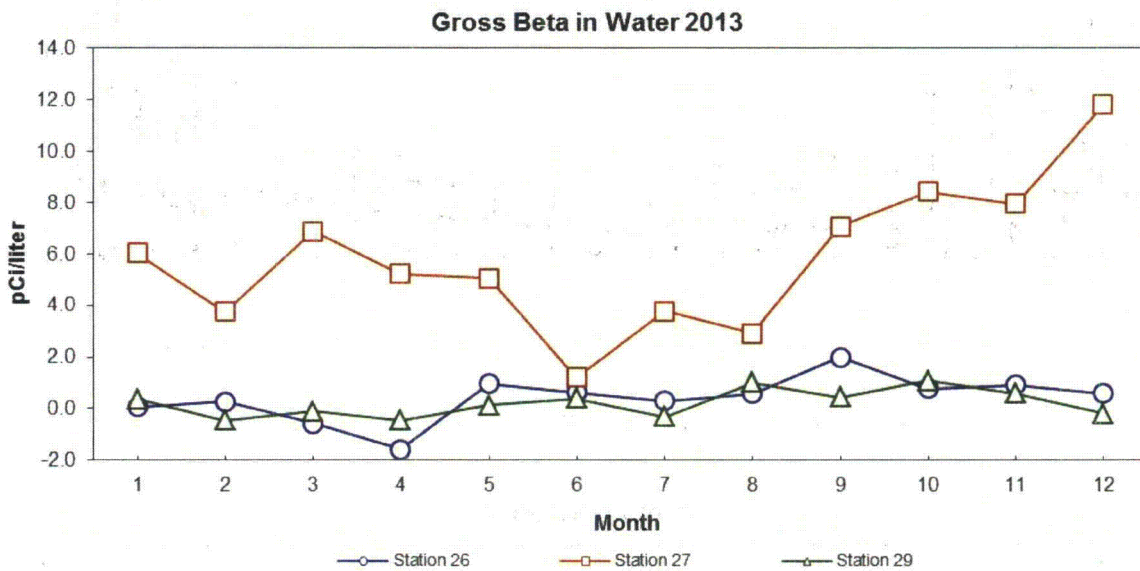


Figure 5-6 Gross Beta in River/Drinking (Stations 26 & 29) and Plant Discharge Water (Station 27) for 2013

All drinking and river water (Stations 26 and 29) gross beta results were below the analysis detection limits (See Appendix A, Tables A-5.1, A-5.2). Gross beta levels in the plant discharge water (Station 27) were above the detection limits in ten of the twelve samples. Positive results for this location are expected due to the scrubbing action of the cooling towers which incorporates atmospheric particulate material into the discharge water and the concentration of natural radioactivity in the water by evaporative loss. Historically, higher gross beta results at Station 27 have been observed during periods when CGS circulating water was maintained at higher levels of concentration. The lower gross beta values for Station 27 during the summer months corresponds to a time period during and immediately after an outage. The Station 27 sample results are representative of the radioactivity present in plant discharge water before any mixing with river water occurs.

Monthly tritium results for all plant intake, plant discharge, and river/drinking water samples were below the analysis method *a priori* LLD except for one plant discharge water sample. Tritium results for the three sample locations are plotted in Figure 5-7, quarterly averages for the locations are listed in Appendix A, Tables A-6.1, A-6.2. The cause of the positive tritium activity in the March plant discharge water sample could not be identified; it is suspected that the activity was from recapture of CGS effluent tritium in the cooling water system.

Gamma spectroscopy results for all plant intake, plant discharge, and river/drinking samples showed no indication of gamma-emitting radionuclides of interest being present (See Appendix A, Tables A-7.1, A-7.2).

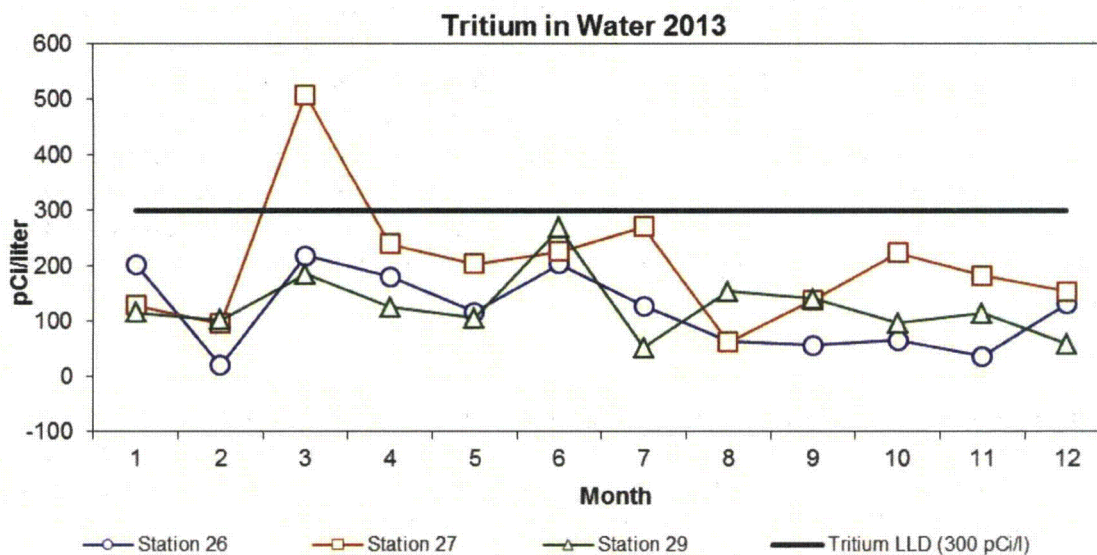


Figure 5-7 Tritium in River/Drinking (Stations 26 & 29) and Plant Discharge Water (Station 27) for 2013

Analysis results for the plant intake, plant discharge, and river/drinking water samples showed only negligible impact to the environment due to CGS plant operations in 2013. 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.

5.3.2 Ground Water

Samples from 3 deep wells were collected quarterly to meet ODCM and EFSEC Resolution No. 332⁽⁹⁾ requirements. Quarterly samples were also collected from ten shallow groundwater monitoring wells located near CGS as part of the CGS groundwater monitoring program. All well samples were analyzed for tritium and gamma emitting radionuclides. Well locations sampled 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. Tritium results were below detection limits and no gamma emitting radionuclides related to CGS operation were identified in any of the samples (See Appendix A, Tables A-6.1, A-6.2, A-7.1, and A-7.2).

The CGS ground water monitoring program is conducted to meet the Nuclear Energy Institute (NEI) Groundwater Protection Initiative (NEI 07-07)⁽¹⁷⁾ guidelines and to support NPDES requirements. Ten shallow wells are routinely used to sample water 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.⁽¹⁹⁾ The CGS groundwater program is intended to assess any contribution CGS may be making to the known groundwater contamination issue.

Gamma Spectroscopy results for the ten shallow monitoring wells did not identify any gamma emitting radionuclides of interest (See Appendix A, Tables B-10.1, and B-10.2). Tritium concentrations at these locations ranged from < LLD to 15,400 pCi/liter (See Appendix A, Table B-11.1). Tritium results from each well were consistent during the year and within the trend range observed in previous years. The highest tritium concentrations were consistently measured at MW-5 which is hydraulically up-gradient of CGS. No samples were obtained from MW-7 in 2013 due to lack of water in the well. In 2011, ENW identified a possible correlation between tritium levels at the CGS storm drain pond and tritium levels at two nearby well locations (MW-7 and MW-8). Tritium results for 2013 showed a similar trend. Tritium activity in the storm drain pond is attributed to recapture of CGS effluents, see section 5.9.1 for more discussion. No other correlations between groundwater tritium and CGS operation were identified. With the exception of the MW-8 tritium results, there is no evidence that CGS operation made a measurable radiological impact on groundwater.

5.4 Soil

Gamma spectroscopy analysis was performed on soil samples from 5 different locations in 2013 (See Appendix A, Tables A-8.1, A-8.2). Two of the samples were from locations near CGS, two were from locations east of CGS in Franklin County, and one was from a control location. Naturally occurring radionuclides (potassium- 40 and bismuth- 214) were identified in all samples. Cesium-137 was identified in one of the samples near CGS. The level of cesium-137 identified was within the range historically observed in local soil samples and within the range considered normal background in Hanford area soils.^(20,21,22) The cesium-137 level was well below the level that would require strontium-90 analysis to be performed.⁽⁹⁾ The soil sample results indicate no measurable impact from CGS plant operation.

5.5 River Sediment

Gamma spectroscopy results of river sediment identified naturally occurring radionuclides (potassium-40, bismuth- 214) and cesium-137 (See Appendix A, Tables A-9.1, 9.2). Relative to the circulating water discharge point, cesium-137 was detected in one of the upstream samples (Station 33) and both of the downstream samples (Station 34). The downstream cesium-137 activity levels were similar to the levels identified in previous years and within the range known to be present in Hanford area sediment and soil.⁽²¹⁾ Cesium-137 was not identified in any samples of plant cooling water discharged to the Columbia River. CGS has not made a radioactive discharge to the Columbia River since 1998. The sediment sample results indicate no measurable impact from CGS plant operation.

5.6 Fish

The gamma spectroscopy results of fish samples identified low level cesium -137 in the anadromous fish collected from the Columbia River. The level identified was just above the analysis detection limit and substantially below the ODCM specified lower level of detection. Cesium -137 is occasionally identified in this media and has been identified at low levels in Columbia River fish by the CGS REMP and in other studies⁽²³⁾ in past years. The cesium -137 is not believed to represent an impact from CGS operation. Results of the other fish samples collected in 2013 identified only the presence of naturally occurring radionuclides (See Appendix A, Tables A-10.1, 10.2). Only two of the three ODCM required fish species were collected from both the control and indicator locations in 2013, see section 5.10 for further discussion.

5.7 Milk

No radioiodine activity was identified in any of the milk samples collected in 2013 (See Appendix A, Tables A-11.1, A-11.2). Gamma spectroscopy results of milk radionuclides other than radioiodine did not identify the presence of any radionuclides of interest. (See Appendix A, Tables A-12.1, A-12.2). Naturally occurring potassium-40 was identified in all milk samples.

5.8 Garden Produce

Gamma analysis was performed on ten different types of fruits and vegetables in 2013 (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 potassium-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. Additional air monitoring and TLDs stations were established in 2008/2009 to monitor remediation work at the DOE 618-11 burial ground west of CGS. 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 not positively identified in any of the monthly samples (See Appendix A, Tables B-3.1, B-3.2). Tritium was detected in eight of the twelve samples (See Appendix A, Tables B-4.1, B-4.2). The samples with higher tritium levels were all from colder, wetter months which is consistent with results seen in previous years. The source of the tritium in storm drain pond water is attributed to recapture of tritium from CGS gaseous effluents which is more likely to occur during cooler, rainier periods.

Four soil samples were collected from the CGS storm drain pond in 2013 and analyzed for gamma emitting radionuclides. The samples were collected from surface soil locations that were identified as having higher levels of activity in a 2011 storm drain pond soil characterization study.⁽²⁴⁾ Analysis of the 2013 samples identified many of the same radionuclides identified in the 2011 study but at levels generally lower than observed in 2011 (See Appendix A, Tables B-12.1).

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.⁽¹⁶⁾

Gross beta results for Station 102B (SWTF head works) were consistent with results seen in previous years. Gross beta results for Station 102A (DOE 400 Area effluent) showed an increase over the course of the year rising from a level of less than 10 pCi/l in the first half of the year to greater than 20 pCi/l in November and December. The increase is attributed to changes in the waste stream composition coming from the DOE 400 area and corresponds to decreasing discharge volumes from that facility. The sanitary sewer line from the DOE 400 area was plugged in mid-December 2013 and ENW is no longer accepting sanitary waste from this location. Gross alpha was not positively identified in any of the 102A or 102B 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 iodine-131 in the January Station 102B composite sample. CR 278601 was written to document the finding. As no additional radioisotopes were identified in the sample, the source of the radioiodine was attributed to a medically administered treatment and not the result of CGS operation. No other gamma emitting radionuclides of interest were detected in any of the other SWTF samples analyzed in 2013 (See Appendix A, Tables B-7.1, B-7.2).

Tritium activity was identified in all twelve 102A and five of the twelve 102B samples (See Appendix A, Tables B-8.1, B-8.2). Tritium levels in the 102A samples were similar to the levels seen in previous years. The potable water used at the DOE 400 area is obtained from a groundwater well that is known to be contaminated with tritium as a result of past DOE activities on the Hanford site.⁽¹⁷⁾ Tritium concentrations in the 102B samples were no more than 2 times the LLD of the analysis. Tritium activity in the station 102B samples is attributed to DOE 400 area discharges; 102B tritium values trending below the LLD during the second half of the year correspond to smaller discharge volumes from the DOE 400 area. Tritium levels in all sanitary waste samples remained well below the 20,000 pCi/liter action limits of EFSEC Resolution No. 300.⁽¹⁶⁾

SWTF water from stabilization pond B was discharged to ground in March 2013. Grab samples were taken at CGS initiative during discharge and used to create a composite sample that was analyzed for gamma isotopic and tritium content. Gamma isotopic analyses of the composite sample did not identify any radioisotopes related to CGS operation. Tritium activity of the composite sample was determined to be 529 pCi/l. A total of 1.4 million gallons of SWTF water was discharged to ground in March 2013.

5.9.3 Cooling System Sediment Disposal Area (Station 119)

EFSEC Resolution No. 299⁽¹⁸⁾ 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 CGS cooling towers. EFSEC Resolution No. 299⁽¹⁸⁾ requires direct radiation monitoring using quarterly 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 CGS cooling towers was performed in May and October 2013. Disposal of the material removed resulted in an estimated 51.5 cubic meters of dry sediment being placed in the disposal cell. Figure 5-8 summarizes the estimated mass and radionuclide content of cooling tower sediment that was placed in the disposal area in 2013. 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 is a conservative estimate.

In addition to cooling tower sediment, ENW performed cleaning operations of the Standby Service Water (SSW) ponds in 2013. Material removed from the SSW ponds was temporarily stored in bags in a lined basin south of the SSW ponds. Initial characterization of the material identified cobalt -60 in the 400-3000 pCi /kg range. Transfer of the SSW sediment to the established cooling system disposal area was initiated in December 2013 and completed in January 2014. Final determination of the volume, density and radionuclide content of this material will be reported in the 2014 annual report.

Figure 5-8 shows that the cooling tower sediment results were well below the disposal concentration limits specified in EFSEC Resolution No. 299.⁽¹⁸⁾ Cesium -137 levels identified in 2013 were similar to levels identified in previous years and within the range normally seen in Hanford area soils. Positive identification of cobalt -60 has been made in this media in past years and at level similar to those shown in Figure 5-8.

2013 Cooling System Sediment Disposal Data				
		May 2013	October 2013	
Disposal Date		May 2013	October 2013	
Pit ID:		2007 Pit	2007 Pit	
Mass, kg		39,720	1,725	
Density, g/cc		0.81	0.81	
Nuclide	Limit (pCi/kg)	Analytical Result (pCi/kg)	Analytical Result (pCi/kg)	Total Curies
Co-60	5.00E+03	< 3.66E+01	2.79E+02	1.94E-06
Mn-54	3.00E+04	< 3.40E+01	<5.07E+01	< 1.44E-06
Zn-65	5.00E+04	<7.62E+01	< 9.14E+01	< 3.18E-06
Cs-134	1.00E+04	<3.56E+01	< 5.99E+01	<1.52E-06
Cs-137	2.00E+04	1.91E+02	2.91E+02	8.09E-06
				1.62E-05

Figure 5-8 Cooling System Sediment Activity Levels For Disposals Made In 2013

Measurements of direct radiation at the disposal pit area 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 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 measurable dose contribution above background due to material in the disposal cells. (See Tables 5.3 and Appendix A, Tables B-1.1).

5.9.4 Spray Pond Drain Field (Station 120)

There were no discharges to the Spray Pond Drain Field (NPDES Outfall 003) in 2013. The TLD results at Station 120 in 2013 are in agreement with those seen in previous operational years (See Table 5-3 and Appendix A, Tables B-1.1).

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 second of three security fences that surround 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 inside the ISFSI security fence line are elevated and access to the area requires radiological dosimetry and security notification. In addition to the TLD monitoring program, quarterly radiological surveys of the ISFSI are conducted by the CGS Radiation Protection Department.

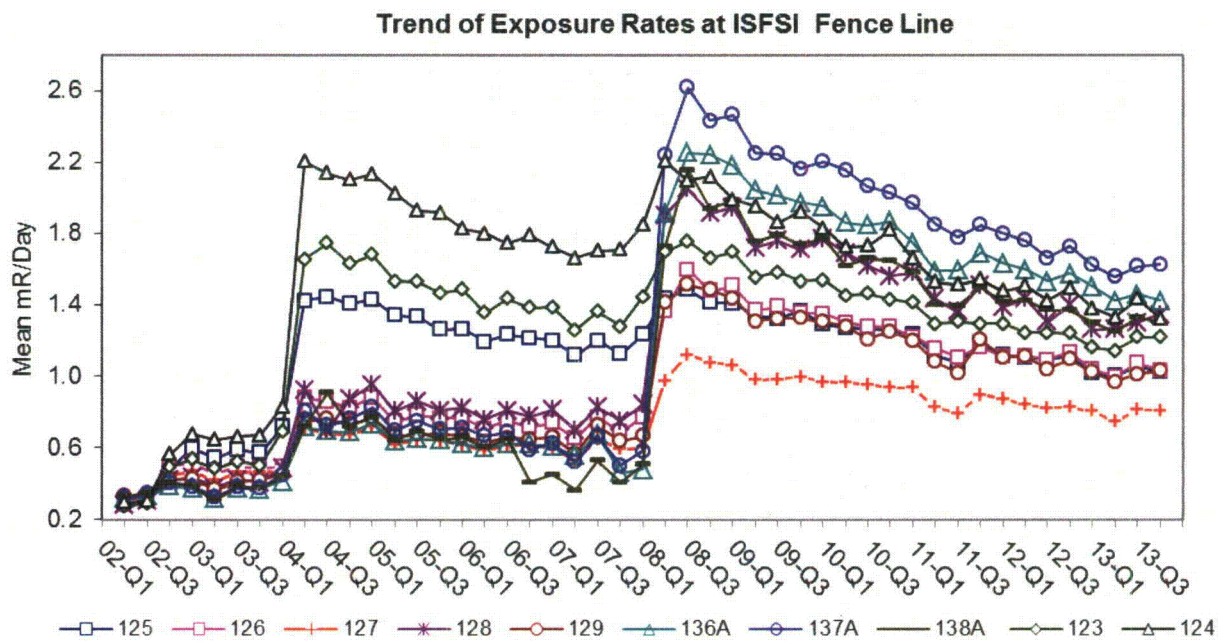


Figure 5-9 ISFSI TLD Trend at CGS

No new spent fuel or additional storage casks were added to the ISFSI during 2013. As shown in Figure 5-9, exposure rates at the ISFSI fence line have followed a downward trend since 2008. Station 122 TLD results show a similar pattern with the long term trend for this location correlating to the overall ISFSI TLD trend but at a lower level. Station 121 TLD trend results show large decreases during periods when CGS was shut down; this location has historically been influenced more by turbine building radiation levels than by the ISFSI (See Table 5-3 and Appendix A, Tables B-1.1, B-1.2).

5.9.6 Additional Air Sample and TLD Locations

Four 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). No air samples were taken from these locations in 2013 as no work was performed at the 618-11 site that had the potential of impacting CGS. Quarterly TLDs were exchanged at all five locations in 2013. Three of the TLD stations (stations 87-89) had results higher than background due to the stations close proximity to the turbine building (See Appendix A, Table B-1.1).

5.10 2013 Sample Deviations

A summary of REMP sample deviations encountered during 2013 is listed below in Table 5-1a. All known deviations from the sampling schedule (i.e. sample was not obtained) or analyses where the ODCM specified lower limit of detection was not achieved are included. For locations where composite or continuous samples are collected, any known period greater than 24 hours during which samples were not collected have been included. Not all locations listed in Table 5-1a are required by the ODCM or EFSEC resolutions. Table 5-1b lists information regarding air sample station sampling requirements.

SAMPLE MEDIA	DATE	LOCATION	CR ID	PROBLEM / COMMENTS
Air Sampler	4/3/13 to 4/9/13	Station 1	282272	Pump found off with blown fuse, station OOS for ~ 6 days. Station returned to service after pump replaced. No sample collected, LLD requirements not met.
Air Sampler	5/29/13 to 5/30/13	Station 57	286627	Station OOS for ~ 25 hours due to power outage. Station back in service when power restored. Sufficient sample volume obtained to meet LLD.
Air Sampler	7/14/13 to 7/16/13	Station 48	290058	Pump found off with blown fuse, Station OOS for ~ 41 hours. Fuse replaced, pump restarted. Sufficient sample volume obtained to meet LLD.
Air Sampler	8/19/13 to 8/28/13	Station 23	292376	Station OOS for ~9.5 days due to power outage. No sample collected or LLD meet week of 8/20 to 8/27. Station back in service after power restored.

TABLE 5-1a (cont)
REMP Sample Deviations for 2013

SAMPLE MEDIA	DATE	LOCATION	CR ID	PROBLEM / COMMENTS
Water	1/14/13 to 1/15/13	Station 29	277478	Composite sampler OOS for ~ 24 hours during planned maintenance activities. Sampler returned to service and verified operable.
Water	5/13/13 to 5/31/13	Station 27	284853 285305 285021 286652	Circ water blow down samplers CBD-SR-1 and 2 inoperable due to no signal from CW-LCV-1, blow down performed using temporary pumps. Daily grab samples taken 5/20 to 5/25. CBD-SR-1 and 2 declared operational 5/25 following logic circuit modification. On 5/31, samplers determined not to be functional due to no valid flow indication signal and samplers in proportional mode. Samplers placed in timed mode and verified operable on 5/31.
Water	6/30/13 to 7/12/13	Station 26	288978 289504 291368 294453 297177	On 7/8, TMU-SR-1 determined to have been OOS since 6/30 when sample supply pump was taken out of service. Daily grab samples taken 7/10 to 7/15. A temporary sampler was installed on 7/12 and continuous composite sampling initiated. Temporary composite sampler in service until 12/9/13. TMU-SR-1 returned to service on 12/7/13 following adjustments to sample supply pump. Procedure revised to identify PWC-P-5 supplies water to TMU-SR-1.
Water	9/2/13 to 9/3/13	Station 27	293107	In service Circ water blow down sampler CBD-SR-1 declared non-functional on 9/3. CBD-SR-2 placed in service and verified operational. Samplers estimated to have been OOS for ~ 24-30 hours.
Water	9/29/13 to 10/3/13	Station 27	LCO Log 16673	Circ water blow down samplers CBD-SR-1 and 2 declared non-functional due to planned power outage. Samplers returned to service and verified operable when power restored. Sample racks OOS for 74 hours.
Water	11/20/13 to 11/26/13	Station 26	298462	TMU temporary composite water sampler found without power on 11/25, sampler last confirmed operational on 11/20. Investigation found GFIC circuit was tripped. Power restored and sampler verified operable.
Fish	Annual	Stations 30 and 38	300634	Only 2 of the 3 required fish species were obtained from the control and indicator locations. ENW was not permitted to use electroshock fishing techniques in 2013. Permission to electroshock or other means of fish collection is to be investigated.
TLD	7/1/13 to 7/17/13	All Locations	289107	Environmental TLDs were exchanged 2 weeks late due to issue obtaining TLDs from vendor. Contract issues causing delay resolved.

Table 5-1b below shows the percent time in service for the 12 air sample locations. The table shows that overall availability was greater than 99% for all ODCM required locations.

TABLE 5-1b			
CGS REMP Air Sample Percent in Service Time for 2013			
Station ID	ODCM Required	EFSEC Required	Percent Time in Service
1		x	98.2%
4	x	x	99.8%
5			99.8%
6		x	99.9%
7		x	99.8%
8	x	x	99.9%
9	x	x	99.9%
21			99.7%
23		x	97.2%
40	x	x	99.8%
48	x	x	99.2%
57	x		99.6%

TABLE 5-2							
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY							
COLUMBIA GENERATING STATION Benton County, Washington				DOCKET NO. 50-397 Calendar Year 2013			
Medium: Environmental Direct Radiation (TLD)				mR/std. Units: quarter			
Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD)	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements
				Location Information	Mean (f) ^a Range		
TLD Quarterly	228	---	21.5 (224 / 224) (18.2-29.7)	86 NNW 0.3 miles	27.9 (4/4) (26.0-29.7)	20.5 (4/4) (18.9-21.7)	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 (cont)							
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY							
COLUMBIA GENERATING STATION Benton County, Washington				DOCKET NO. 50-397 Calendar Year 2013			
Medium: ISFSI Direct Radiation (TLD)				mR/std. Units: quarter			
Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD)	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements
				Location Information	Mean (f) ^a Range		
TLD Quarterly	40	---	109.9 (40 / 40) (67.9-148.3)	137A NNW 0.24 miles	146.4 (4 / 4) (142.1-148.3)	--- (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							
ISFSI TLDs are Stations 123 to 129 and 136A to 138A							

TABLE 5-2 (cont)
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
COLUMBIA GENERATING STATION **DOCKET NO. 50-397**
Benton County, Washington **Calendar Year 2013**

Medium: Air Particulate/Air Radioiodine

Units: pCi/m³

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) ^b	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements
				Location Information	Mean (f) ^a Range		
Gross Beta	622	0.01	0.0218 (570/570) (0.00299-0.139)	4 SSE 9.57 miles	0.0239 (52/52) (0.00409 - 0.125)	0.0189(52/52) (0.00322 - 0.106)	0
I-131	622	0.07	--- (0 / 570)	---	---	--- (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 (cont)
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
COLUMBIA GENERATING STATION **DOCKET NO. 50-397**
Benton County, Washington **Calendar Year 2013**

Medium: Water-River/Drinking

Units: pCi/L

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) ^c	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements
				Location Information	Mean (f) ^a Range		
Gross Beta	24	4.0	--- (0 / 24) ^(b)	---	---	--- (0 / 12)	0
H-3	8	2000	--- (0 / 8) ^(b)	---	---	--- (0 / 4)	0
Mn-54	24	15	--- (0 / 24) ^(b)	---	---	--- (0 / 12)	0
Fe-59	24	30	--- (0 / 24) ^(b)	---	---	--- (0 / 12)	0
Co-58	24	15	--- (0 / 24) ^(b)	---	---	--- (0 / 12)	0
Co-60	24	15	--- (0 / 24) ^(b)	---	---	--- (0 / 12)	0
Zn-65	24	30	--- (0 / 24) ^(b)	---	---	--- (0 / 12)	0
Zr/Nb-95	24	15	--- (0 / 24) ^(b)	---	---	--- (0 / 12)	0
Cs-134	24	15	--- (0 / 24) ^(b)	---	---	--- (0 / 12)	0
Cs-137	24	18	--- (0 / 24) ^(b)	---	---	--- (0 / 12)	0
Ba/La-140	24	15	--- (0 / 24) ^(b)	---	---	--- (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 (cont)
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
COLUMBIA GENERATING STATION **DOCKET NO. 50-397**
Benton County, Washington **Calendar Year 2013**

Medium: Water-Discharge

Units: pCi/L

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) ^b	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements
				Location Information	Mean (f) ^a Range		
Gross Beta	12	4.0	5.83 (10 / 12) (1.2-11.8)	27 E 3.2 miles	5.83 (10 / 12) (1.2-11.8))	---(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 (cont)
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
COLUMBIA GENERATING STATION **DOCKET NO. 50-397**
Benton County, Washington **Calendar Year 2013**

Medium: Water- Deep Ground

Units: pCi/L

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) ^b	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements
				Location Information	Mean (f) ^a 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 (cont)
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
COLUMBIA GENERATING STATION **DOCKET NO. 50-397**
Benton County, Washington **Calendar Year 2013**

Medium: River Sediment

Units: pCi/kg

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) ^b	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements
				Location Information	Mean (f) ^a Range		
Cs-134	4	150	--- (0 / 2)	---	---	--- (0 / 2)	0
Cs-137	4	180	121 (2 / 2) (121-122)	34 ESE 3.32 Miles	121 (2 / 2) (121-122)	42.2 (1 / 2) (34.6-49.8)	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 (cont) RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY COLUMBIA GENERATING STATION Benton County, Washington								DOCKET NO. 50-397 Calendar Year 2013	
Medium: Vegetables and Vegetation						Units: pCi/kg			
Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) ^b	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements		
				Location Information	Mean (f) ^a Range				
I-131	12	60	--- (0 / 11)	---	---	--- (0 / 1)	0		
Cs-134	12	60	--- (0 / 11)	---	---	--- (0 / 1)	0		
Cs-137	12	80	--- (0 / 11)	---	---	--- (0 / 1)	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.

TABLE 5-2 (cont) RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY COLUMBIA GENERATING STATION Benton County, Washington								DOCKET NO. 50-397 Calendar Year 2013	
Medium: Fish						Units: pCi/kg			
Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) ^b	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements		
				Location Information	Mean (f) ^a Range				
Mn-54	4	130	--- (0 / 2)	---	---	--- (0 / 2)	0		
Fe-59	4	260	--- (0 / 2)	---	---	--- (0 / 2)	0		
Co-58	4	130	--- (0 / 2)	---	---	--- (0 / 2)	0		
Co-60	4	130	--- (0 / 2)	---	---	--- (0 / 2)	0		
Zn-65	4	260	--- (0 / 2)	---	---	--- (0 / 2)	0		
Cs-134	4	130	--- (0 / 2)	---	---	--- (0 / 2)	0		
Cs-137	4	150	10.6 (1 / 2) (2.19-19.1)	30 E 3.5 miles	10.6 (1 / 2) (2.19-19.1)	--- (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, Table A-10.1, A-10.2.

TABLE 5-2 (cont)
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
COLUMBIA GENERATING STATION **DOCKET NO. 50-397**
Benton County, Washington **Calendar Year 2013**

Medium: Milk

Units: pCi/L

Analysis Type	Total Analyses Performed	Lower Limit of Detection (LLD) ^b	Indicator Locations Mean (f) ^a Range	Location With Highest Annual Mean		Control Locations Mean (f) ^a Range	Number of Nonroutine Measurements
				Location Information	Mean (f) ^a 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 2012				2013 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	1.66	22.13	21.32	22.75	0.61	22.10
2	17.34	22.81	2.09	21.10	16.43	25.55	1.56	21.64	19.88	22.16	1.04	21.40
3	18.25	21.90	1.46	20.42	16.43	24.64	1.69	20.86	19.12	21.36	1.03	20.36
4	15.51	23.73	2.65	19.96	14.60	22.81	1.67	19.56	18.50	19.89	0.66	19.14
5	18.25	22.81	1.74	20.76	16.43	23.73	1.64	20.04	18.67	20.16	0.62	19.51
6	18.25	21.90	1.50	20.19	16.43	23.73	1.56	20.17	18.64	19.86	0.50	19.23
7	19.16	22.81	1.69	21.33	16.43	24.64	1.71	21.09	20.05	21.37	0.74	20.71
8	21.90	25.55	1.50	23.84	15.51	27.38	1.95	23.26	22.46	23.82	0.68	23.18
9	15.51	21.90	2.00	19.85	16.43	23.73	1.67	19.76	18.92	21.66	1.15	20.53
10	19.16	22.81	1.38	20.99	16.43	24.64	1.65	20.96	19.50	21.37	0.96	20.38
11	19.16	22.81	1.38	21.44	16.43	24.64	1.47	21.55	20.24	21.74	0.65	21.01
12	20.99	24.64	1.60	23.04	18.25	26.46	1.70	23.14	21.61	23.80	1.04	22.63
13	19.16	22.81	1.54	21.44	17.34	27.38	1.78	21.32	19.89	21.43	0.87	20.67
14	19.16	24.64	2.07	21.90	17.34	25.55	1.50	21.47	20.24	21.72	0.78	20.96
15	20.99	25.55	1.37	23.15	17.34	27.38	1.69	23.05	21.29	23.82	1.05	22.44
16	20.08	23.73	1.52	22.13	16.43	26.46	1.79	21.95	19.92	22.71	1.24	21.32
17	19.16	23.73	1.62	22.81	17.34	26.46	1.60	22.51	20.80	23.73	1.23	22.51
18	20.08	23.73	1.27	22.13	16.43	25.55	1.66	22.00	21.05	23.49	1.06	22.58
19	20.08	23.73	1.24	22.01	17.34	25.55	1.57	22.15	21.15	23.19	0.91	22.37
20	19.16	23.73	1.76	21.44	17.34	25.55	1.63	21.80	20.08	22.57	1.25	21.51
21	19.16	21.90	1.25	20.68	15.51	23.73	1.43	20.32	18.93	20.61	0.81	19.76
22	19.16	23.73	1.58	22.01	16.43	25.55	1.49	21.73	19.97	21.76	0.93	20.88
23	20.08	23.73	1.49	21.60	17.34	25.55	1.62	21.15	19.68	22.23	1.11	21.08
24	20.99	23.73	1.09	21.90	17.34	50.50	3.19	22.10	20.13	22.24	0.97	21.13
25	20.99	24.64	1.46	23.15	17.34	27.38	1.91	22.76	21.44	24.88	1.46	22.80
40	17.34	21.90	1.70	19.94	15.51	24.64	1.74	20.05	18.18	19.42	0.55	18.88
41	20.08	25.55	2.00	23.73	17.34	27.38	2.03	22.44	20.46	22.72	0.97	21.35
42	20.08	23.73	1.61	22.36	17.34	26.46	1.93	21.98	20.01	21.41	0.65	20.73
43	20.99	24.64	1.49	23.12	16.43	27.38	2.12	22.60	21.14	22.84	0.72	21.85
44	19.16	22.81	1.34	21.12	15.51	24.64	1.95	20.80	19.36	20.06	0.30	19.73
45	19.16	22.81	1.37	21.25	16.43	25.55	1.80	21.18	18.85	21.39	1.06	20.01
46	22.81	28.29	2.10	26.10	19.16	31.94	2.14	26.49	24.74	27.33	1.27	26.26
47	17.34	20.99	1.73	19.85	15.51	26.28	1.71	20.23	18.59	20.38	0.91	19.47
49	21.90	21.90	-	21.90	16.43	25.55	1.55	21.92	19.97	22.18	1.06	21.25
50	20.08	20.08	-	20.08	16.43	26.46	1.75	21.60	19.54	22.28	1.16	20.80
51	19.16	21.90	1.18	20.53	16.43	24.64	1.62	21.08	19.56	21.39	1.02	20.48
53	24.64	24.64	-	24.64	18.25	29.57	2.04	23.36	20.17	21.59	0.58	20.88
54	23.73	23.73	-	23.73	18.18	26.46	1.98	22.07	20.30	22.80	1.19	21.40
55	20.99	20.99	-	20.99	16.43	25.55	1.49	21.45	20.01	22.24	0.93	21.28
56	21.90	21.90	-	21.90	16.43	25.55	1.74	21.39	21.29	23.10	0.75	22.12
58	-	-	-	-	18.07	20.53	0.61	19.17	18.59	21.73	1.41	20.53
65	-	-	-	-	17.73	22.72	1.20	19.90	18.50	20.33	0.87	19.53

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 2012				2013 Operational			
	Min	Max	Std Dev	MEAN	Min	Max	Std Dev	MEAN	min	max	Std Dev	MEAN
71(1S)	20.08	22.81	1.58	21.90	18.25	30.39	2.45	25.26	22.52	26.85	2.06	24.76
72(2S)	21.90	23.73	0.91	22.81	18.25	29.65	1.96	24.33	21.65	26.04	1.89	24.08
73(3S)	20.08	21.90	0.91	20.99	16.43	24.64	1.54	21.25	19.70	23.94	1.84	21.77
74(4S)	23.73	24.64	0.53	24.03	18.25	28.29	1.87	23.38	21.56	24.51	1.52	23.10
75(5S)	19.16	21.90	1.39	20.38	15.51	26.46	1.85	22.29	21.19	23.14	0.95	22.22
76(6S)	20.99	22.81	0.91	21.90	17.34	26.46	1.69	22.04	20.29	22.83	1.07	21.37
77(7S)	21.90	23.73	0.91	22.81	17.34	25.55	1.59	22.02	20.29	22.55	0.94	21.46
78(8S)	21.90	23.73	1.05	22.51	17.34	25.55	1.56	21.51	20.30	21.79	0.65	20.99
79(9S)	22.81	23.73	0.53	23.12	17.34	25.55	1.63	21.85	20.40	22.54	1.05	21.40
80(10S)	20.99	22.81	0.91	21.90	16.43	25.55	1.74	20.99	19.72	22.41	1.15	21.24
81(11S)	20.08	23.73	1.90	22.20	17.34	25.55	1.52	21.52	19.96	21.89	0.91	20.65
82(12S)	21.90	24.64	1.39	23.42	17.34	26.46	1.55	22.42	21.07	23.05	0.94	22.19
83(13S)	21.90	23.73	0.91	22.81	17.34	26.46	1.84	22.29	20.35	22.51	0.90	21.42
84(14S)	20.99	22.81	1.05	22.20	16.43	27.17	1.76	22.26	20.52	24.25	1.77	22.14
85(15S)	21.90	24.64	1.58	23.73	17.34	27.83	1.87	23.09	21.48	24.17	1.17	22.67
86(16S)	21.90	23.73	0.91	22.81	18.25	31.28	2.61	26.16	26.04	29.71	1.70	27.91
87	-	-	-	-	19.34	34.34	4.76	28.82	23.74	32.32	3.53	28.34
88	-	-	-	-	17.05	31.67	4.18	26.08	20.91	26.25	2.36	24.24
89	-	-	-	-	19.25	29.38	2.85	25.92	22.83	27.62	2.17	25.59
90	-	-	-	-	18.26	20.48	0.57	18.95	17.53	19.56	0.96	18.85
119B	-	-	-	-	19.24	25.64	1.46	22.13	20.24	23.26	1.30	21.87
119Ctrl	-	-	-	-	19.53	26.55	1.38	21.83	20.53	23.46	1.28	22.08
120East	-	-	-	-	19.78	31.12	1.81	22.43	20.99	23.70	1.38	22.31
121 (ISFSI)	-	-	-	-	19.52	130.27	23.63	76.58	44.90	71.44	11.99	62.36
122 (ISFSI)	-	-	-	-	19.62	42.49	7.28	30.98	32.30	35.74	1.68	34.26
123 (ISFSI)	-	-	-	-	24.99	160.33	38.26	116.91	103.88	111.07	3.66	107.91
124 (ISFSI)	-	-	-	-	26.89	201.05	48.67	144.92	120.51	130.90	4.81	124.68
125 (ISFSI)	-	-	-	-	26.46	135.52	29.35	102.63	91.21	96.33	2.19	93.25
126 (ISFSI)	-	-	-	-	26.00	145.68	32.15	85.18	90.80	97.65	2.80	94.20
127 (ISFSI)	-	-	-	-	28.97	102.08	19.71	66.18	67.89	73.92	2.84	72.12
128 (ISFSI)	-	-	-	-	25.64	187.25	48.29	100.11	114.89	122.42	3.47	117.86
129 (ISFSI)	-	-	-	-	30.16	138.08	33.14	79.99	88.01	93.64	2.54	91.70
136A (ISFSI)	-	-	-	-	28.99	205.64	62.50	101.87	129.75	137.21	3.49	132.57
137A (ISFSI)	-	-	-	-	29.47	238.74	71.26	112.61	142.11	148.32	2.92	146.44
138A (ISFSI)	-	-	-	-	28.28	196.68	54.19	93.08	113.80	121.21	3.09	118.02
Site 1	-	-	-	-	11.92	20.19	1.43	18.16	17.74	19.52	0.77	18.48
Site 4	-	-	-	-	17.02	32.44	2.80	18.94	17.27	19.68	1.18	19.03

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 58 and 87 to 90 were added in 2008 to monitor remediation work at DOE 618-11 burial site.

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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⁽⁷⁾ and 10 CFR 50 Appendix B⁽¹⁵⁾. The contractors used for sample analysis, Energy Northwest Environmental Services, and Mission Support Alliance, 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 environmental TLD program covers the preparation, transportation, deployment, collection, storage, processing, and evaluation of the environmental TLDs and is designed to meet the requirements of NRC Regulatory Guides 4.13⁽⁸⁾ and 4.15.⁽⁷⁾

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 TLDs when transported to and from the vendor and also during deployment and collection 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 serve as checks that the dosimeter 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 2013 reader QC dosimeter results indicated satisfactory agreement for all periods. The quarterly 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. Evaluation of the 2013 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 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 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:** Background and performance 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 QC and end of batch performance checks are typically performed.
- **Gamma Spectrometers:** Performance 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 quarterly. A low level batch QC check is typically analyzed with each set of samples.
- **Liquid Scintillation Counter:** Background and performance checks are performed daily when in use. A performance check standard of the same matrix as the samples is analyzed and results trended. A control chart with acceptance limits specified is maintained. A low level batch QC check is typically analyzed with each set of samples.

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 is analyzed with each batch. A charcoal cartridge of the same type used for sample collection but spiked with barium-133 is used. The 356 keV peak of barium-133 serves as a proxy for the 364 keV peak of iodine-131. Samples from the control location serve as blanks.

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

Aqueous Samples - In most cases, samples collected from the control locations are analyzed as blanks. A known-addition sample is typically 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 is typically analyzed with each batch. A replicate sample is 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 are investigated and corrective action taken.

The Energy Northwest Environmental Services Laboratory participated in three proficiency testing studies involving radioactive measurements provided by Environmental Resource Associates (ERA) during 2013. The Laboratory's intercomparison program was further supplemented by additional cross check media provided by ERA. The Laboratory's intercomparison program results for 2013 are shown in Table 6-2. All 2013 Laboratory intercomparison program results were within acceptable limits. Participation in the ERA studies serves to meet the intercomparison program requirements specified in the ODCM.

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.

6.4 Laboratory Quality Control Program Problems and Improvements

No issues with REMP sampling and analyses were identified by the QC and intercomparison programs in 2013.

TABLE 6-1
2013 ENVIRONMENTAL SPIKED DOSIMETER RESULTS

PERIOD	SPIKE ID	KNOWN EXPOSURE (mR)	REPORTED EXPOSURE (mR)	BIAS (%)
1st Quarter	ENW Spike	22	21.6	-1.8%
	ENW Spike	22	21.2	-3.6%
	ENW Spike	22	21.2	-3.6%
	PNNL Avg. Reader	100	99.1	-0.9%
2nd Quarter	ENW Spike	22	21.5	-2.3%
	ENW Spike	22	21.1	-4.1%
	ENW Spike	22	21.4	-2.7%
	PNNL Avg. Reader	100	99.3	-0.1%
3rd Quarter	ENW Spike	22	22.2	0.9%
	ENW Spike	22	22.2	0.9%
	ENW Spike	22	22.3	1.4%
	PNNL Avg. Reader	100	100.8	0.8%
4th Quarter	ENW Spike	22	21.8	-0.9%
	ENW Spike	22	21.5	-2.3%
	ENW Spike	22	21.9	-0.5%
	PNNL Avg. Reader	100	97.4	-2.6%

TABLE 6-2
ENW REMP PROGRAM CROSS CHECK PERFORMANCE RESULTS

ERA MRAD-18 Results Spring 2013					
Standard/Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation
Air Filter Radionuclides					
Americium-241	pCi/Filter	72	66.8	41.2 - 90.4	Acceptable
Cesium-134	pCi/Filter	1047	1110	706 - 1380	Acceptable
Cesium-137	pCi/Filter	1173	940	706 - 1230	Acceptable
Cobalt-60	pCi/Filter	246	214	166 - 267	Acceptable
Zinc-65	pCi/Filter	275	199	142 - 275	Acceptable
Air Filter Gross Alpha/Beta					
Gross Alpha	pCi/Filter	44	42.3	14.2 - 65.7	Acceptable
Gross Beta	pCi/Filter	21	25.1	15.9 - 36.6	Acceptable
Water Radionuclides					
Americium-241	pCi/L	117	118	79.5 - 158	Acceptable
Cesium-134	pCi/L	1255	1400	1030 - 1610	Acceptable
Cesium-137	pCi/L	1923	1880	1600 - 2250	Acceptable
Cobalt-60	pCi/L	2229	2270	1970 - 2660	Acceptable
Zinc-65	pCi/L	418	384	320 - 484	Acceptable
Water Gross Alpha/Beta					
Gross Alpha	pCi/L	97	130	46.2 - 201	Acceptable
Gross Beta	pCi/L	56	78.9	45.2 - 117	Acceptable
Water Tritium					
Tritium	pCi/L	11873	12300	8240 - 17500	Acceptable
Soil Radionuclides					
Actinium-228	pCi/kg	1152	1240	795 - 1720	Acceptable
Bismuth-212	pCi/kg	1133	1240	330 - 1820	Acceptable
Bismuth-214	pCi/kg	3035	3660	2200 - 5270	Acceptable
Cesium-134	pCi/kg	6105	6370	4160 - 7650	Acceptable
Cesium-137	pCi/kg	6414	6120	4690 - 7870	Acceptable
Cobalt-60	pCi/kg	8089	7920	5360 - 10900	Acceptable
Lead-212	pCi/kg	1162	1240	812 - 1730	Acceptable
Lead-214	pCi/kg	3334	3660	2140 - 5460	Acceptable
Potassium-40	pCi/kg	10890	10300	7520 - 13800	Acceptable
Zinc-65	pCi/kg	1530	1400	1110 - 1860	Acceptable

TABLE 6-2 (cont)
ENW REMP PROGRAM CROSS CHECK PERFORMANCE RESULTS

ERA MRAD-19 Results Fall 2013					
Standard/Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation
Air Filter Radionuclides					
Americium-241	pCi/Filter	72	66.4	40.9 - 89.8	Acceptable
Cesium-134	pCi/Filter	811	868	552 - 1080	Acceptable
Cesium-137	pCi/Filter	734	602	452 - 791	Acceptable
Cobalt-60	pCi/Filter	556	494	382 - 617	Acceptable
Manganese-54	pCi/Filter	< 10	< 50.0	0.00 - 50.0	Acceptable
Zinc-65	pCi/Filter	573	419	300 - 578	Acceptable
Air Filter Gross Alpha/Beta					
Gross Alpha	pCi/Filter	84	83	27.8 - 129	Acceptable
Gross Beta	pCi/Filter	47	56.3	35.6 - 82.2	Acceptable
Water Radionuclides					
Americium-241	pCi/L	102	126	84.9 - 169	Acceptable
Cesium-134	pCi/L	1987	2180	1600 - 2510	Acceptable
Cesium-137	pCi/L	2801	2760	2340 - 3310	Acceptable
Cobalt-60	pCi/L	1869	1890	1640 - 2210	Acceptable
Manganese-54	pCi/L	< 20	< 100	0.00 - 100	Acceptable
Zinc-65	pCi/L	1505	1370	1140 - 1730	Acceptable
Water Gross Alpha/Beta					
Gross Alpha	pCi/L	88	96.6	34.3 - 150	Acceptable
Gross Beta	pCi/L	56	84.5	48.4 - 125	Acceptable
Water Tritium					
Tritium	pCi/L	19762	19800	13300 - 28200	Acceptable
Soil Radionuclides					
Actinium-228	pCi/kg	1247	1240	795 - 1720	Acceptable
Bismuth-212	pCi/kg	983	1220	325 - 1790	Acceptable
Bismuth-214	pCi/kg	3593	3740	2250 - 5380	Acceptable
Cesium-134	pCi/kg	2858	2820	1840 - 3390	Acceptable
Cesium-137	pCi/kg	4422	4130	3160 - 5310	Acceptable
Cobalt-60	pCi/kg	5819	5680	3840 - 7820	Acceptable
Lead-212	pCi/kg	1146	1220	799 - 1700	Acceptable
Lead-214	pCi/kg	3835	3740	2180 - 5580	Acceptable
Manganese-54	pCi/kg	< 100	< 1000	0.00 - 1000	Acceptable
Potassium-40	pCi/kg	10630	12400	9080 - 16700	Acceptable
Zinc-65	pCi/kg	3686	3160	2520 - 4200	Acceptable

TABLE 6-2 (cont)
ENW REMP PROGRAM CROSS CHECK PERFORMANCE RESULTS

2013 ERA Crosscheck Result Iodine-131 Charcoal Cartridge						
Sample ID	Analysis	Units	Result	Ref Value	Acceptance Limits	Performance Evaluation
03131390A	Iodine-131	pCi/Filter	1174	1006	775 – 1328	Acceptable
09141205A	Iodine-131	pCi/Filter	332	289	223 - 382	Acceptable

2013 ERA RAD Results Iodine-131 in Milk						
Sample ID	Analysis	Units	Result	Ref Value	Acceptance Limits	Performance Evaluation
RAD-94	Iodine-131	pCi/L	21.6	24.3	20.2 – 28.8	Acceptable

7.0 REFERENCES

7.0 REFERENCES

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8.0 ERRATA

8.0 ERRATA

Revisions to the 2012 Annual Radiological Environmental Operating Report for the Columbia Generating Station are listed below.

In Section 4.2, second paragraph, annual TLDs are incorrectly identified as being used to monitor exposure rates at the Independent Spent Fuel Storage Installation (ISFSI). No annual TLDs were used to monitor this facility in 2012, only quarterly TLDs were used.



APPENDIX A

2013 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT COLUMBIA GENERATING STATION

DATA TABLES A and B

Covers Sample Collection Period Starting January 2013 Through December 2013

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 recommended 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
2013 QUARTERLY TLD RESULTS
 Results in milli-Roentgen (mR) per Standard Quarter

Station ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Quarterly Sum
1	22.0	21.3	22.4	22.8	88.4
2	21.6	19.9	22.0	22.2	85.6
3	19.1	19.9	21.4	21.0	81.4
4	18.5	18.7	19.5	19.9	76.6
5	19.7	18.7	19.6	20.2	78.0
6	19.1	18.6	19.3	19.9	76.9
7	20.1	20.1	21.4	21.3	82.8
8	22.7	22.5	23.7	23.8	92.7
9	20.8	18.9	21.7	20.7	82.1
10	19.6	19.5	21.0	21.4	81.5
11	20.8	20.2	21.3	21.7	84.1
12	21.9	21.6	23.8	23.2	90.5
13	19.9	19.9	21.4	21.4	82.7
14	20.2	20.3	21.6	21.7	83.9
15	21.3	22.2	22.5	23.8	89.7
16	19.9	20.7	21.9	22.7	85.3
17	20.8	22.6	22.9	23.7	90.1
18	23.5	21.0	22.9	22.9	90.3
19	22.2	21.1	23.2	22.9	89.5
20	20.1	20.8	22.5	22.6	86.0
21	19.2	18.9	20.6	20.3	79.0
22	20.0	20.2	21.6	21.8	83.5
23	20.8	19.7	21.7	22.2	84.3
24	20.1	20.5	21.6	22.2	84.5
25	21.4	22.5	22.4	24.9	91.2
40	18.7	18.2	19.2	19.4	75.5
41	20.5	21.0	21.3	22.7	85.4
42	20.4	20.0	21.1	21.4	82.9
43	21.6	21.1	22.8	21.8	87.4
44	19.4	20.1	19.9	19.6	78.9
45	18.8	19.7	20.1	21.4	80.1
46	24.7	25.7	27.3	27.3	105.0
47	18.6	18.8	20.4	20.1	77.9
49	20.0	20.8	22.1	22.2	85.0
50	19.5	20.4	21.0	22.3	83.2
51	19.6	19.6	21.4	21.3	81.9
53	20.8	20.2	21.0	21.6	83.5
54	20.3	20.5	22.0	22.8	85.6
55	21.4	20.0	22.2	21.5	85.1
56	21.3	22.0	22.1	23.1	88.5
65	19.1	18.5	20.2	20.3	78.1
71	23.5	22.5	26.1	26.9	99.0
72	23.7	21.6	26.0	25.0	96.3

TABLE A-1.1

2013 QUARTERLY TLD RESULTS

Results in milli-Roentgen (mR) per Standard Quarter

Station ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Quarterly Sum
73	21.0	19.7	22.5	23.9	87.1
74	22.0	21.6	24.3	24.5	92.4
75	21.6	21.2	23.1	22.9	88.9
76	21.0	20.3	22.8	21.4	85.5
77	21.3	20.3	22.5	21.7	85.8
78	20.3	20.7	21.2	21.8	84.0
79	20.6	20.4	22.0	22.5	85.6
80	21.1	19.7	22.4	21.8	85.0
81	20.0	20.0	20.8	21.9	82.6
82	21.8	21.1	22.9	23.0	88.8
83	21.2	20.4	21.6	22.5	85.7
84	20.5	20.8	24.2	23.0	88.6
85	21.5	22.1	23.0	24.2	90.7
86	27.0	26.0	29.7	28.9	111.6

TABLE A-1.2

2013 QUARTERLY TLD RESULTS- SUMMARY

Results in milli-Roentgen (mR) per Standard Quarter

Location	Average Activity	Activity Low	Activity High	Number of Samples
Quarterly Indicator TLDs	21.5	18.2	29.7	224
Quarterly Control TLDs	20.5	18.9	21.7	4

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
01/02/13 - 01/08/13	5.13E-02	± 1.50E-03	5.06E-02	± 1.51E-03	4.23E-02	± 1.38E-03
01/08/13 - 01/15/13	1.73E-02	± 8.10E-04	1.79E-02	± 8.47E-04	1.80E-02	± 8.38E-04
01/15/13 - 01/22/13	5.49E-02	± 1.46E-03	6.04E-02	± 1.56E-03	5.39E-02	± 1.46E-03
01/22/13 - 01/29/13	5.46E-02	± 1.46E-03	5.42E-02	± 1.48E-03	5.06E-02	± 1.42E-03
01/29/13 - 02/05/13	1.18E-02	± 6.86E-04	9.99E-03	± 6.48E-04	9.43E-03	± 6.31E-04
02/05/13 - 02/12/13	1.28E-02	± 7.14E-04	1.85E-02	± 8.53E-04	9.07E-03	± 6.27E-04
02/12/13 - 02/19/13	1.51E-02	± 7.69E-04	7.28E-02	± 1.75E-03	8.66E-03	± 6.19E-04
02/19/13 - 02/26/13	4.93E-03	± 4.93E-04	1.41E-02	± 7.69E-04	5.93E-03	± 5.09E-04
02/26/13 - 03/05/13	6.79E-03	± 5.48E-04	9.93E-03	± 6.62E-04	7.51E-03	± 5.55E-04
03/05/13 - 03/12/13	9.31E-03	± 6.24E-04	8.37E-03	± 5.86E-04	7.43E-03	± 5.59E-04
03/12/13 - 03/19/13	7.06E-03	± 5.50E-04	1.03E-02	± 6.36E-04	6.43E-03	± 5.08E-04
03/19/13 - 03/26/13	1.17E-02	± 6.88E-04	1.16E-02	± 6.77E-04	9.64E-03	± 6.10E-04
03/26/13 - 04/02/13	2.08E-02	± 8.97E-04	2.06E-02	± 8.94E-04	1.89E-02	± 8.57E-04
04/02/13 - 04/09/13	NVS		8.51E-03	± 5.98E-04	6.85E-03	± 5.59E-04
04/09/13 - 04/16/13	5.46E-03	± 5.08E-04	6.04E-03	± 5.09E-04	6.29E-03	± 5.39E-04
04/16/13 - 04/23/13	1.13E-02	± 6.86E-04	9.19E-03	± 6.10E-04	9.12E-03	± 6.34E-04
04/23/13 - 04/30/13	1.45E-02	± 7.61E-04	1.50E-02	± 7.74E-04	1.13E-02	± 6.92E-04
04/30/13 - 05/07/13	1.37E-02	± 7.43E-04	1.49E-02	± 7.73E-04	1.46E-02	± 7.72E-04
05/07/13 - 05/14/13	2.30E-02	± 9.17E-04	2.32E-02	± 9.52E-04	2.21E-02	± 9.05E-04
05/14/13 - 05/21/13	6.53E-03	± 5.16E-04	8.05E-03	± 5.97E-04	7.26E-03	± 5.55E-04
05/21/13 - 05/28/13	4.71E-03	± 4.65E-04	4.22E-03	± 4.71E-04	4.39E-03	± 4.66E-04
05/28/13 - 06/04/13	4.64E-03	± 4.39E-04	6.15E-03	± 5.12E-04	4.88E-03	± 4.71E-04
06/04/13 - 06/11/13	1.08E-02	± 6.33E-04	1.23E-02	± 7.04E-04	1.07E-02	± 6.53E-04
06/11/13 - 06/18/13	7.29E-03	± 5.40E-04	7.35E-03	± 5.56E-04	6.09E-03	± 5.32E-04
06/18/13 - 06/25/13	6.05E-03	± 5.12E-04	4.09E-03	± 4.54E-04	4.22E-03	± 4.81E-04
06/25/13 - 07/02/13	1.33E-02	± 7.10E-04	1.29E-02	± 7.18E-04	1.23E-02	± 7.27E-04
07/02/13 - 07/09/13	1.44E-02	± 7.41E-04	1.36E-02	± 7.25E-04	1.34E-02	± 7.44E-04
07/09/13 - 07/16/13	1.29E-02	± 6.95E-04	1.30E-02	± 7.08E-04	1.15E-02	± 6.71E-04
07/16/13 - 07/23/13	1.54E-02	± 7.45E-04	1.76E-02	± 8.20E-04	1.50E-02	± 7.68E-04
07/23/13 - 07/30/13	1.38E-02	± 7.19E-04	1.53E-02	± 7.61E-04	1.47E-02	± 7.36E-04
07/30/13 - 08/06/13	1.72E-02	± 8.02E-04	1.72E-02	± 8.10E-04	1.72E-02	± 8.08E-04
08/06/13 - 08/13/13	1.88E-02	± 8.35E-04	2.07E-02	± 8.77E-04	1.84E-02	± 8.26E-04
08/13/13 - 08/20/13	1.47E-02	± 7.31E-04	1.71E-02	± 8.04E-04	1.43E-02	± 7.36E-04
08/20/13 - 08/27/13	1.56E-02	± 7.53E-04	1.55E-02	± 7.73E-04	1.38E-02	± 7.14E-04
08/27/13 - 09/03/13	1.53E-02	± 7.57E-04	1.49E-02	± 7.55E-04	1.62E-02	± 7.89E-04
09/03/13 - 09/10/13	1.24E-02	± 6.92E-04	1.19E-02	± 6.98E-04	1.22E-02	± 6.90E-04
09/10/13 - 09/17/13	2.89E-02	± 1.04E-03	3.46E-02	± 1.18E-03	2.92E-02	± 1.08E-03
09/17/13 - 09/24/13	9.75E-03	± 6.13E-04	1.16E-02	± 6.76E-04	1.01E-02	± 6.36E-04
09/24/13 - 10/01/13	7.47E-03	± 5.44E-04	7.69E-03	± 5.65E-04	5.74E-03	± 4.91E-04
10/01/13 - 10/08/13	1.45E-02	± 7.28E-04	1.60E-02	± 7.74E-04	1.47E-02	± 7.40E-04
10/08/13 - 10/15/13	1.54E-02	± 7.66E-04	1.70E-02	± 8.16E-04	1.61E-02	± 7.93E-04
10/15/13 - 10/22/13	3.92E-02	± 1.18E-03	4.00E-02	± 1.22E-03	3.82E-02	± 1.18E-03
10/22/13 - 10/29/13	4.88E-02	± 1.31E-03	4.88E-02	± 1.33E-03	4.35E-02	± 1.27E-03
10/29/13 - 11/05/13	1.39E-02	± 7.09E-04	1.69E-02	± 7.89E-04	1.43E-02	± 7.37E-04
11/05/13 - 11/12/13	1.30E-02	± 7.06E-04	1.52E-02	± 7.79E-04	1.58E-02	± 7.86E-04
11/12/13 - 11/19/13	1.44E-02	± 7.42E-04	1.73E-02	± 8.30E-04	1.42E-02	± 7.60E-04
11/19/13 - 11/26/13	4.87E-02	± 1.33E-03	5.33E-02	± 1.43E-03	5.05E-02	± 1.36E-03
11/26/13 - 12/03/13	1.26E-01	± 2.20E-03	1.25E-01	± 2.25E-03	1.16E-01	± 2.12E-03
12/03/13 - 12/10/13	4.28E-02	± 1.22E-03	4.39E-02	± 1.26E-03	4.04E-02	± 1.22E-03
12/10/13 - 12/17/13	8.92E-02	± 1.85E-03	8.93E-02	± 1.86E-03	7.68E-02	± 1.71E-03
12/17/13 - 12/23/13	2.61E-02	± 1.08E-03	2.69E-02	± 1.09E-03	2.22E-02	± 1.00E-03
12/23/13 - 12/31/13	3.15E-02	± 1.02E-03	3.11E-02	± 1.01E-03	3.00E-02	± 1.01E-03

NVS = Valid sample not obtained due to sampler failure.
Average MDA for analyses in Table A-2.1 was 9.00E-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
01/02/13 - 01/08/13	4.85E-02	± 1.43E-03	5.11E-02	± 1.50E-03	4.80E-02	± 1.46E-03
01/08/13 - 01/15/13	1.93E-02	± 8.45E-04	1.74E-02	± 8.07E-04	1.78E-02	± 8.24E-04
01/15/13 - 01/22/13	5.34E-02	± 1.42E-03	5.56E-02	± 1.45E-03	5.45E-02	± 1.47E-03
01/22/13 - 01/29/13	5.60E-02	± 1.45E-03	5.90E-02	± 1.49E-03	5.39E-02	± 1.46E-03
01/29/13 - 02/05/13	1.17E-02	± 6.64E-04	1.29E-02	± 7.02E-04	1.22E-02	± 7.02E-04
02/05/13 - 02/12/13	1.38E-02	± 7.23E-04	1.33E-02	± 7.17E-04	1.02E-02	± 6.40E-04
02/12/13 - 02/19/13	1.32E-02	± 7.15E-04	1.33E-02	± 7.15E-04	1.39E-02	± 7.44E-04
02/19/13 - 02/26/13	7.20E-03	± 5.61E-04	6.13E-03	± 5.23E-04	5.78E-03	± 5.29E-04
02/26/13 - 03/05/13	7.79E-03	± 5.74E-04	8.40E-03	± 5.90E-04	7.22E-03	± 5.66E-04
03/05/13 - 03/12/13	8.71E-03	± 6.07E-04	8.68E-03	± 6.01E-04	7.28E-03	± 5.75E-04
03/12/13 - 03/19/13	6.88E-03	± 5.36E-04	7.50E-03	± 5.56E-04	6.83E-03	± 5.47E-04
03/19/13 - 03/26/13	1.16E-02	± 6.88E-04	1.18E-02	± 6.81E-04	1.16E-02	± 6.97E-04
03/26/13 - 04/02/13	1.95E-02	± 8.88E-04	2.02E-02	± 8.78E-04	1.84E-02	± 8.32E-04
04/02/13 - 04/09/13	6.03E-03	± 5.36E-04	6.33E-03	± 5.22E-04	7.12E-03	± 5.45E-04
04/09/13 - 04/16/13	7.01E-03	± 5.66E-04	6.57E-03	± 5.23E-04	5.54E-03	± 4.83E-04
04/16/13 - 04/23/13	9.13E-03	± 6.34E-04	1.00E-02	± 6.28E-04	8.39E-03	± 5.88E-04
04/23/13 - 04/30/13	1.28E-02	± 7.12E-04	1.43E-02	± 7.46E-04	1.32E-02	± 7.13E-04
04/30/13 - 05/07/13	1.47E-02	± 7.66E-04	1.35E-02	± 7.35E-04	1.44E-02	± 7.65E-04
05/07/13 - 05/14/13	2.25E-02	± 9.49E-04	2.20E-02	± 9.30E-04	2.32E-02	± 9.24E-04
05/14/13 - 05/21/13	7.18E-03	± 5.68E-04	8.24E-03	± 6.03E-04	8.58E-03	± 5.88E-04
05/21/13 - 05/28/13	4.77E-03	± 4.92E-04	3.66E-03	± 4.49E-04	4.34E-03	± 4.67E-04
05/28/13 - 06/04/13	6.18E-03	± 5.20E-04	4.78E-03	± 4.67E-04	6.60E-03	± 5.23E-04
06/04/13 - 06/11/13	1.20E-02	± 7.05E-04	1.03E-02	± 6.43E-04	1.02E-02	± 6.29E-04
06/11/13 - 06/18/13	8.75E-03	± 5.95E-04	6.94E-03	± 5.54E-04	7.18E-03	± 5.49E-04
06/18/13 - 06/25/13	4.36E-03	± 4.61E-04	4.13E-03	± 4.57E-04	4.28E-03	± 4.60E-04
06/25/13 - 07/02/13	1.38E-02	± 7.20E-04	1.28E-02	± 7.27E-04	1.31E-02	± 7.20E-04
07/02/13 - 07/09/13	1.28E-02	± 6.98E-04	1.36E-02	± 7.35E-04	1.35E-02	± 7.18E-04
07/09/13 - 07/16/13	1.20E-02	± 6.66E-04	1.23E-02	± 7.02E-04	1.26E-02	± 6.98E-04
07/16/13 - 07/23/13	1.55E-02	± 7.50E-04	1.69E-02	± 8.04E-04	1.91E-02	± 8.62E-04
07/23/13 - 07/30/13	1.50E-02	± 7.33E-04	1.39E-02	± 7.45E-04	1.47E-02	± 6.75E-04
07/30/13 - 08/06/13	1.68E-02	± 8.11E-04	1.69E-02	± 8.17E-04	1.70E-02	± 8.04E-04
08/06/13 - 08/13/13	1.91E-02	± 8.56E-04	2.11E-02	± 9.01E-04	1.90E-02	± 8.24E-04
08/13/13 - 08/20/13	1.50E-02	± 7.62E-04	1.77E-02	± 8.31E-04	1.48E-02	± 7.32E-04
08/20/13 - 08/27/13	1.42E-02	± 7.56E-04	1.57E-02	± 7.84E-04	1.74E-02	± 7.89E-04
08/27/13 - 09/03/13	1.57E-02	± 7.85E-04	1.58E-02	± 7.84E-04	1.55E-02	± 7.43E-04
09/03/13 - 09/10/13	1.25E-02	± 7.22E-04	1.31E-02	± 7.22E-04	1.14E-02	± 6.41E-04
09/10/13 - 09/17/13	3.11E-02	± 1.11E-03	2.98E-02	± 1.08E-03	2.87E-02	± 1.01E-03
09/17/13 - 09/24/13	1.12E-02	± 6.80E-04	9.21E-03	± 6.09E-04	1.16E-02	± 6.40E-04
09/24/13 - 10/01/13	7.08E-03	± 5.49E-04	6.68E-03	± 5.28E-04	6.70E-03	± 5.16E-04
10/01/13 - 10/08/13	1.52E-02	± 7.69E-04	1.41E-02	± 7.25E-04	1.51E-02	± 7.40E-04
10/08/13 - 10/15/13	1.39E-02	± 7.63E-04	1.76E-02	± 8.21E-04	1.68E-02	± 8.09E-04
10/15/13 - 10/22/13	4.03E-02	± 1.24E-03	4.14E-02	± 1.22E-03	3.77E-02	± 1.16E-03
10/22/13 - 10/29/13	5.00E-02	± 1.37E-03	4.89E-02	± 1.33E-03	4.64E-02	± 1.30E-03
10/29/13 - 11/05/13	1.53E-02	± 7.62E-04	1.54E-02	± 7.54E-04	1.53E-02	± 7.58E-04
11/05/13 - 11/12/13	1.37E-02	± 7.42E-04	1.50E-02	± 7.59E-04	1.62E-02	± 7.86E-04
11/12/13 - 11/19/13	1.58E-02	± 7.94E-04	1.63E-02	± 7.90E-04	1.57E-02	± 7.79E-04
11/19/13 - 11/26/13	4.84E-02	± 1.38E-03	5.23E-02	± 1.40E-03	5.46E-02	± 1.44E-03
11/26/13 - 12/03/13	1.18E-01	± 2.19E-03	1.27E-01	± 2.25E-03	1.21E-01	± 2.19E-03
12/03/13 - 12/10/13	4.31E-02	± 1.27E-03	4.57E-02	± 1.28E-03	4.40E-02	± 1.27E-03
12/10/13 - 12/17/13	9.07E-02	± 1.91E-03	9.07E-02	± 1.83E-03	8.60E-02	± 1.82E-03
12/17/13 - 12/23/13	2.52E-02	± 1.08E-03	3.00E-02	± 1.13E-03	2.52E-02	± 1.05E-03
12/23/13 - 12/31/13	3.02E-02	± 1.02E-03	3.41E-02	± 1.05E-03	2.96E-02	± 9.81E-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
01/02/13 - 01/08/13	4.19E-02	± 1.35E-03	4.61E-02	± 1.41E-03	4.88E-02	± 1.45E-03
01/08/13 - 01/15/13	1.43E-02	± 7.57E-04	1.66E-02	± 7.90E-04	1.69E-02	± 7.94E-04
01/15/13 - 01/22/13	4.00E-02	± 1.26E-03	5.11E-02	± 1.41E-03	5.38E-02	± 1.42E-03
01/22/13 - 01/29/13	5.23E-02	± 1.44E-03	5.75E-02	± 1.48E-03	5.75E-02	± 1.49E-03
01/29/13 - 02/05/13	8.70E-03	± 6.03E-04	1.16E-02	± 6.80E-04	1.32E-02	± 7.23E-04
02/05/13 - 02/12/13	5.77E-03	± 5.31E-04	1.10E-02	± 6.53E-04	1.43E-02	± 7.42E-04
02/12/13 - 02/19/13	7.41E-03	± 5.75E-04	9.16E-03	± 6.26E-04	1.21E-02	± 6.91E-04
02/19/13 - 02/26/13	4.54E-03	± 4.87E-04	5.98E-03	± 5.19E-04	7.06E-03	± 5.59E-04
02/26/13 - 03/05/13	7.33E-03	± 5.58E-04	8.21E-03	± 5.88E-04	8.02E-03	± 5.82E-04
03/05/13 - 03/12/13	6.34E-03	± 5.31E-04	9.27E-03	± 6.33E-04	8.37E-03	± 6.06E-04
03/12/13 - 03/19/13	7.31E-03	± 5.53E-04	6.53E-03	± 5.33E-04	6.83E-03	± 5.49E-04
03/19/13 - 03/26/13	1.04E-02	± 6.51E-04	1.19E-02	± 6.93E-04	1.24E-02	± 7.12E-04
03/26/13 - 04/02/13	1.82E-02	± 8.43E-04	1.94E-02	± 8.70E-04	2.10E-02	± 9.18E-04
04/02/13 - 04/09/13	5.77E-03	± 5.16E-04	7.65E-03	± 5.77E-04	8.13E-03	± 6.03E-04
04/09/13 - 04/16/13	5.49E-03	± 4.92E-04	5.15E-03	± 4.88E-04	4.84E-03	± 4.58E-04
04/16/13 - 04/23/13	9.01E-03	± 6.01E-04	1.02E-02	± 6.48E-04	1.02E-02	± 6.32E-04
04/23/13 - 04/30/13	1.21E-02	± 6.85E-04	1.51E-02	± 7.73E-04	1.37E-02	± 7.32E-04
04/30/13 - 05/07/13	1.38E-02	± 7.07E-04	1.41E-02	± 7.56E-04	1.56E-02	± 7.86E-04
05/07/13 - 05/14/13	2.03E-02	± 8.68E-04	2.48E-02	± 9.12E-04	2.25E-02	± 9.13E-04
05/14/13 - 05/21/13	7.23E-03	± 5.32E-04	7.30E-03	± 5.47E-04	7.67E-03	± 5.60E-04
05/21/13 - 05/28/13	3.22E-03	± 4.14E-04	2.99E-03	± 4.01E-04	4.29E-03	± 4.58E-04
05/28/13 - 06/04/13	5.54E-03	± 4.64E-04	6.92E-03	± 5.08E-04	6.03E-03	± 4.98E-04
06/04/13 - 06/11/13	9.59E-03	± 6.12E-04	1.11E-02	± 6.58E-04	1.22E-02	± 6.83E-04
06/11/13 - 06/18/13	6.34E-03	± 5.04E-04	7.47E-03	± 5.67E-04	7.62E-03	± 5.62E-04
06/18/13 - 06/25/13	3.73E-03	± 4.41E-04	5.01E-03	± 5.02E-04	5.04E-03	± 4.94E-04
06/25/13 - 07/02/13	1.13E-02	± 6.59E-04	1.21E-02	± 6.96E-04	1.35E-02	± 7.33E-04
07/02/13 - 07/09/13	1.20E-02	± 6.86E-04	1.34E-02	± 7.27E-04	1.38E-02	± 7.42E-04
07/09/13 - 07/16/13	1.07E-02	± 6.54E-04	1.20E-02	± 6.98E-04	1.11E-02	± 6.71E-04
07/16/13 - 07/23/13	1.66E-02	± 7.89E-04	1.75E-02	± 8.24E-04	1.73E-02	± 8.30E-04
07/23/13 - 07/30/13	1.36E-02	± 7.33E-04	1.39E-02	± 7.45E-04	1.51E-02	± 7.87E-04
07/30/13 - 08/06/13	1.58E-02	± 7.76E-04	1.55E-02	± 7.83E-04	1.54E-02	± 7.90E-04
08/06/13 - 08/13/13	2.06E-02	± 8.92E-04	2.08E-02	± 9.12E-04	2.07E-02	± 9.23E-04
08/13/13 - 08/20/13	1.38E-02	± 7.28E-04	1.58E-02	± 7.88E-04	1.52E-02	± 8.34E-04
08/20/13 - 08/27/13	1.55E-02	± 7.78E-04	1.47E-02	± 7.67E-04	NVS	
08/27/13 - 09/03/13	1.38E-02	± 7.19E-04	1.48E-02	± 7.69E-04	1.60E-02	± 8.85E-04
09/03/13 - 09/10/13	1.31E-02	± 7.21E-04	1.38E-02	± 7.57E-04	1.21E-02	± 7.16E-04
09/10/13 - 09/17/13	2.78E-02	± 1.03E-03	3.13E-02	± 1.12E-03	2.93E-02	± 1.09E-03
09/17/13 - 09/24/13	7.62E-03	± 5.66E-04	9.59E-03	± 6.43E-04	1.04E-02	± 6.54E-04
09/24/13 - 10/01/13	5.84E-03	± 5.04E-04	6.84E-03	± 5.26E-04	6.60E-03	± 5.35E-04
10/01/13 - 10/08/13	1.12E-02	± 6.53E-04	1.42E-02	± 7.26E-04	1.50E-02	± 7.64E-04
10/08/13 - 10/15/13	1.54E-02	± 7.77E-04	1.72E-02	± 8.08E-04	1.75E-02	± 8.44E-04
10/15/13 - 10/22/13	3.28E-02	± 1.11E-03	4.17E-02	± 1.22E-03	3.96E-02	± 1.23E-03
10/22/13 - 10/29/13	4.47E-02	± 1.28E-03	4.70E-02	± 1.29E-03	4.60E-02	± 1.32E-03
10/29/13 - 11/05/13	1.40E-02	± 7.19E-04	1.56E-02	± 7.45E-04	1.59E-02	± 7.82E-04
11/05/13 - 11/12/13	1.46E-02	± 7.64E-04	1.53E-02	± 7.61E-04	1.52E-02	± 7.92E-04
11/12/13 - 11/19/13	1.23E-02	± 6.99E-04	1.89E-02	± 8.45E-04	1.94E-02	± 9.01E-04
11/19/13 - 11/26/13	4.06E-02	± 1.23E-03	5.18E-02	± 1.39E-03	4.96E-02	± 1.35E-03
11/26/13 - 12/03/13	1.06E-01	± 2.03E-03	1.26E-01	± 2.22E-03	1.26E-01	± 2.22E-03
12/03/13 - 12/10/13	3.80E-02	± 1.16E-03	4.70E-02	± 1.32E-03	4.32E-02	± 1.25E-03
12/10/13 - 12/17/13	7.24E-02	± 1.67E-03	9.22E-02	± 1.89E-03	8.86E-02	± 1.85E-03
12/17/13 - 12/23/13	2.37E-02	± 1.03E-03	2.74E-02	± 1.10E-03	2.43E-02	± 1.06E-03
12/23/13 - 12/31/13	3.08E-02	± 1.00E-03	3.36E-02	± 1.06E-03	2.98E-02	± 1.00E-03

NVS = Valid sample not obtained due to sampler failure.
 Average MDA for analyses in Table A-2.1 was 9.00E-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
01/02/13 - 01/08/13	4.65E-02	± 1.40E-03	4.84E-02	± 1.44E-03	5.15E-02	± 1.49E-03
01/08/13 - 01/15/13	1.82E-02	± 8.22E-04	1.82E-02	± 8.06E-04	1.87E-02	± 8.33E-04
01/15/13 - 01/22/13	5.76E-02	± 1.47E-03	5.28E-02	± 1.40E-03	5.63E-02	± 1.47E-03
01/22/13 - 01/29/13	5.21E-02	± 1.40E-03	5.25E-02	± 1.39E-03	5.88E-02	± 1.53E-03
01/29/13 - 02/05/13	1.13E-02	± 6.61E-04	1.19E-02	± 6.74E-04	1.07E-02	± 6.53E-04
02/05/13 - 02/12/13	8.31E-03	± 5.77E-04	1.20E-02	± 6.78E-04	1.15E-02	± 6.79E-04
02/12/13 - 02/19/13	8.96E-03	± 6.09E-04	8.27E-03	± 5.81E-04	1.17E-02	± 6.88E-04
02/19/13 - 02/26/13	6.89E-03	± 5.58E-04	7.59E-03	± 5.65E-04	7.07E-03	± 5.67E-04
02/26/13 - 03/05/13	6.83E-03	± 5.44E-04	7.67E-03	± 5.60E-04	8.54E-03	± 6.07E-04
03/05/13 - 03/12/13	7.05E-03	± 5.60E-04	6.87E-03	± 5.48E-04	9.86E-03	± 6.55E-04
03/12/13 - 03/19/13	7.23E-03	± 5.53E-04	7.39E-03	± 5.45E-04	7.30E-03	± 5.68E-04
03/19/13 - 03/26/13	1.18E-02	± 6.97E-04	1.27E-02	± 6.94E-04	1.13E-02	± 6.93E-04
03/26/13 - 04/02/13	1.91E-02	± 8.49E-04	1.84E-02	± 8.33E-04	1.99E-02	± 8.61E-04
04/02/13 - 04/09/13	5.95E-03	± 5.08E-04	7.75E-03	± 5.63E-04	6.80E-03	± 5.30E-04
04/09/13 - 04/16/13	5.30E-03	± 4.78E-04	5.41E-03	± 4.92E-04	4.78E-03	± 4.56E-04
04/16/13 - 04/23/13	9.11E-03	± 6.08E-04	9.78E-03	± 6.35E-04	9.95E-03	± 6.26E-04
04/23/13 - 04/30/13	1.36E-02	± 7.28E-04	1.28E-02	± 7.02E-04	1.51E-02	± 7.59E-04
04/30/13 - 05/07/13	1.52E-02	± 7.78E-04	1.28E-02	± 7.04E-04	1.62E-02	± 8.08E-04
05/07/13 - 05/14/13	2.30E-02	± 9.24E-04	2.13E-02	± 8.96E-04	2.27E-02	± 9.07E-04
05/14/13 - 05/21/13	5.96E-03	± 5.04E-04	7.24E-03	± 5.58E-04	8.31E-03	± 5.81E-04
05/21/13 - 05/28/13	3.25E-03	± 4.18E-04	3.51E-03	± 4.27E-04	4.05E-03	± 4.44E-04
05/28/13 - 06/04/13	5.46E-03	± 4.76E-04	5.56E-03	± 4.84E-04	6.77E-03	± 5.74E-04
06/04/13 - 06/11/13	1.14E-02	± 6.63E-04	1.00E-02	± 6.22E-04	1.13E-02	± 6.82E-04
06/11/13 - 06/18/13	6.70E-03	± 5.28E-04	6.98E-03	± 5.43E-04	7.37E-03	± 5.78E-04
06/18/13 - 06/25/13	4.76E-03	± 4.77E-04	4.00E-03	± 4.51E-04	3.89E-03	± 4.59E-04
06/25/13 - 07/02/13	1.30E-02	± 7.27E-04	1.24E-02	± 7.03E-04	1.20E-02	± 7.19E-04
07/02/13 - 07/09/13	1.23E-02	± 7.06E-04	1.19E-02	± 6.79E-04	1.20E-02	± 7.10E-04
07/09/13 - 07/16/13	1.19E-02	± 6.90E-04	9.68E-03	± 7.24E-04	1.18E-02	± 7.02E-04
07/16/13 - 07/23/13	1.64E-02	± 7.99E-04	1.37E-02	± 7.17E-04	1.63E-02	± 8.08E-04
07/23/13 - 07/30/13	1.43E-02	± 7.58E-04	1.34E-02	± 7.11E-04	1.32E-02	± 7.12E-04
07/30/13 - 08/06/13	1.51E-02	± 7.80E-04	1.63E-02	± 7.98E-04	1.70E-02	± 8.03E-04
08/06/13 - 08/13/13	1.93E-02	± 8.74E-04	1.86E-02	± 8.48E-04	2.11E-02	± 8.90E-04
08/13/13 - 08/20/13	1.62E-02	± 8.21E-04	1.29E-02	± 7.06E-04	1.72E-02	± 8.03E-04
08/20/13 - 08/27/13	1.48E-02	± 7.17E-04	1.46E-02	± 7.40E-04	1.60E-02	± 7.84E-04
08/27/13 - 09/03/13	1.47E-02	± 7.46E-04	1.50E-02	± 7.65E-04	1.51E-02	± 7.67E-04
09/03/13 - 09/10/13	1.28E-02	± 6.93E-04	1.33E-02	± 7.26E-04	1.44E-02	± 7.54E-04
09/10/13 - 09/17/13	2.62E-02	± 9.76E-04	3.25E-02	± 1.18E-03	3.23E-02	± 1.12E-03
09/17/13 - 09/24/13	1.07E-02	± 6.30E-04	8.37E-03	± 5.83E-04	1.02E-02	± 6.44E-04
09/24/13 - 10/01/13	6.91E-03	± 5.27E-04	6.58E-03	± 5.41E-04	6.61E-03	± 5.36E-04
10/01/13 - 10/08/13	1.37E-02	± 6.90E-04	1.48E-02	± 7.71E-04	1.50E-02	± 7.61E-04
10/08/13 - 10/15/13	1.68E-02	± 7.79E-04	1.61E-02	± 8.18E-04	1.85E-02	± 8.64E-04
10/15/13 - 10/22/13	4.00E-02	± 1.16E-03	3.81E-02	± 1.21E-03	4.18E-02	± 1.26E-03
10/22/13 - 10/29/13	4.57E-02	± 1.30E-03	4.23E-02	± 1.27E-03	4.74E-02	± 1.34E-03
10/29/13 - 11/05/13	1.44E-02	± 7.43E-04	1.61E-02	± 8.13E-04	1.62E-02	± 7.86E-04
11/05/13 - 11/12/13	1.53E-02	± 7.88E-04	1.79E-02	± 8.63E-04	1.45E-02	± 7.65E-04
11/12/13 - 11/19/13	1.58E-02	± 7.96E-04	1.36E-02	± 7.71E-04	1.70E-02	± 8.21E-04
11/19/13 - 11/26/13	5.04E-02	± 1.35E-03	4.96E-02	± 1.35E-03	5.16E-02	± 1.36E-03
11/26/13 - 12/03/13	1.16E-01	± 2.07E-03	1.23E-01	± 2.20E-03	1.39E-01	± 2.35E-03
12/03/13 - 12/10/13	4.24E-02	± 1.26E-03	4.35E-02	± 1.28E-03	4.70E-02	± 1.29E-03
12/10/13 - 12/17/13	8.06E-02	± 1.77E-03	8.59E-02	± 1.86E-03	9.60E-02	± 1.89E-03
12/17/13 - 12/23/13	2.29E-02	± 1.02E-03	2.56E-02	± 1.07E-03	2.70E-02	± 1.05E-03
12/23/13 - 12/31/13	2.96E-02	± 1.01E-03	2.85E-02	± 9.64E-04	3.38E-02	± 1.03E-03

TABLE A-2.2
GROSS BETA ON AIR PARTICULATE FILTERS - SUMMARY

Results in pCi per cubic meter

LOCATION	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
Gross Beta Indicators	2.18E-02	2.99E-03	1.39E-01	570	570
Gross Beta Controls	1.89E-02	3.22E-03	1.06E-01	52	52

TABLE A-3.1

GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS

Results in pCi/cubic meter, results decay corrected to mid point of the sample collection period

Location and Quarter			Station 1	1st Q 2013	Location and Quarter			Station 1	2nd Q 2013
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	7.16E-02 ±	1.49E-02	1.11E-02	BE-7	+	1.00E-01 ±	1.59E-02	9.41E-03
K-40		4.58E-04 ±	4.95E-03	9.02E-03	K-40		3.14E-03 ±	6.73E-03	1.09E-02
MN-54		3.61E-05 ±	5.73E-04	9.32E-04	MN-54		1.56E-04 ±	5.18E-04	7.98E-04
FE-59		4.31E-04 ±	2.60E-03	4.10E-03	FE-59		1.73E-03 ±	2.71E-03	3.68E-03
CO-60		7.77E-05 ±	4.62E-04	7.24E-04	CO-60		-8.41E-05 ±	6.24E-04	9.97E-04
ZN-65		0.00E+00 ±	2.18E-03	3.59E-03	ZN-65		3.17E-04 ±	1.23E-03	1.90E-03
ZRNB-95		-1.75E-04 ±	1.33E-03	2.13E-03	ZRNB-95		5.26E-04 ±	1.57E-03	2.42E-03
CS-134		0.00E+00 ±	5.87E-04	9.64E-04	CS-134		8.78E-05 ±	3.45E-04	5.34E-04
CS-137		-4.16E-06 ±	3.89E-04	6.38E-04	CS-137		0.00E+00 ±	3.17E-04	5.21E-04
BALA140		0.00E+00 ±	1.45E-02	2.38E-02	BALA140		-5.04E-03 ±	1.49E-02	2.31E-02
RU-106		0.00E+00 ±	4.14E-03	6.80E-03	RU-106		6.59E-04 ±	4.76E-03	7.64E-03

Location and Quarter			Station 1	3rd Q 2013	Location and Quarter			Station 1	4th Q 2013
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.44E-01 ±	1.67E-02	8.63E-03	BE-7	+	8.15E-02 ±	1.46E-02	7.97E-03
K-40		-5.49E-04 ±	6.58E-03	9.99E-03	K-40		-2.36E-03 ±	9.45E-03	5.82E-03
MN-54		0.00E+00 ±	3.68E-04	6.05E-04	MN-54		2.45E-04 ±	5.47E-04	8.22E-04
FE-59		0.00E+00 ±	8.05E-04	1.32E-03	FE-59		0.00E+00 ±	1.01E-03	1.65E-03
CO-60		4.01E-05 ±	3.51E-04	6.01E-04	CO-60		0.00E+00 ±	1.70E-04	2.80E-04
ZN-65		-4.58E-04 ±	1.24E-03	1.91E-03	ZN-65		-4.04E-05 ±	9.93E-04	1.61E-03
ZRNB-95		0.00E+00 ±	1.35E-03	2.23E-03	ZRNB-95		-3.14E-04 ±	1.61E-03	2.55E-03
CS-134		-6.99E-05 ±	3.31E-04	5.25E-04	CS-134		0.00E+00 ±	7.07E-04	1.16E-03
CS-137		4.29E-05 ±	3.43E-04	5.52E-04	CS-137		-6.76E-05 ±	5.04E-04	8.10E-04
BALA140		4.35E-03 ±	8.48E-03	1.05E-02	BALA140		-3.76E-03 ±	1.38E-02	2.10E-02
RU-106		-4.34E-04 ±	3.18E-03	5.10E-03	RU-106		8.19E-04 ±	4.30E-03	6.82E-03

Location and Quarter			Station 4	1st Q 2013	Location and Quarter			Station 4	2nd Q 2013
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.00E-01 ±	1.61E-02	1.01E-02	BE-7	+	9.70E-02 ±	1.67E-02	1.16E-02
K-40		-2.51E-03 ±	1.01E-02	6.19E-03	K-40		4.57E-03 ±	5.83E-03	8.73E-03
MN-54		0.00E+00 ±	5.37E-04	8.83E-04	MN-54		-1.44E-04 ±	5.85E-04	9.20E-04
FE-59		-5.20E-04 ±	3.19E-03	5.06E-03	FE-59		0.00E+00 ±	5.81E-03	9.56E-03
CO-60		8.62E-05 ±	5.37E-04	8.49E-04	CO-60		0.00E+00 ±	6.02E-04	9.90E-04
ZN-65		-2.33E-04 ±	1.50E-03	2.40E-03	ZN-65		-4.36E-04 ±	1.36E-03	2.09E-03
ZRNB-95		-2.98E-04 ±	1.45E-03	2.29E-03	ZRNB-95		-4.82E-04 ±	1.67E-03	2.62E-03
CS-134		-6.36E-05 ±	5.11E-04	8.24E-04	CS-134		7.84E-05 ±	3.82E-04	6.03E-04
CS-137		-7.33E-05 ±	5.42E-04	8.71E-04	CS-137		9.76E-05 ±	4.50E-04	7.09E-04
BALA140		4.28E-03 ±	1.05E-02	1.55E-02	BALA140		-1.27E-03 ±	1.10E-02	1.76E-02
RU-106		1.01E-03 ±	4.43E-03	6.99E-03	RU-106		0.00E+00 ±	6.82E-03	1.12E-02

Location and Quarter			Station 4	3rd Q 2013	Location and Quarter			Station 4	4th Q 2013
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.38E-01 ±	1.70E-02	9.39E-03	BE-7	+	9.64E-02 ±	1.59E-02	7.56E-03
K-40		-3.64E-04 ±	5.19E-03	9.02E-03	K-40		1.42E-06 ±	5.67E-03	1.03E-02
MN-54		-5.10E-05 ±	4.18E-04	6.71E-04	MN-54		2.04E-04 ±	4.91E-04	7.33E-04
FE-59		1.42E-05 ±	2.84E-03	4.67E-03	FE-59		1.87E-03 ±	2.28E-03	2.57E-03
CO-60		-1.01E-04 ±	4.06E-04	3.16E-04	CO-60		0.00E+00 ±	8.56E-04	1.41E-03
ZN-65		-4.54E-04 ±	1.49E-03	2.35E-03	ZN-65		3.73E-04 ±	1.22E-03	1.86E-03
ZRNB-95		1.39E-04 ±	1.37E-03	2.22E-03	ZRNB-95		0.00E+00 ±	1.46E-03	2.41E-03
CS-134		0.00E+00 ±	6.34E-04	1.04E-03	CS-134		2.36E-05 ±	4.90E-04	8.00E-04
CS-137		2.67E-05 ±	2.85E-04	4.59E-04	CS-137		-1.19E-04 ±	5.08E-04	8.01E-04
BALA140		0.00E+00 ±	2.17E-02	3.57E-02	BALA140		0.00E+00 ±	2.21E-02	3.63E-02
RU-106		1.20E-03 ±	3.33E-03	5.12E-03	RU-106		-1.30E-04 ±	4.23E-03	6.92E-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 to mid point of the sample collection period

Location and Quarter					Location and Quarter				
Station 5 1st Q 2013					Station 5 2nd Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.77E-02 ±	1.51E-02	8.41E-03	BE-7	+	1.04E-01 ±	1.58E-02	8.87E-03
K-40		4.93E-04 ±	6.39E-03	1.12E-02	K-40		-2.49E-03 ±	5.66E-02	1.44E-02
MN-54		2.23E-04 ±	5.61E-04	8.54E-04	MN-54		-1.12E-04 ±	5.31E-04	8.37E-04
FE-59		-1.01E-05 ±	3.08E-03	5.05E-03	FE-59		-5.58E-04 ±	3.56E-03	5.67E-03
CO-60		2.30E-05 ±	4.70E-04	7.63E-04	CO-60		0.00E+00 ±	1.78E-04	2.93E-04
ZN-65		-1.46E-04 ±	1.20E-03	1.92E-03	ZN-65		4.96E-06 ±	1.03E-03	1.69E-03
ZRNB-95		6.14E-04 ±	1.32E-03	1.96E-03	ZRNB-95		-7.40E-05 ±	1.59E-03	2.60E-03
CS-134		4.67E-05 ±	4.69E-04	7.59E-04	CS-134		-8.79E-05 ±	2.75E-04	4.12E-04
CS-137		-7.65E-05 ±	5.35E-04	8.59E-04	CS-137		-1.83E-04 ±	6.11E-04	9.61E-04
BALA140		0.00E+00 ±	1.45E-02	2.38E-02	BALA140		-1.46E-03 ±	1.20E-02	1.92E-02
RU-106		1.13E-03 ±	4.12E-03	6.42E-03	RU-106		4.50E-04 ±	5.14E-03	8.33E-03

Location and Quarter					Location and Quarter				
Station 5 3rd Q 2013					Station 5 4th Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.61E-01 ±	2.20E-02	1.19E-02	BE-7	+	9.35E-02 ±	1.65E-02	8.71E-03
K-40		-2.40E-03 ±	9.46E-02	2.27E-02	K-40		3.88E-03 ±	7.63E-03	1.21E-02
MN-54		2.14E-04 ±	5.09E-04	7.63E-04	MN-54		-1.51E-04 ±	5.71E-04	8.94E-04
FE-59		-7.75E-05 ±	3.76E-03	6.16E-03	FE-59		9.42E-05 ±	2.11E-03	3.42E-03
CO-60		3.21E-04 ±	4.65E-04	6.11E-04	CO-60		0.00E+00 ±	1.75E-04	2.88E-04
ZN-65		-2.55E-05 ±	1.10E-03	1.79E-03	ZN-65		-6.22E-04 ±	1.70E-03	2.63E-03
ZRNB-95		3.73E-04 ±	1.47E-03	2.29E-03	ZRNB-95		1.28E-05 ±	1.61E-03	2.64E-03
CS-134		-5.41E-05 ±	6.53E-04	1.06E-03	CS-134		4.49E-07 ±	4.74E-04	7.78E-04
CS-137		-1.76E-04 ±	5.65E-04	8.85E-04	CS-137		-1.16E-04 ±	5.52E-04	8.76E-04
BALA140		-6.19E-03 ±	2.21E-02	3.40E-02	BALA140		0.00E+00 ±	8.20E-03	1.35E-02
RU-106		-1.42E-03 ±	4.99E-03	7.83E-03	RU-106		-5.14E-04 ±	4.64E-03	7.48E-03

Location and Quarter					Location and Quarter				
Station 6 1st Q 2013					Station 6 2nd Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	7.05E-02 ±	1.37E-02	1.02E-02	BE-7	+	1.03E-01 ±	1.59E-02	1.02E-02
K-40		-2.42E-03 ±	9.69E-03	5.97E-03	K-40		7.38E-04 ±	6.30E-03	1.10E-02
MN-54		1.26E-04 ±	5.90E-04	9.34E-04	MN-54		-6.51E-05 ±	6.95E-04	1.13E-03
FE-59		0.00E+00 ±	3.33E-03	5.48E-03	FE-59		-1.11E-03 ±	3.76E-03	5.86E-03
CO-60		-4.55E-05 ±	4.14E-04	6.58E-04	CO-60		1.52E-04 ±	6.63E-04	1.04E-03
ZN-65		3.82E-04 ±	1.38E-03	2.14E-03	ZN-65		-4.61E-04 ±	2.00E-03	3.18E-03
ZRNB-95		0.00E+00 ±	1.97E-03	3.24E-03	ZRNB-95		-1.24E-04 ±	1.54E-03	2.50E-03
CS-134		-1.34E-05 ±	4.34E-04	7.10E-04	CS-134		-4.32E-04 ±	7.24E-05	1.68E-04
CS-137		-2.97E-05 ±	5.51E-04	8.98E-04	CS-137		-2.85E-05 ±	3.40E-04	5.47E-04
BALA140		1.23E-03 ±	8.56E-03	1.35E-02	BALA140		9.60E-04 ±	1.04E-02	1.67E-02
RU-106		0.00E+00 ±	2.71E-03	4.46E-03	RU-106		0.00E+00 ±	2.77E-03	4.55E-03

Location and Quarter					Location and Quarter				
Station 6 3rd Q 2013					Station 6 4th Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.52E-01 ±	1.77E-02	9.13E-03	BE-7	+	8.43E-02 ±	1.67E-02	1.06E-02
K-40		6.97E-04 ±	4.70E-03	9.04E-03	K-40		1.65E-03 ±	6.32E-03	1.07E-02
MN-54		-2.03E-05 ±	4.30E-04	7.01E-04	MN-54		-1.10E-05 ±	5.97E-04	9.78E-04
FE-59		-2.25E-04 ±	2.61E-03	4.21E-03	FE-59		0.00E+00 ±	1.07E-03	1.75E-03
CO-60		-1.36E-04 ±	2.78E-03	7.25E-04	CO-60		0.00E+00 ±	8.78E-04	1.44E-03
ZN-65		0.00E+00 ±	2.29E-03	3.76E-03	ZN-65		0.00E+00 ±	2.63E-03	4.32E-03
ZRNB-95		1.22E-04 ±	1.08E-03	1.73E-03	ZRNB-95		-4.84E-04 ±	1.80E-03	2.83E-03
CS-134		-2.10E-04 ±	4.46E-04	6.91E-04	CS-134		7.09E-05 ±	4.58E-04	7.34E-04
CS-137		0.00E+00 ±	3.88E-04	6.37E-04	CS-137		1.98E-04 ±	4.16E-04	6.10E-04
BALA140		-3.44E-05 ±	1.24E-02	2.04E-02	BALA140		0.00E+00 ±	2.29E-02	3.76E-02
RU-106		2.08E-03 ±	3.40E-03	4.97E-03	RU-106		-1.10E-03 ±	5.23E-03	8.32E-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 to mid-point of the sample collection period

Location and Quarter					Station 7	Location and Quarter					Station 7
Nuclide	RQ	Activity	Error	MDA	1st Q 2013	Nuclide	RQ	Activity	Error	MDA	2nd Q 2013
BE-7	+	9.34E-02	± 1.48E-02	8.51E-03		BE-7	+	9.61E-02	± 1.58E-02	1.02E-02	
K-40		-6.19E-04	± 1.06E-02	1.13E-02		K-40		4.23E-03	± 6.85E-03	1.07E-02	
MN-54		-3.97E-05	± 5.17E-04	8.37E-04		MN-54		7.08E-05	± 5.52E-04	8.86E-04	
FE-59		2.12E-03	± 2.57E-03	3.24E-03		FE-59		-8.43E-04	± 3.17E-03	4.91E-03	
CO-60		-1.41E-04	± 5.56E-04	8.62E-04		CO-60		-1.11E-04	± 7.30E-04	1.17E-03	
ZN-65		2.14E-04	± 1.25E-03	1.98E-03		ZN-65		0.00E+00	± 3.06E-03	5.03E-03	
ZRNB-95		-1.09E-05	± 1.05E-03	1.72E-03		ZRNB-95		-3.78E-04	± 1.60E-03	2.53E-03	
CS-134		0.00E+00	± 8.28E-04	1.36E-03		CS-134		-2.23E-04	± 6.14E-04	9.66E-04	
CS-137		2.69E-05	± 4.98E-04	8.10E-04		CS-137		-1.40E-05	± 4.58E-04	7.49E-04	
BALA140		0.00E+00	± 1.43E-02	2.36E-02		BALA140		-6.08E-04	± 9.23E-03	1.49E-02	
RU-106		-1.37E-06	± 3.37E-03	5.53E-03		RU-106		5.19E-04	± 4.49E-03	7.23E-03	

Location and Quarter					Station 7	Location and Quarter					Station 7
Nuclide	RQ	Activity	Error	MDA	3rd Q 2013	Nuclide	RQ	Activity	Error	MDA	4th Q 2013
BE-7	+	1.50E-01	± 1.71E-02	7.41E-03		BE-7	+	8.40E-02	± 1.61E-02	1.01E-02	
K-40		1.56E-03	± 4.43E-03	8.43E-03		K-40		-2.38E-03	± 9.51E-03	5.86E-03	
MN-54		3.50E-06	± 3.75E-04	6.15E-04		MN-54		1.42E-04	± 5.64E-04	8.86E-04	
FE-59		0.00E+00	± 3.04E-03	4.99E-03		FE-59		-8.27E-04	± 2.92E-03	4.45E-03	
CO-60		2.68E-05	± 4.14E-04	7.08E-04		CO-60		2.03E-04	± 6.50E-04	1.01E-03	
ZN-65		3.66E-04	± 9.17E-04	1.37E-03		ZN-65		-2.05E-04	± 1.09E-03	1.71E-03	
ZRNB-95		-3.23E-04	± 1.47E-03	2.33E-03		ZRNB-95		6.36E-04	± 1.06E-03	1.45E-03	
CS-134		3.00E-05	± 3.40E-04	5.50E-04		CS-134		1.33E-05	± 3.91E-04	6.38E-04	
CS-137		0.00E+00	± 3.93E-04	6.45E-04		CS-137		-1.08E-05	± 4.68E-04	7.66E-04	
BALA140		0.00E+00	± 2.21E-02	3.63E-02		BALA140		-2.54E-03	± 1.66E-02	2.63E-02	
RU-106		-2.65E-04	± 3.01E-03	4.86E-03		RU-106		2.16E-05	± 4.15E-03	6.82E-03	

Location and Quarter					Station 8	Location and Quarter					Station 8
Nuclide	RQ	Activity	Error	MDA	1st Q 2013	Nuclide	RQ	Activity	Error	MDA	2nd Q 2013
BE-7	+	9.93E-02	± 1.60E-02	9.50E-03		BE-7	+	8.89E-02	± 1.46E-02	8.60E-03	
K-40		3.27E-03	± 6.95E-03	1.12E-02		K-40		1.18E-03	± 6.07E-03	1.04E-02	
MN-54		-3.15E-04	± 7.43E-04	1.15E-03		MN-54		2.49E-04	± 4.94E-04	7.26E-04	
FE-59		-1.16E-03	± 3.68E-03	5.69E-03		FE-59		1.24E-03	± 2.40E-03	3.36E-03	
CO-60		0.00E+00	± 6.15E-04	1.01E-03		CO-60		2.43E-04	± 5.88E-04	8.81E-04	
ZN-65		-4.26E-04	± 1.59E-03	2.50E-03		ZN-65		0.00E+00	± 1.22E-03	2.01E-03	
ZRNB-95		0.00E+00	± 9.17E-04	1.51E-03		ZRNB-95		2.04E-04	± 1.53E-03	2.46E-03	
CS-134		1.14E-04	± 3.91E-04	6.07E-04		CS-134		1.96E-05	± 4.40E-04	7.18E-04	
CS-137		1.99E-04	± 5.04E-04	7.70E-04		CS-137		1.49E-04	± 5.20E-04	8.15E-04	
BALA140		3.15E-03	± 1.19E-02	1.84E-02		BALA140		-4.55E-04	± 1.22E-02	1.98E-02	
RU-106		6.61E-05	± 5.06E-03	8.30E-03		RU-106		-1.52E-03	± 4.97E-03	7.78E-03	

Location and Quarter					Station 8	Location and Quarter					Station 8
Nuclide	RQ	Activity	Error	MDA	3rd Q 2013	Nuclide	RQ	Activity	Error	MDA	4th Q 2013
BE-7	+	1.56E-01	± 1.94E-02	6.69E-03		BE-7	+	7.79E-02	± 1.44E-02	7.90E-03	
K-40		-2.77E-03	± 8.18E-02	1.42E-02		K-40		1.10E-03	± 6.76E-03	1.15E-02	
MN-54		-1.59E-04	± 5.38E-04	8.36E-04		MN-54		2.17E-04	± 5.65E-04	8.62E-04	
FE-59		0.00E+00	± 3.87E-03	6.36E-03		FE-59		-1.42E-03	± 4.23E-03	6.54E-03	
CO-60		1.58E-05	± 5.12E-04	8.36E-04		CO-60		-1.02E-04	± 5.12E-04	8.01E-04	
ZN-65		-2.13E-04	± 1.44E-03	2.31E-03		ZN-65		0.00E+00	± 2.53E-03	4.16E-03	
ZRNB-95		-3.69E-04	± 1.50E-03	2.35E-03		ZRNB-95		0.00E+00	± 1.52E-03	2.50E-03	
CS-134		-5.50E-05	± 4.40E-04	7.10E-04		CS-134		0.00E+00	± 6.31E-04	1.04E-03	
CS-137		1.72E-05	± 4.49E-04	7.34E-04		CS-137		-7.42E-05	± 5.29E-04	8.50E-04	
BALA140		-6.18E-03	± 2.24E-02	3.46E-02		BALA140		0.00E+00	± 5.18E-03	8.52E-03	
RU-106		1.45E-05	± 3.81E-03	6.26E-03		RU-106		-7.17E-04	± 4.09E-03	6.51E-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 to mid point of the sample collection period

Location and Quarter					Location and Quarter				
Station 9 1st Q 2013					Station 9 2nd Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	6.87E-02	± 1.38E-02	9.97E-03	BE-7	+	9.72E-02	± 1.50E-02	8.30E-03
K-40		-2.50E-03	± 1.00E-02	6.17E-03	K-40		-5.77E-05	± 5.63E-03	9.72E-03
MN-54		-6.71E-05	± 5.68E-04	9.13E-04	MN-54		5.16E-07	± 4.39E-04	7.22E-04
FE-59		-4.42E-04	± 3.38E-03	5.40E-03	FE-59		3.68E-05	± 2.94E-03	4.83E-03
CO-60		3.35E-04	± 6.04E-04	8.70E-04	CO-60		-1.79E-05	± 3.71E-04	6.00E-04
ZN-65		-2.70E-04	± 1.42E-03	2.24E-03	ZN-65		1.30E-05	± 1.26E-03	2.06E-03
ZRNB-95		-7.18E-04	± 1.70E-03	2.61E-03	ZRNB-95		6.83E-04	± 1.25E-03	1.82E-03
CS-134		1.79E-06	± 5.39E-04	8.85E-04	CS-134		4.41E-05	± 4.08E-04	6.58E-04
CS-137		2.60E-05	± 5.04E-04	8.21E-04	CS-137		-1.38E-06	± 5.03E-04	8.26E-04
BALA140		0.00E+00	± 1.55E-02	2.55E-02	BALA140		-1.45E-04	± 8.62E-03	1.41E-02
RU-106		-1.05E-05	± 3.88E-03	6.37E-03	RU-106		5.89E-04	± 3.56E-03	5.65E-03

Location and Quarter					Location and Quarter				
Station 9 3rd Q 2013					Station 9 4th Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.36E-01	± 1.60E-02	5.95E-03	BE-7	+	9.62E-02	± 1.86E-02	1.17E-02
K-40		-1.06E-03	± 5.77E-03	8.25E-03	K-40		-1.25E-03	± 2.24E-02	1.28E-02
MN-54		0.00E+00	± 4.34E-04	7.13E-04	MN-54		2.53E-04	± 6.42E-04	9.87E-04
FE-59		2.09E-04	± 2.20E-03	3.52E-03	FE-59		-6.31E-04	± 4.31E-03	6.91E-03
CO-60		-1.01E-04	± 4.05E-04	3.15E-04	CO-60		0.00E+00	± 5.99E-04	9.84E-04
ZN-65		-2.89E-04	± 1.18E-03	1.86E-03	ZN-65		-1.45E-03	± 2.70E-03	4.20E-03
ZRNB-95		0.00E+00	± 1.14E-03	1.88E-03	ZRNB-95		-1.74E-04	± 1.87E-03	3.03E-03
CS-134		-1.72E-05	± 3.29E-04	5.36E-04	CS-134		-1.51E-04	± 6.25E-04	9.99E-04
CS-137		-1.19E-04	± 4.05E-04	6.34E-04	CS-137		-1.47E-04	± 4.68E-04	7.24E-04
BALA140		0.00E+00	± 3.09E-02	5.08E-02	BALA140		5.78E-03	± 1.99E-02	3.08E-02
RU-106		-7.41E-05	± 3.17E-03	5.19E-03	RU-106		1.17E-03	± 5.20E-03	8.25E-03

Location and Quarter					Location and Quarter				
Station 21 1st Q 2013					Station 21 2nd Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	7.94E-02	± 1.44E-02	9.45E-03	BE-7	+	9.28E-02	± 1.57E-02	1.05E-02
K-40		2.15E-03	± 7.12E-03	1.18E-02	K-40		8.62E-04	± 6.88E-03	1.18E-02
MN-54		2.55E-04	± 4.87E-04	7.08E-04	MN-54		-3.90E-05	± 5.15E-04	8.35E-04
FE-59		-1.24E-03	± 3.58E-03	5.50E-03	FE-59		0.00E+00	± 3.34E-03	5.48E-03
CO-60		-1.79E-04	± 5.33E-04	8.05E-04	CO-60		8.28E-05	± 5.58E-04	8.88E-04
ZN-65		-7.80E-05	± 1.13E-03	1.83E-03	ZN-65		-1.90E-04	± 1.60E-03	2.58E-03
ZRNB-95		2.01E-05	± 1.23E-03	2.01E-03	ZRNB-95		1.85E-04	± 1.53E-03	2.47E-03
CS-134		1.61E-04	± 4.38E-04	6.75E-04	CS-134		0.00E+00	± 9.83E-04	1.62E-03
CS-137		2.80E-04	± 4.72E-04	6.86E-04	CS-137		-8.96E-05	± 5.04E-04	8.04E-04
BALA140		-8.83E-04	± 1.03E-02	1.65E-02	BALA140		-1.24E-03	± 9.85E-03	1.57E-02
RU-106		1.26E-03	± 4.86E-03	7.65E-03	RU-106		8.28E-04	± 3.30E-03	5.11E-03

Location and Quarter					Location and Quarter				
Station 21 3rd Q 2013					Station 21 4th Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.48E-01	± 2.16E-02	1.16E-02	BE-7	+	8.26E-02	± 1.57E-02	8.64E-03
K-40		8.68E-04	± 6.55E-03	1.13E-02	K-40		-2.65E-03	± 1.44E-01	1.39E-02
MN-54		-2.13E-04	± 7.23E-04	1.14E-03	MN-54		0.00E+00	± 7.64E-04	1.26E-03
FE-59		0.00E+00	± 1.16E-03	1.91E-03	FE-59		-2.08E-04	± 3.17E-03	5.13E-03
CO-60		9.37E-05	± 4.28E-04	6.57E-04	CO-60		-6.48E-05	± 6.72E-04	1.08E-03
ZN-65		1.24E-04	± 1.14E-03	1.83E-03	ZN-65		0.00E+00	± 4.34E-03	7.14E-03
ZRNB-95		-4.55E-04	± 1.67E-03	2.61E-03	ZRNB-95		-3.10E-04	± 1.41E-03	2.21E-03
CS-134		0.00E+00	± 7.43E-04	1.22E-03	CS-134		-2.21E-05	± 4.34E-04	7.08E-04
CS-137		-9.56E-05	± 5.23E-04	8.32E-04	CS-137		1.52E-04	± 4.50E-04	6.91E-04
BALA140		-4.92E-03	± 2.48E-02	3.90E-02	BALA140		0.00E+00	± 5.34E-03	8.78E-03
RU-106		-6.64E-05	± 3.95E-03	6.48E-03	RU-106		2.00E-03	± 4.95E-03	7.61E-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 to mid point of the sample collection period

Location and Quarter					Location and Quarter				
Station 23 1st Q 2013					Station 23 2nd Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	8.11E-02 ±	1.40E-02	8.19E-03	BE-7	+	9.46E-02 ±	1.46E-02	6.76E-03
K-40		1.40E-03 ±	7.59E-03	1.28E-02	K-40		3.77E-03 ±	6.17E-03	9.64E-03
MN-54		-1.98E-04 ±	7.03E-04	1.11E-03	MN-54		-3.49E-05 ±	5.76E-04	9.37E-04
FE-59		-7.65E-04 ±	3.60E-03	5.69E-03	FE-59		0.00E+00 ±	4.79E-03	7.88E-03
CO-60		0.00E+00 ±	6.06E-04	9.96E-04	CO-60		-5.53E-05 ±	4.92E-04	7.85E-04
ZN-65		0.00E+00 ±	2.18E-03	3.58E-03	ZN-65		5.05E-04 ±	1.30E-03	1.96E-03
ZRNB-95		6.14E-04 ±	1.28E-03	1.88E-03	ZRNB-95		1.65E-05 ±	1.23E-03	2.02E-03
CS-134		1.45E-04 ±	4.48E-04	6.98E-04	CS-134		-1.37E-04 ±	5.04E-04	7.96E-04
CS-137		-1.93E-04 ±	5.76E-04	8.97E-04	CS-137		2.23E-05 ±	5.11E-04	8.35E-04
BALA140		1.49E-03 ±	7.70E-03	1.18E-02	BALA140		3.86E-04 ±	1.35E-02	2.21E-02
RU-106		1.92E-03 ±	4.52E-03	6.88E-03	RU-106		1.27E-03 ±	4.20E-03	6.51E-03

Location and Quarter					Location and Quarter				
Station 23 3rd Q 2013					Station 23 4th Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.63E-01 ±	1.90E-02	6.80E-03	BE-7	+	7.88E-02 ±	1.46E-02	7.35E-03
K-40		1.88E-03 ±	6.93E-03	1.24E-02	K-40		2.28E-03 ±	6.64E-03	1.10E-02
MN-54		-1.09E-04 ±	5.80E-04	9.26E-04	MN-54		1.45E-04 ±	5.13E-04	7.93E-04
FE-59		-1.51E-04 ±	2.93E-03	4.75E-03	FE-59		0.00E+00 ±	3.96E-03	6.52E-03
CO-60		7.01E-05 ±	5.18E-04	8.69E-04	CO-60		0.00E+00 ±	6.16E-04	1.01E-03
ZN-65		6.96E-04 ±	1.18E-03	1.70E-03	ZN-65		-1.26E-03 ±	2.24E-03	3.42E-03
ZRNB-95		1.11E-04 ±	1.34E-03	2.17E-03	ZRNB-95		7.03E-04 ±	1.49E-03	2.22E-03
CS-134		-1.63E-05 ±	4.09E-04	6.68E-04	CS-134		-4.57E-04 ±	7.37E-04	1.13E-03
CS-137		1.56E-04 ±	4.38E-04	6.74E-04	CS-137		1.52E-04 ±	5.38E-04	8.42E-04
BALA140		0.00E+00 ±	6.33E-03	1.04E-02	BALA140		2.43E-03 ±	2.10E-02	3.38E-02
RU-106		-3.22E-06 ±	4.24E-03	6.97E-03	RU-106		-2.56E-05 ±	4.79E-03	7.87E-03

Location and Quarter					Location and Quarter				
Station 40 1st Q 2013					Station 40 2nd Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.81E-02 ±	1.58E-02	9.91E-03	BE-7	+	9.29E-02 ±	1.52E-02	9.08E-03
K-40		1.24E-03 ±	6.49E-03	1.11E-02	K-40		-2.02E-04 ±	6.16E-03	9.57E-03
MN-54		2.92E-04 ±	5.12E-04	7.43E-04	MN-54		-2.48E-04 ±	6.86E-04	1.07E-03
FE-59		-5.67E-05 ±	2.82E-03	4.61E-03	FE-59		0.00E+00 ±	3.37E-03	5.54E-03
CO-60		-1.74E-04 ±	7.10E-04	1.12E-03	CO-60		-4.07E-05 ±	4.94E-04	7.96E-04
ZN-65		-5.47E-04 ±	1.58E-03	2.44E-03	ZN-65		-3.31E-04 ±	1.15E-03	1.77E-03
ZRNB-95		4.40E-04 ±	1.09E-03	1.62E-03	ZRNB-95		5.81E-04 ±	1.35E-03	2.04E-03
CS-134		-4.94E-05 ±	3.70E-04	5.93E-04	CS-134		-6.87E-05 ±	4.64E-04	7.45E-04
CS-137		0.00E+00 ±	6.27E-04	1.03E-03	CS-137		0.00E+00 ±	6.83E-04	1.12E-03
BALA140		0.00E+00 ±	1.52E-02	2.50E-02	BALA140		-3.26E-03 ±	1.22E-02	1.89E-02
RU-106		-2.74E-04 ±	4.08E-03	6.62E-03	RU-106		2.50E-04 ±	3.76E-03	6.10E-03

Location and Quarter					Location and Quarter				
Station 40 3rd Q 2013					Station 40 4th Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.51E-01 ±	1.93E-02	5.24E-03	BE-7	+	8.65E-02 ±	1.63E-02	1.08E-02
K-40		-1.31E-04 ±	5.78E-03	9.54E-03	K-40		-3.64E-04 ±	8.28E-03	1.10E-02
MN-54		3.94E-05 ±	5.03E-04	8.14E-04	MN-54		9.32E-05 ±	6.16E-04	9.87E-04
FE-59		-1.61E-03 ±	4.46E-03	6.84E-03	FE-59		0.00E+00 ±	1.04E-03	1.70E-03
CO-60		2.80E-05 ±	3.71E-04	5.94E-04	CO-60		2.69E-04 ±	6.70E-04	1.02E-03
ZN-65		1.02E-04 ±	1.12E-03	1.81E-03	ZN-65		2.64E-04 ±	8.48E-04	1.25E-03
ZRNB-95		0.00E+00 ±	1.61E-03	2.64E-03	ZRNB-95		-5.04E-04 ±	1.52E-03	2.34E-03
CS-134		-3.51E-06 ±	4.36E-04	7.16E-04	CS-134		-3.72E-04 ±	6.82E-04	1.06E-03
CS-137		-1.09E-04 ±	5.90E-04	9.44E-04	CS-137		-1.81E-04 ±	6.18E-04	9.75E-04
BALA140		5.17E-03 ±	1.51E-02	2.18E-02	BALA140		5.76E-04 ±	1.60E-02	2.61E-02
RU-106		2.32E-05 ±	3.04E-03	4.98E-03	RU-106		-2.78E-04 ±	5.24E-03	8.55E-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 to mid point of the sample collection period

Location and Quarter Station 48 1st Q 2013					Location and Quarter Station 48 2nd Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.45E-02	± 1.47E-02	7.21E-03	BE-7	+	9.07E-02	± 1.56E-02	1.01E-02
K-40		1.29E-04	± 6.46E-03	1.14E-02	K-40		-2.38E-03	± 9.53E-03	5.88E-03
MN-54		-1.29E-04	± 6.29E-04	1.00E-03	MN-54		1.46E-04	± 4.05E-04	6.05E-04
FE-59		0.00E+00	± 3.32E-03	5.45E-03	FE-59		1.17E-03	± 2.70E-03	3.94E-03
CO-60		1.42E-04	± 5.45E-04	8.44E-04	CO-60		3.06E-04	± 5.03E-04	6.95E-04
ZN-65		0.00E+00	± 2.11E-03	3.46E-03	ZN-65		0.00E+00	± 2.75E-03	4.52E-03
ZRNB-95		8.42E-05	± 1.18E-03	1.90E-03	ZRNB-95		0.00E+00	± 1.73E-03	2.85E-03
CS-134		-4.55E-05	± 3.98E-04	6.42E-04	CS-134		-1.77E-04	± 5.77E-04	9.13E-04
CS-137		-7.98E-06	± 5.07E-04	8.32E-04	CS-137		-1.10E-05	± 4.51E-04	7.38E-04
BALA140		2.19E-03	± 1.07E-02	1.68E-02	BALA140		-2.56E-03	± 1.10E-02	1.69E-02
RU-106		-1.92E-03	± 5.28E-03	8.22E-03	RU-106		0.00E+00	± 5.52E-03	9.08E-03

Location and Quarter Station 48 3rd Q 2013					Location and Quarter Station 48 4th Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.31E-01	± 1.63E-02	7.69E-03	BE-7	+	8.65E-02	± 1.67E-02	9.32E-03
K-40		3.85E-04	± 4.36E-03	8.73E-03	K-40		-2.45E-03	± 6.34E-01	1.41E-02
MN-54		-1.35E-05	± 4.19E-04	6.85E-04	MN-54		1.34E-04	± 3.71E-04	5.44E-04
FE-59		-6.69E-04	± 2.96E-03	4.64E-03	FE-59		0.00E+00	± 4.02E-03	6.61E-03
CO-60		-1.20E-04	± 6.35E-03	8.21E-04	CO-60		-9.42E-08	± 6.39E-04	1.02E-03
ZN-65		5.58E-05	± 9.37E-04	1.52E-03	ZN-65		-7.95E-04	± 2.16E-03	3.37E-03
ZRNB-95		-6.05E-05	± 1.07E-03	1.73E-03	ZRNB-95		1.89E-05	± 1.31E-03	2.14E-03
CS-134		1.40E-04	± 3.21E-04	4.86E-04	CS-134		-1.87E-04	± 5.51E-04	8.63E-04
CS-137		8.85E-05	± 3.23E-04	5.02E-04	CS-137		3.08E-05	± 4.45E-04	7.22E-04
BALA140		-5.41E-04	± 1.25E-02	2.03E-02	BALA140		0.00E+00	± 5.68E-03	9.34E-03
RU-106		6.46E-04	± 3.07E-03	4.84E-03	RU-106		-1.23E-03	± 4.29E-03	6.65E-03

Location and Quarter Station 57 1st Q 2013					Location and Quarter Station 57 2nd Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	9.13E-02	± 1.52E-02	9.21E-03	BE-7	+	1.12E-01	± 1.70E-02	1.01E-02
K-40		1.48E-03	± 6.42E-03	1.09E-02	K-40		4.81E-04	± 6.25E-03	1.10E-02
MN-54		2.38E-04	± 5.05E-04	7.46E-04	MN-54		8.59E-05	± 4.65E-04	7.33E-04
FE-59		-4.08E-04	± 2.49E-03	3.90E-03	FE-59		1.84E-04	± 3.06E-03	4.96E-03
CO-60		-5.24E-05	± 6.29E-04	1.02E-03	CO-60		0.00E+00	± 6.02E-04	9.90E-04
ZN-65		0.00E+00	± 2.85E-03	4.69E-03	ZN-65		-1.11E-03	± 2.05E-03	3.13E-03
ZRNB-95		0.00E+00	± 9.30E-04	1.53E-03	ZRNB-95		6.03E-05	± 1.30E-03	2.11E-03
CS-134		-6.26E-05	± 4.32E-04	6.92E-04	CS-134		1.59E-04	± 4.67E-04	7.26E-04
CS-137		-1.20E-04	± 4.64E-04	7.25E-04	CS-137		-9.69E-06	± 3.91E-04	6.40E-04
BALA140		0.00E+00	± 3.81E-03	6.27E-03	BALA140		-4.05E-03	± 1.31E-02	2.00E-02
RU-106		-1.72E-03	± 5.53E-03	8.68E-03	RU-106		-6.74E-04	± 4.32E-03	6.90E-03

Location and Quarter Station 57 3rd Q 2013					Location and Quarter Station 57 4th Q 2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.52E-01	± 2.06E-02	8.19E-03	BE-7	+	9.73E-02	± 1.77E-02	1.03E-02
K-40		-4.15E-03	± 3.12E-02	1.41E-02	K-40		-2.91E-03	± 6.62E-02	1.18E-02
MN-54		-1.44E-04	± 5.53E-04	8.63E-04	MN-54		0.00E+00	± 1.43E-04	2.36E-04
FE-59		0.00E+00	± 5.91E-03	9.71E-03	FE-59		5.04E-04	± 2.22E-03	3.36E-03
CO-60		-9.83E-05	± 5.85E-04	9.26E-04	CO-60		1.05E-04	± 5.03E-04	7.83E-04
ZN-65		-8.67E-05	± 1.42E-03	2.31E-03	ZN-65		0.00E+00	± 2.19E-03	3.60E-03
ZRNB-95		1.34E-04	± 1.68E-03	2.72E-03	ZRNB-95		-2.42E-04	± 1.65E-03	2.64E-03
CS-134		6.33E-05	± 3.59E-04	5.69E-04	CS-134		-1.76E-04	± 5.20E-04	8.14E-04
CS-137		-2.22E-05	± 3.86E-04	6.26E-04	CS-137		1.53E-06	± 4.17E-04	6.84E-04
BALA140		-3.77E-03	± 1.43E-02	2.11E-02	BALA140		0.00E+00	± 5.45E-03	8.96E-03
RU-106		-4.79E-04	± 4.85E-03	7.84E-03	RU-106		6.53E-04	± 4.18E-03	6.67E-03

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

TABLE A-3.2

GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS - SUMMARY

Results in pCi/cubic meter, results decay corrected to mid point of the sample collection period

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-5.13E-04	-6.19E-03	5.17E-03	2.08E-02	44	0
BALA140	Cntl	1.41E-03	-1.45E-04	5.78E-03	3.03E-02	4	0
BE-7	Ind	1.06E-01	7.05E-02	1.63E-01	9.07E-03	44	44
BE-7	Cntl	9.96E-02	6.87E-02	1.36E-01	8.99E-03	4	4
CO-60	Ind	1.78E-05	-1.79E-04	3.21E-04	8.40E-04	44	0
CO-60	Cntl	5.38E-05	-1.01E-04	3.35E-04	6.93E-04	4	0
CS-134	Ind	-4.16E-05	-4.57E-04	1.61E-04	7.88E-04	44	0
CS-134	Cntl	-3.06E-05	-1.51E-04	4.41E-05	7.69E-04	4	0
CS-137	Ind	-3.87E-06	-1.93E-04	2.80E-04	7.63E-04	44	0
CS-137	Cntl	-6.04E-05	-1.47E-04	2.60E-05	7.51E-04	4	0
FE-59	Ind	-5.69E-05	-1.61E-03	2.12E-03	4.86E-03	44	0
FE-59	Cntl	-2.07E-04	-6.31E-04	2.09E-04	5.16E-03	4	0
K-40	Ind	2.22E-04	-4.15E-03	4.57E-03	1.08E-02	44	0
K-40	Cntl	-1.22E-03	-2.50E-03	-5.77E-05	9.23E-03	4	0
MN-54	Ind	2.54E-05	-3.15E-04	2.92E-04	8.40E-04	44	0
MN-54	Cntl	4.65E-05	-6.71E-05	2.53E-04	8.34E-04	4	0
RU-106	Ind	9.20E-05	-1.92E-03	2.08E-03	6.87E-03	44	0
RU-106	Cntl	4.18E-04	-7.41E-05	1.17E-03	6.37E-03	4	0
ZN-65	Ind	-1.07E-04	-1.26E-03	6.96E-04	2.69E-03	44	0
ZN-65	Cntl	-4.99E-04	-1.45E-03	1.30E-05	2.59E-03	4	0
ZRNB-95	Ind	2.25E-05	-5.04E-04	7.03E-04	2.26E-03	44	0
ZRNB-95	Cntl	-5.23E-05	-7.18E-04	6.83E-04	2.33E-03	4	0

TABLE A-4.1
GAMMA SPECTROMETRY RESULTS OF IODINE 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
1/1/2013 - 1/8/2013		5.34E-03	± 9.07E-03	1.36E-02		6.42E-04	± 6.42E-03	1.03E-02
1/8/2013 - 1/15/2013		5.71E-03	± 8.44E-03	1.26E-02		3.22E-03	± 8.29E-03	1.29E-02
1/15/2013 - 1/22/2013		2.63E-03	± 6.75E-03	1.04E-02		-1.05E-03	± 8.74E-03	1.41E-02
1/22/2013 - 1/29/2013		0.00E+00	± 1.34E-02	2.21E-02		-1.84E-03	± 1.12E-02	1.80E-02
1/29/2013 - 2/5/2013		2.97E-03	± 9.86E-03	1.55E-02		2.32E-03	± 1.09E-02	1.75E-02
2/5/2013 - 2/12/2013		-9.20E-04	± 8.77E-03	1.42E-02		-1.13E-03	± 8.58E-03	1.38E-02
2/12/2013 - 2/19/2013		-1.94E-03	± 8.42E-03	1.34E-02		-1.58E-03	± 8.28E-03	1.32E-02
2/19/2013 - 2/26/2013		1.58E-04	± 5.32E-03	8.70E-03		3.21E-03	± 8.75E-03	1.37E-02
2/26/2013 - 3/5/2013		1.15E-03	± 8.47E-03	1.37E-02		-4.39E-03	± 1.11E-02	1.75E-02
3/5/2013 - 3/12/2013		0.00E+00	± 9.31E-03	1.53E-02		-1.68E-03	± 8.56E-03	1.37E-02
3/12/2013 - 3/19/2013		3.43E-05	± 8.35E-03	1.37E-02		-4.37E-04	± 7.79E-03	1.27E-02
3/19/2013 - 3/26/2013		-2.59E-04	± 7.93E-03	1.30E-02		2.31E-03	± 6.54E-03	1.01E-02
3/26/2013 - 4/2/2013		4.56E-03	± 7.68E-03	1.15E-02		2.75E-05	± 7.58E-03	1.25E-02
4/2/2013 - 4/9/2013		NVS				2.79E-03	± 7.81E-03	1.21E-02
4/9/2013 - 4/16/2013		-3.24E-04	± 8.15E-03	1.33E-02		0.00E+00	± 6.33E-03	1.04E-02
4/16/2013 - 4/23/2013		-2.41E-03	± 1.01E-02	1.62E-02		2.61E-03	± 6.57E-03	1.01E-02
4/23/2013 - 4/30/2013		6.96E-05	± 7.61E-03	1.25E-02		0.00E+00	± 1.05E-02	1.73E-02
4/30/2013 - 5/7/2013		3.45E-04	± 7.80E-03	1.27E-02		-1.08E-03	± 8.00E-03	1.29E-02
5/7/2013 - 5/14/2013		0.00E+00	± 6.85E-03	1.13E-02		3.31E-03	± 6.59E-03	9.91E-03
5/14/2013 - 5/21/2013		-2.11E-03	± 8.32E-03	1.32E-02		2.92E-03	± 7.03E-03	1.08E-02
5/21/2013 - 5/28/2013		-6.00E-05	± 6.12E-03	1.00E-02		0.00E+00	± 9.27E-03	1.52E-02
5/28/2013 - 6/4/2013		-5.82E-05	± 6.25E-03	1.03E-02		-5.77E-04	± 6.69E-03	1.08E-02
6/4/2013 - 6/11/2013		0.00E+00	± 9.70E-03	1.60E-02		4.48E-03	± 7.25E-03	1.07E-02
6/11/2013 - 6/18/2013		-1.06E-03	± 5.90E-03	9.38E-03		-1.05E-03	± 7.13E-03	1.15E-02
6/18/2013 - 6/25/2013		7.13E-04	± 7.20E-03	1.17E-02		4.55E-03	± 7.31E-03	1.09E-02
6/25/2013 - 7/2/2013		-6.97E-05	± 6.26E-03	1.03E-02		-5.71E-04	± 6.72E-03	1.09E-02
7/2/2013 - 7/9/2013		4.90E-05	± 7.23E-03	1.19E-02		8.80E-04	± 7.60E-03	1.23E-02
7/9/2013 - 7/16/2013		3.22E-03	± 5.65E-03	8.23E-03		-1.53E-03	± 6.74E-03	1.07E-02
7/16/2013 - 7/23/2013		-2.36E-03	± 8.44E-03	1.34E-02		-5.36E-04	± 7.29E-03	1.18E-02
7/23/2013 - 7/30/2013		-2.15E-04	± 7.02E-03	1.15E-02		-4.50E-04	± 6.74E-03	1.10E-02
7/30/2013 - 8/6/2013		7.46E-05	± 5.66E-03	9.28E-03		-2.51E-05	± 6.55E-03	1.08E-02
8/6/2013 - 8/13/2013		-5.35E-04	± 6.44E-03	1.04E-02		-3.58E-04	± 7.52E-03	1.23E-02
8/13/2013 - 8/20/2013		-4.38E-04	± 7.66E-03	1.25E-02		3.24E-03	± 7.64E-03	1.18E-02
8/20/2013 - 8/27/2013		0.00E+00	± 1.15E-02	1.89E-02		-2.12E-03	± 8.27E-03	1.31E-02
8/27/2013 - 9/3/2013		-1.20E-03	± 7.85E-03	1.26E-02		-1.39E-03	± 7.64E-03	1.22E-02
9/3/2013 - 9/10/2013		3.65E-03	± 8.16E-03	1.26E-02		1.34E-03	± 7.16E-03	1.14E-02
9/10/2013 - 9/17/2013		1.88E-03	± 7.82E-03	1.24E-02		-6.85E-04	± 6.84E-03	1.11E-02
9/17/2013 - 9/24/2013		-8.62E-04	± 7.30E-03	1.18E-02		2.73E-03	± 7.84E-03	1.22E-02
9/24/2013 - 10/1/2013		-3.88E-04	± 7.79E-03	1.27E-02		0.00E+00	± 9.20E-03	1.51E-02
10/1/2013 - 10/8/2013		-2.01E-03	± 8.60E-03	1.37E-02		5.91E-04	± 8.14E-03	1.32E-02
10/8/2013 - 10/15/2013		-1.06E-03	± 8.34E-03	1.35E-02		-3.35E-03	± 8.79E-03	1.37E-02
10/15/2013 - 10/22/2013		1.16E-03	± 7.32E-03	1.18E-02		6.56E-05	± 1.06E-02	1.74E-02
10/22/2013 - 10/29/2013		2.20E-03	± 7.78E-03	1.23E-02		-1.76E-03	± 7.97E-03	1.27E-02
10/29/2013 - 11/5/2013		3.61E-04	± 1.07E-02	1.75E-02		4.84E-03	± 8.55E-03	1.28E-02
11/5/2013 - 11/12/2013		-2.71E-05	± 8.55E-03	1.41E-02		-2.72E-04	± 5.52E-03	8.98E-03
11/12/2013 - 11/19/2013		-2.51E-03	± 8.27E-03	1.30E-02		0.00E+00	± 9.66E-03	1.59E-02
11/19/2013 - 11/26/2013		-1.12E-04	± 9.11E-03	1.50E-02		-3.05E-03	± 1.04E-02	1.66E-02
11/26/2013 - 12/3/2013		-9.61E-04	± 8.04E-03	1.30E-02		1.41E-03	± 7.83E-03	1.25E-02
12/3/2013 - 12/10/2013		3.85E-03	± 1.06E-02	1.68E-02		4.95E-03	± 8.99E-03	1.38E-02
12/10/2013 - 12/17/2013		8.24E-03	± 9.07E-03	1.32E-02		0.00E+00	± 8.65E-03	1.42E-02
12/17/2013 - 12/23/2013		4.78E-04	± 9.97E-03	1.63E-02		1.10E-03	± 1.05E-02	1.70E-02
12/23/2013 - 12/31/2013		2.81E-03	± 7.14E-03	1.10E-02		8.09E-04	± 7.71E-03	1.25E-02

NVS = Valid sample not obtained due to sampler failure.

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

TABLE A-4.1
GAMMA SPECTROMETRY RESULTS OF IODINE 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
1/1/2013 - 1/8/2013		5.52E-03	± 9.36E-03	1.41E-02		6.30E-04	± 6.29E-03	1.01E-02
1/8/2013 - 1/15/2013		6.01E-03	± 8.89E-03	1.33E-02		3.07E-03	± 7.89E-03	1.23E-02
1/15/2013 - 1/22/2013		2.72E-03	± 6.98E-03	1.07E-02		-1.02E-03	± 8.51E-03	1.38E-02
1/22/2013 - 1/29/2013		0.00E+00	± 1.39E-02	2.28E-02		-1.75E-03	± 1.06E-02	1.71E-02
1/29/2013 - 2/5/2013		3.07E-03	± 1.02E-02	1.60E-02		2.34E-03	± 1.10E-02	1.75E-02
2/5/2013 - 2/12/2013		-9.39E-04	± 8.95E-03	1.45E-02		-1.02E-03	± 7.77E-03	1.25E-02
2/12/2013 - 2/19/2013		-2.01E-03	± 8.71E-03	1.39E-02		-1.57E-03	± 8.23E-03	1.32E-02
2/19/2013 - 2/26/2013		1.64E-04	± 5.52E-03	9.02E-03		3.05E-03	± 8.31E-03	1.30E-02
2/26/2013 - 3/5/2013		1.21E-03	± 8.91E-03	1.44E-02		-4.40E-03	± 1.11E-02	1.75E-02
3/5/2013 - 3/12/2013		0.00E+00	± 9.00E-03	1.48E-02		-1.73E-03	± 8.81E-03	1.41E-02
3/12/2013 - 3/19/2013		3.31E-05	± 8.07E-03	1.33E-02		-4.39E-04	± 7.82E-03	1.28E-02
3/19/2013 - 3/26/2013		-2.56E-04	± 7.82E-03	1.28E-02		2.31E-03	± 6.54E-03	1.01E-02
3/26/2013 - 4/2/2013		4.55E-03	± 7.67E-03	1.15E-02		2.75E-05	± 7.58E-03	1.25E-02
4/2/2013 - 4/9/2013		0.00E+00	± 1.02E-02	1.68E-02		2.79E-03	± 7.82E-03	1.21E-02
4/9/2013 - 4/16/2013		-3.08E-04	± 7.73E-03	1.26E-02		0.00E+00	± 6.64E-03	1.09E-02
4/16/2013 - 4/23/2013		-2.28E-03	± 9.58E-03	1.53E-02		2.73E-03	± 6.88E-03	1.06E-02
4/23/2013 - 4/30/2013		6.97E-05	± 7.62E-03	1.25E-02		0.00E+00	± 1.09E-02	1.79E-02
4/30/2013 - 5/7/2013		3.45E-04	± 7.80E-03	1.27E-02		-1.20E-03	± 8.93E-03	1.44E-02
5/7/2013 - 5/14/2013		0.00E+00	± 7.31E-03	1.20E-02		2.99E-03	± 5.97E-03	8.97E-03
5/14/2013 - 5/21/2013		-2.33E-03	± 9.19E-03	1.46E-02		3.05E-03	± 7.35E-03	1.13E-02
5/21/2013 - 5/28/2013		-6.53E-05	± 6.66E-03	1.09E-02		0.00E+00	± 9.16E-03	1.51E-02
5/28/2013 - 6/4/2013		-6.24E-05	± 6.71E-03	1.10E-02		-5.69E-04	± 6.59E-03	1.07E-02
6/4/2013 - 6/11/2013		0.00E+00	± 1.05E-02	1.73E-02		4.55E-03	± 7.37E-03	1.09E-02
6/11/2013 - 6/18/2013		-1.10E-03	± 6.11E-03	9.72E-03		-1.15E-03	± 7.75E-03	1.25E-02
6/18/2013 - 6/25/2013		7.27E-04	± 7.35E-03	1.19E-02		4.79E-03	± 7.70E-03	1.14E-02
6/25/2013 - 7/2/2013		-7.29E-05	± 6.55E-03	1.08E-02		-5.98E-04	± 7.04E-03	1.14E-02
7/2/2013 - 7/9/2013		4.90E-05	± 7.23E-03	1.19E-02		8.92E-04	± 7.71E-03	1.25E-02
7/9/2013 - 7/16/2013		3.28E-03	± 5.76E-03	8.38E-03		-8.32E-04	± 7.92E-03	1.28E-02
7/16/2013 - 7/23/2013		-2.51E-03	± 8.96E-03	1.42E-02		-5.57E-04	± 7.57E-03	1.23E-02
7/23/2013 - 7/30/2013		-2.18E-04	± 7.10E-03	1.16E-02		-4.59E-04	± 6.88E-03	1.12E-02
7/30/2013 - 8/6/2013		7.55E-05	± 5.73E-03	9.39E-03		-2.61E-05	± 6.82E-03	1.12E-02
8/6/2013 - 8/13/2013		-5.36E-04	± 6.45E-03	1.05E-02		-3.70E-04	± 7.77E-03	1.27E-02
8/13/2013 - 8/20/2013		-4.53E-04	± 7.93E-03	1.29E-02		3.35E-03	± 7.88E-03	1.21E-02
8/20/2013 - 8/27/2013		0.00E+00	± 1.21E-02	1.98E-02		-2.16E-03	± 8.40E-03	1.33E-02
8/27/2013 - 9/3/2013		-1.23E-03	± 8.07E-03	1.30E-02		-1.47E-03	± 8.07E-03	1.29E-02
9/3/2013 - 9/10/2013		3.82E-03	± 8.56E-03	1.32E-02		1.40E-03	± 7.47E-03	1.19E-02
9/10/2013 - 9/17/2013		2.02E-03	± 8.39E-03	1.33E-02		-7.19E-04	± 7.18E-03	1.16E-02
9/17/2013 - 9/24/2013		-8.94E-04	± 7.57E-03	1.22E-02		2.83E-03	± 8.14E-03	1.27E-02
9/24/2013 - 10/1/2013		-4.07E-04	± 8.17E-03	1.33E-02		0.00E+00	± 9.01E-03	1.48E-02
10/1/2013 - 10/8/2013		-2.08E-03	± 8.89E-03	1.42E-02		5.83E-04	± 8.03E-03	1.31E-02
10/8/2013 - 10/15/2013		-1.09E-03	± 8.62E-03	1.39E-02		-3.29E-03	± 8.61E-03	1.35E-02
10/15/2013 - 10/22/2013		1.22E-03	± 7.70E-03	1.24E-02		6.24E-05	± 1.01E-02	1.65E-02
10/22/2013 - 10/29/2013		2.27E-03	± 8.02E-03	1.27E-02		-1.70E-03	± 7.72E-03	1.23E-02
10/29/2013 - 11/5/2013		3.72E-04	± 1.11E-02	1.81E-02		4.69E-03	± 8.30E-03	1.24E-02
11/5/2013 - 11/12/2013		-2.85E-05	± 9.02E-03	1.48E-02		-2.60E-04	± 5.27E-03	8.58E-03
11/12/2013 - 11/19/2013		-2.65E-03	± 8.70E-03	1.37E-02		0.00E+00	± 9.60E-03	1.58E-02
11/19/2013 - 11/26/2013		-1.17E-04	± 9.58E-03	1.57E-02		-3.04E-03	± 1.04E-02	1.66E-02
11/26/2013 - 12/3/2013		-1.01E-03	± 8.45E-03	1.37E-02		1.39E-03	± 7.71E-03	1.24E-02
12/3/2013 - 12/10/2013		3.98E-03	± 1.09E-02	1.73E-02		5.17E-03	± 9.39E-03	1.44E-02
12/10/2013 - 12/17/2013		8.39E-03	± 9.23E-03	1.34E-02		0.00E+00	± 8.52E-03	1.40E-02
12/17/2013 - 12/23/2013		4.70E-04	± 9.82E-03	1.60E-02		1.11E-03	± 1.05E-02	1.71E-02
12/23/2013 - 12/31/2013		2.76E-03	± 7.01E-03	1.08E-02		8.26E-04	± 7.87E-03	1.28E-02

NVS = Valid sample not obtained due to sampler failure.

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

TABLE A-4.1
GAMMA SPECTROMETRY RESULTS OF IODINE 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
1/1/2013 - 1/8/2013		5.58E-03 ±	9.46E-03	1.42E-02		-9.36E-05 ±	9.56E-03	1.57E-02
1/8/2013 - 1/15/2013		5.87E-03 ±	8.67E-03	1.30E-02		3.88E-03 ±	8.43E-03	1.30E-02
1/15/2013 - 1/22/2013		2.67E-03 ±	6.86E-03	1.05E-02		-8.15E-04 ±	9.04E-03	1.47E-02
1/22/2013 - 1/29/2013		0.00E+00 ±	1.37E-02	2.25E-02		3.62E-03 ±	1.05E-02	1.65E-02
1/29/2013 - 2/5/2013		3.05E-03 ±	1.01E-02	1.59E-02		1.73E-03 ±	1.39E-02	2.26E-02
2/5/2013 - 2/12/2013		-9.62E-04 ±	9.17E-03	1.49E-02		0.00E+00 ±	7.95E-03	1.31E-02
2/12/2013 - 2/19/2013		-2.05E-03 ±	8.88E-03	1.41E-02		3.68E-03 ±	7.99E-03	1.22E-02
2/19/2013 - 2/26/2013		1.51E-04 ±	5.06E-03	8.27E-03		7.83E-04 ±	7.99E-03	1.29E-02
2/26/2013 - 3/5/2013		1.09E-03 ±	8.03E-03	1.30E-02		5.31E-05 ±	8.77E-03	1.44E-02
3/5/2013 - 3/12/2013		0.00E+00 ±	8.95E-03	1.47E-02		3.20E-04 ±	6.58E-03	1.07E-02
3/12/2013 - 3/19/2013		3.18E-05 ±	7.73E-03	1.27E-02		5.72E-04 ±	8.40E-03	1.37E-02
3/19/2013 - 3/26/2013		-2.46E-04 ±	7.54E-03	1.23E-02		3.14E-04 ±	7.15E-03	1.17E-02
3/26/2013 - 4/2/2013		4.56E-03 ±	7.67E-03	1.15E-02		-2.37E-03 ±	9.20E-03	1.46E-02
4/2/2013 - 4/9/2013		0.00E+00 ±	1.06E-02	1.75E-02		1.56E-03 ±	8.23E-03	1.31E-02
4/9/2013 - 4/16/2013		-3.28E-04 ±	8.23E-03	1.35E-02		9.07E-04 ±	6.34E-03	1.02E-02
4/16/2013 - 4/23/2013		-2.47E-03 ±	1.04E-02	1.66E-02		-2.02E-03 ±	9.06E-03	1.45E-02
4/23/2013 - 4/30/2013		7.16E-05 ±	7.83E-03	1.29E-02		6.15E-04 ±	6.44E-03	1.04E-02
4/30/2013 - 5/7/2013		3.54E-04 ±	8.00E-03	1.31E-02		2.44E-03 ±	7.79E-03	1.22E-02
5/7/2013 - 5/14/2013		0.00E+00 ±	6.89E-03	1.13E-02		-1.69E-03 ±	7.60E-03	1.21E-02
5/14/2013 - 5/21/2013		-2.20E-03 ±	8.68E-03	1.38E-02		-5.48E-04 ±	8.04E-03	1.31E-02
5/21/2013 - 5/28/2013		-6.25E-05 ±	6.37E-03	1.05E-02		1.53E-03 ±	7.46E-03	1.19E-02
5/28/2013 - 6/4/2013		-6.29E-05 ±	6.76E-03	1.11E-02		2.98E-03 ±	7.21E-03	1.10E-02
6/4/2013 - 6/11/2013		0.00E+00 ±	1.02E-02	1.68E-02		1.22E-03 ±	8.29E-03	1.33E-02
6/11/2013 - 6/18/2013		-1.17E-03 ±	6.51E-03	1.04E-02		4.22E-03 ±	7.59E-03	1.14E-02
6/18/2013 - 6/25/2013		7.85E-04 ±	7.92E-03	1.28E-02		-2.73E-03 ±	8.39E-03	1.32E-02
6/25/2013 - 7/2/2013		-7.74E-05 ±	6.95E-03	1.14E-02		-1.04E-03 ±	7.90E-03	1.27E-02
7/2/2013 - 7/9/2013		5.25E-05 ±	7.74E-03	1.27E-02		-1.36E-03 ±	6.96E-03	1.11E-02
7/9/2013 - 7/16/2013		3.31E-03 ±	5.81E-03	8.46E-03		-8.32E-04 ±	7.92E-03	1.28E-02
7/16/2013 - 7/23/2013		-2.55E-03 ±	9.12E-03	1.45E-02		-6.65E-04 ±	8.70E-03	1.41E-02
7/23/2013 - 7/30/2013		-2.11E-04 ±	6.90E-03	1.13E-02		-3.68E-05 ±	7.94E-03	1.31E-02
7/30/2013 - 8/6/2013		7.58E-05 ±	5.75E-03	9.43E-03		-2.34E-03 ±	7.67E-03	1.20E-02
8/6/2013 - 8/13/2013		-5.33E-04 ±	6.42E-03	1.04E-02		2.25E-03 ±	7.88E-03	1.24E-02
8/13/2013 - 8/20/2013		-4.51E-04 ±	7.89E-03	1.29E-02		3.61E-03 ±	9.38E-03	1.45E-02
8/20/2013 - 8/27/2013		0.00E+00 ±	1.15E-02	1.90E-02		NVS		
8/27/2013 - 9/3/2013		-1.23E-03 ±	8.06E-03	1.30E-02		0.00E+00 ±	1.07E-02	1.76E-02
9/3/2013 - 9/10/2013		3.66E-03 ±	8.19E-03	1.26E-02		-5.09E-04 ±	8.74E-03	1.43E-02
9/10/2013 - 9/17/2013		2.00E-03 ±	8.31E-03	1.32E-02		-2.70E-03 ±	8.22E-03	1.28E-02
9/17/2013 - 9/24/2013		-8.86E-04 ±	7.50E-03	1.21E-02		-6.29E-05 ±	9.30E-03	1.53E-02
9/24/2013 - 10/1/2013		-3.94E-04 ±	7.92E-03	1.29E-02		-1.76E-03 ±	8.80E-03	1.41E-02
10/1/2013 - 10/8/2013		-2.04E-03 ±	8.72E-03	1.39E-02		-2.35E-03 ±	8.58E-03	1.35E-02
10/8/2013 - 10/15/2013		-1.09E-03 ±	8.56E-03	1.38E-02		5.11E-05 ±	8.25E-03	1.35E-02
10/15/2013 - 10/22/2013		1.19E-03 ±	7.52E-03	1.21E-02		-2.30E-03 ±	8.73E-03	1.38E-02
10/22/2013 - 10/29/2013		2.32E-03 ±	8.18E-03	1.29E-02		-2.83E-03 ±	1.09E-02	1.74E-02
10/29/2013 - 11/5/2013		3.79E-04 ±	1.13E-02	1.84E-02		-2.61E-03 ±	1.14E-02	1.82E-02
11/5/2013 - 11/12/2013		-2.82E-05 ±	8.91E-03	1.46E-02		-3.44E-03 ±	1.03E-02	1.63E-02
11/12/2013 - 11/19/2013		-2.66E-03 ±	8.74E-03	1.38E-02		-1.90E-03 ±	9.12E-03	1.46E-02
11/19/2013 - 11/26/2013		-1.12E-04 ±	9.13E-03	1.50E-02		-1.75E-03 ±	9.08E-03	1.46E-02
11/26/2013 - 12/3/2013		-9.81E-04 ±	8.21E-03	1.33E-02		1.17E-03 ±	8.83E-03	1.43E-02
12/3/2013 - 12/10/2013		4.05E-03 ±	1.11E-02	1.76E-02		2.09E-03 ±	8.45E-03	1.34E-02
12/10/2013 - 12/17/2013		8.32E-03 ±	9.16E-03	1.33E-02		-7.87E-04 ±	9.62E-03	1.57E-02
12/17/2013 - 12/23/2013		5.16E-04 ±	8.49E-03	1.38E-02		1.14E-03 ±	1.09E-02	1.77E-02
12/23/2013 - 12/31/2013		-9.15E-05 ±	8.42E-03	1.38E-02		8.42E-04 ±	8.02E-03	1.30E-02

NVS = Valid sample not obtained due to sampler failure.

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

TABLE A-4.1
GAMMA SPECTROMETRY RESULTS OF IODINE 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
1/1/2013 - 1/8/2013		5.16E-03	± 8.76E-03	1.32E-02		-9.20E-05	± 9.40E-03	1.54E-02
1/8/2013 - 1/15/2013		5.62E-03	± 8.30E-03	1.24E-02		3.89E-03	± 8.43E-03	1.30E-02
1/15/2013 - 1/22/2013		2.54E-03	± 6.52E-03	1.00E-02		-8.02E-04	± 8.89E-03	1.45E-02
1/22/2013 - 1/29/2013		0.00E+00	± 1.28E-02	2.10E-02		3.50E-03	± 1.02E-02	1.60E-02
1/29/2013 - 2/5/2013		2.82E-03	± 9.37E-03	1.47E-02		1.67E-03	± 1.35E-02	2.19E-02
2/5/2013 - 2/12/2013		-8.92E-04	± 8.50E-03	1.38E-02		0.00E+00	± 7.81E-03	1.28E-02
2/12/2013 - 2/19/2013		-1.91E-03	± 8.27E-03	1.32E-02		3.74E-03	± 8.12E-03	1.25E-02
2/19/2013 - 2/26/2013		1.56E-04	± 5.24E-03	8.56E-03		7.96E-04	± 8.12E-03	1.32E-02
2/26/2013 - 3/5/2013		1.13E-03	± 8.30E-03	1.34E-02		5.30E-05	± 8.74E-03	1.43E-02
3/5/2013 - 3/12/2013		0.00E+00	± 9.31E-03	1.53E-02		3.16E-04	± 6.51E-03	1.06E-02
3/12/2013 - 3/19/2013		3.37E-05	± 8.21E-03	1.35E-02		5.62E-04	± 8.25E-03	1.34E-02
3/19/2013 - 3/26/2013		-2.65E-04	± 8.10E-03	1.32E-02		3.14E-04	± 7.15E-03	1.17E-02
3/26/2013 - 4/2/2013		4.72E-03	± 7.95E-03	1.19E-02		-2.21E-03	± 8.58E-03	1.36E-02
4/2/2013 - 4/9/2013		0.00E+00	± 1.08E-02	1.77E-02		1.43E-03	± 7.52E-03	1.20E-02
4/9/2013 - 4/16/2013		-3.30E-04	± 8.29E-03	1.35E-02		9.25E-04	± 6.46E-03	1.03E-02
4/16/2013 - 4/23/2013		-2.45E-03	± 1.03E-02	1.64E-02		-2.03E-03	± 9.13E-03	1.46E-02
4/23/2013 - 4/30/2013		6.85E-05	± 7.49E-03	1.23E-02		6.11E-04	± 6.40E-03	1.03E-02
4/30/2013 - 5/7/2013		3.45E-04	± 7.80E-03	1.27E-02		2.44E-03	± 7.81E-03	1.22E-02
5/7/2013 - 5/14/2013		0.00E+00	± 7.44E-03	1.22E-02		-1.70E-03	± 7.68E-03	1.22E-02
5/14/2013 - 5/21/2013		-2.33E-03	± 9.19E-03	1.46E-02		-5.44E-04	± 7.98E-03	1.30E-02
5/21/2013 - 5/28/2013		-6.53E-05	± 6.66E-03	1.09E-02		1.51E-03	± 7.39E-03	1.18E-02
5/28/2013 - 6/4/2013		-6.35E-05	± 6.83E-03	1.12E-02		2.99E-03	± 7.24E-03	1.11E-02
6/4/2013 - 6/11/2013		0.00E+00	± 1.07E-02	1.76E-02		1.22E-03	± 8.28E-03	1.33E-02
6/11/2013 - 6/18/2013		-1.10E-03	± 6.12E-03	9.73E-03		4.15E-03	± 7.46E-03	1.12E-02
6/18/2013 - 6/25/2013		7.27E-04	± 7.35E-03	1.19E-02		-2.69E-03	± 8.28E-03	1.30E-02
6/25/2013 - 7/2/2013		-6.85E-05	± 6.15E-03	1.01E-02		-1.04E-03	± 7.94E-03	1.28E-02
7/2/2013 - 7/9/2013		4.82E-05	± 7.11E-03	1.17E-02		-1.36E-03	± 6.93E-03	1.10E-02
7/9/2013 - 7/16/2013		3.14E-03	± 5.50E-03	8.01E-03		-1.55E-03	± 6.83E-03	1.08E-02
7/16/2013 - 7/23/2013		-2.38E-03	± 8.50E-03	1.35E-02		-5.92E-04	± 7.74E-03	1.26E-02
7/23/2013 - 7/30/2013		-2.08E-04	± 6.78E-03	1.11E-02		-3.64E-05	± 7.84E-03	1.29E-02
7/30/2013 - 8/6/2013		7.81E-05	± 5.92E-03	9.71E-03		-2.33E-03	± 7.63E-03	1.19E-02
8/6/2013 - 8/13/2013		-5.54E-04	± 6.67E-03	1.08E-02		2.18E-03	± 7.63E-03	1.20E-02
8/13/2013 - 8/20/2013		-4.61E-04	± 8.06E-03	1.32E-02		3.30E-03	± 8.57E-03	1.33E-02
8/20/2013 - 8/27/2013		0.00E+00	± 1.25E-02	2.05E-02		3.14E-04	± 6.35E-03	1.04E-02
8/27/2013 - 9/3/2013		-1.25E-03	± 8.22E-03	1.32E-02		0.00E+00	± 8.41E-03	1.38E-02
9/3/2013 - 9/10/2013		3.88E-03	± 8.68E-03	1.34E-02		-4.60E-04	± 7.91E-03	1.29E-02
9/10/2013 - 9/17/2013		1.98E-03	± 8.21E-03	1.30E-02		-2.44E-03	± 7.40E-03	1.15E-02
9/17/2013 - 9/24/2013		-9.27E-04	± 7.85E-03	1.27E-02		-5.73E-05	± 8.47E-03	1.39E-02
9/24/2013 - 10/1/2013		-4.14E-04	± 8.31E-03	1.36E-02		-1.64E-03	± 8.22E-03	1.31E-02
10/1/2013 - 10/8/2013		-2.15E-03	± 9.21E-03	1.47E-02		-2.08E-03	± 7.62E-03	1.20E-02
10/8/2013 - 10/15/2013		-1.13E-03	± 8.92E-03	1.44E-02		4.60E-05	± 7.42E-03	1.22E-02
10/15/2013 - 10/22/2013		1.24E-03	± 7.83E-03	1.26E-02		-2.03E-03	± 7.74E-03	1.23E-02
10/22/2013 - 10/29/2013		2.35E-03	± 8.30E-03	1.31E-02		-2.76E-03	± 1.06E-02	1.70E-02
10/29/2013 - 11/5/2013		3.78E-04	± 1.12E-02	1.84E-02		-2.60E-03	± 1.14E-02	1.81E-02
11/5/2013 - 11/12/2013		-2.85E-05	± 9.02E-03	1.48E-02		-3.38E-03	± 1.01E-02	1.59E-02
11/12/2013 - 11/19/2013		-2.65E-03	± 8.70E-03	1.37E-02		-1.81E-03	± 8.69E-03	1.39E-02
11/19/2013 - 11/26/2013		-1.19E-04	± 9.75E-03	1.60E-02		-1.72E-03	± 8.95E-03	1.44E-02
11/26/2013 - 12/3/2013		-1.03E-03	± 8.59E-03	1.39E-02		1.11E-03	± 8.40E-03	1.36E-02
12/3/2013 - 12/10/2013		4.12E-03	± 1.13E-02	1.79E-02		2.15E-03	± 8.69E-03	1.38E-02
12/10/2013 - 12/17/2013		8.68E-03	± 9.55E-03	1.39E-02		-7.95E-04	± 9.72E-03	1.58E-02
12/17/2013 - 12/23/2013		4.87E-04	± 1.02E-02	1.66E-02		5.16E-04	± 8.49E-03	1.38E-02
12/23/2013 - 12/31/2013		2.91E-03	± 7.39E-03	1.14E-02		-9.40E-05	± 8.66E-03	1.42E-02

NVS = Valid sample not obtained due to sampler failure.

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

TABLE A-4.1

GAMMA SPECTROMETRY RESULTS OF IODINE 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
1/1/2013 - 1/8/2013		6.40E-04	± 6.40E-03	1.03E-02		-9.28E-05	± 9.48E-03	1.56E-02
1/8/2013 - 1/15/2013		3.07E-03	± 7.89E-03	1.23E-02		3.74E-03	± 8.11E-03	1.25E-02
1/15/2013 - 1/22/2013		-9.81E-04	± 8.18E-03	1.32E-02		-8.02E-04	± 8.89E-03	1.45E-02
1/22/2013 - 1/29/2013		-1.72E-03	± 1.04E-02	1.68E-02		3.44E-03	± 1.00E-02	1.57E-02
1/29/2013 - 2/5/2013		2.24E-03	± 1.05E-02	1.68E-02		1.65E-03	± 1.33E-02	2.16E-02
2/5/2013 - 2/12/2013		-1.03E-03	± 7.88E-03	1.27E-02		0.00E+00	± 7.76E-03	1.28E-02
2/12/2013 - 2/19/2013		-1.50E-03	± 7.86E-03	1.26E-02		3.68E-03	± 7.99E-03	1.22E-02
2/19/2013 - 2/26/2013		3.00E-03	± 8.17E-03	1.27E-02		7.70E-04	± 7.85E-03	1.27E-02
2/26/2013 - 3/5/2013		-4.39E-03	± 1.11E-02	1.75E-02		5.14E-05	± 8.48E-03	1.39E-02
3/5/2013 - 3/12/2013		-1.67E-03	± 8.54E-03	1.37E-02		3.08E-04	± 6.33E-03	1.03E-02
3/12/2013 - 3/19/2013		-4.31E-04	± 7.69E-03	1.25E-02		5.38E-04	± 7.90E-03	1.29E-02
3/19/2013 - 3/26/2013		2.27E-03	± 6.43E-03	9.91E-03		2.98E-04	± 6.79E-03	1.11E-02
3/26/2013 - 4/2/2013		2.70E-05	± 7.45E-03	1.22E-02		-2.21E-03	± 8.58E-03	1.36E-02
4/2/2013 - 4/9/2013		2.69E-03	± 7.54E-03	1.17E-02		1.44E-03	± 7.61E-03	1.21E-02
4/9/2013 - 4/16/2013		0.00E+00	± 6.32E-03	1.04E-02		9.64E-04	± 6.73E-03	1.08E-02
4/16/2013 - 4/23/2013		2.61E-03	± 6.57E-03	1.01E-02		-2.10E-03	± 9.43E-03	1.51E-02
4/23/2013 - 4/30/2013		0.00E+00	± 1.07E-02	1.75E-02		6.02E-04	± 6.30E-03	1.02E-02
4/30/2013 - 5/7/2013		-1.18E-03	± 8.77E-03	1.42E-02		2.34E-03	± 7.49E-03	1.17E-02
5/7/2013 - 5/14/2013		3.51E-03	± 7.00E-03	1.05E-02		-1.72E-03	± 7.73E-03	1.23E-02
5/14/2013 - 5/21/2013		3.28E-03	± 7.89E-03	1.22E-02		-5.62E-04	± 8.25E-03	1.34E-02
5/21/2013 - 5/28/2013		0.00E+00	± 9.93E-03	1.63E-02		1.51E-03	± 7.40E-03	1.18E-02
5/28/2013 - 6/4/2013		-6.28E-04	± 7.28E-03	1.18E-02		3.01E-03	± 7.28E-03	1.12E-02
6/4/2013 - 6/11/2013		4.61E-03	± 7.47E-03	1.11E-02		1.21E-03	± 8.21E-03	1.32E-02
6/11/2013 - 6/18/2013		-1.15E-03	± 7.74E-03	1.24E-02		4.25E-03	± 7.64E-03	1.14E-02
6/18/2013 - 6/25/2013		4.64E-03	± 7.45E-03	1.11E-02		-2.67E-03	± 8.20E-03	1.29E-02
6/25/2013 - 7/2/2013		-6.16E-04	± 7.24E-03	1.17E-02		-1.03E-03	± 7.81E-03	1.26E-02
7/2/2013 - 7/9/2013		9.07E-04	± 7.84E-03	1.27E-02		-1.31E-03	± 6.70E-03	1.06E-02
7/9/2013 - 7/16/2013		-8.32E-04	± 7.92E-03	1.28E-02		-1.96E-03	± 8.66E-03	1.37E-02
7/16/2013 - 7/23/2013		-5.49E-04	± 7.46E-03	1.21E-02		-5.69E-04	± 7.44E-03	1.21E-02
7/23/2013 - 7/30/2013		-4.58E-04	± 6.85E-03	1.11E-02		-3.37E-05	± 7.27E-03	1.20E-02
7/30/2013 - 8/6/2013		2.60E-05	± 6.80E-03	1.12E-02		-2.28E-03	± 7.45E-03	1.17E-02
8/6/2013 - 8/13/2013		-3.54E-04	± 7.43E-03	1.21E-02		2.11E-03	± 7.40E-03	1.16E-02
8/13/2013 - 8/20/2013		3.36E-03	± 7.91E-03	1.22E-02		3.05E-03	± 7.93E-03	1.23E-02
8/20/2013 - 8/27/2013		-2.12E-03	± 8.26E-03	1.31E-02		3.36E-04	± 6.80E-03	1.11E-02
8/27/2013 - 9/3/2013		-1.45E-03	± 7.92E-03	1.27E-02		0.00E+00	± 8.71E-03	1.43E-02
9/3/2013 - 9/10/2013		1.33E-03	± 7.14E-03	1.14E-02		-4.85E-04	± 8.32E-03	1.36E-02
9/10/2013 - 9/17/2013		-6.97E-04	± 6.96E-03	1.12E-02		-2.86E-03	± 8.68E-03	1.35E-02
9/17/2013 - 9/24/2013		2.68E-03	± 7.71E-03	1.20E-02		-6.04E-05	± 8.92E-03	1.47E-02
9/24/2013 - 10/1/2013		0.00E+00	± 9.20E-03	1.51E-02		-1.78E-03	± 8.92E-03	1.42E-02
10/1/2013 - 10/8/2013		5.83E-04	± 8.03E-03	1.31E-02		-2.39E-03	± 8.74E-03	1.38E-02
10/8/2013 - 10/15/2013		-3.35E-03	± 8.79E-03	1.37E-02		5.17E-05	± 8.33E-03	1.37E-02
10/15/2013 - 10/22/2013		6.34E-05	± 1.02E-02	1.68E-02		-2.32E-03	± 8.84E-03	1.40E-02
10/22/2013 - 10/29/2013		-1.73E-03	± 7.84E-03	1.25E-02		-2.85E-03	± 1.10E-02	1.76E-02
10/29/2013 - 11/5/2013		4.87E-03	± 8.61E-03	1.29E-02		-2.77E-03	± 1.21E-02	1.93E-02
11/5/2013 - 11/12/2013		-2.63E-04	± 5.34E-03	8.69E-03		-3.54E-03	± 1.06E-02	1.67E-02
11/12/2013 - 11/19/2013		-1.73E-03	± 8.30E-03	1.33E-02		0.00E+00	± 1.06E-02	1.73E-02
11/19/2013 - 11/26/2013		-3.06E-03	± 1.05E-02	1.67E-02		-1.76E-03	± 9.14E-03	1.47E-02
11/26/2013 - 12/3/2013		1.41E-03	± 7.84E-03	1.26E-02		1.18E-03	± 8.92E-03	1.44E-02
12/3/2013 - 12/10/2013		5.01E-03	± 9.10E-03	1.39E-02		2.16E-03	± 8.70E-03	1.38E-02
12/10/2013 - 12/17/2013		0.00E+00	± 8.11E-03	1.33E-02		-8.24E-04	± 1.01E-02	1.64E-02
12/17/2013 - 12/23/2013		4.54E-04	± 9.47E-03	1.55E-02		5.14E-04	± 8.47E-03	1.38E-02
12/23/2013 - 12/31/2013		2.76E-03	± 7.01E-03	1.08E-02		-8.83E-05	± 8.13E-03	1.33E-02

NVS = Valid sample not obtained due to sampler failure.

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

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TABLE A-4.1

GAMMA SPECTROMETRY RESULTS OF IODINE 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	
1/1/2013 - 1/8/2013		6.57E-04	±	6.57E-03	1.06E-02	-9.35E-05	±	9.55E-03	1.57E-02
1/8/2013 - 1/15/2013		3.15E-03	±	8.10E-03	1.26E-02	3.89E-03	±	8.43E-03	1.30E-02
1/15/2013 - 1/22/2013		-1.03E-03	±	8.59E-03	1.39E-02	-8.28E-04	±	9.19E-03	1.49E-02
1/22/2013 - 1/29/2013		-1.81E-03	±	1.10E-02	1.77E-02	3.68E-03	±	1.07E-02	1.68E-02
1/29/2013 - 2/5/2013		2.34E-03	±	1.10E-02	1.75E-02	1.70E-03	±	1.37E-02	2.22E-02
2/5/2013 - 2/12/2013		-1.04E-03	±	7.96E-03	1.28E-02	0.00E+00	±	8.08E-03	1.33E-02
2/12/2013 - 2/19/2013		-1.55E-03	±	8.13E-03	1.30E-02	3.81E-03	±	8.27E-03	1.27E-02
2/19/2013 - 2/26/2013		3.16E-03	±	8.60E-03	1.34E-02	8.10E-04	±	8.26E-03	1.34E-02
2/26/2013 - 3/5/2013		-4.55E-03	±	1.15E-02	1.82E-02	5.48E-05	±	9.04E-03	1.48E-02
3/5/2013 - 3/12/2013		-1.74E-03	±	8.90E-03	1.43E-02	3.28E-04	±	6.73E-03	1.10E-02
3/12/2013 - 3/19/2013		-4.42E-04	±	7.89E-03	1.29E-02	5.82E-04	±	8.54E-03	1.39E-02
3/19/2013 - 3/26/2013		2.39E-03	±	6.75E-03	1.04E-02	3.26E-04	±	7.41E-03	1.21E-02
3/26/2013 - 4/2/2013		2.66E-05	±	7.33E-03	1.20E-02	-2.21E-03	±	8.58E-03	1.36E-02
4/2/2013 - 4/9/2013		2.67E-03	±	7.48E-03	1.16E-02	1.43E-03	±	7.54E-03	1.20E-02
4/9/2013 - 4/16/2013		0.00E+00	±	6.27E-03	1.03E-02	9.24E-04	±	6.45E-03	1.03E-02
4/16/2013 - 4/23/2013		2.67E-03	±	6.72E-03	1.03E-02	-2.02E-03	±	9.06E-03	1.45E-02
4/23/2013 - 4/30/2013		0.00E+00	±	1.04E-02	1.71E-02	6.05E-04	±	6.33E-03	1.02E-02
4/30/2013 - 5/7/2013		-1.20E-03	±	8.91E-03	1.44E-02	2.50E-03	±	8.00E-03	1.25E-02
5/7/2013 - 5/14/2013		3.29E-03	±	6.56E-03	9.87E-03	-1.67E-03	±	7.52E-03	1.20E-02
5/14/2013 - 5/21/2013		3.08E-03	±	7.42E-03	1.14E-02	-5.49E-04	±	8.06E-03	1.31E-02
5/21/2013 - 5/28/2013		0.00E+00	±	9.70E-03	1.60E-02	1.50E-03	±	7.34E-03	1.17E-02
5/28/2013 - 6/4/2013		-6.21E-04	±	7.19E-03	1.17E-02	3.50E-03	±	8.46E-03	1.30E-02
6/4/2013 - 6/11/2013		4.43E-03	±	7.18E-03	1.06E-02	1.30E-03	±	8.84E-03	1.42E-02
6/11/2013 - 6/18/2013		-1.12E-03	±	7.54E-03	1.21E-02	4.52E-03	±	8.12E-03	1.22E-02
6/18/2013 - 6/25/2013		4.59E-03	±	7.38E-03	1.10E-02	-2.79E-03	±	8.57E-03	1.35E-02
6/25/2013 - 7/2/2013		-5.96E-04	±	7.00E-03	1.14E-02	-1.10E-03	±	8.34E-03	1.35E-02
7/2/2013 - 7/9/2013		8.76E-04	±	7.57E-03	1.22E-02	-1.41E-03	±	7.18E-03	1.14E-02
7/9/2013 - 7/16/2013		-1.52E-03	±	6.69E-03	1.06E-02	-8.62E-04	±	8.20E-03	1.33E-02
7/16/2013 - 7/23/2013		-5.61E-04	±	7.62E-03	1.24E-02	-6.10E-04	±	7.97E-03	1.30E-02
7/23/2013 - 7/30/2013		-3.61E-04	±	5.40E-03	8.78E-03	-3.40E-05	±	7.33E-03	1.20E-02
7/30/2013 - 8/6/2013		-2.53E-05	±	6.62E-03	1.09E-02	-2.22E-03	±	7.28E-03	1.14E-02
8/6/2013 - 8/13/2013		-3.28E-04	±	6.88E-03	1.12E-02	2.07E-03	±	7.26E-03	1.14E-02
8/13/2013 - 8/20/2013		3.11E-03	±	7.33E-03	1.13E-02	3.02E-03	±	7.84E-03	1.21E-02
8/20/2013 - 8/27/2013		-1.96E-03	±	7.65E-03	1.21E-02	3.45E-04	±	6.99E-03	1.14E-02
8/27/2013 - 9/3/2013		-1.33E-03	±	7.31E-03	1.17E-02	0.00E+00	±	8.65E-03	1.42E-02
9/3/2013 - 9/10/2013		1.20E-03	±	6.44E-03	1.03E-02	-4.87E-04	±	8.36E-03	1.36E-02
9/10/2013 - 9/17/2013		-6.35E-04	±	6.34E-03	1.03E-02	-2.62E-03	±	7.96E-03	1.24E-02
9/17/2013 - 9/24/2013		2.41E-03	±	6.95E-03	1.08E-02	-6.17E-05	±	9.12E-03	1.50E-02
9/24/2013 - 10/1/2013		0.00E+00	±	8.87E-03	1.46E-02	-1.76E-03	±	8.80E-03	1.41E-02
10/1/2013 - 10/8/2013		5.73E-04	±	7.89E-03	1.28E-02	-2.31E-03	±	8.43E-03	1.33E-02
10/8/2013 - 10/15/2013		-3.37E-03	±	8.84E-03	1.38E-02	5.11E-05	±	8.24E-03	1.35E-02
10/15/2013 - 10/22/2013		6.31E-05	±	1.02E-02	1.67E-02	-2.30E-03	±	8.75E-03	1.39E-02
10/22/2013 - 10/29/2013		-1.76E-03	±	7.97E-03	1.27E-02	-2.80E-03	±	1.08E-02	1.73E-02
10/29/2013 - 11/5/2013		4.95E-03	±	8.76E-03	1.31E-02	-2.61E-03	±	1.14E-02	1.82E-02
11/5/2013 - 11/12/2013		-2.65E-04	±	5.39E-03	8.76E-03	-3.32E-03	±	9.95E-03	1.57E-02
11/12/2013 - 11/19/2013		-1.75E-03	±	8.39E-03	1.34E-02	0.00E+00	±	9.95E-03	1.64E-02
11/19/2013 - 11/26/2013		-3.11E-03	±	1.07E-02	1.70E-02	-1.69E-03	±	8.80E-03	1.41E-02
11/26/2013 - 12/3/2013		1.43E-03	±	7.93E-03	1.27E-02	1.17E-03	±	8.82E-03	1.43E-02
12/3/2013 - 12/10/2013		5.15E-03	±	9.35E-03	1.43E-02	2.03E-03	±	8.18E-03	1.30E-02
12/10/2013 - 12/17/2013		0.00E+00	±	8.47E-03	1.39E-02	-7.49E-04	±	9.16E-03	1.49E-02
12/17/2013 - 12/23/2013		5.06E-04	±	8.32E-03	1.36E-02	1.03E-03	±	9.84E-03	1.60E-02
12/23/2013 - 12/31/2013		-8.84E-05	±	8.13E-03	1.34E-02	7.72E-04	±	7.36E-03	1.19E-02

NVS = Valid sample not obtained due to sampler failure.

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

TABLE A-4.2

GAMMA SPECTROMETRY RESULTS OF IODINE 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	3.40E-04	-4.55E-03	8.68E-03	1.33E-02	570	0
I-131	Cntl	4.51E-04	-4.39E-03	4.95E-03	1.29E-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
01/02/13 - 01/31/13		5.76E-02 ±	7.08E-01	2.56E+00		3.68E-01 ±	7.42E-01	2.56E+00
01/31/13 - 02/28/13		2.81E-01 ±	8.01E-01	2.77E+00		-4.66E-01 ±	8.02E-01	2.77E+00
02/28/13 - 04/01/13		-5.85E-01 ±	7.25E-01	2.49E+00		-1.15E-01 ±	6.96E-01	2.50E+00
04/01/13 - 04/30/13		-1.60E+00 ±	8.22E-01	2.64E+00		-4.64E-01 ±	7.60E-01	2.64E+00
04/30/13 - 05/31/13		9.72E-01 ±	7.75E-01	2.61E+00		1.33E-01 ±	7.31E-01	2.61E+00
05/31/13 - 07/01/13		6.33E-01 ±	6.94E-01	2.38E+00		4.01E-01 ±	6.85E-01	2.38E+00
07/01/13 - 08/01/13		2.87E-01 ±	6.91E-01	2.43E+00		-3.19E-01 ±	6.86E-01	2.43E+00
08/01/13 - 09/02/13		5.71E-01 ±	7.69E-01	2.61E+00		1.01E+00 ±	7.88E-01	2.61E+00
09/02/13 - 09/30/13		1.99E+00 ±	7.39E-01	2.23E+00		4.29E-01 ±	6.41E-01	2.22E+00
09/30/13 - 11/01/13		7.76E-01 ±	7.03E-01	2.34E+00		1.08E+00 ±	7.59E-01	2.34E+00
11/01/13 - 12/02/13		9.24E-01 ±	7.21E-01	2.31E+00		5.83E-01 ±	6.64E-01	2.27E+00
12/02/13 - 01/02/14		5.77E-01 ±	6.54E-01	2.25E+00		-2.02E-01 ±	6.32E-01	2.25E+00

Collection Period	ST 27 CW Discharge			
	RQ	Activity	Error	MDA
01/02/13 - 01/31/13	+	6.02E+00 ±	1.17E+00	3.06E+00
01/31/13 - 02/28/13	+	3.73E+00 ±	1.09E+00	3.20E+00
02/28/13 - 04/01/13	+	6.86E+00 ±	1.20E+00	3.04E+00
04/01/13 - 04/30/13	+	5.22E+00 ±	1.16E+00	3.16E+00
04/30/13 - 05/31/13	+	5.05E+00 ±	1.10E+00	3.03E+00
05/31/13 - 07/01/13		1.20E+00 ±	7.51E-01	2.42E+00
07/01/13 - 08/01/13	+	3.77E+00 ±	1.04E+00	2.94E+00
08/01/13 - 09/02/13		2.90E+00 ±	1.01E+00	3.04E+00
09/02/13 - 09/30/13	+	7.05E+00 ±	1.10E+00	2.57E+00
09/30/13 - 11/01/13	+	8.41E+00 ±	1.27E+00	2.94E+00
11/01/13 - 12/02/13	+	7.95E+00 ±	1.20E+00	2.76E+00
12/02/13 - 01/02/14	+	1.18E+01 ±	1.33E+00	2.68E+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	4.07E-01	-1.60E+00	1.99E+00	12	0
ST 29 Indicator	2.03E-01	-4.66E-01	1.08E+00	12	0
ST 27 Discharge	5.83E+00	1.20E+00	1.18E+01	12	10

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	01/02/13 - 04/01/13		1.48E+02 ±	9.39E+01
		04/01/13 - 07/01/13		1.68E+02 ±	9.41E+01
		07/01/13 - 11/01/13		8.28E+01 ±	9.44E+01
		11/01/13 - 01/02/14		7.77E+01 ±	9.69E+01
29	River/Drinking Indicator	01/02/13 - 04/01/13		1.35E+02 ±	9.51E+01
		04/01/13 - 07/01/13		1.67E+02 ±	9.44E+01
		07/01/13 - 11/01/13		1.16E+02 ±	9.53E+01
		11/01/13 - 01/02/14		9.01E+01 ±	9.69E+01
27	Plant Discharge	01/02/13 - 04/01/13		2.45E+02 ±	9.80E+01
		04/01/13 - 07/01/13		2.24E+02 ±	9.55E+01
		07/01/13 - 11/01/13		1.57E+02 ±	9.59E+01
		11/01/13 - 01/02/14		1.87E+02 ±	9.97E+01
31	Ground Water Well 1	03/06/13		1.02E+02 ±	9.75E+01
		06/05/13		1.01E+02 ±	9.18E+01
		09/04/13		8.33E+01 ±	9.32E+01
		12/16/13		1.71E+02 ±	9.86E+01
32	Ground Water Well 2	03/06/13		3.94E+01 ±	9.25E+01
		06/05/13		1.55E+02 ±	9.35E+01
		09/04/13		-3.38E+00 ±	8.05E+01
		12/11/13		6.76E+01 ±	9.52E+01
52	Ground Water Well 3	03/06/13		9.57E+00 ±	9.78E+01
		06/05/13		1.19E+02 ±	9.16E+01
		09/04/13		9.01E+01 ±	9.26E+01
		12/11/13		7.15E+01 ±	9.56E+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	1.19E+02	7.77E+01	1.68E+02	4	0
River/Drinking Indicator	1.27E+02	9.01E+01	1.67E+02	4	0
Discharge Indicator	2.03E+02	1.57E+02	2.45E+02	4	0
Ground Water Indicator	8.38E+01	-3.38E+00	1.71E+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

Nuclide	RQ	Location 26 collected		1/31/2013
		Activity	Error	MDA
K-40		-3.29E+01 ±	7.76E+01	4.97E+01
CR-51		-5.75E+00 ±	2.43E+01	3.95E+01
MN-54		1.37E+00 ±	1.75E+00	2.64E+00
CO-58		1.09E-01 ±	1.93E+00	3.16E+00
FE-59		2.15E+00 ±	5.49E+00	8.57E+00
CO-60		-7.24E-01 ±	7.00E+00	3.48E+00
ZN-65		-2.92E-01 ±	3.79E+00	6.17E+00
ZRNB-95		2.41E-02 ±	3.42E+00	5.61E+00
I-131		3.02E+00 ±	6.45E+00	1.03E+01
CS-134		-2.86E-01 ±	1.81E+00	2.94E+00
CS-137		-7.72E-01 ±	2.07E+00	3.30E+00
BALA140		-2.46E-01 ±	4.93E+00	8.05E+00
BI-214	+	1.08E+01 ±	4.99E+00	8.18E+00

Nuclide	RQ	Location 26 collected		2/28/2013
		Activity	Error	MDA
K-40		-3.45E+01 ±	9.64E+01	5.38E+01
CR-51		-6.73E+00 ±	2.55E+01	4.13E+01
MN-54		2.05E+00 ±	1.84E+00	2.71E+00
CO-58		1.06E+00 ±	2.01E+00	3.14E+00
FE-59		-1.87E-01 ±	5.11E+00	8.36E+00
CO-60		-1.27E+00 ±	5.27E+01	3.96E+00
ZN-65		9.36E-01 ±	2.64E+00	4.08E+00
ZRNB-95		-1.79E+00 ±	4.32E+00	6.88E+00
I-131		-5.48E-01 ±	7.29E+00	1.19E+01
CS-134		-7.05E-02 ±	1.93E+00	3.16E+00
CS-137		1.38E+00 ±	1.64E+00	2.46E+00
BALA140		3.28E-01 ±	3.92E+00	6.35E+00
BI-214	+	4.22E+01 ±	7.45E+00	8.73E+00

Nuclide	RQ	Location 26 collected		4/1/2013
		Activity	Error	MDA
K-40		-1.72E+01 ±	3.69E+01	4.54E+01
CR-51		6.30E+00 ±	1.73E+01	2.77E+01
MN-54		6.22E-01 ±	1.85E+00	2.95E+00
CO-58		-4.49E-01 ±	2.02E+00	3.25E+00
FE-59		0.00E+00 ±	6.50E+00	1.07E+01
CO-60		-3.70E-01 ±	3.69E+00	3.60E+00
ZN-65		0.00E+00 ±	7.36E+00	1.21E+01
ZRNB-95		-2.13E+00 ±	4.12E+00	6.49E+00
I-131		2.76E-01 ±	6.59E+00	1.08E+01
CS-134		6.59E-01 ±	1.89E+00	3.03E+00
CS-137		8.39E-02 ±	1.71E+00	2.80E+00
BALA140		-1.26E+00 ±	5.08E+00	8.09E+00
BI-214		4.66E+00 ±	4.55E+00	8.06E+00

Nuclide	RQ	Location 26 collected		4/30/2013
		Activity	Error	MDA
K-40		-2.87E+01 ±	6.40E+01	4.92E+01
CR-51		-4.79E+00 ±	2.22E+01	3.61E+01
MN-54		-1.01E+00 ±	2.09E+00	3.30E+00
CO-58		9.34E-01 ±	1.55E+00	2.36E+00
FE-59		7.29E-02 ±	5.13E+00	8.41E+00
CO-60		-1.13E+00 ±	3.16E+01	3.34E+00
ZN-65		-1.19E+00 ±	4.41E+00	7.06E+00
ZRNB-95		-1.56E+00 ±	3.90E+00	6.19E+00
I-131		1.33E-01 ±	5.17E+00	8.48E+00
CS-134		-6.08E-01 ±	1.87E+00	3.00E+00
CS-137		3.20E-01 ±	1.92E+00	3.11E+00
BALA140		9.45E-01 ±	4.77E+00	7.66E+00
BI-214	+	1.29E+01 ±	5.25E+00	8.43E+00

Nuclide	RQ	Location 26 collected		5/31/2013
		Activity	Error	MDA
K-40		-4.65E+01 ±	1.88E+02	5.45E+01
CR-51		-1.06E+00 ±	2.55E+01	4.19E+01
MN-54		1.42E-01 ±	1.84E+00	2.99E+00
CO-58		-1.05E-01 ±	2.03E+00	3.32E+00
FE-59		3.82E-01 ±	6.51E+00	1.06E+01
CO-60		-1.65E-01 ±	2.74E+00	3.74E+00
ZN-65		0.00E+00 ±	7.32E+00	1.20E+01
ZRNB-95		1.63E+00 ±	3.69E+00	5.77E+00
I-131		-1.39E+00 ±	7.35E+00	1.19E+01
CS-134		-8.95E-02 ±	2.30E+00	3.77E+00
CS-137		-2.60E-01 ±	1.98E+00	3.22E+00
BALA140		-2.85E+00 ±	7.02E+00	1.10E+01
BI-214		1.59E+00 ±	5.25E+00	9.53E+00

Nuclide	RQ	Location 26 collected		7/1/2013
		Activity	Error	MDA
K-40		-5.01E+01 ±	1.14E+02	5.85E+01
CR-51		-6.84E-01 ±	2.28E+01	3.74E+01
MN-54		4.16E-02 ±	2.18E+00	3.57E+00
CO-58		1.37E-01 ±	1.90E+00	3.10E+00
FE-59		-2.03E+00 ±	6.53E+00	1.03E+01
CO-60		-5.12E-01 ±	2.15E+00	3.43E+00
ZN-65		4.47E-02 ±	4.91E+00	8.06E+00
ZRNB-95		-1.61E+00 ±	4.58E+00	7.30E+00
I-131		-1.83E+00 ±	6.80E+00	1.10E+01
CS-134		-4.30E-02 ±	2.05E+00	3.37E+00
CS-137		1.55E-01 ±	1.99E+00	3.25E+00
BALA140		-3.43E+00 ±	6.30E+00	9.69E+00
BI-214		4.77E-01 ±	4.71E+00	8.84E+00

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 8/1/2013			
Nuclide	RQ	Activity	MDA
K-40		-3.10E+01 ± 6.56E+01	6.06E+01
CR-51		-3.78E+00 ± 2.63E+01	4.29E+01
MN-54		1.85E+00 ± 1.98E+00	2.93E+00
CO-58		-3.70E-01 ± 2.18E+00	3.52E+00
FE-59		4.60E-01 ± 7.36E+00	1.20E+01
CO-60		-1.10E-01 ± 2.06E+00	3.36E+00
ZN-65		-1.95E+00 ± 5.00E+00	7.91E+00
ZRNB-95		-1.34E+00 ± 4.32E+00	6.89E+00
I-131		3.47E+00 ± 7.12E+00	1.13E+01
CS-134		0.00E+00 ± 3.40E+00	5.59E+00
CS-137		-1.16E+00 ± 2.39E+00	3.77E+00
BALA140		0.00E+00 ± 1.14E+00	1.87E+00
BI-214		5.03E+00 ± 5.17E+00	9.08E+00

Location 26 collected 9/2/2013			
Nuclide	RQ	Activity	MDA
K-40		-3.75E+01 ± 6.19E+01	5.38E+01
CR-51		-1.21E+00 ± 2.86E+01	4.69E+01
MN-54		1.21E-01 ± 2.21E+00	3.62E+00
CO-58		8.58E-01 ± 2.21E+00	3.49E+00
FE-59		5.38E-01 ± 7.23E+00	1.18E+01
CO-60		-4.91E-02 ± 2.01E+00	3.30E+00
ZN-65		1.46E-01 ± 3.83E+00	6.26E+00
ZRNB-95		-1.40E+00 ± 4.23E+00	6.74E+00
I-131		7.91E-01 ± 6.89E+00	1.12E+01
CS-134		-7.93E-01 ± 2.37E+00	3.81E+00
CS-137		1.07E+00 ± 2.19E+00	3.45E+00
BALA140		-1.83E+00 ± 6.04E+00	9.55E+00
BI-214		-1.74E+00 ± 7.36E+00	9.93E+00

Location 26 collected 9/30/2013			
Nuclide	RQ	Activity	MDA
K-40		-3.21E+01 ± 5.64E+01	5.51E+01
CR-51		-8.79E+00 ± 2.53E+01	4.08E+01
MN-54		3.75E-02 ± 1.86E+00	3.06E+00
CO-58		9.71E-01 ± 2.18E+00	3.43E+00
FE-59		0.00E+00 ± 4.96E+00	8.15E+00
CO-60		1.95E-01 ± 2.04E+00	3.32E+00
ZN-65		-1.09E+00 ± 4.45E+00	7.12E+00
ZRNB-95		-3.63E-01 ± 3.89E+00	6.33E+00
I-131		2.04E+00 ± 5.61E+00	8.99E+00
CS-134		-4.25E-01 ± 2.25E+00	3.65E+00
CS-137		1.07E-01 ± 2.10E+00	3.44E+00
BALA140		-1.76E+00 ± 5.39E+00	8.50E+00
BI-214		1.96E+00 ± 4.93E+00	9.02E+00

Location 26 collected 11/1/2013			
Nuclide	RQ	Activity	MDA
K-40		-3.95E+01 ± 1.10E+02	5.27E+01
CR-51		-1.05E+01 ± 2.74E+01	4.39E+01
MN-54		0.00E+00 ± 2.59E+00	4.25E+00
CO-58		6.64E-01 ± 2.31E+00	3.69E+00
FE-59		2.66E+00 ± 6.45E+00	9.99E+00
CO-60		-6.08E-01 ± 6.03E+00	3.85E+00
ZN-65		-1.02E+00 ± 4.54E+00	7.27E+00
ZRNB-95		0.00E+00 ± 5.51E+00	9.07E+00
I-131		4.07E+00 ± 9.74E+00	1.56E+01
CS-134		1.40E-01 ± 2.56E+00	4.20E+00
CS-137		-4.58E-01 ± 2.14E+00	3.44E+00
BALA140		1.00E+00 ± 6.09E+00	9.75E+00
BI-214		2.77E+00 ± 4.84E+00	8.81E+00

Location 26 collected 12/2/2013			
Nuclide	RQ	Activity	MDA
K-40		-4.71E+01 ± 1.01E+02	5.83E+01
CR-51		-3.50E+00 ± 2.66E+01	4.34E+01
MN-54		2.69E-01 ± 2.09E+00	3.40E+00
CO-58		3.86E-01 ± 2.07E+00	3.34E+00
FE-59		-1.32E+00 ± 5.95E+00	9.50E+00
CO-60		-2.43E-01 ± 1.98E+00	3.21E+00
ZN-65		-1.89E+00 ± 5.38E+00	8.55E+00
ZRNB-95		1.75E-02 ± 3.75E+00	6.16E+00
I-131		1.68E-01 ± 5.84E+00	9.58E+00
CS-134		-8.03E-01 ± 2.36E+00	3.79E+00
CS-137		1.28E+00 ± 2.26E+00	3.54E+00
BALA140		-2.52E+00 ± 5.90E+00	9.17E+00
BI-214		5.38E+00 ± 5.37E+00	9.36E+00

Location 26 collected 1/2/2014			
Nuclide	RQ	Activity	MDA
K-40		-2.49E+01 ± 4.41E+01	5.34E+01
CR-51		-5.90E+00 ± 3.05E+01	4.96E+01
MN-54		-6.04E-01 ± 2.14E+00	3.42E+00
CO-58		2.58E-01 ± 2.33E+00	3.79E+00
FE-59		-1.62E+00 ± 6.92E+00	1.11E+01
CO-60		-4.51E-01 ± 2.40E+00	3.87E+00
ZN-65		9.68E-01 ± 3.45E+00	5.44E+00
ZRNB-95		-1.12E-02 ± 2.91E+00	4.79E+00
I-131		2.93E+00 ± 9.39E+00	1.51E+01
CS-134		-8.62E-01 ± 2.07E+00	3.30E+00
CS-137		-7.43E-01 ± 2.40E+00	3.84E+00
BALA140		3.51E-02 ± 5.83E+00	9.59E+00
BI-214		1.15E+00 ± 4.97E+00	9.15E+00

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 1/31/2013				Location 29 collected 2/28/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-5.21E+01 ±	1.23E+02	5.65E+01	K-40		-3.16E+01 ±	6.32E+01	5.88E+01
CR-51		1.25E+00 ±	2.32E+01	3.80E+01	CR-51		1.36E+01 ±	2.31E+01	3.65E+01
MN-54		5.74E-01 ±	1.50E+00	2.37E+00	MN-54		-3.63E-02 ±	2.07E+00	3.40E+00
CO-58		3.64E-01 ±	2.10E+00	3.41E+00	CO-58		3.99E-01 ±	2.32E+00	3.75E+00
FE-59		-1.97E+00 ±	6.80E+00	1.09E+01	FE-59		-1.84E+00 ±	7.16E+00	1.14E+01
CO-60		-5.92E-01 ±	2.17E+00	3.48E+00	CO-60		8.45E-01 ±	1.91E+00	2.95E+00
ZN-65		-5.10E-01 ±	3.62E+00	5.87E+00	ZN-65		0.00E+00 ±	6.01E+00	9.88E+00
ZRNB-95		1.41E+00 ±	3.89E+00	6.22E+00	ZRNB-95		2.19E+00 ±	4.13E+00	6.44E+00
I-131		-4.43E+00 ±	8.36E+00	1.34E+01	I-131		2.28E+00 ±	7.41E+00	1.19E+01
CS-134		-1.75E+00 ±	2.23E+00	3.52E+00	CS-134		-1.79E+00 ±	2.71E+00	4.28E+00
CS-137		-7.57E-01 ±	2.25E+00	3.62E+00	CS-137		-2.34E-01 ±	2.41E+00	3.94E+00
BALA140		8.39E-01 ±	3.79E+00	6.01E+00	BALA140		-7.50E-01 ±	6.15E+00	9.95E+00
BI-214		5.22E-01 ±	4.44E+00	8.24E+00	BI-214		5.84E-01 ±	5.54E+00	1.00E+01

Location 29 collected 4/1/2013				Location 29 collected 4/30/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.84E+01 ±	5.31E+01	5.61E+01	K-40		-2.51E+01 ±	4.55E+01	5.41E+01
CR-51		1.28E+01 ±	2.33E+01	3.70E+01	CR-51		7.04E+00 ±	2.29E+01	3.70E+01
MN-54		-4.00E-01 ±	2.27E+00	3.67E+00	MN-54		9.24E-01 ±	1.88E+00	2.93E+00
CO-58		-5.59E-01 ±	2.39E+00	3.85E+00	CO-58		-7.32E-02 ±	2.08E+00	3.41E+00
FE-59		-1.23E+00 ±	6.44E+00	1.03E+01	FE-59		2.09E+00 ±	5.82E+00	9.12E+00
CO-60		8.60E-01 ±	2.08E+00	3.24E+00	CO-60		0.00E+00 ±	2.36E+00	3.88E+00
ZN-65		2.10E+00 ±	4.77E+00	7.48E+00	ZN-65		-8.56E-03 ±	4.80E+00	7.88E+00
ZRNB-95		-9.58E-01 ±	4.17E+00	6.71E+00	ZRNB-95		0.00E+00 ±	3.57E+00	5.87E+00
I-131		3.44E-01 ±	7.83E+00	1.29E+01	I-131		-2.30E+00 ±	5.96E+00	9.55E+00
CS-134		-1.27E+00 ±	2.53E+00	4.03E+00	CS-134		-1.00E+00 ±	2.05E+00	3.24E+00
CS-137		-7.23E-01 ±	2.29E+00	3.67E+00	CS-137		1.02E+00 ±	1.96E+00	3.05E+00
BALA140		-2.09E+00 ±	4.94E+00	7.61E+00	BALA140		-1.43E+00 ±	5.76E+00	9.19E+00
BI-214		4.80E+00 ±	5.31E+00	9.31E+00	BI-214		4.20E+00 ±	4.67E+00	8.41E+00

Location 29 collected 5/31/2013				Location 29 collected 7/1/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.21E+01 ±	5.33E+01	5.07E+01	K-40		-3.88E+01 ±	7.19E+01	5.66E+01
CR-51		-1.14E+01 ±	2.54E+01	4.09E+01	CR-51		-4.64E+00 ±	2.79E+01	4.54E+01
MN-54		1.61E+00 ±	2.17E+00	3.39E+00	MN-54		9.20E-01 ±	2.01E+00	3.15E+00
CO-58		-4.80E-01 ±	2.27E+00	3.68E+00	CO-58		-6.56E-01 ±	2.45E+00	3.93E+00
FE-59		1.13E+00 ±	6.20E+00	1.00E+01	FE-59		1.67E+00 ±	6.91E+00	1.10E+01
CO-60		-2.44E-01 ±	1.73E+00	2.81E+00	CO-60		-5.51E-02 ±	2.23E+00	3.66E+00
ZN-65		-7.85E-02 ±	4.09E+00	6.71E+00	ZN-65		-2.39E+00 ±	4.68E+00	7.27E+00
ZRNB-95		2.91E-02 ±	3.39E+00	5.58E+00	ZRNB-95		-1.69E+00 ±	4.42E+00	7.00E+00
I-131		1.90E-02 ±	7.44E+00	1.22E+01	I-131		1.28E+00 ±	9.33E+00	1.52E+01
CS-134		-6.73E-01 ±	2.06E+00	3.32E+00	CS-134		-1.54E+00 ±	2.48E+00	3.91E+00
CS-137		9.29E-01 ±	2.15E+00	3.44E+00	CS-137		7.14E-01 ±	2.17E+00	3.46E+00
BALA140		-8.19E-02 ±	5.01E+00	8.22E+00	BALA140		-1.98E+00 ±	8.09E+00	1.29E+01
BI-214		-4.83E+00 ±	1.07E+01	8.83E+00	BI-214		3.74E+00 ±	5.50E+00	9.71E+00

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 8/1/2013				Location 29 collected 9/3/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.42E+01 ±	9.62E+01	5.65E+01	K-40		-3.20E+01 ±	5.65E+01	5.52E+01
CR-51		4.58E+00 ±	2.37E+01	3.84E+01	CR-51		1.65E+00 ±	2.48E+01	4.06E+01
MN-54		-1.16E+00 ±	2.39E+00	3.76E+00	MN-54		-1.10E+00 ±	2.32E+00	3.65E+00
CO-58		4.82E-02 ±	1.56E+00	2.56E+00	CO-58		1.12E+00 ±	2.08E+00	3.22E+00
FE-59		0.00E+00 ±	8.09E+00	1.33E+01	FE-59		-1.54E+00 ±	6.05E+00	9.61E+00
CO-60		-3.39E-01 ±	3.66E+00	3.79E+00	CO-60		4.55E-01 ±	2.09E+00	3.34E+00
ZN-65		-3.62E-01 ±	4.02E+00	6.53E+00	ZN-65		-4.18E-01 ±	3.92E+00	6.36E+00
ZRNB-95		-1.00E-01 ±	4.04E+00	6.63E+00	ZRNB-95		-1.38E+00 ±	4.87E+00	7.83E+00
I-131		-5.95E+00 ±	8.54E+00	1.34E+01	I-131		-3.42E+00 ±	8.56E+00	1.38E+01
CS-134		-3.44E-01 ±	2.26E+00	3.67E+00	CS-134		-6.55E-01 ±	2.29E+00	3.68E+00
CS-137		-1.48E+00 ±	2.55E+00	3.99E+00	CS-137		-2.70E-02 ±	9.87E-01	1.61E+00
BALA140		-1.08E+00 ±	5.62E+00	8.97E+00	BALA140		0.00E+00 ±	1.70E+00	2.79E+00
BI-214		-5.31E-01 ±	5.45E+00	9.27E+00	BI-214		6.79E+00 ±	5.78E+00	9.87E+00

Location 29 collected 9/30/2013				Location 29 collected 11/1/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-1.45E+01 ±	3.59E+01	5.43E+01	K-40		-4.87E+01 ±	1.12E+02	5.97E+01
CR-51		-2.78E-01 ±	2.00E+01	3.28E+01	CR-51		5.93E-02 ±	2.61E+01	4.29E+01
MN-54		-4.65E-01 ±	1.87E+00	2.99E+00	MN-54		7.64E-01 ±	1.98E+00	3.13E+00
CO-58		4.05E-01 ±	2.02E+00	3.25E+00	CO-58		-1.33E-01 ±	2.35E+00	3.85E+00
FE-59		-6.38E-01 ±	5.71E+00	9.25E+00	FE-59		-9.02E-01 ±	6.64E+00	1.07E+01
CO-60		0.00E+00 ±	2.33E+00	3.84E+00	CO-60		1.78E+00 ±	1.94E+00	2.80E+00
ZN-65		1.01E+00 ±	4.12E+00	6.59E+00	ZN-65		-1.57E+00 ±	4.90E+00	7.80E+00
ZRNB-95		1.48E+00 ±	3.78E+00	5.97E+00	ZRNB-95		-2.00E+00 ±	4.53E+00	7.13E+00
I-131		2.30E+00 ±	5.15E+00	8.20E+00	I-131		-7.32E-02 ±	1.25E+01	2.05E+01
CS-134		1.03E-02 ±	2.21E+00	3.63E+00	CS-134		-8.49E-02 ±	2.15E+00	3.53E+00
CS-137		-6.49E-01 ±	2.55E+00	4.12E+00	CS-137		-3.06E-01 ±	2.17E+00	3.52E+00
BALA140		-1.55E+00 ±	5.17E+00	8.18E+00	BALA140		-7.57E-01 ±	8.78E+00	1.43E+01
BI-214		-1.80E-01 ±	5.22E+00	9.40E+00	BI-214		1.37E+00 ±	5.03E+00	9.22E+00

Location 29 collected 12/2/2013				Location 29 collected 1/2/2014					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.18E+01 ±	6.02E+01	5.71E+01	K-40		-2.76E+01 ±	5.73E+01	5.91E+01
CR-51		1.58E+01 ±	2.30E+01	3.61E+01	CR-51		-1.83E+01 ±	3.06E+01	4.87E+01
MN-54		4.76E-01 ±	2.03E+00	3.25E+00	MN-54		7.37E-01 ±	2.03E+00	3.22E+00
CO-58		1.62E+00 ±	2.19E+00	3.32E+00	CO-58		-1.51E-01 ±	2.34E+00	3.82E+00
FE-59		0.00E+00 ±	6.50E+00	1.07E+01	FE-59		1.45E+00 ±	6.09E+00	9.68E+00
CO-60		1.07E+00 ±	1.90E+00	2.89E+00	CO-60		-2.18E-01 ±	2.06E+00	3.34E+00
ZN-65		-1.07E+00 ±	4.43E+00	7.09E+00	ZN-65		1.64E-01 ±	4.48E+00	7.34E+00
ZRNB-95		-7.79E-02 ±	3.79E+00	6.22E+00	ZRNB-95		-1.45E+00 ±	4.24E+00	6.74E+00
I-131		2.75E+00 ±	6.16E+00	9.80E+00	I-131		2.49E+00 ±	1.00E+01	1.62E+01
CS-134		0.00E+00 ±	3.50E+00	5.75E+00	CS-134		-7.18E-01 ±	2.38E+00	3.83E+00
CS-137		2.98E-01 ±	2.30E+00	3.75E+00	CS-137		-8.15E-03 ±	2.24E+00	3.69E+00
BALA140		1.37E+00 ±	5.31E+00	8.41E+00	BALA140		1.29E+00 ±	6.88E+00	1.10E+01
BI-214		4.10E+00 ±	4.92E+00	8.79E+00	BI-214		-1.64E+00 ±	5.00E+00	9.16E+00

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 1/31/2013				Location 27 collected 2/28/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-8.30E+00 ±	3.25E+01	4.96E+01	K-40		-3.08E+01 ±	6.03E+01	5.81E+01
CR-51		-5.60E-01 ±	2.26E+01	3.71E+01	CR-51		2.49E+00 ±	2.26E+01	3.68E+01
MN-54		3.64E-01 ±	1.69E+00	2.71E+00	MN-54		5.06E-01 ±	2.04E+00	3.28E+00
CO-58		-2.14E-01 ±	1.98E+00	3.22E+00	CO-58		5.02E-01 ±	1.94E+00	3.10E+00
FE-59		-1.80E-01 ±	6.10E+00	9.99E+00	FE-59		-1.28E+00 ±	6.79E+00	1.09E+01
CO-60		-5.86E-01 ±	5.31E+00	3.52E+00	CO-60		7.72E-02 ±	1.67E+00	2.72E+00
ZN-65		-1.38E+00 ±	4.09E+00	6.49E+00	ZN-65		-1.80E+00 ±	5.09E+00	8.08E+00
ZRNB-95		-1.88E+00 ±	4.23E+00	6.71E+00	ZRNB-95		0.00E+00 ±	4.45E+00	7.31E+00
I-131		3.46E-01 ±	7.53E+00	1.23E+01	I-131		-4.48E+00 ±	7.88E+00	1.25E+01
CS-134		-2.18E-01 ±	2.04E+00	3.34E+00	CS-134		-1.16E+00 ±	2.41E+00	3.83E+00
CS-137		0.00E+00 ±	2.33E+00	3.84E+00	CS-137		3.46E-02 ±	2.03E+00	3.34E+00
BALA140		-1.55E+00 ±	5.75E+00	9.15E+00	BALA140		7.06E-01 ±	5.44E+00	8.78E+00
BI-214		3.68E+00 ±	4.32E+00	7.80E+00	BI-214		4.73E+00 ±	5.15E+00	9.08E+00

Location 27 collected 4/1/2013				Location 27 collected 4/30/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.52E+01 ±	5.00E+01	5.67E+01	K-40		-2.59E+01 ±	5.00E+01	5.62E+01
CR-51		8.07E+00 ±	2.46E+01	3.96E+01	CR-51		-9.90E+00 ±	2.26E+01	3.61E+01
MN-54		9.80E-01 ±	2.33E+00	3.69E+00	MN-54		2.05E+00 ±	1.87E+00	2.70E+00
CO-58		6.24E-02 ±	1.93E+00	3.16E+00	CO-58		-4.47E-01 ±	2.19E+00	3.53E+00
FE-59		-7.03E-02 ±	5.22E+00	8.57E+00	FE-59		8.40E-01 ±	4.05E+00	6.40E+00
CO-60		6.34E-02 ±	1.89E+00	3.09E+00	CO-60		2.10E-01 ±	1.88E+00	3.05E+00
ZN-65		-1.31E+00 ±	4.58E+00	7.30E+00	ZN-65		-2.30E+00 ±	5.33E+00	8.41E+00
ZRNB-95		4.96E-01 ±	4.03E+00	6.54E+00	ZRNB-95		-6.21E-02 ±	3.67E+00	6.02E+00
I-131		-4.60E-01 ±	6.29E+00	1.03E+01	I-131		-6.14E-01 ±	5.38E+00	8.77E+00
CS-134		0.00E+00 ±	3.28E+00	5.39E+00	CS-134		9.09E-01 ±	2.10E+00	3.34E+00
CS-137		1.51E+00 ±	1.91E+00	2.88E+00	CS-137		-1.04E+00 ±	2.27E+00	3.58E+00
BALA140		-1.83E+00 ±	5.95E+00	9.42E+00	BALA140		-9.13E-01 ±	5.29E+00	8.51E+00
BI-214		-1.37E+00 ±	6.95E+00	9.99E+00	BI-214		3.39E+00 ±	5.08E+00	9.10E+00

Location 27 collected 5/31/2013				Location 27 collected 7/1/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.85E+01 ±	5.32E+01	5.61E+01	K-40		-3.28E+01 ±	5.84E+01	5.55E+01
CR-51		-2.43E-01 ±	2.50E+01	4.11E+01	CR-51		9.54E-02 ±	2.34E+01	3.85E+01
MN-54		8.01E-02 ±	2.39E+00	3.92E+00	MN-54		-9.21E-01 ±	2.27E+00	3.60E+00
CO-58		7.06E-01 ±	2.36E+00	3.77E+00	CO-58		-2.34E-01 ±	1.91E+00	3.09E+00
FE-59		-1.03E-01 ±	5.68E+00	9.32E+00	FE-59		4.70E-03 ±	6.11E+00	1.00E+01
CO-60		7.69E-01 ±	2.00E+00	3.14E+00	CO-60		-2.09E-01 ±	2.23E+00	3.62E+00
ZN-65		-2.08E-01 ±	3.61E+00	5.89E+00	ZN-65		0.00E+00 ±	9.32E+00	1.53E+01
ZRNB-95		-1.42E+00 ±	4.12E+00	6.55E+00	ZRNB-95		-2.08E-01 ±	3.64E+00	5.95E+00
I-131		4.45E+00 ±	6.13E+00	9.50E+00	I-131		-7.36E-01 ±	6.24E+00	1.02E+01
CS-134		-8.41E-01 ±	2.41E+00	3.88E+00	CS-134		-6.68E-01 ±	2.05E+00	3.28E+00
CS-137		-4.68E-02 ±	2.11E+00	3.47E+00	CS-137		-1.84E-02 ±	1.96E+00	3.22E+00
BALA140		0.00E+00 ±	4.63E+00	7.62E+00	BALA140		1.42E+00 ±	4.75E+00	7.44E+00
BI-214		8.35E+00 ±	5.26E+00	8.89E+00	BI-214		3.06E+00 ±	5.04E+00	9.08E+00

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 8/1/2013					Location 27 collected 9/2/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.55E+01 ±	5.08E+01	5.69E+01	K-40		-9.95E-01 ±	2.87E+01	5.47E+01
CR-51		-1.17E+00 ±	2.42E+01	3.97E+01	CR-51		1.63E+01 ±	2.53E+01	3.99E+01
MN-54		-1.48E-02 ±	1.92E+00	3.16E+00	MN-54		-4.73E-01 ±	2.19E+00	3.52E+00
CO-58		-1.40E+00 ±	2.67E+00	4.18E+00	CO-58		-4.33E-01 ±	2.33E+00	3.76E+00
FE-59		-3.38E+00 ±	7.74E+00	1.21E+01	FE-59		2.81E+00 ±	6.72E+00	1.05E+01
CO-60		1.17E-01 ±	2.04E+00	3.34E+00	CO-60		-3.17E-01 ±	3.74E+00	3.97E+00
ZN-65		-1.89E-02 ±	5.51E+00	9.05E+00	ZN-65		1.46E+00 ±	4.33E+00	6.83E+00
ZRNB-95		-1.76E-01 ±	4.34E+00	7.10E+00	ZRNB-95		1.34E+00 ±	3.80E+00	6.01E+00
I-131		-3.42E+00 ±	9.29E+00	1.49E+01	I-131		-2.01E+00 ±	7.51E+00	1.21E+01
CS-134		7.65E-02 ±	2.44E+00	4.00E+00	CS-134		1.45E+00 ±	2.01E+00	3.11E+00
CS-137		1.20E+00 ±	1.76E+00	2.68E+00	CS-137		2.79E-02 ±	1.98E+00	3.25E+00
BALA140		1.33E+00 ±	5.18E+00	8.15E+00	BALA140		-3.29E+00 ±	6.99E+00	1.08E+01
BI-214		1.79E+00 ±	5.41E+00	9.76E+00	BI-214		1.17E-01 ±	4.94E+00	9.23E+00

Location 27 collected 9/30/2013					Location 27 collected 11/1/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-9.16E+00 ±	3.44E+01	5.68E+01	K-40		-1.49E+01 ±	3.81E+01	5.59E+01
CR-51		1.46E+01 ±	2.22E+01	3.49E+01	CR-51		-1.38E+01 ±	3.00E+01	4.81E+01
MN-54		3.30E-01 ±	2.10E+00	3.41E+00	MN-54		5.64E-01 ±	2.13E+00	3.42E+00
CO-58		-1.05E-01 ±	2.09E+00	3.41E+00	CO-58		7.13E-01 ±	2.29E+00	3.64E+00
FE-59		-1.49E+00 ±	6.74E+00	1.08E+01	FE-59		-9.39E-02 ±	5.66E+00	9.28E+00
CO-60		-5.28E-01 ±	2.08E+00	3.31E+00	CO-60		-2.47E-01 ±	2.23E+00	3.62E+00
ZN-65		-3.03E+00 ±	5.62E+00	8.81E+00	ZN-65		-3.58E-01 ±	4.47E+00	7.28E+00
ZRNB-95		2.68E-01 ±	4.30E+00	7.03E+00	ZRNB-95		-1.20E+00 ±	4.39E+00	7.03E+00
I-131		-2.20E+00 ±	6.78E+00	1.09E+01	I-131		4.42E+00 ±	9.24E+00	1.47E+01
CS-134		1.10E-04 ±	2.48E+00	3.80E+00	CS-134		-1.44E+00 ±	2.67E+00	4.25E+00
CS-137		-1.01E+00 ±	2.02E+00	3.17E+00	CS-137		5.95E-01 ±	2.12E+00	3.40E+00
BALA140		0.00E+00 ±	4.68E+00	7.71E+00	BALA140		0.00E+00 ±	8.14E+00	1.34E+01
BI-214		5.44E+00 ±	4.59E+00	8.15E+00	BI-214		4.58E+00 ±	5.53E+00	9.68E+00

Location 27 collected 12/2/2013					Location 27 collected 1/2/2014				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-1.01E+01 ±	3.65E+01	5.35E+01	K-40		-9.13E+00 ±	3.32E+01	5.15E+01
CR-51		3.91E+00 ±	2.49E+01	4.05E+01	CR-51		6.94E+00 ±	2.66E+01	4.31E+01
MN-54		9.38E-01 ±	1.95E+00	3.04E+00	MN-54		-4.59E-01 ±	2.24E+00	3.61E+00
CO-58		-1.34E-01 ±	1.92E+00	3.14E+00	CO-58		-6.69E-01 ±	2.34E+00	3.74E+00
FE-59		5.63E-01 ±	6.23E+00	1.01E+01	FE-59		6.13E-01 ±	6.82E+00	1.11E+01
CO-60		-2.67E-01 ±	3.00E+00	3.53E+00	CO-60		2.17E-01 ±	1.88E+00	3.33E+00
ZN-65		-1.31E+00 ±	4.95E+00	7.91E+00	ZN-65		1.68E-01 ±	4.98E+00	8.15E+00
ZRNB-95		-4.36E-01 ±	3.97E+00	6.45E+00	ZRNB-95		-9.96E-01 ±	4.36E+00	7.01E+00
I-131		-2.34E+00 ±	6.92E+00	1.11E+01	I-131		-5.72E-01 ±	1.10E+01	1.80E+01
CS-134		-8.97E-02 ±	2.18E+00	3.58E+00	CS-134		-9.31E-01 ±	2.18E+00	3.47E+00
CS-137		2.91E-01 ±	1.23E+00	1.95E+00	CS-137		-8.42E-03 ±	2.05E+00	3.36E+00
BALA140		3.73E-01 ±	4.53E+00	7.34E+00	BALA140		0.00E+00 ±	1.66E+00	2.73E+00
BI-214		4.47E+00 ±	5.23E+00	9.22E+00	BI-214		-4.06E-01 ±	5.61E+00	9.67E+00

Table A-7.1
GAMMA SPECTROMETRY RESULTS OF WATER
Deep Ground Water Wells - Stations 31, 32, 52
 Results in pCi/liter

Nuclide	RQ	Location 31 collected		3/6/2013
		Activity	Error	MDA
K-40		2.32E+00 ±	5.59E+01	1.07E+02
CR-51		-1.70E+01 ±	4.38E+01	7.09E+01
MN-54		-6.16E-01 ±	3.57E+00	5.78E+00
CO-58		-1.34E+00 ±	3.29E+00	5.19E+00
FE-59		-1.58E-01 ±	9.65E+00	1.58E+01
CO-60		-1.36E+00 ±	1.36E+01	8.06E+00
ZN-65		-1.12E+01 ±	1.24E+01	1.92E+01
ZRNB-95		-1.65E+00 ±	8.25E+00	1.34E+01
I-131		8.94E-02 ±	5.11E+00	8.39E+00
CS-134		4.62E-01 ±	8.32E+00	1.37E+01
CS-137		-1.54E-01 ±	5.28E+00	8.67E+00
BALA140		0.00E+00 ±	4.59E+00	7.55E+00
BI-214	+	3.63E+02 ±	2.35E+01	1.88E+01

Nuclide	RQ	Location 31 collected		6/5/2013
		Activity	Error	MDA
K-40		-1.45E+01 ±	7.02E+01	9.69E+01
CR-51		2.05E+01 ±	2.66E+01	4.06E+01
MN-54		0.00E+00 ±	5.17E+00	8.51E+00
CO-58		-8.28E-02 ±	3.79E+00	6.22E+00
FE-59		-2.77E+00 ±	1.05E+01	1.66E+01
CO-60		1.18E+00 ±	3.98E+00	6.25E+00
ZN-65		-1.33E+00 ±	2.89E+01	4.74E+01
ZRNB-95		-5.87E-01 ±	5.82E+00	9.44E+00
I-131		9.62E-01 ±	3.54E+00	5.66E+00
CS-134		1.46E+00 ±	3.31E+00	5.17E+00
CS-137		0.00E+00 ±	5.85E+00	9.63E+00
BALA140		2.78E-02 ±	4.32E+00	7.10E+00
BI-214	+	1.62E+02 ±	1.81E+01	1.55E+01

Nuclide	RQ	Location 31 collected		9/4/2013
		Activity	Error	MDA
K-40		-4.94E+00 ±	5.81E+01	1.14E+02
CR-51		-2.91E+01 ±	4.95E+01	7.90E+01
MN-54		-3.86E-02 ±	3.99E+00	6.56E+00
CO-58		-1.79E+00 ±	4.37E+00	6.93E+00
FE-59		1.94E+00 ±	1.01E+01	1.63E+01
CO-60		0.00E+00 ±	3.73E+00	6.14E+00
ZN-65		-2.39E+00 ±	9.04E+00	1.45E+01
ZRNB-95		-2.81E+00 ±	8.85E+00	1.42E+01
I-131		0.00E+00 ±	8.96E+00	1.47E+01
CS-134		0.00E+00 ±	1.11E+01	1.82E+01
CS-137		1.49E+00 ±	4.93E+00	7.91E+00
BALA140		0.00E+00 ±	8.27E+00	1.36E+01
BI-214	+	4.74E+01 ±	1.52E+01	2.35E+01

Nuclide	RQ	Location 31 collected		12/16/2013
		Activity	Error	MDA
K-40		-2.98E+01 ±	8.14E+01	7.77E+01
CR-51		-3.66E+00 ±	2.63E+01	4.30E+01
MN-54		-1.56E-01 ±	2.77E+00	4.53E+00
CO-58		-1.17E+00 ±	2.63E+00	4.12E+00
FE-59		-1.36E+00 ±	7.73E+00	1.24E+01
CO-60		-2.89E-01 ±	3.12E+00	5.08E+00
ZN-65		-5.48E+00 ±	8.78E+00	1.37E+01
ZRNB-95		-1.78E+00 ±	5.44E+00	8.69E+00
I-131		1.09E+00 ±	3.16E+00	5.09E+00
CS-134		4.67E-01 ±	4.94E+00	8.08E+00
CS-137		-1.29E+00 ±	3.35E+00	5.33E+00
BALA140		1.14E-01 ±	2.89E+00	4.72E+00
BI-214	+	1.14E+02 ±	1.35E+01	1.30E+01

Nuclide	RQ	Location 32 collected		3/6/2013
		Activity	Error	MDA
K-40		-3.56E+01 ±	1.09E+02	1.20E+02
CR-51		1.12E+00 ±	5.73E+01	9.42E+01
MN-54		-5.59E-01 ±	5.19E+00	8.47E+00
CO-58		3.25E+00 ±	5.49E+00	8.69E+00
FE-59		4.47E-01 ±	1.02E+01	1.68E+01
CO-60		1.33E-03 ±	5.67E+00	9.59E+00
ZN-65		3.57E+00 ±	6.01E+01	9.87E+01
ZRNB-95		1.61E-01 ±	9.35E+00	1.54E+01
I-131		-1.77E+00 ±	7.70E+00	1.25E+01
CS-134		-5.98E-01 ±	6.27E+00	1.03E+01
CS-137		2.63E+00 ±	4.79E+00	7.56E+00
BALA140		0.00E+00 ±	7.28E+00	1.20E+01
BI-214	+	8.28E+02 ±	3.56E+01	2.41E+01

Nuclide	RQ	Location 32 collected		6/5/2013
		Activity	Error	MDA
K-40		1.66E+01 ±	5.38E+01	9.62E+01
CR-51		1.46E+01 ±	3.21E+01	5.12E+01
MN-54		-1.68E+00 ±	4.33E+00	6.83E+00
CO-58		-2.78E+00 ±	4.64E+00	7.18E+00
FE-59		-2.08E+00 ±	9.94E+00	1.58E+01
CO-60		-1.17E+00 ±	1.27E+02	8.17E+00
ZN-65		3.61E+00 ±	2.95E+01	4.83E+01
ZRNB-95		-1.44E+00 ±	6.23E+00	9.95E+00
I-131		-1.65E+00 ±	4.91E+00	7.90E+00
CS-134		-3.05E-01 ±	1.12E+01	1.84E+01
CS-137		1.49E+00 ±	4.11E+00	6.50E+00
BALA140		1.09E+00 ±	5.02E+00	7.96E+00
BI-214	+	4.63E+02 ±	2.84E+01	1.41E+01

Table A-7.1
GAMMA SPECTROMETRY RESULTS OF WATER
Deep Ground Water Wells - Stations 31, 32, 52
 Results in pCi/liter

Location 32 collected 9/4/2013			
Nuclide	RQ	Activity	MDA
K-40		-5.62E+01 ± 1.07E+02	1.20E+02
CR-51		-5.64E-01 ± 5.22E+01	8.58E+01
MN-54		2.47E+00 ± 3.66E+00	5.58E+00
CO-58		1.19E+00 ± 4.74E+00	7.63E+00
FE-59		5.05E+00 ± 9.79E+00	1.50E+01
CO-60		1.34E+00 ± 5.18E+00	8.33E+00
ZN-65		-2.22E-01 ± 9.20E+00	1.51E+01
ZRNB-95		-2.35E+00 ± 9.27E+00	1.50E+01
I-131		4.59E+00 ± 8.69E+00	1.39E+01
CS-134		9.25E-01 ± 1.72E+01	2.82E+01
CS-137		4.67E-01 ± 5.62E+00	9.18E+00
BALA140		2.08E-01 ± 6.48E+00	1.06E+01
BI-214	+	1.94E+02 ± 2.23E+01	2.13E+01

Location 32 collected 12/11/2013			
Nuclide	RQ	Activity	MDA
K-40		6.40E+00 ± 3.88E+01	7.65E+01
CR-51		-1.02E+01 ± 3.43E+01	5.51E+01
MN-54		-1.09E+00 ± 4.13E+00	6.60E+00
CO-58		-1.00E+00 ± 3.55E+00	5.61E+00
FE-59		3.89E+00 ± 8.39E+00	1.26E+01
CO-60		-5.97E-02 ± 3.89E+00	6.16E+00
ZN-65		1.43E+00 ± 6.89E+00	1.10E+01
ZRNB-95		-1.69E+00 ± 5.37E+00	8.41E+00
I-131		-9.73E-01 ± 5.09E+00	8.22E+00
CS-134		-4.85E-01 ± 3.38E+00	5.47E+00
CS-137		-1.37E+00 ± 3.79E+00	5.97E+00
BALA140		-2.92E-01 ± 5.96E+00	9.72E+00
BI-214	+	7.96E+01 ± 1.34E+01	1.32E+01

Location 52 collected 3/6/2013			
Nuclide	RQ	Activity	MDA
K-40		-1.45E+01 ± 5.46E+01	9.17E+01
CR-51		-1.58E+01 ± 3.97E+01	6.40E+01
MN-54		-4.35E-01 ± 3.37E+00	5.48E+00
CO-58		-4.46E-01 ± 3.18E+00	5.15E+00
FE-59		0.00E+00 ± 1.04E+01	1.71E+01
CO-60		-1.02E+00 ± 8.11E+00	6.75E+00
ZN-65		-1.65E+00 ± 8.29E+00	1.34E+01
ZRNB-95		2.50E+00 ± 6.91E+00	1.10E+01
I-131		0.00E+00 ± 6.49E+00	1.07E+01
CS-134		2.20E+00 ± 3.93E+00	6.22E+00
CS-137		-2.14E-02 ± 4.01E+00	6.59E+00
BALA140		-5.86E-01 ± 5.46E+00	8.85E+00
BI-214		7.54E+00 ± 1.04E+01	1.85E+01

Location 52 collected 6/5/2013			
Nuclide	RQ	Activity	MDA
K-40		-4.08E+00 ± 4.24E+01	8.20E+01
CR-51		-2.77E+00 ± 2.01E+01	3.25E+01
MN-54		-5.70E-01 ± 3.13E+00	5.00E+00
CO-58		1.33E+00 ± 2.85E+00	4.33E+00
FE-59		-7.19E-01 ± 7.70E+00	1.24E+01
CO-60		-1.46E+00 ± 3.79E+00	5.85E+00
ZN-65		1.82E+00 ± 6.64E+00	1.04E+01
ZRNB-95		4.73E-01 ± 4.76E+00	7.69E+00
I-131		5.77E-01 ± 3.03E+00	4.88E+00
CS-134		-3.37E-01 ± 3.19E+00	5.18E+00
CS-137		0.00E+00 ± 3.86E+00	6.34E+00
BALA140		-2.29E+00 ± 5.05E+00	7.67E+00
BI-214		-2.23E+00 ± 1.02E+01	1.33E+01

Location 52 collected 9/4/2013			
Nuclide	RQ	Activity	MDA
K-40		-6.28E+01 ± 1.06E+02	1.14E+02
CR-51		-2.98E+01 ± 4.82E+01	7.67E+01
MN-54		-1.73E-01 ± 3.78E+00	6.18E+00
CO-58		2.25E+00 ± 3.94E+00	6.11E+00
FE-59		0.00E+00 ± 1.39E+01	2.28E+01
CO-60		-1.39E+00 ± 4.69E+00	7.49E+00
ZN-65		-1.41E-01 ± 7.84E+00	1.29E+01
ZRNB-95		-3.39E+00 ± 8.69E+00	1.39E+01
I-131		2.17E+00 ± 7.17E+00	1.16E+01
CS-134		-2.34E+00 ± 5.91E+00	9.52E+00
CS-137		1.56E+00 ± 5.18E+00	8.34E+00
BALA140		5.33E-01 ± 6.46E+00	1.05E+01
BI-214		7.63E+00 ± 1.25E+01	2.22E+01

Location 52 collected 12/11/2013			
Nuclide	RQ	Activity	MDA
K-40		-3.55E+01 ± 8.90E+01	7.48E+01
CR-51		7.20E-02 ± 2.74E+01	4.50E+01
MN-54		3.75E-01 ± 2.56E+00	4.14E+00
CO-58		-1.21E-02 ± 2.68E+00	4.40E+00
FE-59		-1.30E-01 ± 6.81E+00	1.12E+01
CO-60		5.53E-01 ± 2.65E+00	4.22E+00
ZN-65		8.74E-01 ± 5.69E+00	9.18E+00
ZRNB-95		3.52E+00 ± 4.73E+00	7.14E+00
I-131		2.65E+00 ± 4.04E+00	6.32E+00
CS-134		-1.02E+00 ± 2.65E+00	4.21E+00
CS-137		-9.15E-02 ± 2.91E+00	4.77E+00
BALA140		-9.70E-01 ± 5.71E+00	9.21E+00
BI-214		1.31E+00 ± 6.63E+00	1.21E+01

TABLE A-7.2
GAMMA SPECTROMETRY RESULTS OF WATER - SUMMARY
RIVER/DRINKING WATER

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-5.19E-01	-2.09E+00	1.37E+00	8.96E+00	12	0
BALA140	Cntl	-9.65E-01	-3.43E+00	1.00E+00	8.27E+00	12	0
BI-214	Ind	1.85E+00	-4.83E+00	6.79E+00	9.19E+00	12	0
BI-214	Cntl	7.27E+00	-1.74E+00	4.22E+01	8.93E+00	12	3
CO-58	Ind	1.59E-01	-6.56E-01	1.62E+00	3.50E+00	12	0
CO-58	Cntl	3.71E-01	-4.49E-01	1.06E+00	3.30E+00	12	0
CO-60	Ind	2.97E-01	-5.92E-01	1.78E+00	3.33E+00	12	0
CO-60	Cntl	-4.53E-01	-1.27E+00	1.95E-01	3.54E+00	12	0
CR-51	Ind	1.84E+00	-1.83E+01	1.58E+01	3.95E+01	12	0
CR-51	Cntl	-3.87E+00	-1.05E+01	6.30E+00	4.10E+01	12	0
CS-134	Ind	-8.18E-01	-1.79E+00	1.03E-02	3.87E+00	12	0
CS-134	Cntl	-2.65E-01	-8.62E-01	6.59E-01	3.63E+00	12	0
CS-137	Ind	-1.03E-01	-1.48E+00	1.02E+00	3.49E+00	12	0
CS-137	Cntl	8.31E-02	-1.16E+00	1.38E+00	3.30E+00	12	0
FE-59	Ind	-1.48E-01	-1.97E+00	2.09E+00	1.05E+01	12	0
FE-59	Cntl	9.23E-02	-2.03E+00	2.66E+00	9.96E+00	12	0
I-131	Ind	-3.93E-01	-5.95E+00	2.75E+00	1.31E+01	12	0
I-131	Cntl	1.09E+00	-1.83E+00	4.07E+00	1.13E+01	12	0
K-40	Ind	-3.31E+01	-5.21E+01	-1.45E+01	5.62E+01	12	0
K-40	Cntl	-3.52E+01	-5.01E+01	-1.72E+01	5.38E+01	12	0
MN-54	Ind	2.37E-01	-1.16E+00	1.61E+00	3.24E+00	12	0
MN-54	Cntl	4.07E-01	-1.01E+00	2.05E+00	3.24E+00	12	0
ZN-65	Ind	-2.61E-01	-2.39E+00	2.10E+00	7.23E+00	12	0
ZN-65	Cntl	-4.44E-01	-1.95E+00	9.68E-01	7.67E+00	12	0
ZRNB-95	Ind	-2.52E-01	-2.00E+00	2.19E+00	6.58E+00	12	0
ZRNB-95	Cntl	-7.72E-01	-2.13E+00	1.63E+00	6.58E+00	12	0

TABLE A-7.2

GAMMA SPECTROMETRY RESULTS OF WATER - SUMMARY
PLANT DISCHARGE WATER

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
K-40	Ind	-1.84E+01	-3.28E+01	-9.95E-01	5.51E+01	12	0
CR-51	Ind	2.23E+00	-1.38E+01	1.63E+01	3.96E+01	12	0
MN-54	Ind	3.29E-01	-9.21E-01	2.05E+00	3.34E+00	12	0
CO-58	Ind	-1.38E-01	-1.40E+00	7.13E-01	3.48E+00	12	0
FE-59	Ind	-1.47E-01	-3.38E+00	2.81E+00	9.92E+00	12	0
CO-60	Ind	-5.84E-02	-5.86E-01	7.69E-01	3.35E+00	12	0
ZN-65	Ind	-8.41E-01	-3.03E+00	1.46E+00	8.30E+00	12	0
ZRNB-95	Ind	-6.31E-01	-3.03E+00	1.34E+00	6.79E+00	12	0
I-131	Ind	-6.34E-01	-4.48E+00	4.45E+00	1.21E+01	12	0
CS-134	Ind	-2.43E-01	-1.44E+00	1.45E+00	3.77E+00	12	0
CS-137	Ind	1.28E-01	-1.04E+00	1.51E+00	3.18E+00	12	0
BALA140	Ind	-3.12E-01	-3.29E+00	1.42E+00	8.42E+00	12	0
BI-214	Ind	3.15E+00	-1.37E+00	8.35E+00	9.14E+00	12	0

GAMMA SPECTROMETRY RESULTS OF WATER - SUMMARY
DEEP GROUNDWATER

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
K-40	Ind	-19.38077	-62.777645	16.6067629	97.5524836	12	0
CR-51	Ind	-6.037893	-29.751329	20.5078375	61.4939589	12	0
MN-54	Ind	-0.206022	-1.6769018	2.47087422	6.13858406	12	0
CO-58	Ind	-0.051158	-2.782062	3.24538865	5.96320343	12	0
FE-59	Ind	0.3411166	-2.7710836	5.04771367	15.4107107	12	0
CO-60	Ind	-0.305927	-1.4593424	1.34175508	6.8394515	12	0
ZN-65	Ind	-0.930563	-11.24672	3.6068	26.1367431	12	0
ZRNB-95	Ind	-1.099699	-3.388893	3.51811696	11.3710584	12	0
I-131	Ind	0.6442229	-1.7730388	4.59444964	9.15610574	12	0
CS-134	Ind	0.0350725	-2.3448187	2.19801189	11.0457449	12	0
CS-137	Ind	0.3926454	-1.3682563	2.63397583	7.23204641	12	0
BALA140	Ind	-0.180296	-2.2908818	1.09289922	9.12374882	12	0
BI-214	Ind	188.91926	-2.2283558	828.447891	17.4645986	12	8

TABLE A-8.1
GAMMA SPECTROMETRY RESULTS OF SOIL

Results in pCi/kilogram

Location & Date			Station 7	6/11/2013	Location & Date			Station 8	6/11/2013
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7		2.07E+02 ±	1.64E+02	2.42E+02	BE-7	+	2.73E+02 ±	1.84E+02	2.60E+02
K-40	+	1.53E+04 ±	8.90E+02	2.84E+02	K-40	+	1.90E+04 ±	1.13E+03	2.91E+02
CR-51		2.69E+01 ±	1.65E+02	2.68E+02	CR-51		-7.62E+01 ±	2.05E+02	3.29E+02
MN-54		-8.15E+00 ±	2.23E+01	3.56E+01	MN-54		1.33E+00 ±	1.86E+01	3.03E+01
CO-58		0.00E+00 ±	2.56E+01	4.27E+01	CO-58		3.47E-01 ±	2.26E+01	3.71E+01
FE-59		-1.97E+01 ±	5.82E+01	9.25E+01	FE-59		3.00E+01 ±	5.91E+01	9.06E+01
CO-60		1.35E+01 ±	2.26E+01	3.49E+01	CO-60		-1.00E+01 ±	5.52E+01	4.57E+01
ZN-65		-2.53E+01 ±	5.68E+01	9.02E+01	ZN-65		-3.02E+01 ±	6.28E+01	9.87E+01
ZRNB-95		1.24E+01 ±	2.85E+01	4.45E+01	ZRNB-95		1.17E+01 ±	3.52E+01	5.56E+01
CS-134		-4.61E-01 ±	2.24E+01	3.67E+01	CS-134		1.12E+01 ±	1.50E+01	2.22E+01
CS-137		3.00E+01 ±	2.31E+01	3.38E+01	CS-137		2.12E+01 ±	2.55E+01	3.85E+01
BALA140		3.47E-01 ±	1.77E+01	2.90E+01	BALA140		-2.47E+00 ±	2.47E+01	3.99E+01
BI-214	+	4.81E+02 ±	6.90E+01	7.28E+01	BI-214	+	5.94E+02 ±	8.51E+01	7.73E+01

Location & Date			Station 9a	6/11/2013	Location & Date			Station 23	6/11/2013
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7		-1.86E+01 ±	2.76E+02	4.51E+02	BE-7		1.11E+02 ±	1.38E+02	2.09E+02
K-40	+	1.31E+04 ±	1.12E+03	4.55E+02	K-40	+	1.45E+04 ±	9.03E+02	2.41E+02
CR-51		0.00E+00 ±	2.52E+02	4.20E+02	CR-51		6.41E+01 ±	1.52E+02	2.43E+02
MN-54		7.61E+00 ±	2.85E+01	4.55E+01	MN-54		1.34E+01 ±	1.77E+01	2.65E+01
CO-58		1.94E-02 ±	2.56E+01	4.21E+01	CO-58		-3.92E+00 ±	1.83E+01	2.95E+01
FE-59		7.30E-01 ±	7.87E+01	1.29E+02	FE-59		1.88E+01 ±	5.08E+01	7.96E+01
CO-60		-4.16E+00 ±	3.45E+01	5.60E+01	CO-60		-3.50E+00 ±	1.20E+02	2.48E+01
ZN-65		-3.15E+01 ±	8.20E+01	1.30E+02	ZN-65		-3.69E+00 ±	3.94E+01	6.40E+01
ZRNB-95		-2.11E+00 ±	4.49E+01	7.34E+01	ZRNB-95		1.27E+01 ±	3.02E+01	4.73E+01
CS-134		-1.99E+01 ±	3.24E+01	5.04E+01	CS-134		0.00E+00 ±	2.11E+01	3.51E+01
CS-137		2.89E+01 ±	2.98E+01	4.35E+01	CS-137	+	5.30E+01 ±	2.50E+01	3.35E+01
BALA140		1.50E+00 ±	2.67E+01	4.34E+01	BALA140		-5.09E+00 ±	2.01E+01	3.15E+01
BI-214	+	4.42E+02 ±	8.75E+01	9.13E+01	BI-214	+	5.11E+02 ±	8.89E+01	7.19E+01

Location & Date			Station 48	6/11/2013
Nuclide	RQ	Activity	Error	MDA
BE-7		2.31E+02 ±	2.63E+02	3.98E+02
K-40	+	1.47E+04 ±	1.17E+03	3.41E+02
CR-51		1.30E+02 ±	2.51E+02	3.96E+02
MN-54		-1.37E+00 ±	3.08E+01	5.03E+01
CO-58		-4.02E-01 ±	3.06E+01	5.03E+01
FE-59		-5.05E+00 ±	7.98E+01	1.30E+02
CO-60		6.05E+00 ±	3.69E+01	5.95E+01
ZN-65		-9.19E+00 ±	8.09E+01	1.32E+02
ZRNB-95		2.46E+01 ±	5.23E+01	8.13E+01
CS-134		0.00E+00 ±	7.10E+01	1.18E+02
CS-137		1.77E+01 ±	3.48E+01	5.43E+01
BALA140		-9.06E+00 ±	3.30E+01	5.16E+01
BI-214	+	6.09E+02 ±	1.00E+02	9.37E+01

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	-4.07E+00	-9.06E+00	3.47E-01	-4.07E+00	4	0
BALA140	Cntl	1.50E+00	1.50E+00	1.50E+00	4.34E+01	1	0
BE-7	Ind	2.05E+02	1.11E+02	2.73E+02	2.05E+02	4	1
BE-7	Cntl	-1.86E+01	-1.86E+01	-1.86E+01	4.51E+02	1	0
BI-214	Ind	5.48E+02	4.81E+02	6.09E+02	5.48E+02	4	4
BI-214	Cntl	4.42E+02	4.42E+02	4.42E+02	9.13E+01	1	1
CO-58	Ind	-9.93E-01	-3.92E+00	3.47E-01	-9.93E-01	4	0
CO-58	Cntl	1.94E-02	1.94E-02	1.94E-02	4.21E+01	1	0
CO-60	Ind	1.52E+00	-1.00E+01	1.35E+01	1.52E+00	4	0
CO-60	Cntl	-4.16E+00	-4.16E+00	-4.16E+00	5.60E+01	1	0
CR-51	Ind	3.62E+01	-7.62E+01	1.30E+02	3.62E+01	4	0
CR-51	Cntl	0.00E+00	0.00E+00	0.00E+00	4.20E+02	1	0
CS-134	Ind	2.68E+00	-4.61E-01	1.12E+01	2.68E+00	4	0
CS-134	Cntl	-1.99E+01	-1.99E+01	-1.99E+01	5.04E+01	1	0
CS-137	Ind	3.05E+01	1.77E+01	5.30E+01	3.05E+01	4	1
CS-137	Cntl	2.89E+01	2.89E+01	2.89E+01	4.35E+01	1	0
FE-59	Ind	6.00E+00	-1.97E+01	3.00E+01	6.00E+00	4	0
FE-59	Cntl	7.30E-01	7.30E-01	7.30E-01	1.29E+02	1	0
K-40	Ind	1.59E+04	1.45E+04	1.90E+04	1.59E+04	4	4
K-40	Cntl	1.31E+04	1.31E+04	1.31E+04	4.55E+02	1	1
MN-54	Ind	1.31E+00	-8.15E+00	1.34E+01	1.31E+00	4	0
MN-54	Cntl	7.61E+00	7.61E+00	7.61E+00	4.55E+01	1	0
ZN-65	Ind	-1.71E+01	-3.02E+01	-3.69E+00	-1.71E+01	4	0
ZN-65	Cntl	-3.15E+01	-3.15E+01	-3.15E+01	1.30E+02	1	0
ZRNB-95	Ind	1.54E+01	1.17E+01	2.46E+01	1.54E+01	4	0
ZRNB-95	Cntl	-2.11E+00	-2.11E+00	-2.11E+00	7.34E+01	1	0

TABLE A-9.1A
GAMMA SPECTROMETRY RESULTS OF SEDIMENT

Results in pCi/kilogram dry material

Station 33 Upstream Control

Location & Date			Station 33	3/8/2013	Location & Date			Station 33	10/21/2013
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7		2.42E+02 ±	2.52E+02	3.88E+02	BE-7		-1.02E+00 ±	1.98E+02	3.26E+02
K-40	+	1.67E+04 ±	9.81E+02	2.93E+02	K-40	+	1.71E+04 ±	9.81E+02	2.82E+02
CR-51		-6.49E+01 ±	1.98E+02	3.18E+02	CR-51		2.23E+01 ±	1.94E+02	3.17E+02
MN-54		1.45E+01 ±	2.35E+01	3.64E+01	MN-54		1.62E+01 ±	2.14E+01	3.25E+01
CO-58		7.86E+00 ±	2.12E+01	3.35E+01	CO-58		9.05E+00 ±	1.87E+01	2.90E+01
FE-59		2.02E+00 ±	6.88E+01	1.13E+02	FE-59		-1.44E-01 ±	5.91E+01	9.71E+01
CO-60		-6.03E+00 ±	2.97E+01	4.79E+01	CO-60		-6.71E+00 ±	2.63E+01	4.21E+01
ZN-65		-1.37E+01 ±	6.74E+01	1.09E+02	ZN-65		-3.66E+01 ±	7.07E+01	1.12E+02
ZRNB-95		9.15E+00 ±	5.04E+01	8.17E+01	ZRNB-95		1.03E+01 ±	3.42E+01	5.45E+01
CS-134		-1.16E+01 ±	3.06E+01	4.92E+01	CS-134		-5.06E+00 ±	8.01E+01	2.59E+01
CS-137		3.46E+01 ±	3.07E+01	4.64E+01	CS-137	+	4.98E+01 ±	2.50E+01	3.36E+01
BALA140		-1.98E+01 ±	4.71E+01	7.34E+01	BALA140		-2.78E+00 ±	2.15E+01	3.46E+01
BI-214	+	8.21E+02 ±	9.11E+01	8.14E+01	BI-214	+	7.67E+02 ±	9.03E+01	8.24E+01

Station 34 Downstream Indicator

Location & Date			Station 34	3/8/2013	Location & Date			Station 34	10/21/2013
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BE-7	+	4.62E+02 ±	2.58E+02	3.71E+02	BE-7		0.00E+00 ±	2.54E+02	4.23E+02
K-40	+	1.57E+04 ±	9.76E+02	3.27E+02	K-40	+	1.51E+04 ±	9.38E+02	3.43E+02
CR-51		0.00E+00 ±	2.59E+02	4.31E+02	CR-51		5.94E+01 ±	2.53E+02	4.11E+02
MN-54		9.13E+00 ±	2.16E+01	3.40E+01	MN-54		3.85E+01 ±	2.89E+01	4.31E+01
CO-58		-6.26E+00 ±	2.34E+01	3.75E+01	CO-58		-9.03E+00 ±	2.45E+01	3.90E+01
FE-59		-8.43E+00 ±	6.17E+01	9.97E+01	FE-59		1.06E+01 ±	5.59E+01	8.99E+01
CO-60		7.22E+00 ±	2.69E+01	4.31E+01	CO-60		-1.14E+00 ±	3.05E+01	5.00E+01
ZN-65		2.71E+01 ±	3.75E+01	5.51E+01	ZN-65		2.80E+01 ±	4.14E+01	6.29E+01
ZRNB-95		-2.91E+00 ±	4.19E+01	6.84E+01	ZRNB-95		0.00E+00 ±	4.81E+01	8.01E+01
CS-134		3.65E+00 ±	2.17E+01	3.51E+01	CS-134		-2.99E+01 ±	3.42E+01	5.37E+01
CS-137	+	1.22E+02 ±	3.72E+01	3.39E+01	CS-137	+	1.21E+02 ±	3.33E+01	3.18E+01
BALA140		-4.40E+00 ±	4.42E+01	7.16E+01	BALA140		-1.09E+01 ±	2.85E+01	4.46E+01
BI-214	+	7.39E+02 ±	9.21E+01	6.29E+01	BI-214	+	1.13E+03 ±	1.05E+02	9.75E+01

TABLE A-9.2
GAMMA SPECTROMETRY RESULTS OF SEDIMENT - SUMMARY

Results in pCi/kilogram dry material

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-7.64E+00	-1.09E+01	-4.40E+00	5.81E+01	2	0
BALA140	Cntl	-1.13E+01	-1.98E+01	-2.78E+00	5.40E+01	2	0
BE-7	Ind	2.31E+02	0.00E+00	4.62E+02	3.97E+02	2	1
BE-7	Cntl	1.21E+02	-1.02E+00	2.42E+02	3.57E+02	2	0
BI-214	Ind	9.36E+02	7.39E+02	1.13E+03	8.02E+01	2	2
BI-214	Cntl	7.94E+02	7.67E+02	8.21E+02	8.19E+01	2	2
CO-58	Ind	-7.64E+00	-9.03E+00	-6.26E+00	3.82E+01	2	0
CO-58	Cntl	8.45E+00	7.86E+00	9.05E+00	3.13E+01	2	0
CO-60	Ind	3.04E+00	-1.14E+00	7.22E+00	4.66E+01	2	0
CO-60	Cntl	-6.37E+00	-6.71E+00	-6.03E+00	4.50E+01	2	0
CR-51	Ind	2.97E+01	0.00E+00	5.94E+01	4.21E+02	2	0
CR-51	Cntl	-2.13E+01	-6.49E+01	2.23E+01	3.18E+02	2	0
CS-134	Ind	-1.31E+01	-2.99E+01	3.65E+00	4.44E+01	2	0
CS-134	Cntl	-8.31E+00	-1.16E+01	-5.06E+00	3.76E+01	2	0
CS-137	Ind	1.21E+02	1.21E+02	1.22E+02	3.29E+01	2	2
CS-137	Cntl	4.22E+01	3.46E+01	4.98E+01	4.00E+01	2	1
FE-59	Ind	1.10E+00	-8.43E+00	1.06E+01	9.48E+01	2	0
FE-59	Cntl	9.40E-01	-1.44E-01	2.02E+00	1.05E+02	2	0
K-40	Ind	1.54E+04	1.51E+04	1.57E+04	3.35E+02	2	2
K-40	Cntl	1.69E+04	1.67E+04	1.71E+04	2.88E+02	2	2
MN-54	Ind	2.38E+01	9.13E+00	3.85E+01	3.85E+01	2	0
MN-54	Cntl	1.53E+01	1.45E+01	1.62E+01	3.45E+01	2	0
ZN-65	Ind	2.75E+01	2.71E+01	2.80E+01	5.90E+01	2	0
ZN-65	Cntl	-2.52E+01	-3.66E+01	-1.37E+01	1.11E+02	2	0
ZRNB-95	Ind	-1.45E+00	-2.91E+00	0.00E+00	7.43E+01	2	0
ZRNB-95	Cntl	9.72E+00	9.15E+00	1.03E+01	6.81E+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	10/08/13	K-40	+	2.66E+03	± 3.22E+02	1.93E+02
		MN-54		5.38E-01	± 8.52E+00	1.39E+01
		CO-58		-4.27E+00	± 1.38E+01	2.16E+01
		FE-59		-7.48E+00	± 5.16E+01	8.29E+01
		CO-60		5.94E+00	± 1.32E+01	2.13E+01
		ZN-65		-5.63E+00	± 2.61E+01	4.17E+01
		ZRNB-95		1.83E+00	± 2.44E+01	3.97E+01
		CS-134		5.51E+00	± 8.63E+00	1.30E+01
		CS-137	+	1.91E+01	± 1.14E+01	1.48E+01
Bi-214		-3.20E+00	± 2.51E+01	3.92E+01		
White Fish Station 30 Indicator	12/22/13	K-40	+	2.89E+03	± 4.14E+02	3.03E+02
		MN-54		-1.87E+00	± 1.21E+01	1.94E+01
		CO-58		-2.32E+00	± 1.37E+01	2.19E+01
		FE-59		-1.28E+01	± 4.93E+01	7.83E+01
		CO-60		2.19E+00	± 1.58E+01	2.65E+01
		ZN-65		8.11E+00	± 3.03E+01	4.79E+01
		ZRNB-95		-3.57E-01	± 2.02E+01	3.30E+01
		CS-134		1.53E+00	± 1.30E+01	2.10E+01
		CS-137		2.19E+00	± 1.30E+01	2.09E+01
Bi-214		-1.20E+00	± 3.26E+01	5.71E+01		
Steelhead Station 38 Control	10/08/13	K-40	+	3.19E+03	± 3.49E+02	1.91E+02
		MN-54		-5.08E-01	± 9.76E+00	1.59E+01
		CO-58		-4.00E+00	± 1.26E+01	1.97E+01
		FE-59		-1.70E+01	± 4.85E+01	7.50E+01
		CO-60		-3.82E-01	± 1.27E+01	1.80E+01
		ZN-65		-8.07E+00	± 2.73E+01	4.31E+01
		ZRNB-95		-5.13E+00	± 2.53E+01	4.04E+01
		CS-134		0.00E+00	± 1.47E+01	2.41E+01
		CS-137		9.50E+00	± 1.10E+01	1.62E+01
Bi-214		2.14E+01	± 2.33E+01	3.98E+01		
White Fish Station 38 Control	12/21/13	K-40	+	3.08E+03	± 3.77E+02	2.19E+02
		MN-54		7.05E+00	± 8.98E+00	1.25E+01
		CO-58		-4.20E-01	± 1.10E+01	1.80E+01
		FE-59		-2.86E+00	± 3.30E+01	5.34E+01
		CO-60		-6.27E+00	± 8.92E+01	2.66E+01
		ZN-65		-2.54E+00	± 3.02E+01	4.91E+01
		ZRNB-95		3.03E-01	± 1.81E+01	2.97E+01
		CS-134		9.82E+00	± 8.94E+00	1.22E+01
		CS-137		5.16E+00	± 1.17E+01	1.81E+01
Bi-214		9.03E+00	± 2.85E+01	5.13E+01		

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	-2.20E+00	-3.20E+00	-1.20E+00	4.81E+01	2	0
Bi-214	Cntl	1.52E+01	9.03E+00	2.14E+01	4.56E+01	2	0
CO-58	Ind	-3.30E+00	-4.27E+00	-2.32E+00	2.18E+01	2	0
CO-58	Cntl	-2.21E+00	-4.00E+00	-4.20E-01	1.89E+01	2	0
CO-60	Ind	4.06E+00	2.19E+00	5.94E+00	2.39E+01	2	0
CO-60	Cntl	-3.33E+00	-6.27E+00	-3.82E-01	2.23E+01	2	0
CS-134	Ind	3.52E+00	1.53E+00	5.51E+00	1.70E+01	2	0
CS-134	Cntl	4.91E+00	0.00E+00	9.82E+00	1.82E+01	2	0
CS-137	Ind	1.06E+01	2.19E+00	1.91E+01	1.78E+01	2	1
CS-137	Cntl	7.33E+00	5.16E+00	9.50E+00	1.71E+01	2	0
FE-59	Ind	-1.01E+01	-1.28E+01	-7.48E+00	8.06E+01	2	0
FE-59	Cntl	-9.95E+00	-1.70E+01	-2.86E+00	6.42E+01	2	0
K-40	Ind	2.77E+03	2.66E+03	2.89E+03	2.48E+02	2	2
K-40	Cntl	3.14E+03	3.08E+03	3.19E+03	2.05E+02	2	2
MN-54	Ind	-6.67E-01	-1.87E+00	5.38E-01	1.66E+01	2	0
MN-54	Cntl	3.27E+00	-5.08E-01	7.05E+00	1.42E+01	2	0
ZN-65	Ind	1.24E+00	-5.63E+00	8.11E+00	4.48E+01	2	0
ZN-65	Cntl	-5.30E+00	-8.07E+00	-2.54E+00	4.61E+01	2	0
ZRNB-95	Ind	7.39E-01	-3.57E-01	1.83E+00	3.64E+01	2	0
ZRNB-95	Cntl	-2.41E+00	-5.13E+00	3.03E-01	3.51E+01	2	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
01/08/13		-1.01E-01	± 2.01E-01	3.25E-01		-5.77E-02	± 2.12E-01	3.46E-01
02/05/13		-6.51E-02	± 3.10E-01	5.06E-01		4.72E-02	± 1.93E-01	3.14E-01
03/12/13		5.61E-02	± 1.93E-01	3.15E-01		-1.27E-01	± 2.20E-01	3.56E-01
04/09/13		-2.24E-02	± 2.16E-01	3.55E-01		0.00E+00	± 1.97E-01	3.24E-01
04/23/13		7.29E-02	± 2.14E-01	3.48E-01		1.41E-02	± 1.90E-01	3.11E-01
05/07/13		-5.76E-03	± 2.31E-01	3.79E-01		-1.90E-02	± 1.45E-01	2.37E-01
05/21/13		-8.19E-02	± 2.23E-01	3.61E-01		1.09E-01	± 1.76E-01	2.83E-01
06/04/13		-6.82E-03	± 2.24E-01	3.69E-01		5.18E-02	± 1.85E-01	3.00E-01
06/18/13		-2.48E-02	± 2.23E-01	3.65E-01		4.02E-02	± 1.94E-01	3.17E-01
07/09/13		7.33E-03	± 2.95E-01	4.85E-01		-3.60E-02	± 1.81E-01	2.95E-01
07/23/13		-4.33E-02	± 2.11E-01	3.45E-01		-9.16E-02	± 2.09E-01	3.39E-01
08/06/13		1.05E-01	± 2.01E-01	3.25E-01		5.75E-03	± 2.13E-01	3.50E-01
08/20/13		-3.48E-02	± 1.97E-01	3.22E-01		-2.95E-02	± 2.19E-01	3.59E-01
09/03/13		1.30E-02	± 1.64E-01	2.69E-01		8.73E-04	± 1.78E-01	2.93E-01
09/17/13		-1.41E-02	± 2.02E-01	3.31E-01		-1.39E-02	± 2.07E-01	3.39E-01
10/15/13		5.23E-02	± 1.70E-01	2.77E-01		3.71E-02	± 2.20E-01	3.59E-01
11/05/13		2.42E-02	± 1.90E-01	3.11E-01		-2.74E-02	± 2.27E-01	3.71E-01
12/10/13		4.69E-02	± 1.68E-01	2.73E-01		7.00E-02	± 1.80E-01	2.91E-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	-1.47E-03	-1.27E-01	1.09E-01	3.21E-01	18	0
Control - St 9b	-1.23E-03	-1.01E-01	1.05E-01	3.48E-01	18	0

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

Collection Date: 1/8/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-7.71E-01 ±	3.55E+00	5.72E+00
CO-60		-1.66E+00 ±	3.25E+01	7.64E+00
ZN-65		6.29E-01 ±	7.80E+00	1.27E+01
MN-54		1.02E-01 ±	3.22E+00	5.27E+00
CS-134		-5.12E-01 ±	2.79E+00	4.50E+00
CS-137		-7.58E-02 ±	3.20E+00	5.25E+00
BALA140		-7.24E-01 ±	3.64E+00	5.76E+00
K-40	+	1.53E+03 ±	1.33E+02	6.63E+01
FE-59		-2.23E-01 ±	8.63E+00	1.41E+01
ZRNB-95		0.00E+00 ±	6.19E+00	1.02E+01
BE-7		0.00E+00 ±	2.31E+01	3.80E+01

Collection Date: 2/5/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.30E+00 ±	3.77E+00	6.07E+00
CO-60		7.69E-01 ±	3.32E+00	5.32E+00
ZN-65		8.30E-01 ±	4.82E+00	7.74E+00
MN-54		-1.20E+00 ±	3.37E+00	5.37E+00
CS-134		-1.08E+00 ±	2.93E+00	4.68E+00
CS-137		0.00E+00 ±	3.20E+00	5.26E+00
BALA140		-5.81E-01 ±	3.03E+00	4.83E+00
K-40	+	1.35E+03 ±	1.13E+02	7.30E+01
FE-59		1.02E+00 ±	7.59E+00	1.23E+01
ZRNB-95		3.98E-02 ±	5.17E+00	8.49E+00
BE-7		-2.89E+00 ±	2.53E+01	4.13E+01

Collection Date: 3/12/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		5.24E-01 ±	3.46E+00	5.61E+00
CO-60		2.41E+00 ±	4.31E+00	6.88E+00
ZN-65		8.39E-01 ±	6.24E+00	1.01E+01
MN-54		1.22E+00 ±	2.98E+00	4.64E+00
CS-134		-4.34E-01 ±	2.58E+00	4.16E+00
CS-137		-1.79E-01 ±	3.00E+00	4.90E+00
BALA140		2.27E-02 ±	2.69E+00	4.42E+00
K-40	+	1.46E+03 ±	1.28E+02	6.21E+01
FE-59		-3.37E+00 ±	9.24E+00	1.44E+01
ZRNB-95		-1.12E+00 ±	5.54E+00	8.90E+00
BE-7		1.96E+00 ±	2.05E+01	3.34E+01

Collection Date: 4/9/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		3.90E+00 ±	3.93E+00	5.78E+00
CO-60		5.02E-01 ±	3.94E+00	6.35E+00
ZN-65		0.00E+00 ±	1.55E+01	2.55E+01
MN-54		-1.76E-01 ±	3.85E+00	6.29E+00
CS-134		-7.14E-01 ±	3.82E+00	6.16E+00
CS-137		-2.91E-01 ±	3.77E+00	6.14E+00
BALA140		-6.59E-01 ±	5.33E+00	8.60E+00
K-40	+	1.44E+03 ±	1.44E+02	8.56E+01
FE-59		-1.90E-01 ±	8.82E+00	1.45E+01
ZRNB-95		-7.90E-01 ±	6.99E+00	1.13E+01
BE-7		3.63E-02 ±	2.61E+01	4.30E+01

Collection Date: 4/23/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-1.56E-01 ±	3.93E+00	6.43E+00
CO-60		-7.39E-02 ±	4.66E+00	7.65E+00
ZN-65		5.51E-01 ±	8.09E+00	1.32E+01
MN-54		-6.14E-01 ±	3.65E+00	5.88E+00
CS-134		-1.82E+00 ±	4.01E+00	6.30E+00
CS-137		8.04E-01 ±	3.54E+00	5.65E+00
BALA140		2.14E+00 ±	3.62E+00	5.12E+00
K-40	+	1.50E+03 ±	1.46E+02	8.29E+01
FE-59		-1.06E+00 ±	1.05E+01	1.69E+01
ZRNB-95		-2.06E-02 ±	5.76E+00	9.47E+00
BE-7		-1.75E+00 ±	2.70E+01	4.40E+01

Collection Date: 5/7/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		1.86E+00 ±	2.68E+00	3.92E+00
CO-60		4.05E-01 ±	4.06E+00	6.58E+00
ZN-65		8.27E-03 ±	8.84E+00	1.46E+01
MN-54		2.27E+00 ±	3.85E+00	5.87E+00
CS-134		-4.31E-01 ±	3.09E+00	4.99E+00
CS-137		-6.65E-02 ±	3.68E+00	6.04E+00
BALA140		-1.41E+00 ±	5.01E+00	7.86E+00
K-40	+	1.42E+03 ±	1.42E+02	8.41E+01
FE-59		-2.79E+00 ±	9.87E+00	1.55E+01
ZRNB-95		6.32E-01 ±	5.47E+00	8.84E+00
BE-7		1.64E+01 ±	2.62E+01	3.99E+01

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

Collection Date: 5/21/2013					Collection Date: 6/4/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BA-133		0.00E+00 ±	3.14E+00	5.16E+00	BA-133		-1.08E+00 ±	4.38E+00	7.04E+00
CO-60		-1.57E+00 ±	4.52E+01	8.62E+00	CO-60		0.00E+00 ±	5.63E+00	9.25E+00
ZN-65		4.95E+00 ±	6.54E+00	9.32E+00	ZN-65		0.00E+00 ±	1.04E+01	1.70E+01
MN-54		-1.03E+00 ±	3.72E+00	5.91E+00	MN-54		0.00E+00 ±	4.83E+00	7.94E+00
CS-134		-1.72E+00 ±	3.28E+00	5.08E+00	CS-134		-2.15E+00 ±	4.46E+00	7.03E+00
CS-137		-1.40E+00 ±	3.67E+00	5.75E+00	CS-137		7.30E-01 ±	4.26E+00	6.87E+00
BALA140		-9.03E-01 ±	3.96E+00	6.20E+00	BALA140		0.00E+00 ±	1.13E+00	1.86E+00
K-40	+	1.40E+03 ±	1.39E+02	7.54E+01	K-40	+	1.55E+03 ±	1.46E+02	7.81E+01
FE-59		2.72E+00 ±	9.12E+00	1.43E+01	FE-59		2.01E+00 ±	8.81E+00	1.39E+01
ZRNB-95		6.95E-01 ±	5.52E+00	8.92E+00	ZRNB-95		-3.27E-02 ±	5.96E+00	9.80E+00
BE-7		1.66E+00 ±	2.08E+01	3.38E+01	BE-7		-9.45E+00 ±	2.72E+01	4.29E+01

Collection Date: 6/18/2013					Collection Date: 7/9/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BA-133		-1.96E-01 ±	3.45E+00	5.64E+00	BA-133		-6.50E-01 ±	4.66E+00	7.58E+00
CO-60		3.08E+00 ±	4.80E+00	7.26E+00	CO-60		3.56E-01 ±	4.25E+00	7.18E+00
ZN-65		3.18E-02 ±	8.45E+00	1.39E+01	ZN-65		2.81E+00 ±	6.38E+00	9.69E+00
MN-54		-6.56E-01 ±	3.44E+00	5.50E+00	MN-54		-1.28E+00 ±	3.49E+00	5.47E+00
CS-134		0.00E+00 ±	4.63E+00	7.62E+00	CS-134		-1.90E+00 ±	3.42E+00	5.30E+00
CS-137		1.61E+00 ±	3.48E+00	5.36E+00	CS-137		-1.09E+00 ±	3.51E+00	5.55E+00
BALA140		6.60E-01 ±	4.24E+00	6.76E+00	BALA140		5.32E-01 ±	3.80E+00	6.06E+00
K-40	+	1.46E+03 ±	1.40E+02	7.29E+01	K-40	+	1.54E+03 ±	1.44E+02	7.24E+01
FE-59		-1.27E+00 ±	9.53E+00	1.53E+01	FE-59		4.75E+00 ±	9.51E+00	1.44E+01
ZRNB-95		3.09E+00 ±	6.28E+00	9.67E+00	ZRNB-95		1.06E+00 ±	5.81E+00	9.32E+00
BE-7		1.51E+01 ±	2.41E+01	3.64E+01	BE-7		-5.25E-01 ±	2.81E+01	4.62E+01

Collection Date: 7/23/2013					Collection Date: 8/6/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BA-133		0.00E+00 ±	4.99E+00	8.20E+00	BA-133		-7.70E-01 ±	3.31E+00	5.30E+00
CO-60		-2.28E+00 ±	5.55E+00	8.72E+00	CO-60		-1.26E+00 ±	5.91E+01	1.12E+01
ZN-65		-2.24E-01 ±	7.30E+00	1.20E+01	ZN-65		-1.19E+00 ±	8.32E+00	1.34E+01
MN-54		1.26E+00 ±	3.18E+00	4.92E+00	MN-54		-7.33E-01 ±	3.64E+00	5.84E+00
CS-134		-2.06E+00 ±	4.09E+00	6.40E+00	CS-134		1.44E+00 ±	3.01E+00	4.66E+00
CS-137		0.00E+00 ±	3.98E+00	6.55E+00	CS-137		2.59E-01 ±	3.08E+00	5.01E+00
BALA140		-4.08E-01 ±	3.28E+00	5.22E+00	BALA140		-8.63E-01 ±	3.94E+00	6.19E+00
K-40	+	1.45E+03 ±	1.41E+02	7.65E+01	K-40	+	1.30E+03 ±	1.32E+02	7.06E+01
FE-59		-4.45E-01 ±	1.12E+01	1.83E+01	FE-59		-1.38E+00 ±	9.89E+00	1.59E+01
ZRNB-95		-1.57E+00 ±	6.51E+00	1.04E+01	ZRNB-95		0.00E+00 ±	6.20E+00	1.02E+01
BE-7		-3.46E+00 ±	2.74E+01	4.44E+01	BE-7		-9.27E+00 ±	3.08E+01	4.92E+01

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

Collection Date: 8/20/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		3.63E-02 ±	3.85E+00	6.32E+00
CO-60		-1.24E+00 ±	4.20E+02	7.10E+00
ZN-65		-3.87E-01 ±	7.28E+00	1.19E+01
MN-54		8.84E-02 ±	3.31E+00	5.41E+00
CS-134		-7.97E-02 ±	2.92E+00	4.78E+00
CS-137		-2.74E-01 ±	3.38E+00	5.50E+00
BALA140		3.02E-01 ±	4.14E+00	6.70E+00
K-40	+	1.44E+03 ±	1.37E+02	6.31E+01
FE-59		-4.29E-01 ±	9.77E+00	1.60E+01
ZRNB-95		-1.01E+00 ±	5.83E+00	9.37E+00
BE-7		1.37E+01 ±	2.24E+01	3.39E+01

Collection Date: 9/3/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-2.03E+00 ±	4.32E+00	6.79E+00
CO-60		4.81E-01 ±	4.53E+00	7.35E+00
ZN-65		-4.87E+00 ±	9.28E+00	1.43E+01
MN-54		1.03E+00 ±	3.34E+00	5.26E+00
CS-134		8.25E-01 ±	2.64E+00	4.15E+00
CS-137		5.61E-01 ±	3.50E+00	5.64E+00
BALA140		-1.35E-01 ±	3.97E+00	6.48E+00
K-40	+	1.41E+03 ±	1.42E+02	8.53E+01
FE-59		4.16E+00 ±	9.94E+00	1.53E+01
ZRNB-95		-1.30E+00 ±	6.47E+00	1.04E+01
BE-7		-1.15E+01 ±	2.92E+01	4.60E+01

Collection Date: 9/3/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-2.16E+00 ±	4.77E+00	7.53E+00
CO-60		1.08E-01 ±	4.32E+00	7.07E+00
ZN-65		0.00E+00 ±	8.98E+00	1.48E+01
MN-54		-7.72E-01 ±	3.27E+00	5.20E+00
CS-134		1.34E+00 ±	3.81E+00	6.05E+00
CS-137		5.93E-01 ±	3.67E+00	5.91E+00
BALA140		0.00E+00 ±	4.84E+00	7.96E+00
K-40	+	1.50E+03 ±	1.42E+02	7.29E+01
FE-59		2.28E-01 ±	9.50E+00	1.56E+01
ZRNB-95		1.65E-01 ±	6.10E+00	9.99E+00
BE-7		-1.77E+00 ±	2.46E+01	4.00E+01

Collection Date: 10/15/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		3.03E-01 ±	3.25E+00	5.28E+00
CO-60		-1.96E+00 ±	1.87E+01	7.06E+00
ZN-65		1.55E-01 ±	7.59E+00	1.24E+01
MN-54		-1.05E+00 ±	4.07E+00	6.50E+00
CS-134		3.05E-01 ±	4.01E+00	6.55E+00
CS-137		-6.17E-01 ±	3.71E+00	5.99E+00
BALA140		1.60E+00 ±	3.46E+00	5.04E+00
K-40	+	1.47E+03 ±	1.42E+02	7.30E+01
FE-59		-4.29E+00 ±	1.13E+01	1.78E+01
ZRNB-95		-6.73E-01 ±	5.38E+00	8.69E+00
BE-7		1.75E+01 ±	2.44E+01	3.66E+01

Collection Date: 11/5/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-5.36E-01 ±	3.78E+00	6.12E+00
CO-60		4.70E-01 ±	4.48E+00	7.53E+00
ZN-65		-1.08E+00 ±	7.03E+00	1.13E+01
MN-54		0.00E+00 ±	2.57E+00	4.23E+00
CS-134		1.15E+00 ±	2.84E+00	4.43E+00
CS-137		-2.87E-03 ±	3.46E+00	5.66E+00
BALA140		-9.58E-02 ±	3.51E+00	5.74E+00
K-40	+	1.41E+03 ±	1.46E+02	8.95E+01
FE-59		2.29E+00 ±	9.03E+00	1.42E+01
ZRNB-95		-7.02E-01 ±	5.41E+00	8.74E+00
BE-7		3.22E+00 ±	2.40E+01	3.89E+01

Collection Date: 12/10/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-5.43E-01 ±	3.74E+00	6.06E+00
CO-60		-2.84E-01 ±	4.30E+00	7.01E+00
ZN-65		-1.76E+00 ±	9.83E+00	1.58E+01
MN-54		1.48E-01 ±	3.49E+00	5.70E+00
CS-134		-1.33E+00 ±	4.10E+00	6.53E+00
CS-137		5.47E-01 ±	3.70E+00	5.97E+00
BALA140		-8.52E-01 ±	3.52E+00	5.43E+00
K-40	+	1.42E+03 ±	1.46E+02	9.09E+01
FE-59		1.43E+00 ±	9.33E+00	1.50E+01
ZRNB-95		-3.41E+00 ±	6.78E+00	1.05E+01
BE-7		1.44E+01 ±	2.36E+01	3.56E+01

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

Collection Date: 1/8/2013					Collection Date: 2/5/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BA-133		-5.29E-02 ±	3.07E+00	5.04E+00	BA-133		0.00E+00 ±	4.04E+00	6.65E+00
CO-60		4.94E-01 ±	4.18E+00	6.76E+00	CO-60		-1.26E+00 ±	6.40E+01	1.03E+01
ZN-65		-2.63E+00 ±	1.01E+01	1.60E+01	ZN-65		-2.75E+00 ±	7.96E+00	1.26E+01
MN-54		4.62E-01 ±	2.72E+00	4.34E+00	MN-54		2.08E-01 ±	3.29E+00	5.37E+00
CS-134		-1.22E+00 ±	3.51E+00	5.56E+00	CS-134		-7.13E-01 ±	3.25E+00	5.24E+00
CS-137		0.00E+00 ±	4.20E+00	6.91E+00	CS-137		8.69E-01 ±	2.98E+00	4.72E+00
BALA140		0.00E+00 ±	5.08E+00	8.35E+00	BALA140		-3.56E-01 ±	4.26E+00	6.90E+00
K-40	+	1.46E+03 ±	1.45E+02	8.65E+01	K-40	+	1.58E+03 ±	1.35E+02	6.98E+01
FE-59		-2.90E+00 ±	1.12E+01	1.78E+01	FE-59		2.07E+00 ±	7.31E+00	1.14E+01
ZRNB-95		-2.12E-01 ±	5.83E+00	9.54E+00	ZRNB-95		-1.83E-03 ±	4.64E+00	7.64E+00
BE-7		-6.15E-01 ±	2.57E+01	4.22E+01	BE-7		2.54E+00 ±	2.28E+01	3.71E+01

Collection Date: 3/12/2013					Collection Date: 4/9/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BA-133		-2.53E+00 ±	4.26E+00	6.61E+00	BA-133		-1.49E+00 ±	3.90E+00	6.22E+00
CO-60		1.05E-01 ±	4.15E+00	6.79E+00	CO-60		1.98E+00 ±	3.94E+00	6.33E+00
ZN-65		0.00E+00 ±	1.64E+01	2.69E+01	ZN-65		-3.41E+00 ±	7.51E+00	1.17E+01
MN-54		7.42E-01 ±	2.52E+00	3.92E+00	MN-54		-1.81E-01 ±	2.77E+00	4.52E+00
CS-134		-1.17E+00 ±	3.46E+00	5.48E+00	CS-134		-3.80E-01 ±	2.89E+00	4.69E+00
CS-137		6.74E-01 ±	3.92E+00	6.31E+00	CS-137		5.12E-01 ±	2.64E+00	4.22E+00
BALA140		5.15E-01 ±	3.76E+00	6.00E+00	BALA140		-5.72E-01 ±	3.79E+00	6.06E+00
K-40	+	1.39E+03 ±	1.40E+02	8.13E+01	K-40	+	1.30E+03 ±	1.23E+02	6.59E+01
FE-59		-6.26E-01 ±	9.94E+00	1.62E+01	FE-59		2.79E+00 ±	8.85E+00	1.39E+01
ZRNB-95		3.87E+00 ±	5.82E+00	8.67E+00	ZRNB-95		4.90E-01 ±	4.81E+00	7.80E+00
BE-7		1.12E+01 ±	2.62E+01	4.10E+01	BE-7		-1.84E-01 ±	2.37E+01	3.90E+01

Collection Date: 4/23/2013					Collection Date: 5/7/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BA-133		-1.39E+00 ±	3.85E+00	6.14E+00	BA-133		4.51E-03 ±	4.00E+00	6.56E+00
CO-60		-2.61E+00 ±	1.22E+01	7.20E+00	CO-60		-2.18E-01 ±	5.98E+00	7.25E+00
ZN-65		8.87E-01 ±	5.82E+00	9.33E+00	ZN-65		-1.10E+00 ±	8.39E+00	1.36E+01
MN-54		-4.16E-01 ±	3.03E+00	4.90E+00	MN-54		6.18E-01 ±	3.20E+00	5.12E+00
CS-134		-1.27E+00 ±	3.37E+00	5.36E+00	CS-134		4.08E-01 ±	2.66E+00	4.28E+00
CS-137		2.08E-01 ±	2.19E+00	3.55E+00	CS-137		1.63E+00 ±	3.34E+00	5.14E+00
BALA140		-1.18E+00 ±	3.57E+00	5.49E+00	BALA140		-7.89E-01 ±	4.35E+00	6.91E+00
K-40	+	1.40E+03 ±	1.34E+02	8.21E+01	K-40	+	1.52E+03 ±	1.42E+02	6.85E+01
FE-59		2.96E+00 ±	7.86E+00	1.21E+01	FE-59		5.58E+00 ±	9.26E+00	1.37E+01
ZRNB-95		-3.06E+00 ±	6.77E+00	1.07E+01	ZRNB-95		-1.40E-01 ±	4.41E+00	7.22E+00
BE-7		1.05E+01 ±	2.08E+01	3.22E+01	BE-7		-4.47E+00 ±	2.47E+01	3.98E+01

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

Collection Date: 5/21/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-1.64E+00 ±	4.29E+00	6.82E+00
CO-60		-2.14E+00 ±	1.48E+01	6.71E+00
ZN-65		-1.91E+00 ±	8.71E+00	1.39E+01
MN-54		0.00E+00 ±	4.24E+00	6.97E+00
CS-134		-3.30E-01 ±	2.11E+00	3.38E+00
CS-137		0.00E+00 ±	3.79E+00	6.23E+00
BALA140		0.00E+00 ±	1.19E+00	1.95E+00
K-40	+	1.56E+03 ±	1.44E+02	6.87E+01
FE-59		-8.75E-01 ±	1.01E+01	1.63E+01
ZRNB-95		2.03E+00 ±	5.66E+00	8.85E+00
BE-7		1.03E+00 ±	2.51E+01	4.11E+01

Collection Date: 6/4/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-1.53E+00 ±	4.10E+00	6.50E+00
CO-60		1.55E+00 ±	4.30E+00	7.01E+00
ZN-65		-9.19E-02 ±	7.29E+00	1.20E+01
MN-54		-8.37E-01 ±	3.38E+00	5.38E+00
CS-134		4.81E-01 ±	2.97E+00	4.78E+00
CS-137		-5.37E-01 ±	3.63E+00	5.86E+00
BALA140		0.00E+00 ±	4.73E+00	7.78E+00
K-40	+	1.42E+03 ±	1.37E+02	6.71E+01
FE-59		2.54E+00 ±	8.21E+00	1.27E+01
ZRNB-95		-2.06E-01 ±	5.74E+00	9.39E+00
BE-7		1.77E+01 ±	2.62E+01	3.98E+01

Collection Date: 6/18/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-4.92E-01 ±	3.78E+00	6.13E+00
CO-60		-6.14E-01 ±	1.27E+01	7.59E+00
ZN-65		4.03E+00 ±	9.16E+00	1.43E+01
MN-54		-7.32E-01 ±	3.08E+00	4.88E+00
CS-134		1.11E+00 ±	3.07E+00	4.83E+00
CS-137		0.00E+00 ±	3.73E+00	6.13E+00
BALA140		1.99E-02 ±	4.53E+00	7.44E+00
K-40	+	1.40E+03 ±	1.44E+02	8.51E+01
FE-59		2.93E-01 ±	7.35E+00	1.20E+01
ZRNB-95		-5.55E-02 ±	5.84E+00	9.59E+00
BE-7		-5.09E+00 ±	2.43E+01	3.90E+01

Collection Date: 7/9/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-1.47E+00 ±	3.57E+00	5.62E+00
CO-60		-3.23E-02 ±	4.76E+00	7.69E+00
ZN-65		1.68E+00 ±	7.48E+00	1.19E+01
MN-54		0.00E+00 ±	3.22E+00	5.29E+00
CS-134		3.17E+00 ±	3.06E+00	4.38E+00
CS-137		0.00E+00 ±	5.44E+00	8.95E+00
BALA140		0.00E+00 ±	4.74E+00	7.79E+00
K-40	+	1.49E+03 ±	1.44E+02	7.74E+01
FE-59		-3.55E-01 ±	7.94E+00	1.30E+01
ZRNB-95		0.00E+00 ±	6.83E+00	1.12E+01
BE-7		5.47E+00 ±	2.47E+01	3.96E+01

Collection Date: 7/23/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		3.10E+00 ±	3.57E+00	5.28E+00
CO-60		1.08E+00 ±	4.73E+00	7.55E+00
ZN-65		1.95E-02 ±	9.03E+00	1.48E+01
MN-54		0.00E+00 ±	4.46E+00	7.33E+00
CS-134		1.71E+00 ±	4.02E+00	6.34E+00
CS-137		2.36E-01 ±	3.79E+00	6.18E+00
BALA140		-2.09E-01 ±	3.81E+00	6.19E+00
K-40	+	1.36E+03 ±	1.35E+02	7.29E+01
FE-59		-3.27E-01 ±	8.10E+00	1.32E+01
ZRNB-95		-5.50E-01 ±	6.04E+00	9.82E+00
BE-7		6.48E+00 ±	2.53E+01	4.03E+01

Collection Date: 8/6/2013				
Nuclide	RQ	Activity	Error	MDA
BA-133		-1.31E+00 ±	4.26E+00	6.79E+00
CO-60		-1.07E-01 ±	4.36E+00	7.14E+00
ZN-65		-3.94E+00 ±	9.95E+00	1.56E+01
MN-54		-1.00E-01 ±	3.07E+00	5.02E+00
CS-134		-2.26E-01 ±	3.47E+00	5.66E+00
CS-137		0.00E+00 ±	3.48E+00	5.72E+00
BALA140		7.20E-01 ±	4.03E+00	6.39E+00
K-40	+	1.41E+03 ±	1.45E+02	8.95E+01
FE-59		-2.65E+00 ±	9.99E+00	1.58E+01
ZRNB-95		0.00E+00 ±	7.89E+00	1.30E+01
BE-7		-3.99E+00 ±	2.58E+01	4.17E+01

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

Collection Date: 8/20/2013					Collection Date: 9/3/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BA-133		-1.20E-01 ±	4.21E+00	6.90E+00	BA-133		-1.09E+00 ±	4.39E+00	7.06E+00
CO-60		0.00E+00 ±	3.86E+00	6.35E+00	CO-60		-1.49E+00 ±	5.31E+00	8.45E+00
ZN-65		-2.59E-01 ±	9.10E+00	1.49E+01	ZN-65		2.43E-01 ±	6.29E+00	1.03E+01
MN-54		1.40E+00 ±	3.14E+00	4.82E+00	MN-54		6.13E-02 ±	4.37E+00	7.17E+00
CS-134		-8.36E-01 ±	3.37E+00	5.39E+00	CS-134		2.71E-01 ±	3.55E+00	5.78E+00
CS-137		3.52E-02 ±	3.54E+00	5.81E+00	CS-137		-6.45E-01 ±	4.04E+00	6.53E+00
BALA140		-1.05E+00 ±	4.27E+00	6.69E+00	BALA140		-1.84E+00 ±	4.94E+00	7.61E+00
K-40	+	1.43E+03 ±	1.38E+02	7.29E+01	K-40	+	1.44E+03 ±	1.46E+02	8.79E+01
FE-59		-8.53E-01 ±	9.77E+00	1.58E+01	FE-59		0.00E+00 ±	9.63E+00	1.58E+01
ZRNB-95		-9.06E-01 ±	5.94E+00	9.56E+00	ZRNB-95		0.00E+00 ±	5.98E+00	9.83E+00
BE-7		-6.65E+00 ±	2.79E+01	4.46E+01	BE-7		-3.91E-01 ±	2.13E+01	3.49E+01

Collection Date: 9/3/2013					Collection Date: 10/15/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BA-133		-4.43E-01 ±	3.77E+00	6.13E+00	BA-133		-7.23E-02 ±	4.00E+00	6.56E+00
CO-60		-9.71E-01 ±	3.07E+01	7.01E+00	CO-60		-7.48E-01 ±	5.25E+00	8.50E+00
ZN-65		-1.55E+00 ±	7.97E+00	1.28E+01	ZN-65		1.34E+00 ±	8.14E+00	1.31E+01
MN-54		0.00E+00 ±	3.88E+00	6.39E+00	MN-54		1.00E-01 ±	3.30E+00	5.40E+00
CS-134		-4.61E-01 ±	3.06E+00	4.94E+00	CS-134		-1.41E-01 ±	3.03E+00	4.96E+00
CS-137		2.49E-01 ±	3.23E+00	5.26E+00	CS-137		1.14E+00 ±	3.49E+00	5.48E+00
BALA140		-1.11E+00 ±	4.67E+00	7.36E+00	BALA140		-3.39E-01 ±	4.50E+00	7.30E+00
K-40	+	1.29E+03 ±	1.32E+02	7.12E+01	K-40	+	1.39E+03 ±	1.41E+02	8.27E+01
FE-59		-1.38E+00 ±	9.69E+00	1.56E+01	FE-59		1.32E-01 ±	8.68E+00	1.42E+01
ZRNB-95		1.99E-02 ±	5.68E+00	9.33E+00	ZRNB-95		-4.79E-01 ±	5.50E+00	8.93E+00
BE-7		-1.93E+00 ±	2.29E+01	3.73E+01	BE-7		-3.68E+00 ±	2.46E+01	3.97E+01

Collection Date: 11/5/2013					Collection Date: 12/10/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
BA-133		-1.18E+00 ±	4.16E+00	6.65E+00	BA-133		-1.03E-01 ±	4.48E+00	7.36E+00
CO-60		2.58E+00 ±	4.06E+00	6.04E+00	CO-60		-1.71E-01 ±	4.92E+00	8.06E+00
ZN-65		-1.76E-01 ±	7.96E+00	1.30E+01	ZN-65		0.00E+00 ±	1.72E+01	2.82E+01
MN-54		-3.20E-01 ±	3.75E+00	6.10E+00	MN-54		0.00E+00 ±	4.83E+00	7.94E+00
CS-134		5.99E-02 ±	3.23E+00	5.29E+00	CS-134		-1.71E+00 ±	3.66E+00	5.73E+00
CS-137		1.79E+00 ±	3.18E+00	4.80E+00	CS-137		-9.56E-01 ±	4.18E+00	6.70E+00
BALA140		0.00E+00 ±	1.14E+00	1.87E+00	BALA140		0.00E+00 ±	1.13E+00	1.87E+00
K-40	+	1.41E+03 ±	1.42E+02	8.35E+01	K-40	+	1.29E+03 ±	1.35E+02	8.08E+01
FE-59		5.71E-01 ±	9.01E+00	1.47E+01	FE-59		-3.04E+00 ±	1.09E+01	1.72E+01
ZRNB-95		-1.76E+00 ±	6.63E+00	1.06E+01	ZRNB-95		1.83E-01 ±	6.14E+00	1.01E+01
BE-7		-1.22E+00 ±	2.57E+01	4.20E+01	BE-7		1.60E+01 ±	2.45E+01	3.70E+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	-6.56E-01	-2.53E+00	3.10E+00	6.05E+00	18	0
BA-133	Cntl	-5.33E-02	-2.16E+00	3.90E+00	5.82E+00	18	0
BALA140	Ind	-3.44E-01	-1.84E+00	7.20E-01	5.79E+00	18	0
BALA140	Cntl	1.84E-02	-1.41E+00	2.14E+00	5.59E+00	18	0
BE-7	Ind	2.37E+00	-6.65E+00	1.77E+01	3.73E+01	18	0
BE-7	Cntl	2.41E+00	-1.15E+01	1.75E+01	3.81E+01	18	0
CO-60	Ind	-1.43E-01	-2.61E+00	2.58E+00	6.99E+00	18	0
CO-60	Cntl	-9.68E-02	-2.28E+00	3.08E+00	7.15E+00	18	0
CS-134	Ind	-6.87E-02	-1.71E+00	3.17E+00	4.85E+00	18	0
CS-134	Cntl	-2.98E-01	-2.15E+00	1.90E+00	5.23E+00	18	0
CS-137	Ind	2.89E-01	-9.56E-01	1.79E+00	5.50E+00	18	0
CS-137	Cntl	6.16E-02	-1.40E+00	1.61E+00	5.42E+00	18	0
FE-59	Ind	2.19E-01	-3.04E+00	5.58E+00	1.38E+01	18	0
FE-59	Cntl	1.76E-01	-4.29E+00	4.75E+00	1.44E+01	18	0
K-40	Ind	1.42E+03	1.29E+03	1.58E+03	7.34E+01	18	18
K-40	Cntl	1.45E+03	1.30E+03	1.55E+03	7.23E+01	18	18
MN-54	Ind	5.58E-02	-8.37E-01	1.40E+00	5.31E+00	18	0
MN-54	Cntl	-7.71E-02	-1.28E+00	2.27E+00	5.33E+00	18	0
ZN-65	Ind	-5.35E-01	-3.94E+00	4.03E+00	1.39E+01	18	0
ZN-65	Cntl	7.17E-02	-4.87E+00	4.95E+00	1.26E+01	18	0
ZRNB-95	Ind	-4.39E-02	-3.06E+00	3.87E+00	9.03E+00	18	0
ZRNB-95	Cntl	-2.75E-01	-3.41E+00	3.09E+00	9.11E+00	18	0

TABLE A-15.1
GAMMA SPECTROMETRY RESULTS OF ROOT CROPS

Results in pCi/ kilogram (wet)

Station 37 is Indicator - Station 9c is Control

Station 37 Potato collected				7/2/2013
Nuclide	RQ	Activity	Error	MDA
K-40	+	3.20E+03	± 3.29E+02	1.48E+02
MN-54		-1.57E-01	± 6.25E+00	1.02E+01
CO-58		2.70E+00	± 4.78E+00	6.79E+00
FE-59		3.76E-02	± 1.73E+01	2.84E+01
CO-60		3.84E+00	± 9.03E+00	1.38E+01
ZN-65		1.29E+00	± 1.68E+01	2.73E+01
ZRNB-95		-3.54E-01	± 9.43E+00	1.54E+01
I-131		-2.49E+00	± 6.34E+00	9.92E+00
CS-134		2.25E+00	± 4.54E+00	6.73E+00
CS-137		3.92E+00	± 6.95E+00	1.04E+01
BALA140		-1.46E+00	± 8.21E+00	1.29E+01

Station 37 Potato collected				8/27/2013
Nuclide	RQ	Activity	Error	MDA
K-40	+	3.40E+03	± 2.92E+02	1.87E+02
MN-54		0.00E+00	± 9.97E+00	1.64E+01
CO-58		-8.67E-01	± 7.13E+00	1.16E+01
FE-59		1.35E+00	± 2.14E+01	3.50E+01
CO-60		-2.17E+00	± 2.53E+01	1.52E+01
ZN-65		2.05E+00	± 1.96E+01	3.19E+01
ZRNB-95		9.05E+00	± 1.54E+01	2.39E+01
I-131		-1.38E+00	± 7.87E+00	1.28E+01
CS-134		2.82E+00	± 6.88E+00	1.09E+01
CS-137		4.42E+00	± 8.66E+00	1.36E+01
BALA140		-1.87E-01	± 8.84E+00	1.45E+01

Station 37 Onion collected				7/16/2013
Nuclide	RQ	Activity	Error	MDA
K-40	+	7.65E+02	± 2.03E+02	2.29E+02
MN-54		-6.13E+00	± 1.01E+01	1.56E+01
CO-58		2.45E+00	± 7.73E+00	1.22E+01
FE-59		3.76E+00	± 2.25E+01	3.61E+01
CO-60		-9.91E-01	± 1.41E+01	1.73E+01
ZN-65		5.51E+00	± 1.99E+01	3.17E+01
ZRNB-95		5.70E-02	± 1.34E+01	2.20E+01
I-131		0.00E+00	± 1.02E+01	1.68E+01
CS-134		5.27E+00	± 8.90E+00	1.39E+01
CS-137		1.78E+00	± 9.33E+00	1.50E+01
BALA140		2.01E-01	± 1.04E+01	1.71E+01

Station 37 Onion collected				8/27/2013
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.64E+03	± 2.40E+02	2.39E+02
MN-54		3.47E+00	± 8.34E+00	1.31E+01
CO-58		-5.26E+00	± 1.10E+01	1.74E+01
FE-59		-9.18E+00	± 2.84E+01	4.51E+01
CO-60		-1.44E+00	± 8.93E+00	1.44E+01
ZN-65		-8.32E+00	± 2.46E+01	3.92E+01
ZRNB-95		-2.30E+00	± 1.66E+01	2.69E+01
I-131		-3.72E+00	± 1.13E+01	1.82E+01
CS-134		-6.33E+00	± 1.31E+01	2.10E+01
CS-137		-2.55E+00	± 1.04E+01	1.67E+01
BALA140		8.72E-02	± 9.30E+00	1.53E+01

Station 37 Potato collected				7/30/2013
Nuclide	RQ	Activity	Error	MDA
K-40	+	4.31E+03	± 4.20E+02	3.24E+02
MN-54		0.00E+00	± 1.47E+01	2.42E+01
CO-58		2.34E+00	± 1.20E+01	1.94E+01
FE-59		0.00E+00	± 3.39E+01	5.57E+01
CO-60		-1.72E+00	± 1.15E+01	1.86E+01
ZN-65		-1.39E+01	± 3.48E+01	5.55E+01
ZRNB-95		-3.70E+00	± 2.43E+01	3.94E+01
I-131		-5.81E+00	± 1.29E+01	2.05E+01
CS-134		-6.37E+00	± 1.62E+01	2.61E+01
CS-137		-7.99E+00	± 1.56E+01	2.46E+01
BALA140		6.69E+00	± 1.26E+01	1.91E+01

Station 9c Potato collected				8/9/2013
Nuclide	RQ	Activity	Error	MDA
K-40	+	3.78E+03	± 3.60E+02	2.74E+02
MN-54		1.08E-01	± 9.07E+00	1.49E+01
CO-58		-1.51E+00	± 1.11E+01	1.81E+01
FE-59		7.26E-01	± 2.89E+01	4.74E+01
CO-60		-3.70E+00	± 1.37E+01	2.19E+01
ZN-65		-1.28E+01	± 2.74E+01	4.32E+01
ZRNB-95		-6.99E+00	± 2.08E+01	3.32E+01
I-131		-5.93E+00	± 1.43E+01	2.29E+01
CS-134		-3.69E+00	± 1.37E+01	2.23E+01
CS-137		-2.75E+00	± 1.30E+01	2.11E+01
BALA140		2.32E-01	± 1.25E+01	2.05E+01

TABLE A - 15.2
GAMMA SPECTROMETRY RESULTS OF ROOT CROPS - SUMMARY

Results in pCi/ kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	1.07E+00	-1.46E+00	6.69E+00	1.58E+01	5	0
BALA140	cntl	2.32E-01	2.32E-01	2.32E-01	2.05E+01	1	0
CO-58	Ind	2.72E-01	-5.26E+00	2.70E+00	1.35E+01	5	0
CO-58	cntl	-1.51E+00	-1.51E+00	-1.51E+00	1.81E+01	1	0
CO-60	Ind	-4.96E-01	-2.17E+00	3.84E+00	1.58E+01	5	0
CO-60	cntl	-3.70E+00	-3.70E+00	-3.70E+00	2.19E+01	1	0
CS-134	Ind	-4.74E-01	-6.37E+00	5.27E+00	1.57E+01	5	0
CS-134	cntl	-3.69E+00	-3.69E+00	-3.69E+00	2.23E+01	1	0
CS-137	Ind	-8.42E-02	-7.99E+00	4.42E+00	1.61E+01	5	0
CS-137	cntl	-2.75E+00	-2.75E+00	-2.75E+00	2.11E+01	1	0
FE-59	Ind	-8.08E-01	-9.18E+00	3.76E+00	4.01E+01	5	0
FE-59	cntl	7.26E-01	7.26E-01	7.26E-01	4.74E+01	1	0
I-131	Ind	-2.68E+00	-5.81E+00	0.00E+00	1.56E+01	5	0
I-131	cntl	-5.93E+00	-5.93E+00	-5.93E+00	2.29E+01	1	0
K-40	Ind	2.66E+03	7.65E+02	4.31E+03	2.26E+02	5	5
K-40	cntl	3.78E+03	3.78E+03	3.78E+03	2.74E+02	1	1
MN-54	Ind	-5.64E-01	-6.13E+00	3.47E+00	1.59E+01	5	0
MN-54	cntl	1.08E-01	1.08E-01	1.08E-01	1.49E+01	1	0
ZN-65	Ind	-2.68E+00	-1.39E+01	5.51E+00	3.71E+01	5	0
ZN-65	cntl	-1.28E+01	-1.28E+01	-1.28E+01	4.32E+01	1	0
ZRNB-95	Ind	5.51E-01	-3.70E+00	9.05E+00	2.55E+01	5	0
ZRNB-95	cntl	-6.99E+00	-6.99E+00	-6.99E+00	3.32E+01	1	0

TABLE A-16.1
GAMMA SPECTROMETRY RESULTS OF FRUITS

Results in pCi/ kilogram (wet)

Station 37 is Indicator - Station 9c is Control

Station 37 Peaches collected 7/12/2013				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.42E+03 ±	2.10E+02	1.34E+02
MN-54		-1.86E+00 ±	6.48E+00	1.02E+01
CO-58		0.00E+00 ±	1.05E+01	1.73E+01
FE-59		2.07E+00 ±	1.89E+01	3.04E+01
CO-60		3.06E+00 ±	5.73E+00	8.25E+00
ZN-65		-1.15E-01 ±	1.43E+01	2.34E+01
ZRNB-95		0.00E+00 ±	1.14E+01	1.88E+01
I-131		-2.40E+00 ±	7.21E+00	1.14E+01
CS-134		-2.61E+00 ±	6.73E+00	1.05E+01
CS-137		-1.50E+00 ±	5.07E+00	7.83E+00
BALA140		0.00E+00 ±	1.17E+01	1.92E+01

Station 37 Apples collected 8/14/2013				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.21E+03 ±	2.68E+02	3.30E+02
MN-54		8.18E-01 ±	1.25E+01	2.04E+01
CO-58		0.00E+00 ±	1.27E+01	2.09E+01
FE-59		-1.62E+01 ±	4.12E+01	6.49E+01
CO-60		-7.15E-01 ±	1.39E+01	2.28E+01
ZN-65		-4.40E+00 ±	2.93E+01	4.74E+01
ZRNB-95		2.75E+00 ±	2.43E+01	3.96E+01
I-131		-8.94E+00 ±	3.10E+01	5.00E+01
CS-134		-1.04E+01 ±	1.86E+01	2.96E+01
CS-137		-2.67E+00 ±	1.42E+01	2.30E+01
BALA140		7.26E+00 ±	2.20E+01	3.44E+01

Station 37 Peaches collected 7/30/2013				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.92E+03 ±	2.42E+02	1.94E+02
MN-54		6.46E+00 ±	7.45E+00	1.10E+01
CO-58		0.00E+00 ±	6.45E+00	1.06E+01
FE-59		-5.65E+00 ±	2.30E+01	3.67E+01
CO-60		8.88E-01 ±	9.06E+00	1.56E+01
ZN-65		1.44E+01 ±	1.72E+01	2.53E+01
ZRNB-95		7.49E-01 ±	1.23E+01	2.00E+01
I-131		4.68E+00 ±	8.88E+00	1.41E+01
CS-134		0.00E+00 ±	1.02E+01	1.68E+01
CS-137		-3.43E+00 ±	9.20E+00	1.46E+01
BALA140		0.00E+00 ±	8.73E+00	1.44E+01

Station 37 Peaches collected 8/27/2013				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.46E+03 ±	1.96E+02	1.91E+02
MN-54		2.15E+00 ±	7.40E+00	1.18E+01
CO-58		5.96E+00 ±	7.55E+00	1.15E+01
FE-59		-7.52E-01 ±	1.90E+01	3.11E+01
CO-60		-2.15E-01 ±	7.38E+00	1.21E+01
ZN-65		0.00E+00 ±	2.77E+01	4.56E+01
ZRNB-95		4.32E-01 ±	1.28E+01	2.09E+01
I-131		-5.40E+00 ±	9.01E+00	1.43E+01
CS-134		6.29E-01 ±	8.86E+00	1.45E+01
CS-137		-1.74E+00 ±	8.33E+00	1.35E+01
BALA140		4.17E-01 ±	5.91E+00	9.59E+00

Station 37 Apples collected 8/9/2013				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.19E+03 ±	2.46E+02	2.65E+02
MN-54		1.86E+00 ±	1.09E+01	1.76E+01
CO-58		-3.45E-02 ±	1.23E+01	2.02E+01
FE-59		-6.43E+00 ±	2.97E+01	4.74E+01
CO-60		-5.24E-01 ±	1.47E+01	2.21E+01
ZN-65		-5.75E+00 ±	2.67E+01	4.29E+01
ZRNB-95		-3.22E+00 ±	1.69E+01	2.71E+01
I-131		5.24E+00 ±	1.05E+01	1.64E+01
CS-134		-3.49E+00 ±	1.42E+01	2.30E+01
CS-137		3.37E+00 ±	1.02E+01	1.60E+01
BALA140		5.88E+00 ±	1.37E+01	2.07E+01

Station 37 Apples collected 9/10/2013				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.53E+03 ±	2.30E+02	2.11E+02
MN-54		-2.99E+00 ±	9.79E+00	1.56E+01
CO-58		-3.05E+00 ±	8.28E+00	1.30E+01
FE-59		7.20E-01 ±	2.03E+01	3.32E+01
CO-60		1.72E+00 ±	1.06E+01	1.80E+01
ZN-65		2.22E+00 ±	2.11E+01	3.43E+01
ZRNB-95		-2.04E-02 ±	1.51E+01	2.48E+01
I-131		6.69E-01 ±	9.81E+00	1.60E+01
CS-134		-3.13E+00 ±	1.05E+01	1.70E+01
CS-137		-4.95E+00 ±	1.09E+01	1.72E+01
BALA140		1.63E+00 ±	1.23E+01	1.99E+01

TABLE A-16.1

GAMMA SPECTROMETRY RESULTS OF FRUITS

Results in pCi/ kilogram (wet)

Station 37 Is Indicator - Station 9c is Control

Station 37 wine grapes collected 9/10/2013				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.36E+03 ±	2.46E+02	1.04E+02
MN-54		-8.07E-03 ±	5.57E+00	9.15E+00
CO-58		-1.25E-01 ±	5.64E+00	9.25E+00
FE-59		-5.28E-01 ±	1.78E+01	2.91E+01
CO-60		1.60E+00 ±	5.76E+00	8.93E+00
ZN-65		1.02E+01 ±	1.41E+01	2.05E+01
ZRNB-95		-9.69E-02 ±	5.08E+00	8.31E+00
I-131		2.54E+00 ±	4.78E+00	7.23E+00
CS-134		8.35E-02 ±	4.63E+00	7.59E+00
CS-137		2.01E-01 ±	4.62E+00	7.54E+00
BALA140		-1.38E+00 ±	5.95E+00	9.12E+00

Station 37 wine grapes collected 9/10/2013				
Nuclide	RQ	Activity	Error	MDA
K-40	+	2.55E+03 ±	2.89E+02	2.44E+02
MN-54		1.90E-01 ±	9.78E+00	1.60E+01
CO-58		4.32E+00 ±	8.70E+00	1.36E+01
FE-59		2.02E-01 ±	1.94E+01	3.19E+01
CO-60		-3.38E+00 ±	1.04E+01	1.66E+01
ZN-65		-5.03E+00 ±	2.05E+01	3.28E+01
ZRNB-95		3.96E+00 ±	1.42E+01	2.26E+01
I-131		3.26E+00 ±	9.97E+00	1.60E+01
CS-134		1.72E+00 ±	1.09E+01	1.77E+01
CS-137		-2.05E+00 ±	1.04E+01	1.69E+01
BALA140		2.78E+00 ±	1.05E+01	1.66E+01

Station 9c Apples collected 9/6/2013				
Nuclide	RQ	Activity	Error	MDA
K-40	+	1.01E+03 ±	1.94E+02	1.98E+02
MN-54		-1.51E+00 ±	7.00E+00	1.12E+01
CO-58		-2.18E+00 ±	7.84E+00	1.25E+01
FE-59		-1.10E+00 ±	2.01E+01	3.29E+01
CO-60		6.61E-01 ±	8.93E+00	1.54E+01
ZN-65		-5.40E+00 ±	2.15E+01	3.45E+01
ZRNB-95		-5.05E-01 ±	1.17E+01	1.91E+01
I-131		6.72E-01 ±	1.13E+01	1.85E+01
CS-134		-3.63E+00 ±	9.61E+00	1.54E+01
CS-137		-2.50E+00 ±	8.19E+00	1.31E+01
BALA140		-3.34E-01 ±	1.08E+01	1.77E+01

TABLE A-16.2
GAMMA SPECTROMETRY RESULTS OF FRUITS- SUMMARY

Results in pCi/ kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	2.07E+00	-1.38E+00	7.26E+00	1.80E+01	8	0
BALA140	Cntl	-3.34E-01	-3.34E-01	-3.34E-01	1.77E+01	1	0
CO-58	Ind	8.84E-01	-3.05E+00	5.96E+00	1.45E+01	8	0
CO-58	Cntl	-2.18E+00	-2.18E+00	-2.18E+00	1.25E+01	1	0
CO-60	Ind	3.04E-01	-3.38E+00	3.06E+00	1.56E+01	8	0
CO-60	Cntl	6.61E-01	6.61E-01	6.61E-01	1.54E+01	1	0
CS-134	Ind	-2.15E+00	-1.04E+01	1.72E+00	1.71E+01	8	0
CS-134	Cntl	-3.63E+00	-3.63E+00	-3.63E+00	1.54E+01	1	0
CS-137	Ind	-1.60E+00	-4.95E+00	3.37E+00	1.46E+01	8	0
CS-137	Cntl	-2.50E+00	-2.50E+00	-2.50E+00	1.31E+01	1	0
FE-59	Ind	-3.32E+00	-1.62E+01	2.07E+00	3.81E+01	8	0
FE-59	Cntl	-1.10E+00	-1.10E+00	-1.10E+00	3.29E+01	1	0
I-131	Ind	-4.32E-02	-8.94E+00	5.24E+00	1.82E+01	8	0
I-131	Cntl	6.72E-01	6.72E-01	6.72E-01	1.85E+01	1	0
K-40	Ind	1.70E+03	1.19E+03	2.55E+03	2.09E+02	8	8
K-40	Cntl	1.01E+03	1.01E+03	1.01E+03	1.98E+02	1	1
MN-54	Ind	8.28E-01	-2.99E+00	6.46E+00	1.40E+01	8	0
MN-54	Cntl	-1.51E+00	-1.51E+00	-1.51E+00	1.12E+01	1	0
ZN-65	Ind	1.44E+00	-5.75E+00	1.44E+01	3.40E+01	8	0
ZN-65	Cntl	-5.40E+00	-5.40E+00	-5.40E+00	3.45E+01	1	0
ZRNB-95	Ind	5.68E-01	-3.22E+00	3.96E+00	2.28E+01	8	0
ZRNB-95	Cntl	-5.05E-01	-5.05E-01	-5.05E-01	1.91E+01	1	0

TABLE A-17.1
GAMMA SPECTROMETRY RESULTS OF VEGETABLES

Results in pCi/ kilogram (wet)

Station 37 is Indicator - Station 9c is Control

Station 37 Asparagus collected 4/16/2013					Station 37 Green Bean collected 7/16/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40	+	2.57E+03	± 2.93E+02	2.24E+02	K-40	+	3.62E+03	± 4.00E+02	3.38E+02
MN-54		-5.86E-01	± 9.96E+00	1.63E+01	MN-54		-8.64E+00	± 1.72E+01	2.71E+01
CO-58		-7.03E-01	± 7.39E+00	1.20E+01	CO-58		5.13E+00	± 1.31E+01	2.06E+01
FE-59		-7.71E+00	± 2.57E+01	4.06E+01	FE-59		0.00E+00	± 2.80E+01	4.60E+01
CO-60		1.68E+00	± 9.58E+00	1.66E+01	CO-60		-6.58E+00	± 1.77E+01	2.81E+01
ZN-65		-5.05E+00	± 2.48E+01	4.00E+01	ZN-65		0.00E+00	± 3.64E+01	5.98E+01
ZRNB-95		-7.00E-01	± 1.83E+01	2.99E+01	ZRNB-95		3.24E-01	± 2.30E+01	3.78E+01
I-131		-3.70E+00	± 1.11E+01	1.78E+01	I-131		-7.31E+00	± 1.68E+01	2.69E+01
CS-134		1.84E+00	± 9.87E+00	1.60E+01	CS-134		-1.25E+00	± 1.44E+01	2.36E+01
CS-137		-3.22E+00	± 1.02E+01	1.62E+01	CS-137		-4.68E+00	± 1.64E+01	2.63E+01
BALA140		-2.22E+00	± 1.35E+01	2.17E+01	BALA140		2.06E-01	± 1.63E+01	2.67E+01

Station 37 Asparagus collected 5/14/2013					Station 37 Bell Peppers collected 7/30/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40	+	2.25E+03	± 3.22E+02	3.18E+02	K-40	+	1.46E+03	± 2.64E+02	2.66E+02
MN-54		-2.50E+00	± 1.06E+01	1.69E+01	MN-54		4.51E-01	± 7.92E+00	1.29E+01
CO-58		5.77E+00	± 1.13E+01	1.77E+01	CO-58		1.46E-02	± 1.06E+01	1.73E+01
FE-59		1.13E+01	± 2.99E+01	4.69E+01	FE-59		7.75E-01	± 2.77E+01	4.53E+01
CO-60		-1.06E+00	± 1.35E+01	2.21E+01	CO-60		2.16E+00	± 1.07E+01	1.86E+01
ZN-65		-3.38E+00	± 2.70E+01	4.38E+01	ZN-65		-2.75E+00	± 2.68E+01	4.35E+01
ZRNB-95		6.82E+00	± 2.09E+01	3.33E+01	ZRNB-95		-4.05E+00	± 2.10E+01	3.39E+01
I-131		-1.84E+00	± 1.34E+01	2.18E+01	I-131		-8.94E+00	± 1.39E+01	2.19E+01
CS-134		-6.74E+00	± 1.49E+01	2.38E+01	CS-134		7.15E+00	± 1.15E+01	1.79E+01
CS-137		8.19E+00	± 1.17E+01	1.78E+01	CS-137		7.17E+00	± 1.25E+01	1.94E+01
BALA140		7.45E+00	± 1.52E+01	2.32E+01	BALA140		1.92E+00	± 1.56E+01	2.52E+01

Station 37 Broad Leaf Vegetable collected 6/14/2013					Station 37 Broad Leaf Vegetable collected 8/9/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40	+	5.39E+03	± 6.65E+02	3.52E+02	K-40	+	4.81E+03	± 5.69E+02	4.45E+02
MN-54		5.22E+00	± 1.61E+01	2.50E+01	MN-54		9.32E-01	± 1.82E+01	2.98E+01
CO-58		6.72E-01	± 1.22E+01	1.98E+01	CO-58		1.64E-01	± 1.64E+01	2.70E+01
FE-59		-7.00E+00	± 4.75E+01	7.60E+01	FE-59		-1.44E+01	± 5.22E+01	8.28E+01
CO-60		-2.86E+00	± 2.42E+01	3.91E+01	CO-60		1.20E+01	± 2.07E+01	3.39E+01
ZN-65		1.33E+01	± 2.60E+01	3.68E+01	ZN-65		3.99E-01	± 4.64E+01	7.61E+01
ZRNB-95		-1.96E+00	± 2.48E+01	4.02E+01	ZRNB-95		-4.34E+00	± 3.38E+01	5.48E+01
I-131		5.16E-01	± 1.39E+01	2.27E+01	I-131		2.35E+01	± 2.26E+01	3.41E+01
CS-134		-3.06E+00	± 1.55E+01	2.47E+01	CS-134		6.57E+00	± 2.06E+01	3.30E+01
CS-137		0.00E+00	± 1.62E+01	2.67E+01	CS-137		-1.74E+00	± 2.02E+01	3.29E+01
BALA140		3.40E+00	± 2.03E+01	3.18E+01	BALA140		-1.80E+00	± 2.66E+01	4.33E+01

TABLE A-17.1
GAMMA SPECTROMETRY RESULTS OF VEGETABLES

Results in pCi/ kilogram (wet)

Station 37 is Indicator - Station 9c is Control

Station 37 Broad Leaf Vegetable collected 6/28/2013					Station 37 corn collected 8/27/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40	+	4.75E+03	± 6.50E+02	3.90E+02	K-40	+	2.16E+03	± 2.55E+02	1.93E+02
MN-54		-3.40E+00	± 1.85E+01	2.95E+01	MN-54		-7.97E-01	± 9.90E+00	1.62E+01
CO-58		1.99E+00	± 1.54E+01	2.47E+01	CO-58		1.52E+00	± 8.67E+00	1.40E+01
FE-59		0.00E+00	± 1.29E+01	2.12E+01	FE-59		5.43E+00	± 2.12E+01	3.36E+01
CO-60		1.33E+00	± 1.93E+01	3.14E+01	CO-60		1.10E+00	± 1.12E+01	1.91E+01
ZN-65		0.00E+00	± 9.27E+01	1.52E+02	ZN-65		1.85E+00	± 1.98E+01	3.21E+01
ZRNB-95		-3.78E+00	± 2.95E+01	4.75E+01	ZRNB-95		-2.88E+00	± 1.59E+01	2.57E+01
I-131		1.79E-01	± 1.58E+01	2.59E+01	I-131		4.78E+00	± 8.79E+00	1.38E+01
CS-134		1.41E+00	± 1.67E+01	2.71E+01	CS-134		-1.30E+00	± 6.93E+00	1.11E+01
CS-137		7.36E+00	± 1.73E+01	2.62E+01	CS-137		1.59E-01	± 8.83E+00	1.45E+01
BALA140		-6.63E+00	± 2.29E+01	3.53E+01	BALA140		-1.22E+00	± 1.02E+01	1.64E+01

Station 37 Corn collected 7/2/2013					Station 37 Broad Leaf Vegetable collected 9/17/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40	+	2.32E+03	± 2.93E+02	2.47E+02	K-40	+	2.65E+03	± 4.08E+02	3.71E+02
MN-54		-2.83E+00	± 1.12E+01	1.79E+01	MN-54		-1.65E+00	± 1.36E+01	2.20E+01
CO-58		3.48E+00	± 8.81E+00	1.38E+01	CO-58		4.73E+00	± 1.29E+01	2.02E+01
FE-59		4.59E-01	± 2.51E+01	4.11E+01	FE-59		-3.30E+00	± 3.10E+01	5.01E+01
CO-60		4.54E-01	± 1.16E+01	2.00E+01	CO-60		2.69E+00	± 1.75E+01	3.00E+01
ZN-65		-6.18E+00	± 2.39E+01	3.83E+01	ZN-65		-1.52E+00	± 2.57E+01	4.18E+01
ZRNB-95		2.57E+00	± 1.74E+01	2.81E+01	ZRNB-95		5.04E-01	± 2.47E+01	4.06E+01
I-131		3.98E-01	± 9.87E+00	1.62E+01	I-131		0.00E+00	± 1.89E+01	3.11E+01
CS-134		-5.15E+00	± 1.11E+01	1.76E+01	CS-134		-7.85E+00	± 1.78E+01	2.83E+01
CS-137		-1.35E+00	± 1.09E+01	1.77E+01	CS-137		-2.38E-01	± 1.65E+01	2.71E+01
BALA140		-4.91E+00	± 1.38E+01	2.16E+01	BALA140		-6.62E-02	± 1.88E+01	3.10E+01

Station 37 Broad Leaf Vegetable collected 7/12/2013					Station 9c Corn collected 8/9/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40	+	3.96E+03	± 4.92E+02	2.73E+02	K-40	+	2.37E+03	± 2.90E+02	2.56E+02
MN-54		-2.32E+00	± 1.47E+01	2.37E+01	MN-54		5.03E-02	± 9.43E+00	1.55E+01
CO-58		3.93E+00	± 1.18E+01	1.83E+01	CO-58		8.04E-01	± 8.34E+00	1.36E+01
FE-59		1.16E+01	± 3.68E+01	5.69E+01	FE-59		4.04E+00	± 2.50E+01	4.03E+01
CO-60		-4.66E+00	± 1.74E+01	2.75E+01	CO-60		-1.59E-01	± 1.10E+01	1.81E+01
ZN-65		-3.11E+00	± 2.94E+01	4.74E+01	ZN-65		3.28E-01	± 2.57E+01	4.22E+01
ZRNB-95		-3.00E+00	± 1.88E+01	3.00E+01	ZRNB-95		4.52E+00	± 1.61E+01	2.58E+01
I-131		0.00E+00	± 1.34E+01	2.20E+01	I-131		7.70E+00	± 1.06E+01	1.65E+01
CS-134		3.17E+00	± 1.23E+01	1.95E+01	CS-134		-4.90E+00	± 1.03E+01	1.64E+01
CS-137		5.86E+00	± 1.26E+01	1.91E+01	CS-137		-2.05E+00	± 1.05E+01	1.70E+01
BALA140		9.68E-03	± 1.25E+01	2.05E+01	BALA140		5.09E-01	± 1.23E+01	2.00E+01

TABLE A - 17.2
GAMMA SPECTROMETRY RESULTS OF VEGETABLES- SUMMARY

Results in pCi/ kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-3.51E-01	-6.63E+00	7.45E+00	2.70E+01	11	0
BALA140	Cntl	5.09E-01	5.09E-01	5.09E-01	2.00E+01	1	0
CO-58	Ind	2.43E+00	-7.03E-01	5.77E+00	1.87E+01	11	0
CO-58	Cntl	8.04E-01	8.04E-01	8.04E-01	1.36E+01	1	0
CO-60	Ind	5.72E-01	-6.58E+00	1.20E+01	2.60E+01	11	0
CO-60	Cntl	-1.59E-01	-1.59E-01	-1.59E-01	1.81E+01	1	0
CS-134	Ind	-4.74E-01	-7.85E+00	7.15E+00	2.20E+01	11	0
CS-134	Cntl	-4.90E+00	-4.90E+00	-4.90E+00	1.64E+01	1	0
CS-137	Ind	1.59E+00	-4.68E+00	8.19E+00	2.22E+01	11	0
CS-137	Cntl	-2.05E+00	-2.05E+00	-2.05E+00	1.70E+01	1	0
FE-59	Ind	-2.63E-01	-1.44E+01	1.16E+01	4.91E+01	11	0
FE-59	Cntl	4.04E+00	4.04E+00	4.04E+00	4.03E+01	1	0
I-131	Ind	6.93E-01	-8.94E+00	2.35E+01	2.31E+01	11	0
I-131	Cntl	7.70E+00	7.70E+00	7.70E+00	1.65E+01	1	0
K-40	Ind	3.27E+03	1.46E+03	5.39E+03	3.11E+02	11	11
K-40	Cntl	2.37E+03	2.37E+03	2.37E+03	2.56E+02	1	1
MN-54	Ind	-1.47E+00	-8.64E+00	5.22E+00	2.16E+01	11	0
MN-54	Cntl	5.03E-02	5.03E-02	5.03E-02	1.55E+01	1	0
ZN-65	Ind	-5.84E-01	-6.18E+00	1.33E+01	5.57E+01	11	0
ZN-65	Cntl	3.28E-01	3.28E-01	3.28E-01	4.22E+01	1	0
ZRNB-95	Ind	-9.54E-01	-4.34E+00	6.82E+00	3.65E+01	11	0
ZRNB-95	Cntl	4.52E+00	4.52E+00	4.52E+00	2.58E+01	1	0

TABLE B-1.1
2013 QUARTERLY SPECIAL INTEREST TLD RESULTS
 Results in milli-Roentgen (mR) per Standard Quarter

Station ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Quarterly Sum
58	21.4	18.6	21.7	20.4	82.1
87	32.3	23.7	28.9	28.4	113.4
88	24.3	20.9	26.3	25.5	96.9
89	24.9	22.8	27.6	27.0	102.4
90	18.8	17.5	19.6	19.6	75.4
119B	21.5	20.2	22.5	23.3	87.5
119C	21.6	20.5	23.5	22.7	88.3
120 (East)	21.3	21.0	23.3	23.7	89.3
121	64.4	44.9	71.4	68.7	249.5
122	33.4	32.3	35.7	35.6	137.1
123	105.7	103.9	110.9	111.1	431.6
124	126.0	121.3	130.9	120.5	498.7
125	92.4	91.2	96.3	93.0	373.0
126	94.4	90.8	97.6	94.0	376.8
127	73.2	67.9	73.9	73.4	288.5
128	114.9	115.4	118.7	122.4	471.4
129	93.1	88.0	92.1	93.6	366.8
136A	137.2	130.0	133.3	129.7	530.3
137A	148.0	142.1	147.3	148.3	585.7
138A	118.7	113.8	121.2	118.4	472.1
150 (Site 1)	18.1	17.7	18.6	19.5	73.9
151 (Site 4)	19.6	17.3	19.7	19.6	76.1

TABLE B-1.2
2013 QUARTERLY SPECIAL INTEREST TLD RESULTS- SUMMARY
 Results in milli-Roentgen (mR) per Standard Quarter

Location	Average Activity	Activity Low	Activity High	Number of Samples
ISFSI Quarterly Ind	109.9	67.9	148.3	40
SITE 1 & 4 Quarterly Ind	18.8	17.3	19.7	8
Quarterly Control TLDs	20.5	18.9	21.7	4

Ind = Indicator Station Cntl = Control Station

Stations 123 through 138A are located on the middle ISFSI fence.

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

Station 121 results high due to location being near transformer yard. Station 122 results influenced by ISFSI.

Quarterly Control TLD location is ST-9. See Table A-1.1

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 2/5/2013				Location 101 collected 2/28/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-1.35E+01 ±	3.35E+01	4.58E+01	K-40		-4.23E+01 ±	8.27E+01	5.74E+01
CR-51		-1.09E+00 ±	1.94E+01	3.18E+01	CR-51		3.98E+00 ±	2.10E+01	3.41E+01
MN-54		3.13E-01 ±	1.75E+00	2.83E+00	MN-54		-1.33E-01 ±	2.25E+00	3.68E+00
CO-58		-6.17E-01 ±	2.00E+00	3.19E+00	CO-58		0.00E+00 ±	1.89E+00	3.11E+00
FE-59		7.84E-02 ±	5.10E+00	8.37E+00	FE-59		1.97E+00 ±	5.29E+00	8.22E+00
CO-60		-1.27E+00 ±	4.65E+01	3.59E+00	CO-60		1.79E+00 ±	2.22E+00	3.31E+00
ZN-65		3.38E+00 ±	4.41E+00	6.71E+00	ZN-65		-3.71E-01 ±	4.60E+00	7.50E+00
ZRNB-95		-7.11E-02 ±	3.17E+00	5.20E+00	ZRNB-95		-2.06E+00 ±	4.44E+00	7.01E+00
I-131		1.84E+00 ±	6.22E+00	1.00E+01	I-131		-2.22E+00 ±	6.30E+00	1.01E+01
CS-134		-1.75E-01 ±	1.60E+00	2.61E+00	CS-134		-1.52E-01 ±	3.39E+00	5.57E+00
CS-137		8.26E-01 ±	1.57E+00	2.43E+00	CS-137		-5.32E-01 ±	2.29E+00	3.70E+00
BALA140		-6.32E-01 ±	5.28E+00	8.55E+00	BALA140		5.42E-01 ±	4.64E+00	7.50E+00
BI-214		2.92E+00 ±	4.47E+00	8.09E+00	BI-214		2.03E+00 ±	4.67E+00	8.63E+00

Location 101 collected 4/2/2013				Location 101 collected 4/30/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.01E+01 ±	6.00E+01	5.85E+01	K-40		-1.82E+01 ±	4.12E+01	5.59E+01
CR-51		-1.50E+00 ±	2.50E+01	4.10E+01	CR-51		-9.22E+00 ±	2.52E+01	4.06E+01
MN-54		6.91E-01 ±	1.91E+00	3.01E+00	MN-54		5.22E-01 ±	1.93E+00	3.09E+00
CO-58		1.22E+00 ±	2.24E+00	3.48E+00	CO-58		-3.41E-02 ±	1.70E+00	2.78E+00
FE-59		-9.63E-01 ±	6.31E+00	1.02E+01	FE-59		-1.30E+00 ±	5.93E+00	9.47E+00
CO-60		2.05E-01 ±	2.00E+00	3.24E+00	CO-60		-3.49E-01 ±	1.51E+00	2.39E+00
ZN-65		-6.64E-01 ±	4.44E+00	7.18E+00	ZN-65		1.18E+00 ±	4.22E+00	6.72E+00
ZRNB-95		1.14E+00 ±	3.39E+00	5.35E+00	ZRNB-95		2.80E+00 ±	3.58E+00	5.38E+00
I-131		4.05E+00 ±	6.11E+00	9.58E+00	I-131		1.47E+00 ±	5.07E+00	8.15E+00
CS-134		-8.36E-01 ±	2.50E+00	4.02E+00	CS-134		-8.91E-01 ±	2.10E+00	3.34E+00
CS-137		1.64E+00 ±	1.50E+00	2.10E+00	CS-137		-6.05E-01 ±	2.19E+00	3.51E+00
BALA140		-1.12E+00 ±	4.74E+00	7.51E+00	BALA140		-2.23E-02 ±	4.23E+00	6.95E+00
BI-214	+	1.34E+01 ±	5.55E+00	8.86E+00	BI-214	+	9.39E+00 ±	5.13E+00	8.57E+00

Location 101 collected 6/3/2013				Location 101 collected 7/1/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-9.32E+00 ±	3.10E+01	5.32E+01	K-40		-9.87E+00 ±	3.33E+01	5.52E+01
CR-51		5.68E+00 ±	2.02E+01	3.25E+01	CR-51		1.32E+00 ±	2.13E+01	3.48E+01
MN-54		1.45E+00 ±	2.04E+00	3.12E+00	MN-54		7.25E-02 ±	2.12E+00	3.47E+00
CO-58		9.32E-02 ±	1.63E+00	2.65E+00	CO-58		-2.21E-02 ±	2.33E+00	3.83E+00
FE-59		-7.03E-01 ±	7.03E+00	1.14E+01	FE-59		1.34E+00 ±	4.24E+00	6.57E+00
CO-60		-1.94E-01 ±	2.05E+00	3.33E+00	CO-60		0.00E+00 ±	2.33E+00	3.84E+00
ZN-65		1.56E+00 ±	4.15E+00	6.51E+00	ZN-65		-1.76E+00 ±	4.48E+00	7.05E+00
ZRNB-95		7.98E-02 ±	3.93E+00	6.44E+00	ZRNB-95		-8.28E-01 ±	3.22E+00	5.14E+00
I-131		3.02E+00 ±	6.51E+00	1.04E+01	I-131		1.04E-01 ±	5.29E+00	8.67E+00
CS-134		-1.42E-01 ±	2.50E+00	4.09E+00	CS-134		5.24E-02 ±	2.15E+00	3.53E+00
CS-137		-4.84E-01 ±	2.31E+00	3.73E+00	CS-137		1.46E+00 ±	2.28E+00	3.55E+00
BALA140		1.64E-02 ±	4.81E+00	7.90E+00	BALA140		-2.99E-01 ±	4.56E+00	7.43E+00
BI-214		3.91E+00 ±	5.26E+00	9.33E+00	BI-214		5.72E+00 ±	5.00E+00	8.75E+00

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

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

Nuclide	RQ	Location 101 collected		7/31/2013	Nuclide	RQ	Location 101 collected		9/3/2013
		Activity	Error	MDA			Activity	Error	MDA
K-40		-1.96E+01 ±	4.27E+01	5.60E+01	K-40		-7.61E+00 ±	2.89E+01	4.85E+01
CR-51		-7.14E+00 ±	2.65E+01	4.29E+01	CR-51		1.71E+01 ±	2.44E+01	3.84E+01
MN-54		-1.09E-01 ±	2.19E+00	3.59E+00	MN-54		-1.60E-03 ±	2.12E+00	3.47E+00
CO-58		-4.27E-02 ±	1.62E+00	2.66E+00	CO-58		-6.89E-01 ±	2.34E+00	3.74E+00
FE-59		-3.70E-01 ±	6.38E+00	1.04E+01	FE-59		0.00E+00 ±	2.98E+00	4.90E+00
CO-60		4.78E-02 ±	1.95E+00	3.20E+00	CO-60		-2.82E-01 ±	2.88E+00	3.34E+00
ZN-65		1.64E+00 ±	3.95E+00	6.15E+00	ZN-65		1.81E-02 ±	3.31E+00	5.43E+00
ZRNB-95		-7.56E-02 ±	4.48E+00	7.36E+00	ZRNB-95		-1.87E+00 ±	4.45E+00	7.03E+00
I-131		8.80E-01 ±	7.96E+00	1.30E+01	I-131		-5.66E-01 ±	4.58E+00	7.44E+00
CS-134		-1.82E+00 ±	2.57E+00	4.04E+00	CS-134		-2.88E-02 ±	2.02E+00	3.32E+00
CS-137		-8.59E-01 ±	2.53E+00	4.05E+00	CS-137		-3.47E-01 ±	2.00E+00	3.23E+00
BALA140		-1.41E+00 ±	6.69E+00	1.07E+01	BALA140		-8.12E-01 ±	4.98E+00	7.97E+00
BI-214		5.45E+00 ±	5.12E+00	8.97E+00	BI-214		5.88E-01 ±	4.84E+00	9.04E+00

Nuclide	RQ	Location 101 collected		10/1/2013	Nuclide	RQ	Location 101 collected		11/1/2013
		Activity	Error	MDA			Activity	Error	MDA
K-40		-3.25E+01 ±	7.92E+01	5.31E+01	K-40		-3.22E+01 ±	6.33E+01	5.84E+01
CR-51		-1.12E-01 ±	2.31E+01	3.79E+01	CR-51		-3.63E+00 ±	2.82E+01	4.60E+01
MN-54		6.30E-01 ±	1.97E+00	3.13E+00	MN-54		2.65E-01 ±	1.88E+00	3.04E+00
CO-58		-3.31E-01 ±	1.85E+00	2.98E+00	CO-58		-2.62E-01 ±	2.15E+00	3.48E+00
FE-59		-4.19E-01 ±	6.88E+00	1.12E+01	FE-59		3.64E+00 ±	6.34E+00	9.62E+00
CO-60		-4.91E-01 ±	4.31E+00	3.50E+00	CO-60		-3.08E-01 ±	2.13E+00	3.45E+00
ZN-65		7.18E-02 ±	5.07E+00	8.32E+00	ZN-65		-1.98E+00 ±	5.25E+00	8.32E+00
ZRNB-95		0.00E+00 ±	4.74E+00	7.80E+00	ZRNB-95		-1.13E-01 ±	4.12E+00	6.75E+00
I-131		-1.64E+00 ±	8.73E+00	1.42E+01	I-131		2.09E+00 ±	9.48E+00	1.54E+01
CS-134		-7.66E-01 ±	2.27E+00	3.64E+00	CS-134		-1.27E-02 ±	2.53E+00	4.16E+00
CS-137		-9.25E-01 ±	2.41E+00	3.84E+00	CS-137		-5.89E-01 ±	2.63E+00	4.25E+00
BALA140		-6.54E-01 ±	6.25E+00	1.01E+01	BALA140		4.21E-02 ±	6.39E+00	1.05E+01
BI-214		1.23E+00 ±	5.04E+00	9.26E+00	BI-214		2.05E+00 ±	5.36E+00	9.66E+00

Nuclide	RQ	Location 101 collected		12/1/2013	Nuclide	RQ	Location 101 collected		12/31/2013
		Activity	Error	MDA			Activity	Error	MDA
K-40		-4.19E+01 ±	8.92E+01	6.00E+01	K-40		-2.42E+01 ±	6.30E+01	5.61E+01
CR-51		1.18E+00 ±	2.96E+01	4.86E+01	CR-51		1.58E-01 ±	2.50E+01	4.12E+01
MN-54		-5.00E-01 ±	1.86E+00	2.97E+00	MN-54		-3.82E-01 ±	2.00E+00	3.22E+00
CO-58		2.64E-01 ±	2.21E+00	3.59E+00	CO-58		3.54E-01 ±	2.03E+00	3.27E+00
FE-59		-2.26E+00 ±	6.54E+00	1.03E+01	FE-59		9.11E-01 ±	6.41E+00	1.03E+01
CO-60		-3.51E-01 ±	2.21E+00	3.57E+00	CO-60		-4.80E-01 ±	4.54E+00	3.71E+00
ZN-65		-8.72E-01 ±	4.39E+00	7.07E+00	ZN-65		2.18E-02 ±	4.08E+00	6.71E+00
ZRNB-95		-1.40E+00 ±	4.47E+00	7.14E+00	ZRNB-95		-1.39E+00 ±	4.59E+00	7.33E+00
I-131		-1.79E-01 ±	6.66E+00	1.09E+01	I-131		-2.73E+00 ±	9.62E+00	1.55E+01
CS-134		-1.46E+00 ±	2.35E+00	3.70E+00	CS-134		-2.39E-02 ±	2.22E+00	3.65E+00
CS-137		8.14E-01 ±	2.05E+00	3.25E+00	CS-137		3.72E-01 ±	1.80E+00	2.89E+00
BALA140		-1.50E+00 ±	4.81E+00	7.53E+00	BALA140		-6.59E-02 ±	4.97E+00	8.15E+00
BI-214		7.62E+00 ±	5.17E+00	8.82E+00	BI-214		5.34E+00 ±	5.15E+00	9.02E+00

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	-2.35E+01	-4.23E+01	-7.61E+00	5.48E+01	12	0
CR-51	5.65E-01	-9.22E+00	1.71E+01	3.92E+01	12	0
MN-54	2.35E-01	-5.00E-01	1.45E+00	3.22E+00	12	0
CO-58	-5.83E-03	-6.89E-01	1.22E+00	3.23E+00	12	0
FE-59	1.60E-01	-2.26E+00	3.64E+00	9.25E+00	12	0
CO-60	-1.40E-01	-1.27E+00	1.79E+00	3.37E+00	12	0
ZN-65	1.86E-01	-1.98E+00	3.38E+00	6.97E+00	12	0
ZRNB-95	-3.09E-01	-2.06E+00	2.80E+00	6.54E+00	12	0
I-131	5.11E-01	-2.73E+00	4.05E+00	1.11E+01	12	0
CS-134	-5.21E-01	-1.82E+00	5.24E-02	3.81E+00	12	0
CS-137	6.38E-02	-9.25E-01	1.64E+00	3.38E+00	12	0
BALA140	-4.92E-01	-1.50E+00	5.42E-01	8.40E+00	12	0
BI-214	4.97E+00	5.88E-01	1.34E+01	8.92E+00	12	2

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

Location	Collection Period	RQ	Activity	Error	MDA
ST-101	01/03/13 - 02/05/13		6.70E-01 ±	7.92E-01	2.63E+00
	02/05/13 - 02/28/13		7.88E-01 ±	8.82E-01	2.95E+00
	02/28/13 - 04/02/13		1.25E+00 ±	8.01E-01	2.55E+00
	04/02/13 - 04/30/13		1.75E+00 ±	8.46E-01	2.70E+00
	04/30/13 - 06/03/13		7.20E-01 ±	7.88E-01	2.65E+00
	06/03/13 - 07/01/13		1.99E+00 ±	8.29E-01	2.44E+00
	07/01/13 - 07/31/13		-3.07E-01 ±	7.29E-01	2.49E+00
	07/31/13 - 09/03/13		3.23E-01 ±	7.58E-01	2.67E+00
	09/03/13 - 10/01/13		1.81E+00 ±	7.43E-01	2.29E+00
	10/01/13 - 11/01/13		1.36E+00 ±	7.52E-01	2.40E+00
	11/01/13 - 12/01/13		8.62E-01 ±	7.10E-01	2.36E+00
	12/01/13 - 12/31/13		1.83E+00 ±	7.46E-01	2.30E+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
1.09E+00	-3.07E-01	1.99E+00	12	0

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

Location	Collection Period	RQ	Activity	Error
ST-101	01/03/13 - 02/05/13	+	4.95E+03 ±	1.89E+02
	02/05/13 - 02/28/13	+	1.11E+03 ±	1.24E+02
	02/28/13 - 04/02/13	+	1.30E+03 ±	1.26E+02
	04/02/13 - 04/30/13	+	3.42E+02 ±	1.04E+02
	04/30/13 - 06/03/13		1.78E+02 ±	9.57E+01
	06/03/13 - 07/01/13	+	3.44E+02 ±	9.36E+01
	07/01/13 - 07/31/13		1.28E+02 ±	9.97E+01
	07/31/13 - 09/03/13		2.43E+02 ±	9.62E+01
	09/03/13 - 10/01/13	+	4.31E+02 ±	1.04E+02
	10/01/13 - 11/01/13		1.63E+02 ±	9.85E+01
	11/01/13 - 12/01/13	+	9.53E+02 ±	1.21E+02
	12/01/13 - 12/31/13	+	1.69E+03 ±	1.39E+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
9.87E+02	1.28E+02	4.95E+03	12	8

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
01/03/13 - 02/05/13		-2.95E-01 ±	8.16E-01	3.39E+00		-3.41E-01 ±	9.45E-01	3.93E+00
02/05/13 - 02/28/13		7.35E-01 ±	8.49E-01	3.31E+00		1.42E+00 ±	9.65E-01	3.21E+00
02/28/13 - 04/02/13		-1.56E+00 ±	1.12E+00	3.83E+00		-9.29E-01 ±	1.99E+00	7.78E+00
04/02/13 - 04/30/13		-1.56E+00 ±	1.46E+00	5.21E+00		-2.21E+00 ±	2.08E+00	7.40E+00
04/30/13 - 06/03/13		1.04E+00 ±	1.04E+00	3.80E+00		3.71E+00 ±	1.22E+00	3.83E+00
06/03/13 - 07/01/13		1.53E+00 ±	1.18E+00	4.10E+00		0.00E+00 ±	1.94E+00	8.20E+00
07/01/13 - 07/31/13		4.47E-01 ±	1.24E+00	5.14E+00		-8.30E-01 ±	8.61E-01	3.18E+00
07/31/13 - 09/03/13		-1.09E+00 ±	1.13E+00	4.19E+00		-1.06E+00 ±	1.57E+00	6.11E+00
09/03/13 - 10/01/13		-1.77E-16 ±	7.76E-01	3.83E+00		1.19E+00 ±	1.00E+00	3.58E+00
10/01/13 - 11/01/13		2.28E+00 ±	1.56E+00	5.24E+00		5.63E-01 ±	1.56E+00	6.48E+00
11/01/13 - 12/01/13		3.10E+00 ±	1.80E+00	5.87E+00		3.34E-01 ±	1.80E+00	7.26E+00
12/01/13 - 12/31/13		-1.43E-01 ±	1.52E+00	6.24E+00		-2.95E+00 ±	2.32E+00	8.02E+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	3.74E-01	-1.56E+00	3.10E+00	12	0
ST 102B	-9.18E-02	-2.95E+00	3.71E+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
01/03/13 - 02/05/13	+	4.95E+00 ±	9.97E-01	2.68E+00	+	1.89E+01 ±	1.52E+00	2.74E+00
02/05/13 - 02/28/13	+	6.78E+00 ±	1.15E+00	2.99E+00	+	1.78E+01 ±	1.54E+00	2.98E+00
02/28/13 - 04/02/13	+	3.64E+00 ±	9.18E-01	2.59E+00	+	2.23E+01 ±	1.68E+00	2.85E+00
04/02/13 - 04/30/13	+	5.83E+00 ±	1.08E+00	2.82E+00	+	2.19E+01 ±	1.68E+00	2.95E+00
04/30/13 - 06/03/13	+	7.50E+00 ±	1.13E+00	2.75E+00	+	2.81E+01 ±	1.93E+00	3.16E+00
06/03/13 - 07/01/13	+	6.05E+00 ±	1.18E+00	3.03E+00	+	1.96E+01 ±	1.79E+00	3.33E+00
07/01/13 - 07/31/13	+	1.40E+01 ±	1.56E+00	3.26E+00	+	1.46E+01 ±	1.41E+00	2.75E+00
07/31/13 - 09/03/13	+	1.41E+01 ±	1.38E+00	2.81E+00	+	1.36E+01 ±	1.41E+00	2.94E+00
09/03/13 - 10/01/13	+	1.57E+01 ±	1.39E+00	2.45E+00	+	1.81E+01 ±	1.47E+00	2.43E+00
10/01/13 - 11/01/13	+	1.63E+01 ±	1.44E+00	2.59E+00	+	1.95E+01 ±	1.57E+00	2.66E+00
11/01/13 - 12/01/13	+	2.17E+01 ±	1.60E+00	2.53E+00	+	1.97E+01 ±	1.56E+00	2.60E+00
12/01/13 - 12/31/13	+	2.67E+01 ±	1.74E+00	2.48E+00	+	2.19E+01 ±	1.63E+00	2.56E+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	1.19E+01	3.64E+00	2.67E+01	12	12
ST 102B	1.97E+01	1.36E+01	2.81E+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

Nuclide	RQ	Location 102a collected		2/5/2013
		Activity	Error	MDA
K-40		1.34E+01 ±	3.05E+01	5.94E+01
CR-51		-5.07E+00 ±	3.05E+01	4.98E+01
MN-54		-5.35E-01 ±	2.54E+00	4.13E+00
CO-58		-1.27E+00 ±	2.84E+00	4.56E+00
FE-59		2.30E+00 ±	6.19E+00	9.87E+00
CO-60		-4.90E-01 ±	3.35E+00	4.18E+00
ZN-65		9.59E-02 ±	5.00E+00	8.21E+00
ZRNB-95		8.96E-01 ±	4.91E+00	8.00E+00
I-131		7.87E-01 ±	7.21E+00	1.18E+01
CS-134		2.35E-01 ±	2.70E+00	4.42E+00
CS-137		-6.87E-01 ±	2.77E+00	4.51E+00
BALA140		7.92E-01 ±	4.70E+00	7.61E+00
BI-214		3.94E+00 ±	6.49E+00	1.17E+01

Nuclide	RQ	Location 102a collected		2/28/2013
		Activity	Error	MDA
K-40		-1.82E-01 ±	2.82E+01	5.73E+01
CR-51		-1.14E+01 ±	3.19E+01	5.18E+01
MN-54		-4.53E-02 ±	2.04E+00	3.34E+00
CO-58		-2.58E-01 ±	2.65E+00	4.33E+00
FE-59		2.41E+00 ±	7.19E+00	1.15E+01
CO-60		-4.07E-01 ±	3.46E+00	4.53E+00
ZN-65		-2.56E+00 ±	6.06E+00	9.75E+00
ZRNB-95		2.60E+00 ±	5.38E+00	8.65E+00
I-131		2.51E+00 ±	8.50E+00	1.38E+01
CS-134		-1.70E+00 ±	3.06E+00	4.94E+00
CS-137		2.27E-01 ±	2.83E+00	4.64E+00
BALA140		3.43E+00 ±	5.47E+00	8.53E+00
BI-214		5.40E+00 ±	6.83E+00	1.22E+01

Nuclide	RQ	Location 102a collected		4/2/2013
		Activity	Error	MDA
K-40		-1.04E+00 ±	3.16E+01	6.40E+01
CR-51		-8.73E-01 ±	3.36E+01	5.51E+01
MN-54		1.05E-01 ±	2.28E+00	3.73E+00
CO-58		-6.23E-01 ±	3.03E+00	4.93E+00
FE-59		3.23E+00 ±	7.59E+00	1.22E+01
CO-60		-6.88E-01 ±	2.58E+00	4.17E+00
ZN-65		-5.77E+00 ±	6.71E+00	1.06E+01
ZRNB-95		-1.98E+00 ±	6.30E+00	1.02E+01
I-131		1.79E+00 ±	7.21E+00	1.17E+01
CS-134		-3.19E+00 ±	3.29E+00	5.25E+00
CS-137		5.68E-01 ±	2.73E+00	4.45E+00
BALA140		3.86E+00 ±	6.22E+00	9.80E+00
BI-214	+	1.58E+01 ±	7.24E+00	1.24E+01

Nuclide	RQ	Location 102a collected		4/30/2013
		Activity	Error	MDA
K-40		-6.31E+00 ±	3.19E+01	6.00E+01
CR-51		-8.07E+00 ±	3.18E+01	5.18E+01
MN-54		-1.17E+00 ±	2.61E+00	4.19E+00
CO-58		1.81E+00 ±	2.61E+00	4.10E+00
FE-59		1.59E+00 ±	6.46E+00	1.04E+01
CO-60		1.69E+00 ±	2.67E+00	4.51E+00
ZN-65		1.33E+00 ±	5.07E+00	8.18E+00
ZRNB-95		2.02E+00 ±	5.39E+00	8.68E+00
I-131		-2.35E+00 ±	8.18E+00	1.33E+01
CS-134		-1.40E+00 ±	3.02E+00	4.87E+00
CS-137		1.19E+00 ±	2.70E+00	4.34E+00
BALA140		5.07E+00 ±	4.90E+00	7.21E+00
BI-214		3.38E+00 ±	7.03E+00	1.27E+01

Nuclide	RQ	Location 102a collected		6/3/2013
		Activity	Error	MDA
K-40		-3.00E+01 ±	4.51E+01	6.86E+01
CR-51		1.14E+01 ±	3.54E+01	5.76E+01
MN-54		1.11E-01 ±	2.85E+00	4.67E+00
CO-58		-6.69E-01 ±	3.15E+00	5.13E+00
FE-59		1.21E-01 ±	6.19E+00	1.02E+01
CO-60		1.60E+00 ±	2.66E+00	4.20E+00
ZN-65		3.99E-01 ±	8.38E+00	1.37E+01
ZRNB-95		-1.52E+00 ±	5.77E+00	9.37E+00
I-131		8.80E-01 ±	9.84E+00	1.61E+01
CS-134		-4.05E+00 ±	3.68E+00	5.85E+00
CS-137		2.52E+00 ±	2.99E+00	4.72E+00
BALA140		2.42E+00 ±	5.69E+00	9.04E+00
BI-214		3.57E+00 ±	7.63E+00	1.37E+01

Nuclide	RQ	Location 102a collected		7/1/2013
		Activity	Error	MDA
K-40		-8.05E+00 ±	3.80E+01	7.06E+01
CR-51		-5.99E+00 ±	3.42E+01	5.60E+01
MN-54		2.37E-01 ±	2.97E+00	4.87E+00
CO-58		6.85E-01 ±	2.66E+00	4.30E+00
FE-59		-4.92E+00 ±	6.80E+00	1.06E+01
CO-60		2.17E+00 ±	2.60E+00	4.05E+00
ZN-65		-2.44E+00 ±	5.71E+00	9.16E+00
ZRNB-95		2.77E+00 ±	5.56E+00	8.93E+00
I-131		7.96E-02 ±	8.22E+00	1.35E+01
CS-134		-2.45E+00 ±	3.67E+00	5.91E+00
CS-137		2.34E+00 ±	3.12E+00	4.96E+00
BALA140		3.06E-01 ±	4.16E+00	6.79E+00
BI-214		6.47E+00 ±	7.48E+00	1.33E+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

Nuclide	RQ	Location 102a collected		7/31/2013
		Activity	Error	MDA
K-40		6.12E+00 ±	3.14E+01	6.23E+01
CR-51		-1.27E+01 ±	3.70E+01	6.02E+01
MN-54		1.88E-01 ±	2.62E+00	4.29E+00
CO-58		-2.03E-01 ±	3.16E+00	5.17E+00
FE-59		5.42E-01 ±	6.62E+00	1.08E+01
CO-60		-5.32E-01 ±	3.97E+00	4.75E+00
ZN-65		1.18E+00 ±	5.73E+00	9.31E+00
ZRNB-95		6.29E-01 ±	5.79E+00	9.47E+00
I-131		-8.35E+00 ±	1.17E+01	1.87E+01
CS-134		-7.13E-01 ±	2.65E+00	4.30E+00
CS-137		-4.35E-02 ±	2.43E+00	4.00E+00
BALA140		-4.00E-02 ±	6.39E+00	1.05E+01
BI-214		1.84E+00 ±	7.04E+00	1.28E+01

Nuclide	RQ	Location 102a collected		9/3/2013
		Activity	Error	MDA
K-40		1.91E+01 ±	3.23E+01	6.25E+01
CR-51		1.35E+01 ±	3.45E+01	5.59E+01
MN-54		3.22E-01 ±	2.84E+00	4.65E+00
CO-58		-1.01E+00 ±	3.05E+00	4.93E+00
FE-59		-1.04E+00 ±	7.29E+00	1.19E+01
CO-60		1.77E-01 ±	2.81E+00	4.88E+00
ZN-65		-3.15E+00 ±	5.81E+00	9.23E+00
ZRNB-95		1.86E-02 ±	5.56E+00	9.13E+00
I-131		2.26E+00 ±	9.32E+00	1.52E+01
CS-134		4.35E-02 ±	2.99E+00	4.91E+00
CS-137		4.58E-01 ±	2.65E+00	4.32E+00
BALA140		-8.51E-01 ±	6.21E+00	1.01E+01
BI-214		1.42E+00 ±	6.87E+00	1.26E+01

Nuclide	RQ	Location 102a collected		10/1/2013
		Activity	Error	MDA
K-40		-2.41E+01 ±	3.85E+01	6.29E+01
CR-51		1.59E+01 ±	3.26E+01	5.28E+01
MN-54		-3.67E-01 ±	2.49E+00	4.06E+00
CO-58		-8.78E-01 ±	3.01E+00	4.88E+00
FE-59		3.21E+00 ±	6.75E+00	1.07E+01
CO-60		2.54E-01 ±	2.40E+00	3.92E+00
ZN-65		-3.64E+00 ±	6.82E+00	1.10E+01
ZRNB-95		3.43E+00 ±	5.23E+00	8.35E+00
I-131		6.84E-01 ±	8.22E+00	1.35E+01
CS-134		-4.77E+00 ±	3.59E+00	5.68E+00
CS-137		-6.67E-01 ±	3.09E+00	5.03E+00
BALA140		-2.31E+00 ±	6.33E+00	1.02E+01
BI-214		8.39E+00 ±	7.16E+00	1.26E+01

Nuclide	RQ	Location 102a collected		11/1/2013
		Activity	Error	MDA
K-40		1.39E+01 ±	3.16E+01	6.20E+01
CR-51		1.25E+01 ±	4.02E+01	6.53E+01
MN-54		8.45E-01 ±	2.52E+00	4.06E+00
CO-58		1.43E+00 ±	2.82E+00	4.48E+00
FE-59		-1.09E+00 ±	8.44E+00	1.37E+01
CO-60		-2.55E+00 ±	8.83E+01	5.93E+00
ZN-65		0.00E+00 ±	1.03E+01	1.69E+01
ZRNB-95		1.87E+00 ±	5.97E+00	9.65E+00
I-131		9.83E+00 ±	1.62E+01	2.60E+01
CS-134		2.20E-01 ±	2.94E+00	4.82E+00
CS-137		-1.21E+00 ±	3.27E+00	5.29E+00
BALA140		-1.09E+00 ±	9.71E+00	1.58E+01
BI-214		5.61E+00 ±	7.08E+00	1.26E+01

Nuclide	RQ	Location 102a collected		12/1/2013
		Activity	Error	MDA
K-40		1.17E+01 ±	3.14E+01	6.33E+01
CR-51		-1.54E+00 ±	3.29E+01	5.41E+01
MN-54		-1.24E+00 ±	2.84E+00	4.58E+00
CO-58		-1.94E-01 ±	2.27E+00	3.71E+00
FE-59		1.97E+00 ±	7.30E+00	1.18E+01
CO-60		1.22E+00 ±	2.51E+00	4.01E+00
ZN-65		-5.28E-01 ±	5.97E+00	9.78E+00
ZRNB-95		3.13E+00 ±	4.98E+00	7.94E+00
I-131		-7.51E-01 ±	1.02E+01	1.67E+01
CS-134		-6.53E-01 ±	1.86E+00	2.99E+00
CS-137		-1.22E+00 ±	2.86E+00	4.62E+00
BALA140		1.48E+00 ±	5.55E+00	8.94E+00
BI-214	+	1.29E+01 ±	7.23E+00	1.25E+01

Nuclide	RQ	Location 102a collected		12/31/2013
		Activity	Error	MDA
K-40	+	6.22E+01 ±	3.38E+01	6.12E+01
CR-51		-1.45E+00 ±	3.69E+01	6.05E+01
MN-54		5.54E-01 ±	2.90E+00	4.72E+00
CO-58		4.84E-02 ±	2.96E+00	4.87E+00
FE-59		-1.11E+00 ±	7.38E+00	1.20E+01
CO-60		-2.04E+00 ±	1.72E+01	4.71E+00
ZN-65		-4.11E+00 ±	6.60E+00	1.05E+01
ZRNB-95		9.16E-01 ±	5.77E+00	9.41E+00
I-131		3.37E+00 ±	1.25E+01	2.03E+01
CS-134		6.75E-02 ±	2.85E+00	4.68E+00
CS-137		-1.40E+00 ±	2.85E+00	4.57E+00
BALA140		-2.08E+00 ±	7.92E+00	1.27E+01
BI-214		1.23E+01 ±	7.15E+00	1.24E+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

Nuclide	RQ	Location 102b collected		2/5/2013	Nuclide	RQ	Location 102b collected		2/28/2013
		Activity	Error	MDA			Activity	Error	MDA
K-40		1.03E+01 ±	2.97E+01	5.85E+01	K-40		-1.47E+01 ±	3.90E+01	6.82E+01
CR-51		3.18E+00 ±	3.54E+01	5.81E+01	CR-51		2.87E-01 ±	3.65E+01	6.01E+01
MN-54		-1.14E-01 ±	2.48E+00	4.07E+00	MN-54		-3.03E-01 ±	2.69E+00	4.39E+00
CO-58		2.02E+00 ±	2.43E+00	3.79E+00	CO-58		4.95E-01 ±	3.26E+00	5.33E+00
FE-59		4.78E+00 ±	6.79E+00	1.06E+01	FE-59		4.46E-01 ±	7.06E+00	1.16E+01
CO-60		8.95E-01 ±	2.44E+00	4.20E+00	CO-60		0.00E+00 ±	2.85E+00	4.68E+00
ZN-65		5.05E+00 ±	4.97E+00	7.63E+00	ZN-65		2.52E+00 ±	4.69E+00	7.44E+00
ZRNB-95		2.58E-02 ±	3.93E+00	6.46E+00	ZRNB-95		-1.42E+00 ±	5.93E+00	9.66E+00
I-131	+	5.31E+02 ±	2.13E+01	1.54E+01	I-131		8.76E+00 ±	1.04E+01	1.67E+01
CS-134		1.53E+00 ±	2.66E+00	4.28E+00	CS-134		-3.26E+00 ±	3.46E+00	5.53E+00
CS-137		-6.24E-01 ±	2.70E+00	4.39E+00	CS-137		1.25E-01 ±	3.12E+00	5.13E+00
BALA140		7.79E-01 ±	5.12E+00	8.29E+00	BALA140		-8.33E-02 ±	5.67E+00	9.32E+00
BI-214		2.26E+00 ±	6.50E+00	1.18E+01	BI-214		6.09E+00 ±	7.59E+00	1.34E+01

Nuclide	RQ	Location 102b collected		4/2/2013	Nuclide	RQ	Location 102b collected		4/30/2013
		Activity	Error	MDA			Activity	Error	MDA
K-40		-2.53E+01 ±	4.02E+01	6.41E+01	K-40		3.06E+00 ±	3.59E+01	7.14E+01
CR-51		-1.70E+00 ±	3.51E+01	5.75E+01	CR-51		2.11E+00 ±	3.43E+01	5.62E+01
MN-54		2.44E-01 ±	2.77E+00	4.53E+00	MN-54		3.78E+00 ±	2.92E+00	4.50E+00
CO-58		-9.94E-01 ±	3.14E+00	5.09E+00	CO-58		-1.29E-01 ±	3.27E+00	5.36E+00
FE-59		-3.25E+00 ±	7.92E+00	1.27E+01	FE-59		1.69E+00 ±	7.09E+00	1.15E+01
CO-60		1.37E+00 ±	2.36E+00	3.74E+00	CO-60		1.59E+00 ±	2.50E+00	3.94E+00
ZN-65		2.91E+00 ±	6.37E+00	1.03E+01	ZN-65		4.20E+00 ±	4.78E+00	7.38E+00
ZRNB-95		2.42E+00 ±	5.40E+00	8.70E+00	ZRNB-95		3.57E-02 ±	5.31E+00	8.72E+00
I-131		3.69E+00 ±	1.06E+01	1.73E+01	I-131		3.61E+00 ±	9.33E+00	1.51E+01
CS-134		-1.38E+00 ±	3.56E+00	5.78E+00	CS-134		0.00E+00 ±	5.12E+00	8.42E+00
CS-137		-4.28E-01 ±	3.06E+00	5.01E+00	CS-137		-5.17E-01 ±	3.08E+00	5.03E+00
BALA140		-5.17E-01 ±	5.68E+00	9.27E+00	BALA140		-6.05E-02 ±	6.18E+00	1.02E+01
BI-214		4.70E+00 ±	7.44E+00	1.32E+01	BI-214		1.20E+01 ±	7.99E+00	1.38E+01

Nuclide	RQ	Location 102b collected		6/3/2013	Nuclide	RQ	Location 102b collected		7/1/2013
		Activity	Error	MDA			Activity	Error	MDA
K-40		-3.00E+01 ±	4.51E+01	6.86E+01	K-40		-2.23E+01 ±	4.30E+01	6.98E+01
CR-51		1.14E+01 ±	3.54E+01	5.76E+01	CR-51		-6.64E+00 ±	3.55E+01	5.81E+01
MN-54		-1.11E-01 ±	2.85E+00	4.67E+00	MN-54		0.00E+00 ±	3.64E+00	5.98E+00
CO-58		-6.69E-01 ±	3.15E+00	5.13E+00	CO-58		8.36E-03 ±	2.97E+00	4.88E+00
FE-59		1.21E-01 ±	6.19E+00	1.02E+01	FE-59		1.05E+00 ±	7.39E+00	1.20E+01
CO-60		1.60E+00 ±	2.66E+00	4.20E+00	CO-60		2.16E-01 ±	2.46E+00	4.03E+00
ZN-65		3.99E-01 ±	8.38E+00	1.37E+01	ZN-65		-3.26E+00 ±	6.79E+00	1.09E+01
ZRNB-95		-1.52E+00 ±	5.77E+00	9.37E+00	ZRNB-95		-1.56E+00 ±	5.76E+00	9.35E+00
I-131		8.80E-01 ±	9.84E+00	1.61E+01	I-131		-2.55E+00 ±	8.24E+00	1.34E+01
CS-134		-4.05E+00 ±	3.68E+00	5.85E+00	CS-134		1.77E-01 ±	3.64E+00	5.98E+00
CS-137		2.52E+00 ±	2.99E+00	4.72E+00	CS-137		-7.44E-01 ±	2.71E+00	4.39E+00
BALA140		2.42E+00 ±	5.69E+00	9.04E+00	BALA140		-3.76E-01 ±	4.50E+00	7.34E+00
BI-214		3.57E+00 ±	7.63E+00	1.37E+01	BI-214		1.68E+00 ±	7.59E+00	1.37E+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 7/31/2013				Location 102b collected 9/3/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-3.40E+01 ±	4.63E+01	6.80E+01	K-40		-2.44E+01 ±	4.40E+01	6.98E+01
CR-51		-4.25E-01 ±	3.91E+01	6.43E+01	CR-51		-1.85E+00 ±	3.78E+01	6.21E+01
MN-54		-2.17E-01 ±	3.06E+00	5.01E+00	MN-54		2.94E-01 ±	2.97E+00	4.86E+00
CO-58		-2.57E-01 ±	3.40E+00	5.56E+00	CO-58		-5.73E-01 ±	3.29E+00	5.36E+00
FE-59		1.05E+00 ±	6.23E+00	1.01E+01	FE-59		3.83E-02 ±	6.97E+00	1.14E+01
CO-60		-7.45E-02 ±	2.48E+00	4.07E+00	CO-60		4.09E-02 ±	2.54E+00	4.17E+00
ZN-65		1.23E-01 ±	5.34E+00	8.77E+00	ZN-65		-3.41E+00 ±	6.72E+00	1.08E+01
ZRNB-95		0.00E+00 ±	6.19E+00	1.02E+01	ZRNB-95		-9.60E-01 ±	6.30E+00	1.03E+01
I-131		4.00E+00 ±	1.36E+01	2.22E+01	I-131		-2.44E+00 ±	1.16E+01	1.89E+01
CS-134		-4.00E+00 ±	3.71E+00	5.90E+00	CS-134		-2.16E+00 ±	3.71E+00	5.99E+00
CS-137		-8.17E-01 ±	3.32E+00	5.40E+00	CS-137		-1.91E+00 ±	3.37E+00	5.41E+00
BALA140		-1.17E+00 ±	8.39E+00	1.37E+01	BALA140		-1.58E+00 ±	6.81E+00	1.10E+01
BI-214		7.64E+00 ±	7.68E+00	1.36E+01	BI-214		8.06E+00 ±	7.77E+00	1.37E+01

Location 102b collected 10/1/2013				Location 102b collected 11/1/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.67E+01 ±	4.27E+01	6.76E+01	K-40		-3.48E+01 ±	4.93E+01	7.02E+01
CR-51		-1.61E+01 ±	3.80E+01	6.17E+01	CR-51		-1.88E+01 ±	4.97E+01	8.08E+01
MN-54		7.01E-01 ±	3.03E+00	4.92E+00	MN-54		-3.97E-02 ±	2.17E+00	3.57E+00
CO-58		-1.05E+00 ±	3.22E+00	5.21E+00	CO-58		1.68E+00 ±	3.39E+00	5.43E+00
FE-59		-2.54E+00 ±	7.72E+00	1.24E+01	FE-59		0.00E+00 ±	8.70E+00	1.43E+01
CO-60		2.79E-01 ±	2.53E+00	4.13E+00	CO-60		-1.47E+00 ±	2.96E+00	4.73E+00
ZN-65		-2.29E+00 ±	6.06E+00	9.76E+00	ZN-65		-5.21E+00 ±	7.11E+00	1.13E+01
ZRNB-95		-2.37E+00 ±	5.86E+00	9.44E+00	ZRNB-95		-3.47E+00 ±	6.18E+00	9.88E+00
I-131		-2.52E+00 ±	1.36E+01	2.22E+01	I-131		1.18E+01 ±	2.45E+01	3.97E+01
CS-134		5.75E-01 ±	3.14E+00	5.12E+00	CS-134		-4.49E-01 ±	6.18E+00	1.01E+01
CS-137		-1.40E+00 ±	3.27E+00	5.29E+00	CS-137		-6.18E-01 ±	3.01E+00	4.91E+00
BALA140		-2.27E+00 ±	7.71E+00	1.24E+01	BALA140		3.36E+00 ±	1.06E+01	1.69E+01
BI-214		5.32E+00 ±	7.47E+00	1.34E+01	BI-214	+	3.18E+01 ±	8.25E+00	1.33E+01

Location 102b collected 12/1/2013				Location 102b collected 12/31/2013					
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		7.30E+00 ±	3.23E+01	6.35E+01	K-40		3.05E-01 ±	3.54E+01	7.09E+01
CR-51		-9.06E+00 ±	3.38E+01	5.51E+01	CR-51		-1.12E+00 ±	4.72E+01	7.76E+01
MN-54		-4.17E-01 ±	2.78E+00	4.53E+00	MN-54		-1.80E+00 ±	3.44E+00	5.53E+00
CO-58		6.48E-01 ±	3.03E+00	4.92E+00	CO-58		5.17E-01 ±	3.25E+00	5.31E+00
FE-59		3.54E+00 ±	7.03E+00	1.11E+01	FE-59		-9.68E-01 ±	8.19E+00	1.34E+01
CO-60		4.27E-01 ±	2.45E+00	4.29E+00	CO-60		6.92E-02 ±	2.45E+00	4.02E+00
ZN-65		-1.55E+00 ±	5.58E+00	9.00E+00	ZN-65		0.00E+00 ±	1.01E+01	1.66E+01
ZRNB-95		-3.60E-01 ±	5.07E+00	8.31E+00	ZRNB-95		-8.45E-01 ±	5.91E+00	9.65E+00
I-131		-4.97E-01 ±	1.01E+01	1.65E+01	I-131		1.11E+01 ±	1.81E+01	2.91E+01
CS-134		-3.07E-01 ±	2.98E+00	4.89E+00	CS-134		-2.95E+00 ±	3.73E+00	5.98E+00
CS-137		0.00E+00 ±	3.19E+00	5.24E+00	CS-137		-5.48E-01 ±	3.27E+00	5.34E+00
BALA140		-1.01E+00 ±	6.61E+00	1.07E+01	BALA140		-2.83E-01 ±	8.31E+00	1.36E+01
BI-214		3.80E+00 ±	7.06E+00	1.27E+01	BI-214		4.50E+00 ±	7.84E+00	1.40E+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	4.74E+00	-3.00E+01	6.22E+01	6.28E+01	12	1
	CR-51	5.24E-01	-1.27E+01	1.59E+01	5.59E+01	12	0
	MN-54	-8.34E-02	-1.24E+00	8.45E-01	4.27E+00	12	0
	CO-58	-9.47E-02	-1.27E+00	1.81E+00	4.62E+00	12	0
	FE-59	6.02E-01	-4.92E+00	3.23E+00	1.13E+01	12	0
	CO-60	3.39E-02	-2.55E+00	2.17E+00	4.49E+00	12	0
	ZN-65	-1.60E+00	-5.77E+00	1.33E+00	1.05E+01	12	0
	ZRNB-95	6.43E-01	-3.64E+00	3.13E+00	9.20E+00	12	0
	I-131	8.95E-01	-8.35E+00	9.83E+00	1.59E+01	12	0
	CS-134	-1.53E+00	-4.77E+00	2.35E-01	4.88E+00	12	0
	CS-137	1.73E-01	-1.40E+00	2.52E+00	4.62E+00	12	0
	BALA140	9.14E-01	-2.31E+00	5.07E+00	9.77E+00	12	0
	BI-214	6.75E+00	1.42E+00	1.58E+01	1.26E+01	12	2
102B	K-40	-1.59E+01	-3.48E+01	1.03E+01	6.76E+01	12	0
	CR-51	-3.23E+00	-1.88E+01	1.14E+01	6.24E+01	12	0
	MN-54	1.87E-01	-1.80E+00	3.78E+00	4.71E+00	12	0
	CO-58	1.42E-01	-1.05E+00	2.02E+00	5.11E+00	12	0
	FE-59	4.95E-01	-3.25E+00	4.78E+00	1.18E+01	12	0
	CO-60	4.12E-01	-1.47E+00	1.60E+00	4.18E+00	12	0
	ZN-65	-4.14E-02	-5.21E+00	5.05E+00	1.03E+01	12	0
	ZRNB-95	-8.28E-01	-3.47E+00	2.42E+00	9.19E+00	12	0
	I-131	4.73E+01	-2.55E+00	5.31E+02	2.02E+01	12	1
	CS-134	-1.36E+00	-4.05E+00	1.53E+00	6.16E+00	12	0
	CS-137	-4.14E-01	-1.91E+00	2.52E+00	5.02E+00	12	0
	BALA140	-6.60E-02	-2.27E+00	3.36E+00	1.10E+01	12	0
	BI-214	7.61E+00	1.68E+00	3.18E+01	1.34E+01	12	1

TABLE B-8.1
TRITIUM IN SANITARY WASTE TREATMENT WATER

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

Location	Description	Collection Period	RQ	Activity	Error
102A	FFTF-Effluent	01/03/13 - 02/05/13	+	1.61E+03	± 1.29E+02
		02/05/13 - 02/28/13	+	1.78E+03	± 1.38E+02
		02/28/13 - 04/02/13	+	1.64E+03	± 1.34E+02
		04/02/13 - 04/30/13	+	1.62E+03	± 1.34E+02
		04/30/13 - 06/03/13	+	1.56E+03	± 1.32E+02
		06/03/13 - 07/01/13	+	8.70E+02	± 1.08E+02
		07/01/13 - 07/31/13	+	9.48E+02	± 1.21E+02
		07/31/13 - 09/03/13	+	1.38E+03	± 1.26E+02
		09/03/13 - 10/01/13	+	1.37E+03	± 1.27E+02
		10/01/13 - 11/01/13	+	1.45E+03	± 1.31E+02
		11/01/13 - 12/01/13	+	1.59E+03	± 1.35E+02
		12/01/13 - 12/31/13	+	1.43E+03	± 1.33E+02
102B	Monthly Headworks	01/03/13 - 02/05/13	+	4.42E+02	± 9.78E+01
		02/05/13 - 02/28/13	+	3.58E+02	± 1.03E+02
		02/28/13 - 04/02/13	+	5.16E+02	± 1.09E+02
		04/02/13 - 04/30/13	+	3.58E+02	± 1.04E+02
		04/30/13 - 06/03/13		2.84E+02	± 9.90E+01
		06/03/13 - 07/01/13	+	3.13E+02	± 9.18E+01
		07/01/13 - 07/31/13		1.52E+02	± 1.01E+02
		07/31/13 - 09/03/13		1.48E+02	± 9.40E+01
		09/03/13 - 10/01/13		2.03E+02	± 9.60E+01
		10/01/13 - 11/01/13		1.60E+02	± 9.64E+01
		11/01/13 - 12/01/13		2.18E+02	± 1.01E+02
		12/01/13 - 12/31/13		1.82E+02	± 1.02E+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 FFTF Effluent	1.44E+03	8.70E+02	1.78E+03	12	12
102B Monthly Headworks	2.78E+02	1.48E+02	5.16E+02	12	5

TABLE B-10dA

GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING WELL SAMPLES

Results in pCi per liter

Station MW-3 collected 1/28/2013					Station MW-9 collected 2/4/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-2.60E+01 ±	8.78E+01	1.12E+02	K-40		1.64E+01 ±	4.62E+01	8.36E+01
MN-54		-3.03E+00 ±	5.66E+00	9.01E+00	MN-54		-2.31E-02 ±	3.74E+00	6.15E+00
CO-58		3.25E+00 ±	3.31E+00	4.90E+00	CO-58		-1.38E+00 ±	3.67E+00	5.79E+00
FE-59		5.39E+00 ±	1.03E+01	1.60E+01	FE-59		-1.71E+00 ±	9.12E+00	1.46E+01
CO-60		1.71E+00 ±	4.56E+00	7.65E+00	CO-60		-1.26E+00 ±	3.05E+01	5.40E+00
ZN-65		-7.95E+00 ±	1.29E+01	2.03E+01	ZN-65		-4.51E+00 ±	1.05E+01	1.66E+01
ZRNB-95		1.44E+00 ±	9.41E+00	1.53E+01	ZRNB-95		-3.54E-01 ±	5.44E+00	8.87E+00
I-131		-1.92E+00 ±	5.54E+00	8.97E+00	I-131		-7.01E-01 ±	4.01E+00	6.52E+00
CS-134		2.31E-01 ±	9.64E+00	1.58E+01	CS-134		2.70E-01 ±	1.00E+00	1.88E+00
CS-137		-2.32E+00 ±	5.77E+00	9.26E+00	CS-137		-3.89E-01 ±	3.30E+00	5.36E+00
BALA140		0.00E+00 ±	1.23E+00	2.02E+00	BALA140		-1.11E+00 ±	4.71E+00	7.48E+00
BI-214	+	5.56E+02 ±	2.86E+01	2.02E+01	BI-214	+	3.16E+02 ±	2.19E+01	1.32E+01

Station MW-5 collected 1/28/2013					Station MW-10 collected 2/4/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-1.19E+01 ±	6.37E+01	1.04E+02	K-40		-2.88E+01 ±	7.57E+01	7.56E+01
MN-54		1.07E+00 ±	4.01E+00	6.45E+00	MN-54		-1.97E-01 ±	2.94E+00	4.81E+00
CO-58		-9.60E-03 ±	3.73E+00	6.12E+00	CO-58		4.50E-01 ±	2.38E+00	3.83E+00
FE-59		-3.20E+00 ±	1.00E+01	1.59E+01	FE-59		1.75E+00 ±	6.60E+00	1.04E+01
CO-60		-2.54E-01 ±	4.33E+00	6.44E+00	CO-60		6.01E-01 ±	2.85E+00	4.57E+00
ZN-65		-2.15E+00 ±	9.49E+00	1.53E+01	ZN-65		-5.07E+00 ±	9.14E+00	1.44E+01
ZRNB-95		-5.29E-01 ±	7.56E+00	1.24E+01	ZRNB-95		3.17E-01 ±	4.71E+00	7.69E+00
I-131		1.41E+00 ±	4.69E+00	7.59E+00	I-131		-8.47E-01 ±	3.96E+00	6.43E+00
CS-134		6.05E-01 ±	4.61E+00	7.52E+00	CS-134		1.50E+00 ±	2.50E+00	3.97E+00
CS-137		-1.05E-01 ±	4.62E+00	7.59E+00	CS-137		1.67E-01 ±	3.10E+00	5.07E+00
BALA140		-6.16E-02 ±	4.70E+00	7.71E+00	BALA140		7.92E-01 ±	4.23E+00	6.79E+00
BI-214	+	1.79E+02 ±	1.90E+01	1.91E+01	BI-214	+	9.55E+01 ±	1.29E+01	1.25E+01

Station MW-6 collected 1/28/2013					Station MW-11 collected 2/4/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-1.36E+00 ±	5.20E+01	1.00E+02	K-40		-5.98E+01 ±	6.18E+03	8.09E+01
MN-54		1.31E+00 ±	3.60E+00	5.72E+00	MN-54		5.96E-01 ±	2.78E+00	4.43E+00
CO-58		-1.72E-02 ±	3.77E+00	6.19E+00	CO-58		1.69E+00 ±	2.96E+00	4.48E+00
FE-59		0.00E+00 ±	9.11E+00	1.50E+01	FE-59		-1.51E+00 ±	8.03E+00	1.28E+01
CO-60		-1.78E+00 ±	1.96E+01	7.49E+00	CO-60		-1.73E+00 ±	2.13E+01	5.98E+00
ZN-65		-8.67E-01 ±	3.75E+01	7.24E+00	ZN-65		1.20E+00 ±	4.12E+00	6.46E+00
ZRNB-95		3.60E+00 ±	6.71E+00	1.05E+01	ZRNB-95		-3.74E-02 ±	4.41E+00	7.24E+00
I-131		1.83E-01 ±	5.53E+00	9.07E+00	I-131		1.39E+00 ±	4.20E+00	6.65E+00
CS-134		2.65E+00 ±	5.11E+00	8.16E+00	CS-134		-5.66E-03 ±	2.78E+00	4.57E+00
CS-137		2.20E+00 ±	5.09E+00	8.13E+00	CS-137		-1.09E+00 ±	3.44E+00	5.46E+00
BALA140		2.19E+00 ±	4.43E+00	6.82E+00	BALA140		-3.59E-02 ±	4.86E+00	7.98E+00
BI-214	+	2.88E+02 ±	2.13E+01	1.82E+01	BI-214	+	6.14E+01 ±	1.08E+01	1.20E+01

Station MW-8 collected 2/4/2013					Station MW-12 collected 2/4/2013				
Nuclide	RQ	Activity	Error	MDA	Nuclide	RQ	Activity	Error	MDA
K-40		-4.01E+01 ±	2.16E+02	8.65E+01	K-40		-5.91E+01 ±	1.32E+03	7.55E+01
MN-54		-1.10E-01 ±	3.77E+00	6.18E+00	MN-54		-7.17E-01 ±	3.29E+00	5.27E+00
CO-58		5.44E-02 ±	3.20E+00	5.24E+00	CO-58		-5.79E-01 ±	3.18E+00	5.12E+00
FE-59		-6.84E-01 ±	7.89E+00	1.28E+01	FE-59		-2.69E+00 ±	9.07E+00	1.42E+01
CO-60		-7.27E-01 ±	1.60E+01	7.38E+00	CO-60		-1.19E+00 ±	9.96E+01	5.72E+00
ZN-65		-1.02E+00 ±	3.67E+01	2.98E+00	ZN-65		-8.30E+00 ±	1.09E+01	1.67E+01
ZRNB-95		-1.48E+00 ±	6.21E+00	9.96E+00	ZRNB-95		0.00E+00 ±	6.55E+00	1.08E+01
I-131		5.86E-01 ±	3.82E+00	6.22E+00	I-131		-1.05E+00 ±	4.94E+00	7.97E+00
CS-134		0.00E+00 ±	1.02E+01	1.67E+01	CS-134		2.71E-01 ±	3.50E+00	5.72E+00
CS-137		1.12E+00 ±	4.31E+00	6.92E+00	CS-137		-4.83E-01 ±	2.85E+00	4.59E+00
BALA140		8.38E-01 ±	4.91E+00	7.88E+00	BALA140		2.69E-01 ±	4.50E+00	7.30E+00
BI-214	+	3.30E+02 ±	2.43E+01	1.72E+01	BI-214	+	6.71E+01 ±	1.12E+01	1.21E+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 WELL SAMPLESResults in μCi per liter

Station MW-13 collected				1/28/2013
Nuclide	RQ	Activity	Error	MDA
K-40		1.06E+01 \pm	5.16E+01	9.98E+01
MN-54		1.75E+00 \pm	4.08E+00	6.48E+00
CO-58		-3.16E-01 \pm	5.01E+00	8.20E+00
FE-59		3.08E+00 \pm	8.55E+00	1.34E+01
CO-60		-8.56E-01 \pm	7.70E+00	7.18E+00
ZN-65		-1.02E+01 \pm	1.16E+01	1.79E+01
ZRNB-95		5.78E-01 \pm	7.68E+00	1.26E+01
I-131		1.09E+00 \pm	4.38E+00	7.08E+00
CS-134		-1.91E+00 \pm	4.53E+00	7.27E+00
CS-137		0.00E+00 \pm	5.56E+00	9.15E+00
BALA140		2.46E+00 \pm	4.38E+00	6.64E+00
BI-214	+	1.59E+02 \pm	1.97E+01	2.06E+01

Station MW-6 collected				4/24/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-3.54E+01 \pm	1.03E+02	8.85E+01
MN-54		-1.20E+00 \pm	3.56E+00	5.59E+00
CO-58		1.23E-01 \pm	3.20E+00	5.22E+00
FE-59		1.25E-01 \pm	6.22E+00	1.02E+01
CO-60		3.00E-01 \pm	2.82E+00	4.53E+00
ZN-65		-1.38E+00 \pm	6.70E+00	1.06E+01
ZRNB-95		-6.63E-01 \pm	6.22E+00	1.01E+01
I-131		0.00E+00 \pm	3.66E+00	6.03E+00
CS-134		-7.14E-01 \pm	3.14E+00	5.03E+00
CS-137		-9.42E-01 \pm	3.97E+00	6.35E+00
BALA140		0.00E+00 \pm	1.48E+00	2.44E+00
BI-214	+	1.42E+01 \pm	8.69E+00	1.38E+01

Station MW-14 collected				1/28/2013
Nuclide	RQ	Activity	Error	MDA
K-40		1.26E+01 \pm	4.90E+01	9.59E+01
MN-54		3.76E+00 \pm	4.08E+00	6.20E+00
CO-58		1.40E+00 \pm	3.59E+00	5.68E+00
FE-59		-2.67E+00 \pm	1.02E+01	1.64E+01
CO-60		-1.85E+00 \pm	2.19E+01	7.59E+00
ZN-65		0.00E+00 \pm	7.14E+00	1.18E+01
ZRNB-95		-1.30E+00 \pm	7.30E+00	1.18E+01
I-131		-2.93E+00 \pm	5.25E+00	8.38E+00
CS-134		-9.84E-01 \pm	4.85E+00	7.88E+00
CS-137		-2.09E+00 \pm	4.89E+00	7.80E+00
BALA140		-8.10E-03 \pm	3.65E+00	6.00E+00
BI-214	+	1.30E+02 \pm	1.70E+01	1.85E+01

Station MW-8 collected				5/1/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-8.83E+01 \pm	1.40E+02	1.12E+02
MN-54		1.49E-02 \pm	3.88E+00	6.37E+00
CO-58		0.00E+00 \pm	5.63E+00	9.25E+00
FE-59		2.84E+00 \pm	9.39E+00	1.50E+01
CO-60		9.53E-01 \pm	4.34E+00	6.99E+00
ZN-65		5.51E+00 \pm	9.10E+00	1.42E+01
ZRNB-95		-4.58E+00 \pm	8.68E+00	1.38E+01
I-131		-1.74E-02 \pm	5.60E+00	9.21E+00
CS-134		1.59E+00 \pm	1.84E+01	7.55E+00
CS-137		2.40E-03 \pm	4.84E+00	7.99E+00
BALA140		-5.04E-01 \pm	5.18E+00	8.44E+00
BI-214	+	3.09E+02 \pm	2.53E+01	2.23E+01

Station MW-3 collected				4/24/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-6.30E+00 \pm	4.54E+01	7.41E+01
MN-54		6.53E-01 \pm	2.37E+00	3.73E+00
CO-58		-5.13E-02 \pm	2.78E+00	4.56E+00
FE-59		-2.50E-01 \pm	6.19E+00	1.01E+01
CO-60		-1.26E+00 \pm	5.04E+00	2.55E+00
ZN-65		-3.79E+00 \pm	9.67E+00	1.53E+01
ZRNB-95		-8.13E-01 \pm	4.77E+00	7.66E+00
I-131		-8.49E-01 \pm	4.06E+00	6.54E+00
CS-134		-3.45E-02 \pm	2.99E+00	4.91E+00
CS-137		5.43E-03 \pm	2.96E+00	4.86E+00
BALA140		-3.98E-01 \pm	5.57E+00	9.06E+00
BI-214	+	1.83E+01 \pm	8.28E+00	1.26E+01

Station MW-9 collected				5/1/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-4.58E+01 \pm	9.32E+01	1.14E+02
MN-54		-1.99E-01 \pm	4.92E+00	8.07E+00
CO-58		-2.10E+00 \pm	4.53E+00	7.21E+00
FE-59		-1.17E-01 \pm	9.21E+00	1.51E+01
CO-60		-2.94E-01 \pm	4.26E+00	6.95E+00
ZN-65		2.01E-01 \pm	1.13E+01	1.86E+01
ZRNB-95		0.00E+00 \pm	9.68E+00	1.59E+01
I-131		4.67E-01 \pm	6.51E+00	1.07E+01
CS-134		-2.56E-01 \pm	1.47E+01	2.42E+01
CS-137		2.30E+00 \pm	4.19E+00	6.59E+00
BALA140		-2.22E+00 \pm	5.29E+00	8.33E+00
BI-214	+	1.82E+02 \pm	1.91E+01	1.93E+01

Station MW-5 collected				4/24/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-5.86E+01 \pm	2.74E+02	9.25E+01
MN-54		-1.21E+00 \pm	3.77E+00	5.94E+00
CO-58		-3.89E-01 \pm	3.26E+00	5.26E+00
FE-59		-1.14E+00 \pm	7.83E+00	1.25E+01
CO-60		1.01E+00 \pm	3.20E+00	4.96E+00
ZN-65		-2.89E+00 \pm	8.54E+00	1.34E+01
ZRNB-95		-1.85E+00 \pm	5.67E+00	8.87E+00
I-131		-7.24E-01 \pm	4.39E+00	7.09E+00
CS-134		0.00E+00 \pm	5.91E+00	9.71E+00
CS-137		-2.39E-01 \pm	2.79E+00	4.52E+00
BALA140		-2.48E+00 \pm	6.37E+00	9.80E+00
BI-214		1.05E+01 \pm	8.73E+00	1.44E+01

Station MW-10 collected				5/1/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-3.89E+01 \pm	7.86E+01	1.07E+02
MN-54		2.08E-01 \pm	4.25E+00	6.96E+00
CO-58		7.94E-02 \pm	4.00E+00	6.57E+00
FE-59		7.08E-01 \pm	9.47E+00	1.54E+01
CO-60		0.00E+00 \pm	5.47E+00	9.00E+00
ZN-65		-8.59E+00 \pm	1.19E+01	1.87E+01
ZRNB-95		-3.29E+00 \pm	7.44E+00	1.18E+01
I-131		1.30E+00 \pm	5.68E+00	9.23E+00
CS-134		6.15E-03 \pm	5.21E+00	8.54E+00
CS-137		-1.56E+00 \pm	4.65E+00	7.47E+00
BALA140		-2.23E-01 \pm	5.32E+00	8.70E+00
BI-214	+	1.08E+02 \pm	1.52E+01	1.80E+01

TABLE B-10

GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING WELL SAMPLES

Results in pCi per liter

Station MW-11 collected				5/1/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-5.02E+01 ±	1.02E+02	1.21E+02
MN-54		1.35E+00 ±	3.62E+00	5.72E+00
CO-58		8.32E-02 ±	3.65E+00	5.99E+00
FE-59		4.09E-01 ±	1.02E+01	1.67E+01
CO-60		1.57E+00 ±	3.98E+00	6.25E+00
ZN-65		-1.08E+00 ±	2.29E+01	7.32E+00
ZRNB-95		-1.17E-01 ±	7.23E+00	1.19E+01
I-131		-3.36E+00 ±	8.25E+00	1.33E+01
CS-134		2.55E-01 ±	5.88E+00	9.64E+00
CS-137		1.42E+00 ±	5.32E+00	8.58E+00
BALA140		1.84E+00 ±	6.32E+00	1.00E+01
BI-214	+	1.04E+02 ±	1.86E+01	2.15E+01

Station MW-3 collected				7/22/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-2.62E+01 ±	7.84E+01	1.20E+02
MN-54		-2.78E+00 ±	6.80E+00	1.09E+01
CO-58		-3.65E+00 ±	5.95E+00	9.42E+00
FE-59		1.11E+00 ±	9.13E+00	1.48E+01
CO-60		3.77E+00 ±	3.85E+00	5.56E+00
ZN-65		4.02E+00 ±	6.48E+00	9.74E+00
ZRNB-95		6.33E+00 ±	9.09E+00	1.42E+01
I-131		2.68E+00 ±	6.50E+00	1.05E+01
CS-134		8.43E-01 ±	5.26E+00	8.57E+00
CS-137		-1.12E+00 ±	7.16E+00	1.17E+01
BALA140		-1.20E+00 ±	6.69E+00	1.08E+01
BI-214	+	5.78E+02 ±	3.28E+01	2.41E+01

Station MW-12 collected				5/1/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-3.65E+01 ±	8.45E+01	1.17E+02
MN-54		2.12E+00 ±	4.48E+00	7.07E+00
CO-58		3.07E+00 ±	3.94E+00	5.97E+00
FE-59		2.11E+00 ±	1.06E+01	1.70E+01
CO-60		0.00E+00 ±	5.33E+00	8.76E+00
ZN-65		-1.42E+00 ±	8.59E+00	1.39E+01
ZRNB-95		9.92E-01 ±	8.25E+00	1.34E+01
I-131		5.35E+00 ±	7.71E+00	1.22E+01
CS-134		-5.56E+00 ±	7.02E+00	1.11E+01
CS-137		-7.73E-02 ±	4.94E+00	8.11E+00
BALA140		-5.06E-01 ±	6.12E+00	9.95E+00
BI-214	+	1.01E+02 ±	2.07E+01	2.32E+01

Station MW-5 collected				7/22/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-9.33E+01 ±	1.93E+02	1.29E+02
MN-54		-4.07E-01 ±	7.09E+00	1.16E+01
CO-58		-6.78E-01 ±	4.36E+00	7.08E+00
FE-59		2.85E+00 ±	9.62E+00	1.53E+01
CO-60		-6.14E-02 ±	4.88E+00	8.01E+00
ZN-65		0.00E+00 ±	7.33E+00	1.21E+01
ZRNB-95		4.48E+00 ±	7.09E+00	1.10E+01
I-131		2.00E+00 ±	5.43E+00	8.75E+00
CS-134		1.63E+00 ±	4.35E+00	6.97E+00
CS-137		-3.65E+00 ±	6.36E+00	1.01E+01
BALA140		3.46E-01 ±	4.95E+00	8.07E+00
BI-214	+	1.96E+02 ±	2.31E+01	2.26E+01

Station MW-13 collected				4/24/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-4.85E+01 ±	1.50E+02	8.68E+01
MN-54		0.00E+00 ±	4.51E+00	7.41E+00
CO-58		-1.74E-02 ±	3.08E+00	5.06E+00
FE-59		-1.83E+00 ±	8.53E+00	1.35E+01
CO-60		2.04E-01 ±	3.43E+00	5.58E+00
ZN-65		-1.50E+00 ±	7.10E+00	1.13E+01
ZRNB-95		1.31E-01 ±	4.61E+00	7.55E+00
I-131		-2.43E+00 ±	5.10E+00	7.96E+00
CS-134		-1.56E+00 ±	4.13E+00	6.55E+00
CS-137		2.45E-01 ±	3.12E+00	5.07E+00
BALA140		0.00E+00 ±	6.45E+00	1.06E+01
BI-214		4.14E+00 ±	8.43E+00	1.48E+01

Station MW-6 collected				7/22/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-4.00E+01 ±	9.60E+01	1.25E+02
MN-54		-1.75E-01 ±	4.66E+00	7.64E+00
CO-58		-9.81E-01 ±	5.32E+00	8.63E+00
FE-59		-2.02E+00 ±	1.13E+01	1.83E+01
CO-60		1.69E+00 ±	4.81E+00	7.65E+00
ZN-65		2.13E+00 ±	4.36E+01	1.50E+01
ZRNB-95		-6.12E-01 ±	9.09E+00	1.49E+01
I-131		5.60E-04 ±	5.25E+00	8.76E+00
CS-134		-1.11E+01 ±	8.61E+00	1.35E+01
CS-137		-1.90E+00 ±	6.73E+00	1.09E+01
BALA140		0.00E+00 ±	4.38E+00	7.20E+00
BI-214	+	4.45E+02 ±	2.93E+01	2.36E+01

Station MW-14 collected				4/24/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-5.12E+01 ±	1.50E+02	7.52E+01
MN-54		2.93E-02 ±	2.63E+00	4.32E+00
CO-58		1.62E-02 ±	2.19E+00	3.60E+00
FE-59		-1.48E+00 ±	7.87E+00	1.26E+01
CO-60		1.79E-02 ±	2.79E+00	4.58E+00
ZN-65		-5.86E-02 ±	5.06E+00	8.31E+00
ZRNB-95		-9.18E-01 ±	4.38E+00	7.03E+00
I-131		-1.23E+00 ±	4.81E+00	7.78E+00
CS-134		-8.27E-01 ±	2.75E+00	4.40E+00
CS-137		1.21E-01 ±	2.39E+00	3.90E+00
BALA140		1.22E+00 ±	4.99E+00	7.92E+00
BI-214		4.58E+00 ±	6.21E+00	1.11E+01

Station MW-8 collected				7/24/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-2.76E+01 ±	7.66E+01	1.04E+02
MN-54		-1.51E-01 ±	4.67E+00	7.66E+00
CO-58		-1.32E+00 ±	4.99E+00	8.04E+00
FE-59		-2.92E-01 ±	1.13E+01	1.85E+01
CO-60		1.60E-01 ±	5.11E+00	8.79E+00
ZN-65		3.25E+00 ±	5.79E+00	1.78E+01
ZRNB-95		3.61E+00 ±	7.84E+00	1.24E+01
I-131		1.20E-01 ±	5.15E+00	8.46E+00
CS-134		-1.07E+00 ±	4.09E+00	6.58E+00
CS-137		-2.28E+00 ±	5.47E+00	8.72E+00
BALA140		3.84E+00 ±	5.51E+00	8.25E+00
BI-214	+	2.47E+02 ±	2.21E+01	1.99E+01

TABLE B-10.1

GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING WELL SAMPLES

Results in pCi per liter

Station MW-9 collected 7/24/2013			
Nuclide	RQ	Activity	Error MDA
K-40		-1.18E+01 ±	6.06E+01 1.04E+02
MN-54		1.02E-01 ±	3.91E+00 6.41E+00
CO-58		1.54E+00 ±	5.03E+00 8.07E+00
FE-59		-1.01E+00 ±	1.16E+01 1.89E+01
CO-60		-2.72E+00 ±	3.13E+03 7.69E+00
ZN-65		-4.36E+00 ±	1.21E+01 1.92E+01
ZRNB-95		5.75E-01 ±	6.76E+00 1.10E+01
I-131		6.91E-01 ±	5.80E+00 9.48E+00
CS-134		9.32E-02 ±	3.59E+00 5.90E+00
CS-137		2.51E+00 ±	4.84E+00 7.61E+00
BALA140		-2.27E+00 ±	6.47E+00 1.02E+01
BI-214	+	2.09E+02 ±	2.18E+01 2.04E+01

Station MW-13 collected 7/22/2013			
Nuclide	RQ	Activity	Error MDA
K-40		-3.62E+01 ±	1.02E+02 8.02E+01
MN-54		2.51E+00 ±	2.59E+00 3.78E+00
CO-58		8.97E-02 ±	2.54E+00 4.16E+00
FE-59		1.84E+00 ±	8.64E+00 1.39E+01
CO-60		1.28E+00 ±	3.21E+00 5.04E+00
ZN-65		-6.92E+00 ±	9.97E+00 1.56E+01
ZRNB-95		8.66E-02 ±	4.65E+00 7.63E+00
I-131		-2.10E+00 ±	3.97E+00 6.34E+00
CS-134		0.00E+00 ±	1.19E+01 1.95E+01
CS-137		8.77E-02 ±	3.56E+00 5.85E+00
BALA140		0.00E+00 ±	4.65E+00 7.65E+00
BI-214	+	2.15E+02 ±	1.77E+01 1.41E+01

Station MW-10 collected 7/24/2013			
Nuclide	RQ	Activity	Error MDA
K-40		-1.03E+00 ±	5.16E+01 1.03E+02
MN-54		-1.68E+00 ±	4.39E+00 6.96E+00
CO-58		4.43E-01 ±	4.20E+00 6.83E+00
FE-59		0.00E+00 ±	8.23E+00 1.35E+01
CO-60		6.45E-01 ±	4.47E+00 7.72E+00
ZN-65		-3.02E+00 ±	1.05E+01 1.68E+01
ZRNB-95		-1.75E+00 ±	6.70E+00 1.07E+01
I-131		2.40E+00 ±	6.30E+00 1.01E+01
CS-134		6.30E-03 ±	4.94E+00 8.11E+00
CS-137		2.94E-01 ±	4.33E+00 7.07E+00
BALA140		1.56E+00 ±	7.12E+00 1.14E+01
BI-214	+	6.72E+01 ±	1.52E+01 2.16E+01

Station MW-14 collected 7/22/2013			
Nuclide	RQ	Activity	Error MDA
K-40		-2.94E+01 ±	8.46E+01 1.09E+02
MN-54		-1.48E+00 ±	5.07E+00 8.15E+00
CO-58		4.44E-02 ±	4.29E+00 7.04E+00
FE-59		3.19E-01 ±	1.05E+01 1.72E+01
CO-60		-1.14E+00 ±	1.04E+01 7.72E+00
ZN-65		-3.02E+00 ±	1.03E+01 1.65E+01
ZRNB-95		-2.71E+00 ±	7.85E+00 1.25E+01
I-131		6.04E-03 ±	5.40E+00 8.88E+00
CS-134		2.48E+00 ±	4.80E+00 7.61E+00
CS-137		-1.10E+00 ±	4.95E+00 7.99E+00
BALA140		-7.37E-01 ±	4.94E+00 7.94E+00
BI-214	+	1.72E+02 ±	2.09E+01 2.07E+01

Station MW-11 collected 7/24/2013			
Nuclide	RQ	Activity	Error MDA
K-40		-3.77E+01 ±	9.43E+01 1.25E+02
MN-54		1.54E+00 ±	4.60E+00 7.36E+00
CO-58		0.00E+00 ±	5.86E+00 9.63E+00
FE-59		2.01E+00 ±	9.99E+00 1.60E+01
CO-60		-1.77E-01 ±	4.17E+00 6.82E+00
ZN-65		-9.42E+00 ±	1.49E+01 2.36E+01
ZRNB-95		2.12E-01 ±	8.31E+00 1.36E+01
I-131		-5.94E-01 ±	8.88E+00 1.45E+01
CS-134		-6.17E-01 ±	1.72E+01 2.82E+01
CS-137		3.20E+00 ±	4.99E+00 7.79E+00
BALA140		1.25E+00 ±	6.48E+00 1.04E+01
BI-214	+	1.65E+02 ±	2.03E+01 2.09E+01

Station MW-3 collected 11/1/2013			
Nuclide	RQ	Activity	Error MDA
K-40		-7.74E+01 ±	2.02E+03 9.97E+01
MN-54		6.64E-01 ±	3.00E+00 4.75E+00
CO-58		-9.00E-01 ±	3.44E+00 5.44E+00
FE-59		4.25E+00 ±	7.71E+00 1.10E+01
CO-60		1.18E+00 ±	3.13E+00 4.78E+00
ZN-65		-2.95E+00 ±	8.95E+00 1.41E+01
ZRNB-95		-7.98E-01 ±	6.52E+00 1.05E+01
I-131		-6.49E-01 ±	7.26E+00 1.18E+01
CS-134		2.94E-01 ±	2.90E+00 4.70E+00
CS-137		-9.51E-01 ±	3.26E+00 5.14E+00
BALA140		-5.09E-01 ±	8.66E+00 1.41E+01
BI-214	+	2.25E+01 ±	9.23E+00 1.34E+01

Station MW-12 collected 7/24/2013			
Nuclide	RQ	Activity	Error MDA
K-40		-3.22E+01 ±	8.16E+01 1.19E+02
MN-54		-2.15E+00 ±	5.24E+00 8.37E+00
CO-58		7.02E-01 ±	3.98E+00 6.44E+00
FE-59		-2.26E-01 ±	1.18E+01 1.93E+01
CO-60		-6.63E-01 ±	4.70E+00 7.62E+00
ZN-65		8.36E-01 ±	5.67E+00 9.13E+00
ZRNB-95		0.00E+00 ±	9.60E+00 1.58E+01
I-131		2.28E-01 ±	8.45E+00 1.39E+01
CS-134		-4.99E+00 ±	6.70E+00 1.06E+01
CS-137		5.15E-01 ±	4.50E+00 7.32E+00
BALA140		2.39E+00 ±	6.52E+00 1.02E+01
BI-214	+	8.14E+01 ±	1.93E+01 2.30E+01

Station MW-5 collected 11/6/2013			
Nuclide	RQ	Activity	Error MDA
K-40		-1.25E+01 ±	5.88E+01 8.92E+01
MN-54		6.23E-01 ±	3.08E+00 4.91E+00
CO-58		-1.70E+00 ±	3.95E+00 6.15E+00
FE-59		0.00E+00 ±	8.10E+00 1.33E+01
CO-60		-2.27E-01 ±	2.92E+00 4.73E+00
ZN-65		1.73E+00 ±	7.42E+00 1.18E+01
ZRNB-95		-1.26E+00 ±	6.09E+00 9.73E+00
I-131		1.75E-01 ±	4.55E+00 7.45E+00
CS-134		-1.85E-01 ±	4.26E+00 6.97E+00
CS-137		2.64E-01 ±	3.80E+00 6.19E+00
BALA140		2.44E+00 ±	5.73E+00 8.65E+00
BI-214	+	2.57E+01 ±	9.60E+00 1.36E+01

TABLE B-10.1

GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING WELL SAMPLES

Results in pCi per liter

Station MW-6 collected				11/6/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-3.33E+01 ±	1.10E+02	9.48E+01
MN-54		5.34E-01 ±	3.13E+00	5.02E+00
CO-58		-2.53E-01 ±	3.54E+00	5.76E+00
FE-59		0.00E+00 ±	8.12E+00	1.34E+01
CO-60		-1.27E-01 ±	3.56E+00	5.82E+00
ZN-65		-5.41E+00 ±	1.07E+01	1.66E+01
ZRNB-95		-7.70E-01 ±	5.97E+00	9.64E+00
I-131		-8.10E-03 ±	4.42E+00	7.27E+00
CS-134		-2.62E+00 ±	4.23E+00	6.57E+00
CS-137		9.74E-01 ±	2.92E+00	4.55E+00
BALA140		-3.52E-01 ±	5.95E+00	9.69E+00
BI-214	+	3.84E+01 ±	1.11E+01	1.46E+01

Station MW-11 collected				11/13/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-1.42E+01 ±	8.28E+01	9.70E+01
MN-54		0.00E+00 ±	5.49E+00	9.02E+00
CO-58		-1.45E+00 ±	4.04E+00	6.38E+00
FE-59		1.52E+00 ±	7.74E+00	1.23E+01
CO-60		-2.38E+00 ±	1.42E+01	7.47E+00
ZN-65		-2.38E+00 ±	8.46E+00	1.34E+01
ZRNB-95		3.58E+00 ±	6.00E+00	9.10E+00
I-131		3.02E-02 ±	3.51E+00	5.77E+00
CS-134		2.15E-01 ±	3.52E-01	8.18E-01
CS-137		-1.01E+00 ±	4.24E+00	6.81E+00
BALA140		-1.27E+00 ±	4.96E+00	7.81E+00
BI-214	+	2.39E+02 ±	2.13E+01	1.48E+01

Station MW-8 collected				11/13/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-3.93E+01 ±	1.56E+02	1.05E+02
MN-54		-9.64E-01 ±	4.22E+00	6.77E+00
CO-58		0.00E+00 ±	5.06E+00	8.32E+00
FE-59		0.00E+00 ±	1.22E+01	2.01E+01
CO-60		9.15E-01 ±	4.12E+00	6.56E+00
ZN-65		-9.43E+00 ±	1.46E+01	2.27E+01
ZRNB-95		2.13E-02 ±	6.34E+00	1.04E+01
I-131		-1.66E+00 ±	4.42E+00	7.06E+00
CS-134		7.18E-01 ±	1.42E+01	2.33E+01
CS-137		-1.67E+00 ±	4.56E+00	7.22E+00
BALA140		0.00E+00 ±	6.90E+00	1.13E+01
BI-214	+	2.24E+02 ±	2.11E+01	1.45E+01

Station MW-12 collected				11/13/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-1.76E+01 ±	8.60E+01	9.17E+01
MN-54		-9.25E-01 ±	4.43E+00	7.12E+00
CO-58		-1.18E+00 ±	3.95E+00	6.27E+00
FE-59		-7.47E-01 ±	9.29E+00	1.51E+01
CO-60		-1.26E+00 ±	4.92E+01	9.47E+00
ZN-65		-1.86E+00 ±	7.63E+00	1.21E+01
ZRNB-95		4.92E-01 ±	6.35E+00	1.03E+01
I-131		7.76E-01 ±	3.85E+00	6.23E+00
CS-134		3.05E-01 ±	1.05E+01	1.73E+01
CS-137		4.20E-01 ±	3.61E+00	5.86E+00
BALA140		-1.98E-01 ±	4.62E+00	7.53E+00
BI-214	+	2.54E+02 ±	2.14E+01	1.42E+01

Station MW-9 collected				11/13/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-1.21E+01 ±	7.67E+01	9.67E+01
MN-54		1.02E-02 ±	3.15E+00	5.17E+00
CO-58		0.00E+00 ±	3.84E+00	6.32E+00
FE-59		-3.33E+00 ±	8.80E+00	1.36E+01
CO-60		-8.53E-01 ±	1.91E+01	6.55E+00
ZN-65		-1.10E+01 ±	1.40E+01	2.17E+01
ZRNB-95		-1.34E+00 ±	6.32E+00	1.01E+01
I-131		0.00E+00 ±	3.39E+00	5.57E+00
CS-134		-1.91E+00 ±	4.20E+00	6.64E+00
CS-137		-8.65E-01 ±	3.43E+00	5.46E+00
BALA140		-1.18E+00 ±	5.49E+00	8.73E+00
BI-214	+	2.23E+02 ±	2.01E+01	1.48E+01

Station MW-13 collected				11/6/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-5.54E+00 ±	5.26E+01	8.55E+01
MN-54		9.99E-02 ±	2.88E+00	4.72E+00
CO-58		0.00E+00 ±	4.03E+00	6.63E+00
FE-59		0.00E+00 ±	2.18E+00	3.58E+00
CO-60		-1.50E+00 ±	4.63E+01	7.02E+00
ZN-65		-6.56E-02 ±	9.23E+00	1.52E+01
ZRNB-95		-1.04E+00 ±	4.55E+00	7.18E+00
I-131		-2.03E+00 ±	5.43E+00	8.63E+00
CS-134		-1.50E+00 ±	3.10E+00	4.81E+00
CS-137		-9.15E-01 ±	3.27E+00	5.18E+00
BALA140		-1.13E+00 ±	5.81E+00	9.20E+00
BI-214		1.33E+01 ±	8.37E+00	1.34E+01

Station MW-10 collected				11/13/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-1.93E+01 ±	7.76E+01	8.26E+01
MN-54		-8.21E-02 ±	3.35E+00	5.49E+00
CO-58		-1.01E+00 ±	3.93E+00	6.27E+00
FE-59		3.46E+00 ±	7.93E+00	1.20E+01
CO-60		7.47E-01 ±	3.75E+00	6.29E+00
ZN-65		-4.04E+00 ±	9.13E+00	1.42E+01
ZRNB-95		9.21E-01 ±	5.25E+00	8.41E+00
I-131		-5.03E-01 ±	3.40E+00	5.51E+00
CS-134		-4.52E-01 ±	3.34E+00	5.41E+00
CS-137		6.72E-02 ±	2.82E+00	4.62E+00
BALA140		-7.72E-01 ±	5.50E+00	8.85E+00
BI-214	+	1.34E+02 ±	1.62E+01	1.45E+01

Station MW-14 collected				11/6/2013
Nuclide	RQ	Activity	Error	MDA
K-40		-2.32E+01 ±	7.62E+01	8.94E+01
MN-54		-1.63E-01 ±	2.97E+00	4.85E+00
CO-58		-1.63E+00 ±	3.88E+00	6.03E+00
FE-59		7.37E-02 ±	7.77E+00	1.28E+01
CO-60		-4.74E-01 ±	3.92E+00	6.33E+00
ZN-65		-3.71E+00 ±	8.98E+00	1.40E+01
ZRNB-95		3.86E+00 ±	5.76E+00	8.50E+00
I-131		-7.90E-01 ±	4.76E+00	7.68E+00
CS-134		-5.66E-01 ±	3.38E+00	5.46E+00
CS-137		2.46E-01 ±	3.39E+00	5.52E+00
BALA140		2.74E-01 ±	5.29E+00	8.61E+00
BI-214	+	2.04E+01 ±	9.20E+00	1.37E+01

Table B-10.2

GAMMA SPECTROMETRY RESULTS OF GROUNDWATER MONITORING WELL SAMPLES - SUMMARY

Results in pCi/liter

Nuclide	Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	1.14E-01	-2.48E+00	3.84E+00	8.47E+00	40	0
BI-214	1.65E+02	4.14E+00	5.78E+02	1.72E+01	40	36
CO-58	-1.64E-01	-3.65E+00	3.25E+00	6.33E+00	40	0
CO-60	-1.51E-01	-2.72E+00	3.77E+00	6.58E+00	40	0
CS-134	-5.73E-01	-1.11E+01	2.65E+00	9.22E+00	40	0
CS-137	-2.15E-01	-3.65E+00	3.20E+00	6.86E+00	40	0
FE-59	2.23E-01	-3.33E+00	5.39E+00	1.43E+01	40	0
I-131	-8.74E-02	-3.36E+00	5.35E+00	8.44E+00	40	0
K-40	-3.09E+01	-9.33E+01	1.64E+01	9.88E+01	40	0
MN-54	3.23E-02	-3.03E+00	3.76E+00	6.46E+00	40	0
ZN-65	-2.74E+00	-1.10E+01	5.51E+00	1.43E+01	40	0
ZRNB-95	-1.26E-01	-4.58E+00	6.33E+00	1.08E+01	40	0

TABLE B-11.1
TRITIUM IN GROUNDWATER MONITORING WELL SAMPLES

Results in pCi per liter.

Location	Collection Date	RQ	Activity	Error
MW-3	01/28/13	+	1.23E+03	± 1.24E+02
	04/24/13	+	1.45E+03	± 1.29E+02
	07/22/13	+	1.59E+03	± 1.30E+02
	11/06/13	+	1.49E+03	± 1.32E+02
MW-5	01/28/13	+	1.49E+04	± 3.08E+02
	04/24/13	+	1.50E+04	± 3.09E+02
	07/22/13	+	1.54E+04	± 3.17E+02
	11/06/13	+	1.50E+04	± 3.14E+02
MW-6	01/28/13	+	5.69E+03	± 2.03E+02
	04/24/13	+	5.79E+03	± 2.04E+02
	07/22/13	+	5.39E+03	± 1.99E+02
	11/06/13	+	5.20E+03	± 1.99E+02
MW-8	02/04/13	+	7.75E+02	± 1.13E+02
	05/01/13	+	7.38E+02	± 1.11E+02
	07/24/13	+	2.47E+03	± 1.50E+02
	11/13/13	+	2.04E+03	± 1.44E+02
MW-9	02/04/13		1.86E+02	± 9.67E+01
	05/01/13		2.35E+02	± 9.84E+01
	07/24/13	+	3.42E+02	± 9.72E+01
	11/13/13		1.77E+02	± 9.75E+01
MW-10	02/04/13		2.82E+02	± 9.95E+01
	05/01/13	+	3.85E+02	± 1.02E+02
	07/24/13	+	4.74E+02	± 1.02E+02
	11/13/13	+	3.40E+02	± 1.02E+02
MW-11	02/04/13	+	8.06E+02	± 1.14E+02
	05/01/13	+	9.01E+02	± 1.17E+02
	07/24/13	+	1.26E+03	± 1.24E+02
	11/13/13	+	1.00E+03	± 1.21E+02
MW-12	02/04/13	+	5.12E+02	± 1.06E+02
	05/01/13	+	5.93E+02	± 1.08E+02
	07/24/13	+	7.45E+02	± 1.10E+02
	11/13/13	+	6.32E+02	± 1.10E+02
MW-13	01/28/13	+	1.13E+04	± 2.74E+02
	04/24/13	+	1.17E+04	± 2.78E+02
	07/22/13	+	1.19E+04	± 2.79E+02
	11/06/13	+	1.19E+04	± 2.82E+02
MW-14	01/28/13		2.17E+02	± 9.68E+01
	04/24/13	+	4.10E+02	± 1.02E+02
	07/22/13	+	3.10E+02	± 1.02E+02
	11/06/13	+	3.23E+02	± 1.01E+02

TABLE B - 12.1
GAMMA SPECTROMETRY RESULTS OF CGS STORM DRAIN POND SOIL
Surface Soil Sample Results
 Results in pCi/kilogram dry mass

Location & Date		SDP location B		6/6/2013
Nuclide	RQ	Activity	Error	MDA
BE-7	+	7.78E+03 ±	4.24E+02	3.02E+02
K-40	+	6.95E+03 ±	4.94E+02	3.26E+02
CR-51		8.21E+01 ±	1.88E+02	3.04E+02
MN-54		3.06E+01 ±	2.46E+01	3.82E+01
CO-58		-3.32E+00 ±	2.43E+01	3.97E+01
FE-59		1.85E+01 ±	4.56E+01	7.24E+01
CO-60	+	1.80E+03 ±	5.43E+01	4.13E+01
ZN-65		8.29E+01 ±	6.07E+01	9.39E+01
ZRNB-95		-2.65E+00 ±	4.30E+01	7.05E+01
CS-134		1.80E+01 ±	2.22E+01	3.54E+01
CS-137	+	1.72E+02 ±	3.00E+01	3.12E+01
BALA140		-5.19E+00 ±	2.98E+01	4.82E+01
BI-214	+	3.21E+02 ±	5.85E+01	8.00E+01

Location & Date		SDP location H		6/6/2013
Nuclide	RQ	Activity	Error	MDA
BE-7	+	2.71E+03 ±	3.94E+02	3.91E+02
K-40	+	3.67E+03 ±	4.58E+02	3.39E+02
CR-51		6.72E+01 ±	2.52E+02	4.10E+02
MN-54		3.70E+01 ±	2.80E+01	4.30E+01
CO-58		1.89E+01 ±	2.49E+01	3.91E+01
FE-59		-2.90E+01 ±	7.01E+01	1.12E+02
CO-60	+	1.48E+03 ±	5.68E+01	4.48E+01
ZN-65	+	1.04E+02 ±	6.65E+01	1.01E+02
ZRNB-95		-1.81E-02 ±	4.98E+01	8.20E+01
CS-134		3.11E+01 ±	2.62E+01	4.09E+01
CS-137	+	1.66E+02 ±	3.58E+01	3.82E+01
BALA140		0.00E+00 ±	5.89E+01	9.82E+01
BI-214		9.26E+01 ±	6.18E+01	1.02E+02

Location & Date		SDP location K		6/6/2013
Nuclide	RQ	Activity	Error	MDA
BE-7	+	1.12E+03 ±	2.36E+02	2.49E+02
K-40	+	2.82E+03 ±	3.22E+02	2.41E+02
CR-51		-4.85E+01 ±	1.60E+02	2.60E+02
MN-54		-1.92E-01 ±	1.61E+01	2.65E+01
CO-58		9.08E-02 ±	1.42E+01	2.34E+01
FE-59		-1.44E+00 ±	2.72E+01	4.44E+01
CO-60	+	3.34E+02 ±	2.44E+01	2.53E+01
ZN-65		-1.78E+01 ±	3.40E+01	5.39E+01
ZRNB-95		4.30E+01 ±	2.67E+01	3.91E+01
CS-134		-2.74E+01 ±	1.92E+01	2.98E+01
CS-137		2.52E+01 ±	1.77E+01	2.69E+01
BALA140		0.00E+00 ±	2.55E+01	4.25E+01
BI-214	+	4.54E+02 ±	6.16E+01	6.17E+01

Location & Date		SDP location J		6/6/2013
Nuclide	RQ	Activity	Error	MDA
BE-7	+	2.56E+03 ±	3.61E+02	3.59E+02
K-40	+	5.38E+03 ±	4.52E+02	2.65E+02
CR-51		-1.31E+02 ±	1.99E+02	3.18E+02
MN-54	+	4.56E+01 ±	2.67E+01	4.04E+01
CO-58		9.17E+00 ±	2.71E+01	4.38E+01
FE-59		-7.73E+00 ±	4.62E+01	7.47E+01
CO-60	+	1.86E+03 ±	5.74E+01	3.73E+01
ZN-65	+	1.19E+02 ±	6.85E+01	1.04E+02
ZRNB-95		2.51E+01 ±	4.88E+01	7.82E+01
CS-134		2.53E+01 ±	2.36E+01	3.72E+01
CS-137	+	1.17E+02 ±	3.13E+01	4.39E+01
BALA140		-1.34E+01 ±	4.42E+01	7.07E+01
BI-214	+	2.20E+02 ±	5.96E+01	9.03E+01