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Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397**
INDEPENDENT SPENT FUEL STORAGE INSTALLATION, DOCKET NO. 72-35
2008 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

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

Dear Sir or Madam:

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

Respectfully,

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Enclosure

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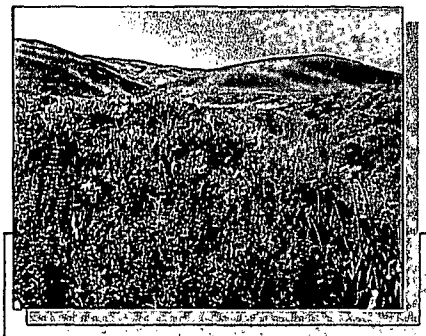
COLUMBIA GENERATING STATION



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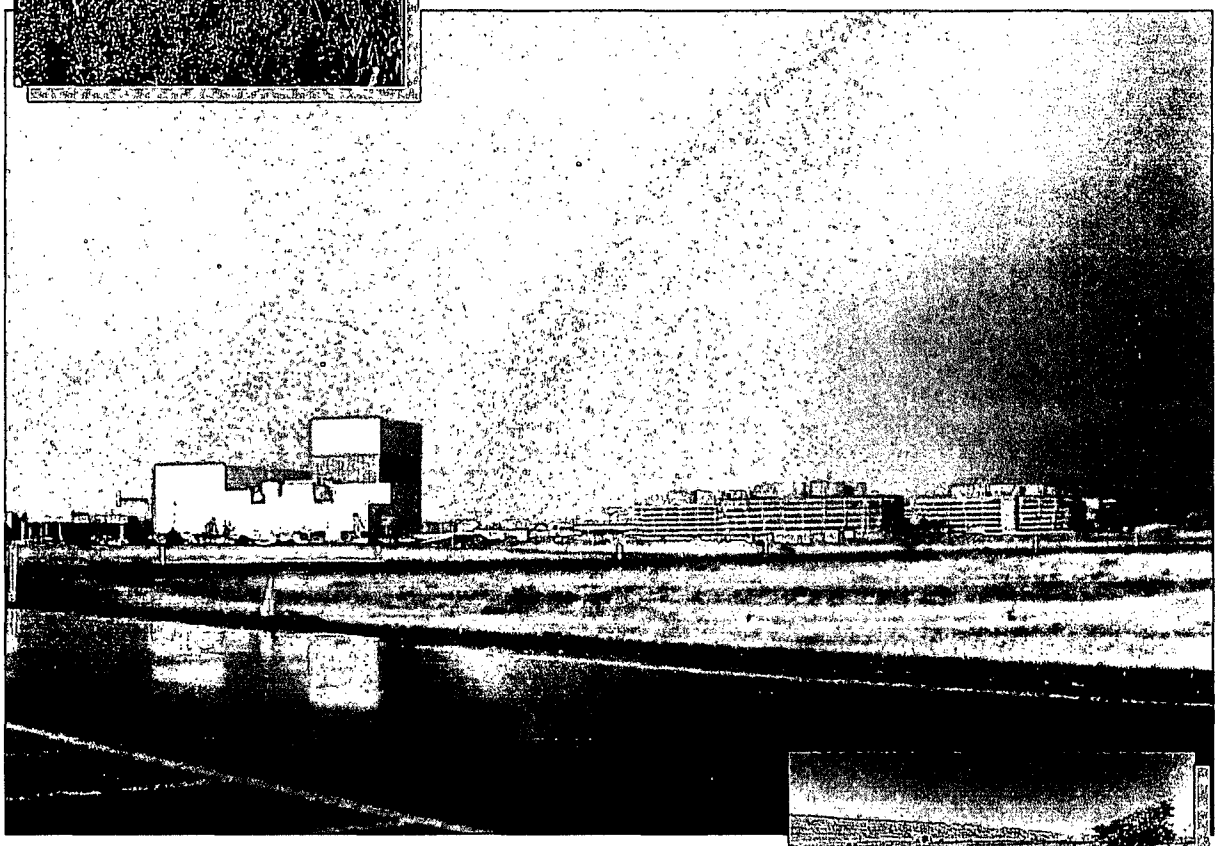

Radiological Environmental Monitoring Program for the Columbia Generation Station

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COLUMBIA GENERATING STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

2008 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

For Calendar Year 2008

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1.0 EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

The purpose of the Energy Northwest Radiological Environmental Monitoring Program (REMP) is to evaluate the radiological impact that Columbia Generating Station (CGS) operation may have on the environment. The program monitors direct radiation levels as well as airborne, waterborne, and ingestion pathways most likely to be affected by CGS operation. 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). Sampling and analysis is performed by the Energy Northwest Environmental Services group with analysis performed at the Applied Process Engineering Laboratory (APEL) facility located in Richland, Washington. Direct radiation services are provided by Battelle Pacific Northwest National Laboratory (PNNL).

Direct radiation levels are monitored continuously with thermoluminescent dosimeters (TLDs) that are collected on a quarterly and annual basis. Offsite direct radiation monitoring results are consistent with previous years and indicate no measurable dose contribution due to plant operations. No measurable increase in exposure rates were seen inside the CGS controlled area relative to previous years with the exception of radiation exposure rates at the Independent Spent Fuel Storage Installation (ISFSI) which increased during the second quarter following transfer of spent fuel to the facility. A total of 12 spent fuel cask were added to the ISFSI during 2008.

The inhalation pathway was monitored by collecting and analyzing air particulate and air iodine samples weekly from twelve different locations. Results were consistent with background levels and within the range seen in the historical trend. No radionuclides related to CGS operations were identified in any of the samples.

The ingestion pathway was monitored by collecting samples of water, milk, soil, sediment, fish, and garden produce throughout the year. Activity that was identified was predominately of natural origin. Small amounts of Cs-137 were identified in some soil and sediment samples. The presence of this radionuclide in these medias is expected with the levels identified consistent with levels known to exist in the environment. Tritium levels were consistent with historical levels with the exception of two plant discharge water samples collected during a period of higher than normal tritium release from CGS. The discharge water tritium levels returned to normal following plant shutdown and steam leak repair in November. CGS did not make a radioactive discharge to the Columbia River in 2008 and has not done so since 1998.

No significant trends or changes in the environmental radiological levels in the vicinity of CGS were observed in 2008. The results seen in the 2008 samples are consistent with the results obtained in previous operational and preoperational years. No significant radiological impact to the environment due to CGS operations was identified.

2.0 DEFINITIONS

2.0 DEFINITIONS

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.

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 x 10^{10} disintegrations per second, or 2.22 x 10^{12} disintegrations per minute.

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

DOE: U.S. Department of Energy.

DOH: Washington State Department of Health.

EFSEC: Energy Facility Site Evaluation Council.

FFTF: Fast Flux Test Facility.

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

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

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

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

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

ISFSI: Independent Spent Fuel Storage Installation.

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

MAPEP: Mixed Analyte Performance Evaluation Program.

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

Microcurie: 3.7 x 10^4 disintegrations per second, or 2.22 x10^6 disintegrations per minute.

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

MDA: Minimum Detectable Activity.

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 x 10^{-12} Curie or 2.22 disintegrations per minute; one millionth of a microcurie.

REMP: Radiological Environmental Monitoring Program.

Range: The difference between the smallest and largest results.

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

Roentgen: Unit of exposure to ionizing radiation in air.

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

$$S_m^2 = \frac{1}{(n-1)} \sum^n (Xi - X)^2$$

SWTF: Sanitary Waste Treatment Facility; sanitary waste processing facility for the Columbia Generating Station, Site-1 and 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

3.0 INTRODUCTION

3.1 Site Description

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

Naturally occurring radionuclides exist in detectable quantities throughout the world and are seen in many of the samples collected for the REMP. Some examples of naturally occurring radionuclides that are frequently seen in samples are K-40, Be-7, Ac-228 (present as a decay product of Ra-228), and Ra-226. Additionally, some relatively long lived anthropogenic radioisotopes, such as Sr-90 and Cs-137, are also seen in some REMP samples; these radionuclides exist in measurable quantities throughout the world as a result of fallout from atmospheric nuclear weapons testing.[18]

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 ensure that CGS is not contributing to the established background levels. 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,[1] 4.8,[2] and the Radiological Assessment Branch Technical Position.[3] 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[4] and 4.13.[5] The REMP also adheres to the requirements of the Washington Energy Facility Site Evaluation Council (EFSEC),[6] the Columbia Generating Station Technical Specifications[7] and the Offsite Dose Calculation Manual (ODCM).[8] 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. The variability in the background levels of radioactivity is due to differences in geologic composition, meteorological

conditions, 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 the analysis of REMP samples for 2008. The Pacific Northwest National Laboratory processed the thermoluminescent dosimeters used for the REMP in 2008.

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 to ensure that any accumulation of radionuclides in the environment will not become significant as a result of station operations or exceed established limits. While in-plant monitoring programs are used to ensure that 10 CFR 20[9] and 10 CFR 50[10] criteria for releases of radioactive effluents are met, the REMP provides direct verification of any environmental impact that may result from plant effluents.

4.0 PROGRAM DESCRIPTION

4.0 PROGRAM DESCRIPTION

The ODCM contains the CGS licensing based sampling requirements for the REMP. Additional sampling requirements are specified in agreements with the State of Washington 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 REMP sampling requirements, 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 have been determined by such factors as the half-lives and major exposure pathways for the radionuclides potentially released from the plant to the surrounding environment.

4.1 Sample Locations

One hundred and twenty-one sampling locations (referred to as 'stations') are included in the monitoring program. One hundred and five indicator and three control stations are located within a 10-mile radius of CGS. Six additional control stations and seven indicator stations are located at distance beyond ten miles from the plant. Sample stations are listed in Tables 4-1 and 4-2. Station locations are shown in Figures 4-1 to 4-6.

The locations of most of the 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 operations are used as indicators. Samples collected from locations that are not likely to be influenced by CGS operations 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 operations may be having on the environment.

4.2 Independent Spent Fuel Storage Installation (ISFSI)

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

REMP monitoring of the ISFSI is performed using quarterly and annual TLDs placed at 10 different locations on the outer security fence of the facility. In addition, two other TLD stations, one located approximately 200 meters north of the turbine building and the other located approximately 100 meters north of the ISFSI, were installed to monitor ISFSI direct radiation. Figure 4-4 shows the ISFSI location in relation to CGS and the position of the 2 additional TLD locations. Figure 4-5 shows the location of the 10 TLD stations located around the ISFSI. This arrangement of TLDs in conjunction with the radiological surveys conducted by the CGS Radiation Protection Department serve as the radiological monitoring program for the ISFSI.

4.3 Land Use Census

A land use census for areas within five miles of CGS is performed annually. The objectives of the land use census are to identify the locations of the nearest milk animal, residence, and garden greater than 500 ft^2 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 2008 land use census within five miles of CGS are presented in Table 4-3. No significant changes from the 2007 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. REMP samples collected in 2008 were prepared and analyzed at the Energy Northwest Environmental Services Laboratory located at the APEL facility in Richland, WA. The section 4.4 subsections below give a general overview of the sampling methods used in the REMP. Generic descriptions of the REMP sample analysis methods are given in section 4.5.

4.4.1 Direct Radiation

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

The locations of the TLD stations are listed in Table 4-2 and are shown in Figures 4-1 through 4.5. Station 9A in Sunnyside, serves as a control for CGS TLDs. Station 119-Control serves as the control for Station 119B (the cooling tower sediment disposal basin). The remaining TLDs deployed in the field serve as indicator TLDs.

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

4.4.2 Airborne - Particulate/Iodine

Air particulate and air radioiodine (I-131) samples are obtained through the use of low volume (1.5 cfm), constant flow-rate sampling units at 12 locations. The samples drawn at Station 9A (Figure 4-2) are considered controls, the samples drawn at the other locations (Figure 4-1) are indicators. Air particulate samples are collected by drawing air through a 47-mm diameter glass fiber filter. Air iodine samples are collected by drawing air through 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.

4.4.3 Water

There are nine locations where REMP water sampling has historically been performed. Most of these locations are specified in ODCM or State of Washington EFSEC requirements. They are categorized as follows:

- Intake-River/Drinking Water; two locations (Stations 26, and 29)
- Groundwater; three locations (Stations 52, 31, and 32)
- 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 drawn from the plant intake water which comes from 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 located at the Richland Water Treatment Plant, 11 miles downstream from the discharge and is the 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 sampling water from Station 27, the cooling tower discharge line to 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. The Station 27 sample is an indicator. Composite samplers are used to collect samples at Stations 26, 27, and 29. The samplers collect 25-ml aliquots of water at regular intervals. Samples are collected monthly at each of these stations and are analyzed for gamma, gross beta, and tritium.

Three drinking water wells within the vicinity of CGS are used as groundwater sampling locations. These include a deep well on the CGS site, Station 52 located 0.1 mile north of the reactor building, and two deep wells at the IDC (ENW Industrial Development Complex), Station 31 and Station 32 located 1.2 miles down gradient from CGS. Water from the CGS well 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 of these wells and are analyzed for gamma emitting radionuclides and tritium.

Water samples are collected monthly from the storm drain outfall (Station 101) using a flow-proportional composite sampler. These samples are analyzed for gross beta, gamma, 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[15]. A flow meter and composite sampler is located on the 400 Area sewer line just above the 400 Area/Plant Support Facility (PSF) intertie (Station 102A). The sampler collects aliquots of the effluent on a timed basis, the composite sample that is produced is analyzed monthly as required by EFSEC

Resolution No. 300.[15] A portion of the water used in the 400 Area is drawn from aquifers that are known to be contaminated with tritium as a result of past DOE activities on the Hanford Site, consequently, the water sampled at Station 102A has tritium concentrations normally above 2000 pCi/liter. Another automatic water sampler is located at the head works of the SWTF (Station 102B) where a monthly composite sample is taken. Both sample locations are analyzed for gross alpha, gross beta, tritium, and gamma emitting radionuclides.

In addition to the nine locations listed above, samples may be taken from a number of groundwater monitoring wells surrounding CGS. The monitoring well locations are shown in Figure 4-6. All are shallow wells that may be used to obtain samples from the unconfined aquifer under CGS. None of the wells are used for drinking water. Samples from some of these wells were collected and analyzed in 2007 and 2008 to meet NPDES requirements. Monitoring wells 10-14 were installed during the fourth quarter 2008. Samples from most of the monitoring wells will be collected and analyzed quarterly as part of the CGS groundwater monitoring program.

4.4.4 Soil

Annual soil samples are collected at the indicator Stations 1, 7, 21, and 23 as required by EFSEC Resolution 260[6]. A sample is also collected at the control location, Station 9A (Figure 4-2). Each sample is collected from an area of approximately one square foot to a depth of approximately one inch. About two kilograms of soil are collected for each sample. Soil samples are analyzed for gamma activity on a dry weight basis.

4.4.5 Sediment

River sediment samples are collected semiannually as required by the ODCM and EFSEC Resolution 260[6]. The upstream sediment sample location (Station 33) is approximately two miles upriver from the plant discharge. The downstream sample (Station 34) is collected approximately one mile downstream from the plant discharge. Each sample consists of approximately two kilograms of the shallow surface sediment scooped from below the waterline.

Cooling tower sediment samples are collected and analyzed whenever additional cooling tower sediment is added to the disposal cells (Station 119B, Figure 4-3). Disposal in the Station 119B cells is made in accordance with EFSEC Resolution No. 299[16].

Wastewater sludge/sediment samples are collected annually at Station 102D (the SWTF). All sediment samples are analyzed for gamma activity.

4.4.6 Fish

Annual fish sampling is usually performed in late summer or fall. Fish samples collected from the Columbia River (Station 30 in Figure 4-1) are indicator samples, whereas fish collected on the Snake River (Stations 38 and 38A in Figure 4-2) serve as control samples.

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

4.4.7 Milk

Milk samples are collected monthly during the fall and winter months (October through December). During the spring and summer months when cows are likely to be grazing or on fresh feed, milk samples are collected twice each month. Enough raw milk is collected from each sampling location to obtain a one-gallon sample. The milk samples are normally processed and analyzed within four days of the collection date. Milk samples were collected in 2008 from two locations. Station 36 in Franklin County serves as the indicator location and is the only dairy within a ten mile radius of CGS. Station 9B is in the Sunnyside/Grandview area and serves as the control location (Figure 4-2).

4.4.8 Garden Produce

Samples of local garden produce are collected monthly during the growing season when the produce is readily available. When possible, three types of produce samples (a root crop, fruit, and a leafy vegetable) are collected at each location. The indicator samples are collected from a region in the predominantly downwind direction (Station 37) where crops are irrigated with Columbia River water. The control samples are obtained from produce stands in the Sunnyside area (Station 9C in Figure 4-2), the direction least likely to be affected by plant effluents. Apples are collected in late summer or early fall from Station 91, the Rio Vista Farms orchard, which is irrigated with Columbia River water. A small garden is maintained by ENW REMP personnel next to the SWTF and has been designated as Station 102G. The garden supplied broadleaf samples for analysis in 2008.

4.5 Sample Analyses

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

4.5.1 Analysis of TLDs

The REMP TLDs are measured at the Pacific Northwest National Laboratory on a Harshaw Model 8800 hot gas reader. The reader is calibrated weekly and immediately prior to processing the environmental TLDs. The reader is calibrated with TLDs that have been given a known exposure from a Cs-137 source. Each group of environmental TLDs is processed with blank (freshly annealed) TLDs and spiked TLDs that have been given a known exposure. Exposure received by the field TLDs during transport is monitored with a set of 'trip' control dosimeters that accompany the field dosimeters to and from the field locations and while they are in storage. Another set of TLDs, the building controls, are used to determine the exposure of the TLDs at the storage location. The TLD exposure during transport to and from the field was determined from the difference between the building control results and the trip control results.

4.5.2 Gross Beta Activity on Air Particulate Filters

Air particulate filters are counted directly in a gas flow proportional counter after a delay of several days to allow for the decay of radon and its progeny.

4.5.3 Measurement of Gamma Emitting Radionuclides

Shielded, high purity germanium (HPGe) detectors are used to assay environmental samples to quantitatively determine concentrations of gamma emitting radionuclides. All samples are counted in standardized, calibrated geometries.

- **Liquids** – Measured aliquots of the liquid samples are poured into appropriately sized Marinelli beakers. Results are reported in pCi/liter.

- **Solids** – Soil, sludge, and sediment samples are dried and if needed ground. Foodstuff, biota (fish), and vegetation, are chopped finely or pureed and then analyzed wet (no drying is done). For foodstuff (including fish), only the edible portion of the sample is used. Measured aliquots of the solid samples are placed into tared containers and weighed. Results are reported in pCi/kg.

- **Charcoal Cartridges** – As many as five charcoal cartridges may be counted simultaneously with one positioned on the face of the detector and up to four on the sides of the detector in a cartridge holder. Detector calibration files are maintained for both face mount and side mount positions. Sample volume for each group cartridge count is conservatively set to the lowest cartridge sample volume in the group. If I-131 is identified in the assay of a group, each charcoal cartridge in the group is assayed separately. Results are corrected for decay during the sample collection period. Results are reported in pCi/m^3.

- **Air Particulate Filters** – At the end of each quarter, air particulate filters are composited on a station by station basis. The filters are stacked in a Petri dish and analyzed by gamma spectroscopy. Results are reported in pCi/m^3 and represent the total quarterly gamma activity collected at each station. Results are decay corrected to the mid point of the sample collection period. If a radionuclide related to CGS operation is positively identified, the filters are separated and counted individually.

4.5.4 Gross Alpha and Gross Beta Activity in Water

A measured aliquot of each sample is evaporated to a small volume then quantitatively transferred to a ribbed, stainless steel planchet. Final evaporation is done under a heat lamp. Residue mass is determined by weighing the planchet before and after mounting the sample. The planchet is counted for alpha and/or beta activity using an automatic gas flow proportional counter. 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 distillate is mixed with 12.0mL of scintillation cocktail. The mixture is counted in an automatic liquid scintillation analyzer. Results are reported in pCi/liter.

4.5.6 Strontium-89 and 90 in Soil

No Sr-89/90 measurements were performed on soil samples in 2008.

4.5.7 Low Level Iodine-131 in Milk and Water

Four liters of sample are first equilibrated with stable iodide carrier. A batch treatment with an anion exchange resin is used to remove iodine from the sample. The resin is then removed from the liquid sample and loaded into a small container and counted directly by gamma spectroscopy. Results are reported in pCi/liter.

4.6 Data Analysis Methods

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

REMP program data trending was improved and expanded in 2008 to allow real time trending for many of the sample types. For analyses such as gross beta on air particulate filters where results are normally above the detection limit, indicator results are plotted with the control results for easy comparison. Analysis results that are normally below detection limits are plotted against historical data to monitor if trends may be evident.

Thermoluminescent dosimeter (TLD) data is presented in terms of the net mR/day exposure rate. These results are determined from the total exposure (in mR) calculated for each TLD minus the TLD background and any transit (or trip) exposure received during distribution and retrieval, and divided by the number of days the TLD was in the field. The total mR/standard quarter and mR/year values are also reported (see Tables 5-3, 5-4). All TLD results are reported in units of exposure (Roentgen) and not in units of dose (Rem).

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

4.7 Changes to the Sampling Program in 2008

There were no major changes made to ODCM or EFSEC Resolution 260 mandated sampling in 2008. Sampling of shallow groundwater wells around CGS was expanded in 2008 as an Energy Northwest initiative and will continue in the future. The tritium LLD was lowered from 400 pCi/liter to 300 pCi/liter to meet a Nuclear Energy Institute (NEI) groundwater recommendation.

TABLE 4-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM PLAN

	SAMPLE TYPE[a]	SAMPLE STATION[b] NUMBER	SAMPLING AND COLLECTION FREQUENCY[c]	TYPE AND FREQUENCY OF ANALYSIS
1.	**AIRBORNE**			
	Particulates and radioiodine (6/12)[d]	1, 4-8, 9A, 21, 23, 40, 48, and 57	Continuous sampling; weekly collection	Particulate: Weekly gross beta[e]; gamma isotopic[f] of quarterly composite Iodine: Weekly gamma analysis.
2.	**DIRECT RADIATION**			
	TLD[i](34/72)	1-8, 9A, 10-25, 40-47, 49-51, 53-56, 65, 71-86 (1S-16S)[j], 119B, 119-Control, 120, 121-129, 136A-138A	Quarterly, annually	Thermoluminescent output; quarterly and annual processing.
	PIC	Various locations, as needed[k]	Continuous recording, as needed	Exposure rate accumulated in internal memory
3.	**WATERBORNE**			
	River/Drinking Water[l] (3/3)	26, 27 and 29	Composite aliquots[m]; monthly collection	Gamma isotopic[f], gross beta, quarterly; tritium composite; I-131[o]
	Storm Drain Water (0/1)	101	Composite aliquots[m], monthly collection; grab samples	Gamma isotopic[f], tritium, gross beta
	Sanitary Waste Treatment Facility Water (0/2)	102A, 102B	Composite aliquots[m], monthly collection	Gamma isotopic[f], gross beta, gross alpha, tritium
	Ground Water (2/3)[p]	31, 32, and 52	Quarterly	Gamma isotopic[f]; tritium
	Ground Water Monitoring (0/11)	MW-3, 5-14	Quarterly or as needed	Gamma isotopic[f]; tritium
4.	**SOIL AND SEDIMENT**			
	Soil[g](0/5)	9A, 1, 7, 21 and 23	Annually	Gamma isotopic[f]; Sr-90[h]
	River Sediment (1/2)[q]	33 and 34	Semiannually	Gamma isotopic[f]
	Sanitary Waste Treatment Facility Sediment (0/1)	102D	Annually	Gamma Isotopic[f]
	Cooling Tower Sediment Disposal Area (0/1)	119B	Within 30 days following Cooling Tower cleaning event	Gamma Isotopic[f]
5.	**INGESTION**			
	Milk[r] (2/2)	9B[s], 36	Semimonthly during grazing season, monthly at other times	Gamma isotopic[f]; I-131; Sr-90[t]
	Fish[u] (2/2)	30, 38	Annually [v]	Gamma isotopic[f]
	Garden Produce[w] (1/4)	9C, 91,[x] 37, 102G[y]	Monthly during growing season in the Riverview area of Pasco and a control near Grandview; annual collection at Station 91.	Gamma isotopic[f]

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. EFSEC Resolution 260 specifies additional sampling.

(b) The underlined sample location designates a control station.

(c) Deviations are permitted if samples are unobtainable due to hazardous conditions, seasonal availability, malfunction of automatic sampling equipment, or other legitimate reasons. Such deviations are documented in Section 5.

(d) EFSEC Resolution 260 requires nine or more air sampling stations.

(e) If gross beta activity is greater than 10 times the mean of the result for the control, Station 9A, gamma isotopic analysis shall be performed on the individual sample. (see ODCM Table 6.3.1-1 2c)

(f) Gamma isotopic means identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents of CGS.

(g) Soil samples are collected to satisfy the requirements of EFSEC Resolution 260. Soil samples are collected at five air-sampling locations.

(h) EFSEC Resolution 260 specifies Sr-90 analysis is to be performed on any indicator soil sample having gamma results greater than ten times the result for the control location. Cs-137 activity has historically been used as the gamma results parameter.

(i) TLD an abbreviation for thermoluminescent dosimeter.

(j) TLD Stations 71-86 are not included among the 34 routine TLD stations required by the ODCM Table 6.3.1-1. Their alternate designations are 1S-16S. EFSEC Resolution 260 requires 25 or more TLD stations to be located within a 10-mile radius of the plant.

(k) Pressurized ion chambers (PICs) may be used in place of or in addition to TLDs as per ODCM Table 6.3.1-1 1b.

(l) The term "river/drinking water" is used throughout this report because the drinking water is taken from the Columbia River. Station 26, CGS makeup water intake from the Columbia River is both an upstream water sample and the drinking water sample location. Station 29 is a downstream drinking water sample. The Station 27 sample, which is drawn from the plant discharge line, is taken in place of a "downstream" water sample near but beyond the mixing zone. It reflects the radioactivity present in the plant discharge prior to any river dilution. EFSEC Resolution 26 requires two drinking water locations downstream from the plant discharge and requires sampling from the plant intake and discharge water. Only one drinking water station is now sampled after DOE closed the intake at the 300 Area (Station 28) in 1998.

(m) Composite samples are collected with equipment that collects an aliquot at time intervals that are short relative to the compositing period.

(n) Footnote removed.

(o) When the dose calculated via ODCM methodology for consumption of water exceeds 1 mrem per year, low level I-131 analyses are performed on the drinking water samples.

(p) EFSEC Resolution 260 requires sampling from wells used for fire protection and as backup drinking water sources.

(q) EFSEC Resolution 260 requires sediment sample collection upstream and downstream of the plant discharge.

(r) Milk samples will be obtained from farms or individual milk animals that are located in the most prevalent wind directions from CGS. EFSEC Resolution 260 requires at least three milk locations within the 10-mile radius of the plant and one in a control location, however, Energy Northwest currently has access to only one dairy within a 10-mile radius of the plant (Station 36) and one control location at 30 miles. Broadleaf vegetation can be sampled in lieu of milk if a representative milk sample is not available.

(s) Footnote removed.

(t) ODCM Table 6.3.1-1 4k requires that if Cs-134 or Cs-137 is measured in an individual milk sample in excess of 30 pCi/liter, then a Sr-90 analysis will also be performed.

(u) 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.

(v) If an impact is indicated, sampling will be conducted semiannually as per ODCM Table 6.3.1-1 4i.

(w) Garden produce will routinely be obtained from farms or gardens using Columbia River water for irrigation when available. One sample of a root crop, leafy vegetable, and a fruit is collected each sample period, if available. The variety of the produce obtained will be dependent on seasonal availability.

(x) Station 91 is an apple orchard irrigated with Columbia River water. The apple crop from Station 91 is sampled annually.

(y) Station 102G is a small garden area inside the 5-mile radius of the plant. The garden is maintained by REMP personnel and used to provide broad leaf vegetable samples. This station does not meet the ODCM criteria for a garden requiring sampling.

TABLE 4-2
REMP SAMPLE STATIONS AND REQUIREMENTS

SECTOR[a]	STATION[b,h] NUMBER	DISTANCE[c], MILES	ODCM[d]	STATE[e]	OTHER[f]
N (1)	52	0.07	GW		
	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)	101	0.19			SW
	73(3S)	0.54			TLD
	19	1.74	TLD	TLD	
	48	4.59	AP/AI		
	46	4.99	TLD		
ENE (4)	74(4S)	0.38			TLD
	21	1.45		TLD, AP/AI, SO	
	20	1.93	TLD	TLD	
	11	3.16		TLD	
	33	3.44		SE	
	45	4.45	TLD		
	44	5.90	TLD		
E (5)	75(5S)	0.37			TLD
	22	2.08	TLD		
	10	3.16	TLD	TLD	
	26	3.19	SW, DW	SW	
	27[g]	3.19	SW	DIS W	
	30	3.28	FI	FI	
	43	5.16	TLD		
ESE (6)	76(6S)	0.42			TLD
	31	1.06	GW	GW	
	32	1.27		GW	
	51	2.14	TLD		
	23	3.03		TLD, AP/AI, SO	
	34	3.32	SE	SE	
	8	4.39	TLD, AP/AI	TLD, AP/AI	
	91	4.30		GP	
	42	5.85	TLD		
	36[g]	7.33	MI	MI	

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

SECTOR[a]	STATION[b,h] NUMBER	DISTANCE[c], MILES	ODCM[d]	STATE[e]	OTHER[f]
ESE (6)(cont.)	5	7.72	TLD	AP/AI	
	38	26.50	FI	FI	
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		
SSE (8)	119-Control	0.28		TLD	
	120	0.32			TLD, SE
	102B	0.50		SFW	
	102D	0.50			SFW, SE
	102G	0.56	GP		
	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	
	37B	14.79		GP	
	37A	14.62	GP	GP	
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	AP/AI	
	65	8.87			TLD
SSW (10)	80(10S)	0.83			TLD
	50	1.26	TLD	TLD	
	56	6.65	TLD		
SW (11)	13	1.26	TLD	TLD	
	81(11S)	0.74			TLD
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, GP	MI, GP	
	9C	32.15	GP	GP	
W (13)	83(13S)	0.52			TLD
	15	1.24	TLD	TLD	
WNW (14)	84(14S)	0.55			TLD

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

SECTOR[a]	STATION[b,h] NUMBER	DISTANCE[c], MILES	ODCM[d]	STATE[e]	OTHER[f]
WNW(14) (cont.)	16	1.21	TLD	TLD	
	7	2.83	TLD	TLD, AP/AI, SO	
NW (15)	85 (15S)	0.43			TLD
	49	1.19	TLD	TLD	
NNW (16)	121	0.12		TLD	TLD
	122	0.31		TLD	TLD
	123	0.29		TLD	TLD
	124	0.28		TLD	TLD
	125	0.28		TLD	TLD
	126	0.28		TLD	TLD
	127	0.26		TLD	TLD
	128	0.25		TLD	TLD
	129	0.17		TLD	TLD
	136A	0.29		TLD	TLD
	137A	0.24		TLD	TLD
	138A	0.17		TLD	TLD
	86 (16S)	0.31			TLD
	17	1.19	TLD	TLD	
	12	6.74		TLD	

SAMPLE TYPE KEY:

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

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) The alternate designations for TLD Stations 71-86 are given in parentheses, i.e., 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 of Washington EFSEC Resolution 260 requirements.

(f) OTHER –Special study stations. TLD Stations 121 through 138 satisfy ISFSI monitoring requirements 10CFR72.44(d)(2).

(g) Duplicate samples, i.e., samples drawn at the same time as the routine samples and submitted for analysis as a quality control check, are collected at this location. The station designation for the duplicate of Station 36 is Station 36D. For Location 27, a composite sample is collected and designated as location 72

(h) Monitoring well locations are not included in Table 4-2. Refer to Table 4-1 and Figure 4-6 for locations and requirements.

TABLE 4-3
2008 FIVE MILE LAND USE CENSUS RESULTS

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

FOOTNOTES

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

(b) Estimated distances in miles from CGS Reactor Building based on GPS readings.

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

MEDIA (UNITS)	ANALYSIS	ENERGY NORTHWEST LLDs[a]	ODCM REQUIRED LLDs
Air	Gross Beta	0.002	0.01
(pCi/m^3)	Gamma Spectrometry		
	Cs-134	0.001	0.05
	Cs-137	0.001	0.06
	I-131	0.03	0.07
Water:	Gross Beta	2.4	4
(pCi/liter)	Tritium	300	2000[b]
	Sr-90	1	---
	Gamma Spectrometry		
	I-131[c]	1	---
	Mn-54	10	15
	Fe-59	15	30
	Co-58	10	15
	Co-60	10	15
	Zn-65	15	30
	Zr-Nb-95	10	15
	Cs-134	10	15
	Cs-137	10	18
	Ba-La-140	10	15
Soil/Sediment:	Gamma Spectrometry		
(pCi/kg dry)	Mn-54	30	---
	Co-60	30	---
	Zn-65	50	---
	Cs-134	30	150
	Cs-137	30	180
	Sr-90	10	---
Fish:	Gamma Spectrometry		
(pCi/kg wet)	Mn-54	15	130
	Fe-59	30	260
	Co-58	15	130
	Co-60	15	130
	Zn-65	30	260
	Cs-134	15	130
	Cs-137	15	150
Milk:	Gamma Spectrometry		
(pCi/liter)	I-131[c]	0.5	1
	Cs-134	10	15
	Cs-137	10	18
	Ba-La-140	10	15
	Sr-90	1	---
Garden Produce:	Gamma Spectrometry		
(pCi/kg wet)	Cs-134	15	60
	Cs-137	15	80
	I-131	20	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 I-131 LLD achieved by anion resin separation and does not represent a direct analysis of the sample media.

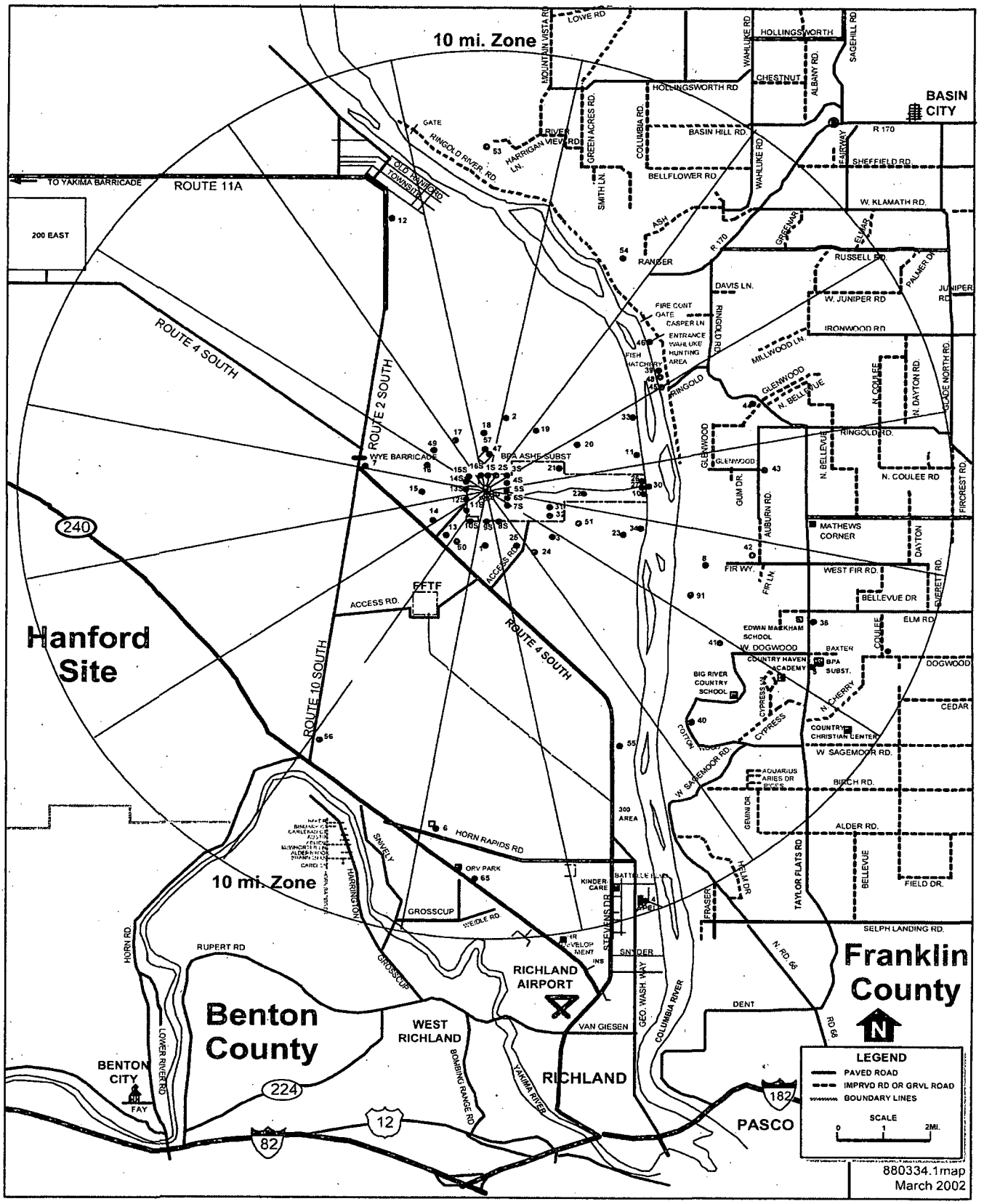

FIGURE 4-1 REMP SAMPLING LOCATIONS INSIDE THE 10 MILE RADIUS

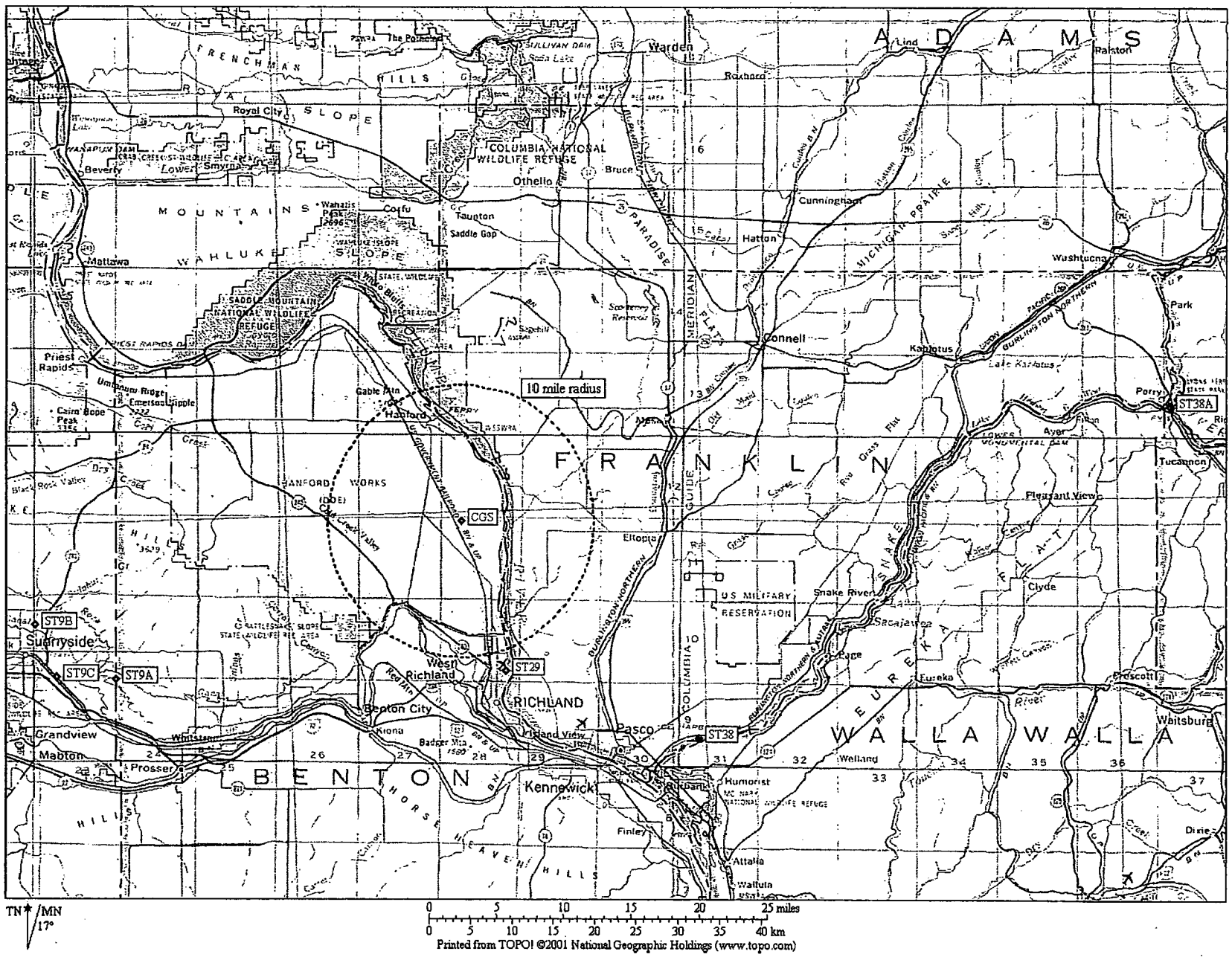

FIGURE 4-2 REMP SAMPLING LOCATIONS OUTSIDE THE 10-MILE RADIUS
(NOTE: Station 38A is the Lyons Ferry Hatchery)

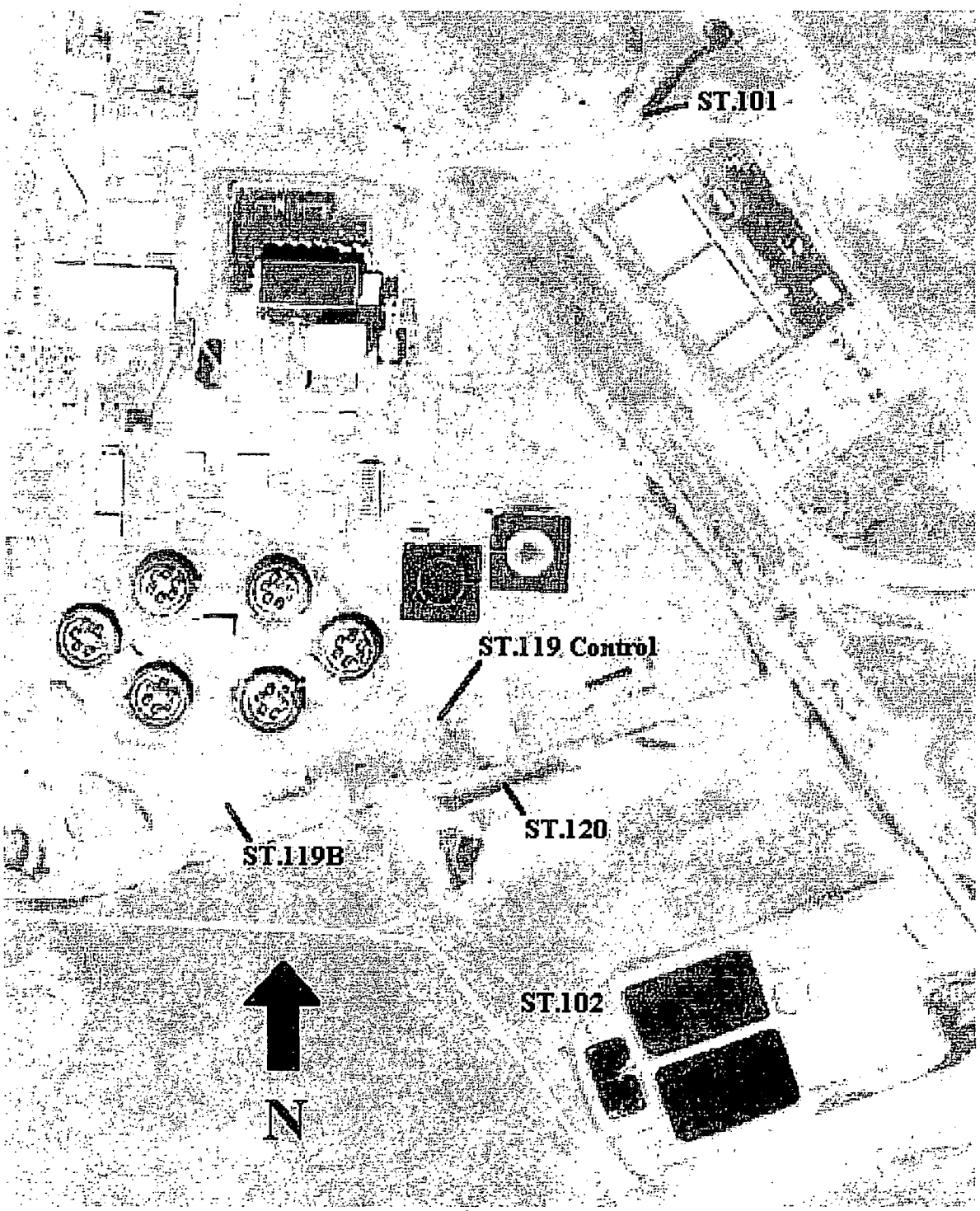

FIGURE 4-3 REMP NEAR PLANT SAMPLING LOCATIONS

STATION 102A (APPROXIMATELY 0.25 MI SOUTH). STATION 102 IN PICTURE IS BOTH 102B, 102D AND 102G.

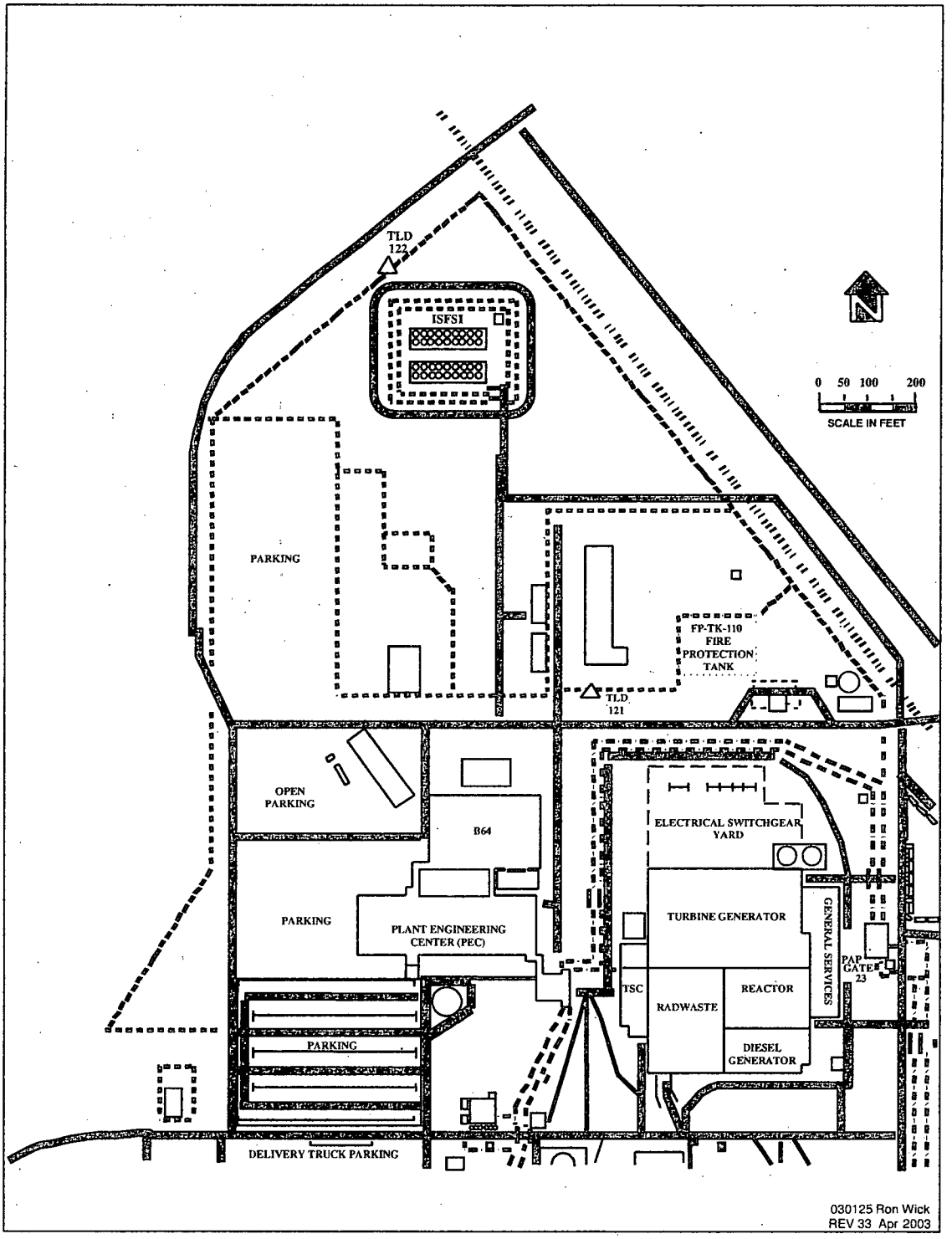

FIGURE 4-4 TLD STATIONS 121 AND 122

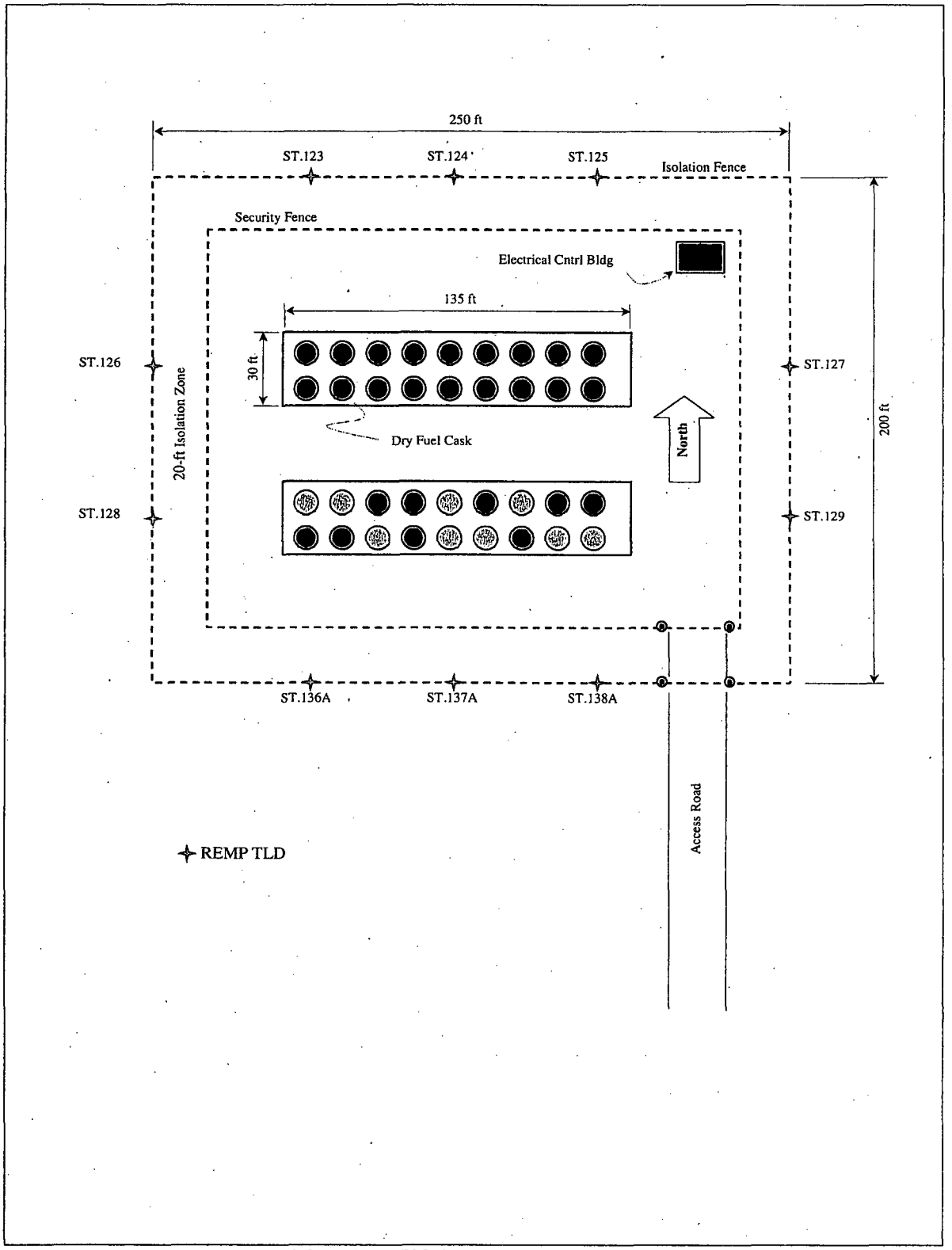

FIGURE 4-5 ISFSI TLD STATIONS LAYOUT

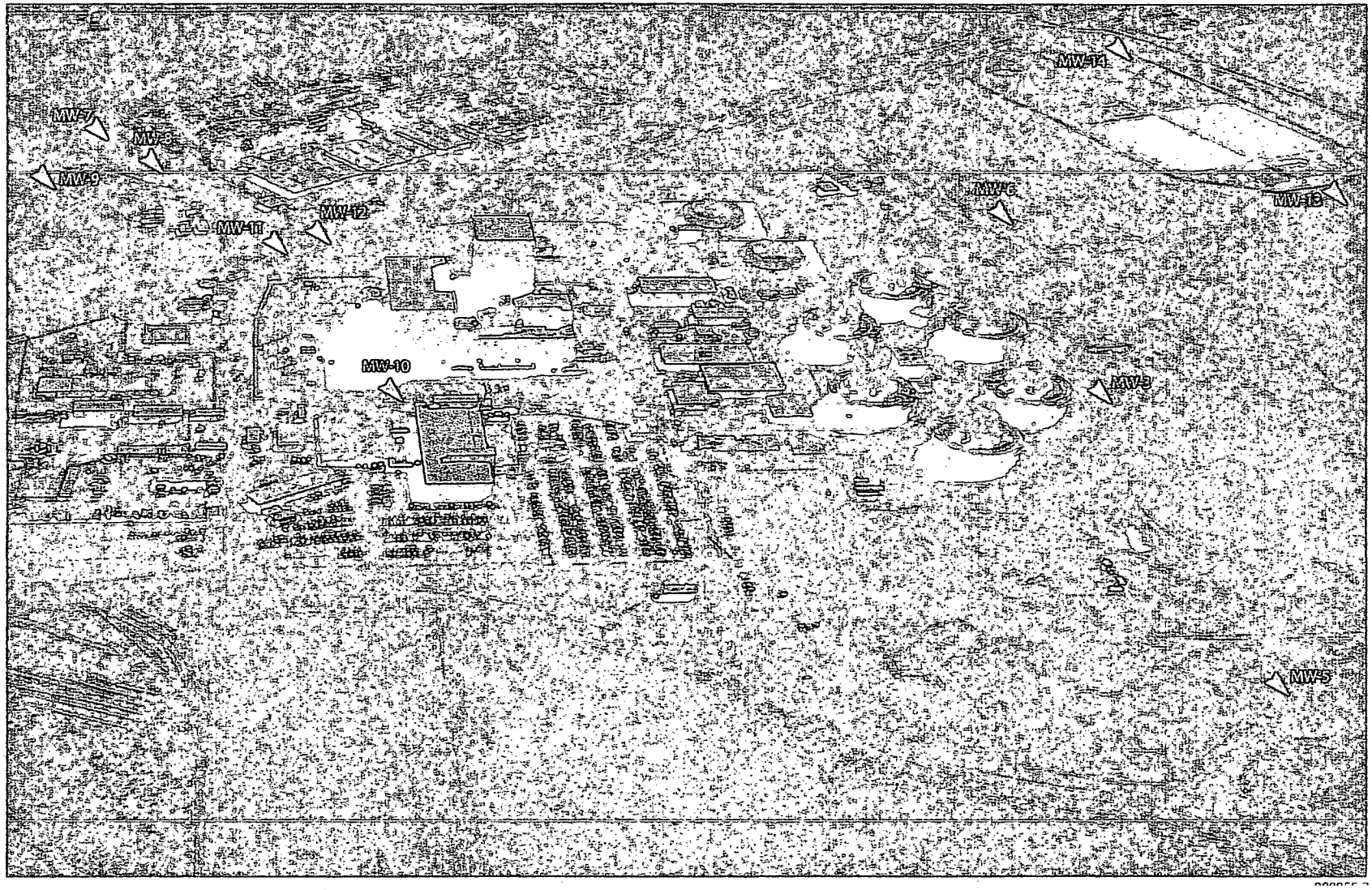

FIGURE 4-6. MONITORING WELL LOCATIONS AROUND CGS

5.0 RESULTS AND DISCUSSION

5.0 RESULTS AND DISCUSSION

Columbia Generating Station REMP samples were analyzed by the Energy Northwest Environmental Services Laboratory in 2008. The environmental TLDs were analyzed by Battelle at the Pacific Northwest National Laboratory (PNNL). Table 5-2 provides a summary of the REMP results for 2008 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 or EFSEC required detection limits and are not the method detection limits listed in Table 4-4. The data tables for the 2008 report are presented in Appendix A of this volume and summarize the analytical results in greater detail.

5.1 Direct Radiation

Direct radiation is monitored at 72 TLD locations surrounding CGS. TLDs are exchanged on a quarterly and annual frequency at all locations. The16 locations designated as "S" stations are located between 0.3 and 0.8 miles of the reactor and all are inside the property boundary. Figure 5-1 presents the 2008 "S" station mean quarterly TLD results separated into sixteen geographical sectors around the plant. Figure 5-1 also shows the high, low, and mean result in each sector for 1984 through 2007 for comparison. The results in the N, NNE, and NNW sectors show higher exposure rates than most other "S" stations as a result of being physically closer to the plant turbine building and the ISFSI. Results for the NNW sector were again above the long term average and close to the historical maximum; this increase is attributed to the stations close proximity to the ISFSI and higher radiation levels at the ISFSI following spent fuel transfer in 2008.

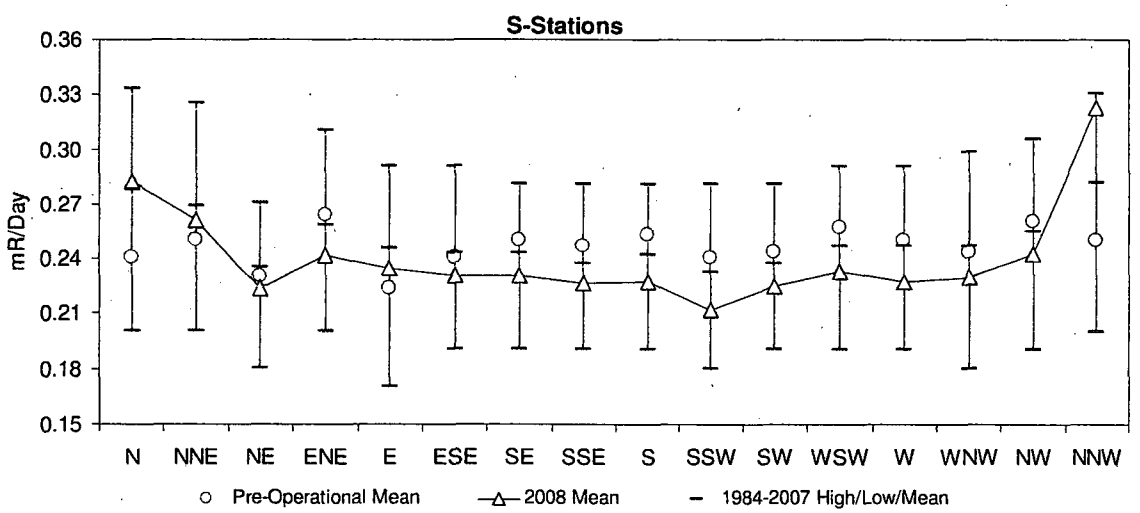

Figure 5-1 Site Boundary Quarterly TLDs 1984-2007 Hi/Low/Mean and 2008 Mean by Sector

TLDs in most all other sectors show results below the preoperational and long term operational mean, a pattern has been observed since 2003. Excluding the N, NNE, and NNW sectors, the average deviation relative to the preoperational period was -6.7%.

Exposure rates for 19 near plant TLD locations are presented in Figure 5-2. These TLDs are located at distances between 0.9 and 2.1 miles from the reactor building. Results in all 16 sectors are slightly below the preoperational and long term operational means, a pattern that has been observed since 2003. The average deviation relative to the preoperational period was -4.6%.

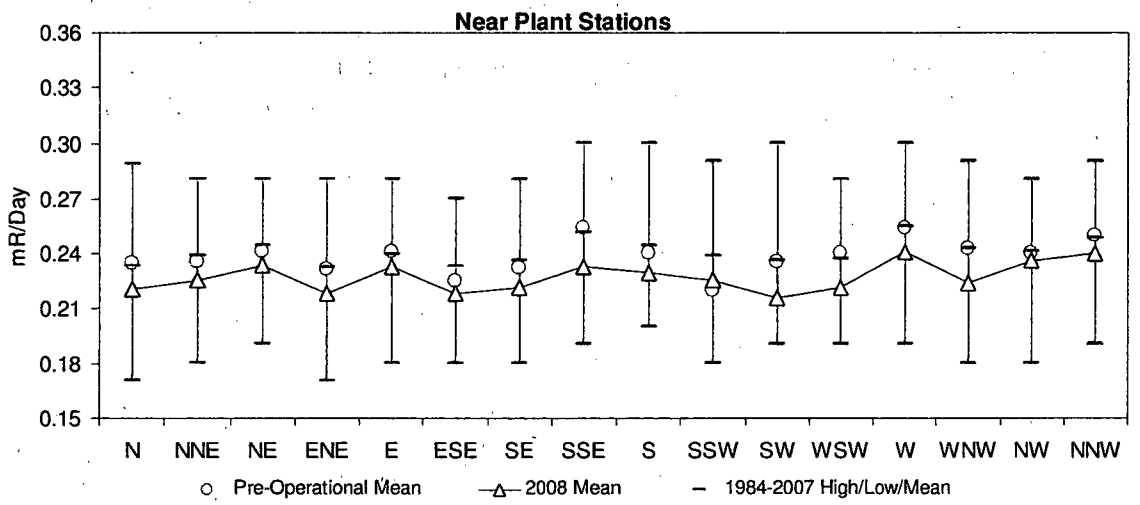

Figure 5-2 Near Plant Stations Quarterly TLDs 1984-2007 Hi/Low/Mean and 2008 Mean by Sector

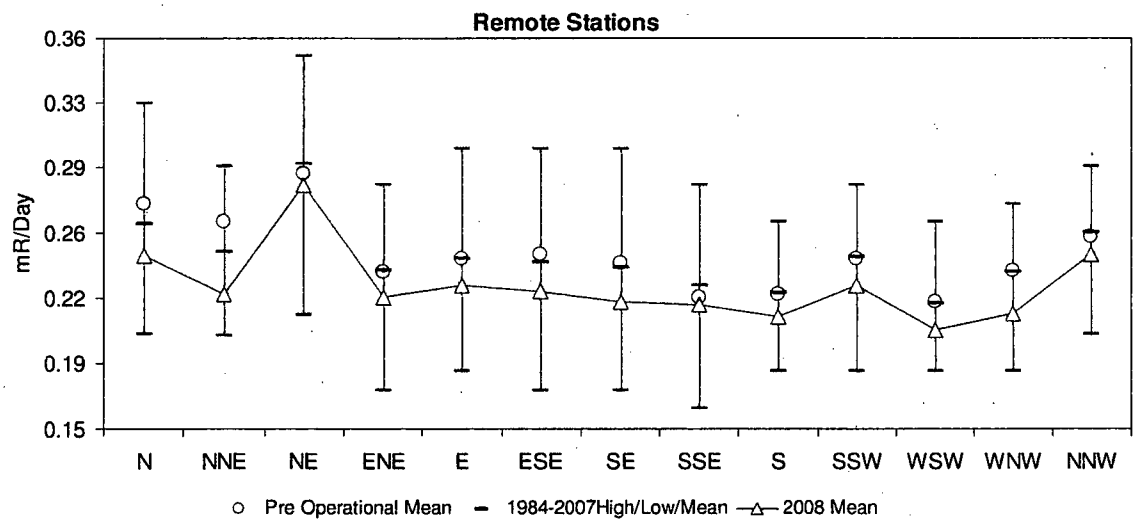

Figure 5-3 Remote Quarterly TLDs 1984-2007 Hi/Low/Mean and 2008 Mean By Sector

Exposure rates for 22 remote TLD locations are presented in Figure 5-3. Station 46 in the Wahluke Reserve (NE sector) remained the remote location with the highest exposure rate. This has been the case since the preoperational measurement phase and is attributed to differences in the underlying rock and soil composition in this area. Remote location results for all sectors are

below the preoperational and long term operational means. A similar pattern has been observed since 2003. The average deviation relative to the preoperational period was -6.9%.

Offsite direct radiation monitoring results are consistent with previous years and indicate no measurable dose contribution due to plant operations. No measurable increase in exposure rates were seen inside the CGS controlled area relative to previous years with the exception of radiation exposure rates at the Independent Spent Fuel Storage Installation (ISFSI). The biases observed between the 2008 results and the preoperational period and historical means are believed to reflect mostly changes introduced by using different TLD vendors and TLD correction factors over the years. Environmental radiation exposure rates for 2008, the preoperational phase, and the long term operational phase are summarized in Tables 5-3 and 5-4. Appendix A, Table A-1.1 list a comparison of the 2008 annual and summed quarterly TLD results. TLD results for other special interest location is given in section 5.9.

5.2 Airborne Particulate/Iodine

Air samples are collected weekly from 11 sample stations located around CGS. An air sample station located 28 miles WSW of CGS is used as a control for comparison. Air particulate filters are analyzed for gross beta and iodine cartridges for radioactive iodines on a weekly basis. Air filters are composited quarterly and analyzed for gamma emitters. 2008 mean weekly particulate filter gross beta results for the five sample stations located within three miles of CGS are plotted in Figure 5-4 (See Appendix A, Tables A-2.1, A-2.2). Results for all locations are within the range observed in previous years and closely follow the trend of the control location.

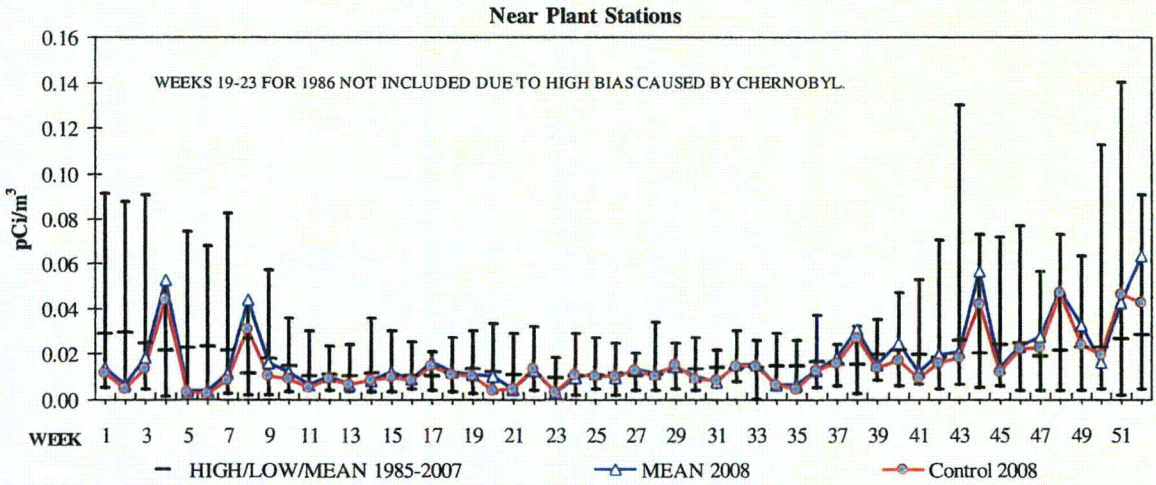

Figure 5-4 1985-2007 Weekly Hi/Low/Mean and 2008 Weekly Mean Gross Beta in Air - Near Plant Stations

Figure 5-5 is a plot of the 2008 mean weekly particulate filter gross beta results for the 6 sample stations located between 3 and 9.6 miles of CGS (See also Appendix A, Tables A-2.1, A-2.2). A similar trend to that seen with the near plant results was observed with all results trending similarly

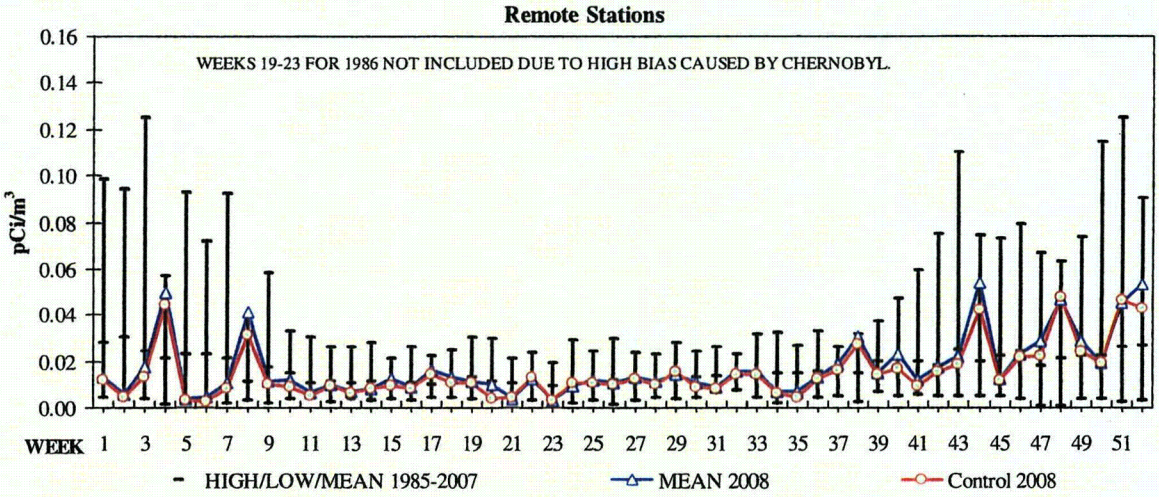

Figure 5-5 1985-2006 Weekly Hi/Low/Mean vs. 2007 Weekly Mean Gross Beta in Air - Remote Stations

to the control. A two times increase above the historic gross beta mean was seen in weeks 4, 8, 38, 44, 48, and 52 at all locations including the control. These increases are attributed to weather induced background fluctuations. As noted in previously reports, gross beta levels typically increase during periods of inversion occurring in the fall and winter months. Gross beta results plotted over a period of several years show a cyclical pattern of fall and winter increases. There is no indication that any of the increases were due to CGS activities or effluents.

The quarterly particulate filter gamma isotopic results identified the presence of only naturally occurring radionuclides (See Appendix A, Tables A-3.1, A-3.2) . Be-7 was positively identified in all samples at both the indicator and control locations. Ra-226 was identified in 4 indicator samples.

The 2008 weekly iodine cartridge isotopic results showed no indication of I-131 in any of the samples with result in all cases being below the I-131 lower level of detection (See Appendix A, Tables A-4.1, A-4.2).

Based on these results, there is no evidence of any measurable environmental radiological air quality impact that can be attributed to CGS plant operation during 2008.

5.3 Water

Water samples are routinely collected from 6 locations monthly and from 3 well locations quarterly. All samples are analyzed for tritium, gross beta and gamma emitters. A number of non-routine, shallow groundwater samples were also collected and analyzed in 2008 as part of the groundwater montoring program and to support NPDES license requirements. A plot of the gross beta results for the plant intake and river/drinking water are shown in Figure 5-6. All drinking and river water (Stations 26 and 29) gross beta results with the exception of one were below the analysis method LLD (See Appendix A, Tables A-5.1, A-5.2). As expected, gross beta levels in the plant discharge water (Station 27) were higher than the levels seen in the intake water (Station 26). Higher activity in the discharge water is normal as natural radioactivity is concentrated due to evaporative loss and

the scrubbing action of the cooling towers incorporates atmospheric particulate material into the water. The discharge sample results are representative of the radioactivity present in plant discharges before any mixing with river water occurs. Plant discharge water gross beta results are also plotted in Figure 5-6.

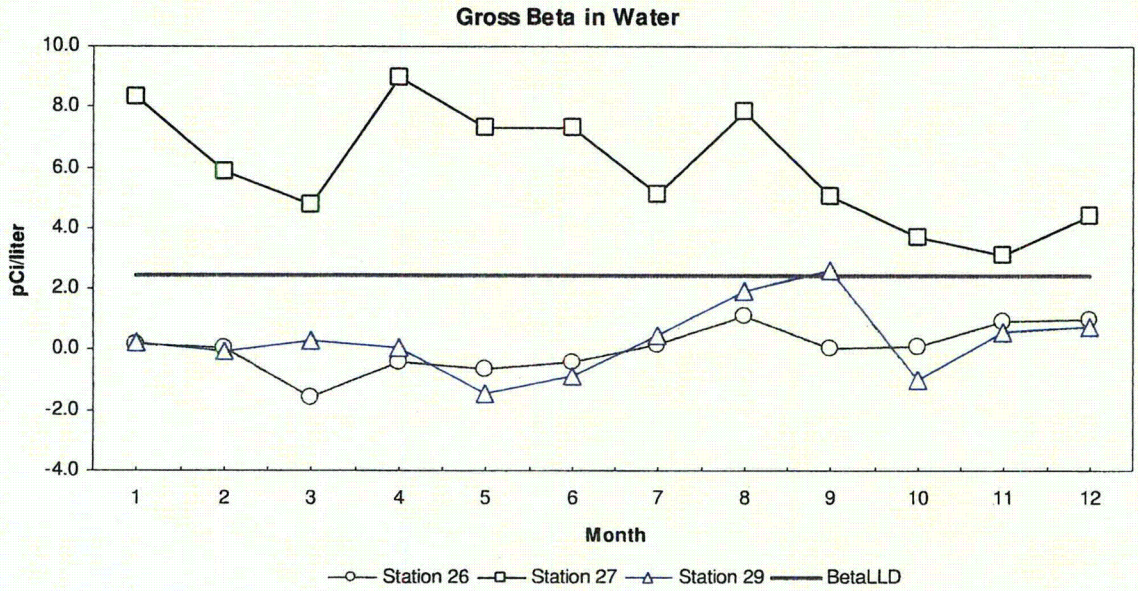

Figure 5-6 Gross Beta in River/Drinking (Stations 26 & 29) and Plant Discharge Water (Station 27) for 2008

Tritium levels in all river/drinking, plant discharge, and deep groundwater well samples were below the detection limit with the exception of the plant discharge water sample (station 27) taken in the fourth quarter. (See Appendix A, Tables A-6.1, A-6.2). As shown in Figure 5.7, higher than normal tritium levels were first observed in the station 27 October monthly sample. AR 188651 was written to document the finding. CGS was experiencing large steam leaks in the turbine building during this time and the source of the tritium was most likely from entrainment of gaseous plant effluents containing high levels of tritium. Steam leaks in the turbine building were repaired during the CGS shutdown in November. Station 27 tritium results for November were greatly reduced and the December result showed tritium levels below the LLD. Tritium results for the other sample locations were consistent with the results seen in previous years. Monthly tritium results for the river/drinking, and plant discharge locations are plotted in Figure 5.7

Gamma spectroscopy results of river/drinking, plant discharge water, and deep groundwater well samples showed no indication of any radionuclides of interest being present in any of the samples. Some naturally occurring radionuclides were identified as expected. (See Appendix A, Tables A-7.1, A-7.2). There is no evidence of any measurable impact on the environment due to CGS plant operations in the river/drinking, plant discharge, or deep groundwater sample results for 2008. Discussion of the water samples taken for the groundwater monitoring program and NPDES licensing requirements are presented in section 5.9.6.

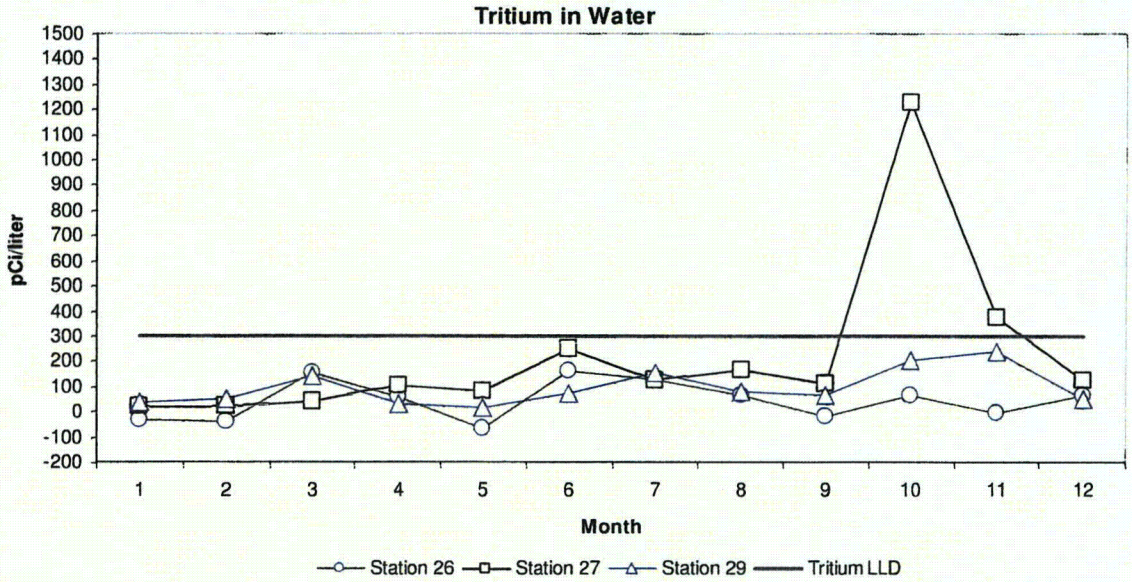

Figure 5-7 Tritium in River/Drinking (Stations 26 & 29) and Plant Discharge Water (Station 27) for 2008

5.4 Soil

Gamma spectroscopy analysis was performed on soil samples from 5 different locations in 2008 (See Appendix A, Tables A-8.1, A-8.2). Naturally occurring radionuclides (K-40, Bi-214, and Ra-226) and Cs-137 were identified. Cs-137 was identified at levels similar to those seen in the past at two of the indicator locations and also the control location. The Cs-137 concentrations identified are within the range considered normal background levels and consistent with Cs-137 concentrations found in Hanford site soils.[11,19] No indicator location had Cs-137 concentrations high enough above the control location to trigger a Sr-90 analysis as required by the ODCM. [8] The soil sample results do not indicate any measurable impact from CGS plant operation.

5.5 River Sediment

Gamma assays of river sediment identified naturally occurring radionuclides (K-40, Ra-226, and Bi-214) and Cs-137 (See Appendix A, Tables A-9.1, 9.2). Cs-137 was detected in both the upstream (Station 33) and downstream (Station 34) samples (relative to the cooling tower discharge point). Cs-137 downstream activity was higher than the activity identified upstream, however, both upstream and downstream activity levels are within the range identified in previous years and consistent with known background levels. Cs-137 activity has previously been identified as a component of the Columbia River sediment originating from Hanford site activities[14], weapons testing fallout, and natural background.

5.6 Fish

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

5.7 Milk

There was no I-131 activity identified in any of the milk samples collected in 2008 (See Appendix A, Tables A-11.1, A-11.2). Gamma spectroscopy results of milk radionuclides other than I-131 did not identify the presence of any radionuclides of interest above detection limits (See Appendix A, Tables A-12.1, A-12.2). Naturally occurring K-40 was identified in all milk samples.

5.8 Garden Produce

Gamma analysis was performed on twelve different fruit and vegetable crops in 2008 (See Appendix A, Tables A-15.1, A-15.2, A-16.1, A-16.2, A-17.1, A-17.2). No radionuclides of interest were identified in any of the samples. Naturally occurring K-40 was identified in most samples as expected.

5.9 Special Interest Stations

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. TLDs were hung in the vicinity of the planned Independent Spent Fuel Storage Installation (ISFSI) during the first quarter of 1998 to collect background data and an additional ten TLDs were hung on the ISFSI fence after construction was completed in 2002. Groundwater sampling was expanded in 2008 and 5 new groundwater monitoring wells were installed during the fourth quarter. 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. The only positive gamma spectroscopy result was a natural occurring radionuclide identified in the January sample (See Appendix A Tables B-2.1, B-2.2). Two samples had gross beta results above the LLD; both were low level and within the range seen in previous years (See Appendix A, Tables B-3.1, B-3.2). Tritium was detected in seven of the twelve samples (See Appendix A, Tables B-4.1, B-4.2). The samples with the highest tritium activity were from colder, wetter months which is consistent with results seen in previous years. The positive identifications for June and July were just above the LLD. The source of the tritium in these samples is believed to be from capture and condensation of tritium from CGS effluents which is more likely during cooler, rainier periods. A station 101 sediment sample was taken at the request of the Washington Department of Health in May. Results identified Co-60 and Cs-137 at levels slightly above those reported in the past (comparison made to results from the 1997-1999 time frame, see Appendix A Tables B-9.1).

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[15].

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

Gamma spectroscopy results of the monthly SWTF water samples showed no radionuclides of interest were detected in any of the samples, and in only two samples were naturally occurring radionuclides identified (See Appendix A, Tables B-7.1, B-7.2). This is consistent with results from previous years. The annual sediment sample collected from the lined north stabilization pond (Station 102D) contained Cs-137 and Co-60 at concentrations that were similar to results seen in previous years (See Appendix A, Table B-9.1).

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

5.9.3 Cooling Tower Sediment Disposal Area (Station 119)

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

Cleaning of the cooling towers was done twice in 2008. An estimated 32.9 cubic meters of dry sediment was placed in the disposal area in May and an additional 12.3 cubic meters was added in November. Figure 5-8 summarizes the estimated quantity of radionuclide that was placed in the disposal area in 2008. For those isotopes in the table that were not positively identified, the MDA value obtained from the sample analysis was used.

All results are significantly below the disposal concentration limits specified in EFSEC resolution 299. The activity levels identified are similar to those seen in past years. Cs-137 is routinely identified in these samples and the activity levels are similar to those seen in Columbia River sediment samples (See Appendix A, Tables A-9.1 for comparison). Co-60 was not positively

	2008 Cooling Tower Sediment Disposal Data			
	Disposal Date:	May 08	Nov. 08	
	Pit ID:	2007 Pit	2007 Pit	
	Mass, kg:	25,559	7,623	
	Density, g/cc:	0.777	0.618	
Nuclide	Limit (pCi/kg)	Analytical Result (pCi/kg)	Analytical Result (pCi/kg)	Total Curies
Co-60	5.00E+03	<5.41E+01	<2.68E+01	<1.59E-06
Mn-54	3.00E+04	<4.48E+01	<3.49E+01	<1.41E-06
Zn-65	5.00E+04	<1.04E+02	<1.17E+02	<3.55E-06
Cs-134	1.00E+04	<3.76E+01	<3.09E+01	<1.20E-06
Cs-137	2.00E+04	1.15E+02	1.53E+02	4.11E-06
				1.19E-05

Figure 5-8 Cooling Tower sediment activity levels for disposals made in 2008

identified in any 2008 sample but has been identified in the past. As the table uses MDA results for those radionuclides that were not positively identified, the total activity reported should be considered a conservative estimate.

Measurements of direct radiation at the disposal basin were 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 119-Control). The mean quarterly and annual TLD results agree well with results from previous operational years. The negligible difference between the indicator and the control TLD indicate that there was no significant measureable dose above background (See Tables 5.3, 5.4 and Appendix A, Tables B-1.1, B-1.2).

5.9.4 Spray Pond Drain Field (Station 120)

There were no discharges to the Spray Pond Drain Field (NPDES Outfall 003) in 2008. The TLD results at Station 120 in 2008 are in agreement with those seen in previous operational years (See Table 5-3, 5-4 and Appendix A, Tables B-1.1, B-1.2).

5.9.5 Independent Spent Fuel Storage Installation

The Independent Spent Fuel Storage Installation (ISFSI) is a fenced, secured area north northwest of CGS. Ten TLD stations, stations 123-129 and stations 136A-138A are located on the outer security fence surrounding the ISFSI. TLD station 122 is just north of the ISFSI between the ISFSI and the plant access road. TLD station 121 is located approximately 0.1 mile north of the plant between the Transformer Yard and the ISFSI. Refer to Figures 4-4 and 4-5 for maps showing the ISFSI TLD locations. Radiological exposure rates at the ISFSI security fence are elevated and access to the area directly outside the fence requires radiological dosimetry and security notification to enter. In addition to the TLD monitoring program, quarterly radiological surveys of the ISFSI are conducted by the CGS Radiation Protection Department.

Twelve new spent fuel storage casks were added to the ISFSI between February and May 2008, with filled casks being placed on pad 2 for the first time. ISFSI TLD results during the first and

second quarters showed a step change increase with the TLDs closest to pad 2 showing the greatest gain. TLD results for the third and fourth quarter showed a leveling to slight downward trend. Station 122 TLD results showed a slight step up during the second quarter. The trend for this locations correlates to the overall ISFSI TLD trend but at a much lower level. Station 121 TLD results did not follow the ISFSI trend as first and second quarter results were down and third and fourth quarter results were up (See Table 5-3, 5-4 and Appendix A, Tables B-1.1, B-1.2). As noted in previous reports, the trend for this location is more influenced by turbine building radiation levels than by the ISFSI. A plot of historic TLD trends at the CGS ISFSI is shown below in Figure 5.9. The location of individual TLDs on the outer security fences is shown in Figure 4-5.

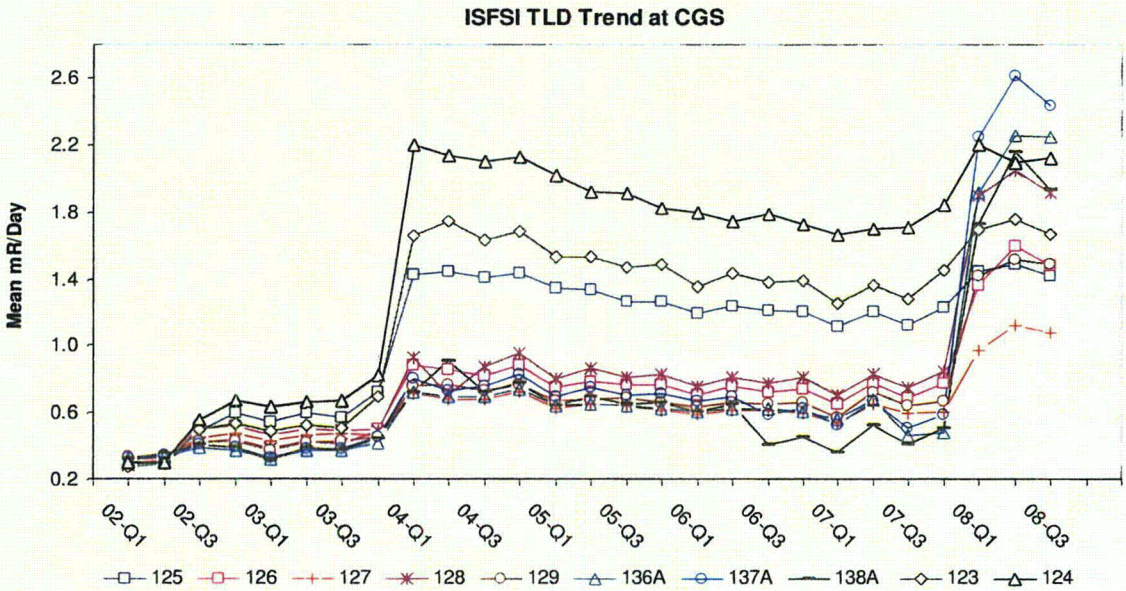

Figure 5-9 ISFSI TLD trend at CGS. All TLD located on outer security fence

5.9.6 Groundwater Monitoring

As part of the Nuclear Energy Institute (NEI) Groundwater Protection Initiative (NEI 07-07), [21] CGS has impemented a monitoring program to routinely sample the groundwater in the unconfined aquifer on the CGS site. Groundwater analytical results will be reported as part of this report. Five additional groundwater monitoring wells were installed in 2008 to supplement the existing groundwater monitoring program. The new wells are identified as MW-10 to MW-14, refer to Figure 4-6 for their location. None of the 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 results of past DOE activities on the Hanford Site[20]. The CGS groundwater program is intended to ensure that CGS does not contribute to the existing groundwater contamination issue. Analytical results for all wells were consistent with results seen the previous year. No gamma emitting radionuclides of interest were identified in any of the samples (See Appendix A, Table B-10.1). Tritium results ranged from < LLD to 17,400 pCi/liter (See Appendix A, Table B-11.1).

5.9.7 Miscellaneous Environmental Sample Results

Co-60 and Cs-137 was previously identified in some of the valve boxes on the circulating water discharge line leading from CGS to the Columbia River. Remediation of valve box #9 and #12 was undertaken in 2008. Contaminated soil and rock was removed until sampling showed remaining material did not contain any activity above REMP soil LLD levels.

Four wells were drilled on CGS property in 2008 in order to install Cathodic protection devices for underground piping. Samples of soil and water were collected during the drilling process and analyzed for radiological constituents. Sample analysis and disposal of drilling waste was conducted in accordance with the projects waste management plan. No significant radiological constituents were identified in any of the samples.

Four new air sample stations and 5 TLD locations were added during the fourth quarter 2008. The sample stations are located in areas that will allow CGS to access impact resulting from proposed remediation work at the DOE 618-11 burial ground located to the west of CGS. No 618-11 remediation activities occurred in 2008; sampling was initiated at this time in order to establish a background baseline for future reference.

Sampling and analysis of soil and water during the CGS access road widening project in August 2008 was performed in accordance with State of Washington EFSEC request. No radiological issues were identified.

There were no significant (> 100 gallons) on site leaks or spills of contaminated water in 2008.

5.10 2008 Sample Deviations

One sample deviation was encountered in 2008. For comparison, there were three deviations reported in 2007, two deviations in 2006, and 12 in 2005. A summary of the sample deviation from 2008 are listed in Table 5-1. Only those incidences that resulted in a loss of a planned sample have been included.

TABLE 5-1 Sample Deviations for 2008

SAMPLE MEDIA	DATE	LOCATION	CR/AR ID	PROBLEM
Air Particulate/Iodine	11/25/08 - 12/09/08	Station 40	NA	Sampler without power due to replacement of power pole and transformer by local PUD.

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Environmental Direct Radiation (TLD) **Units: mR/period**

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	---	20.95 (224 / 224) (17.30-31.28)	86 NNW 0.3 miles	29.50 (4/4) (26.79-31.28)	18.49 (4/4) (16.90-19.46)	0
TLD Annual	57	---	82.64 (56 / 56) (70.45-119.82)	86 NNW 0.3 miles	119.82 (1/1)	77.60 (1/1)	0

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: ISFSI Direct Radiation (TLD) **Units: mR/period**

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	48	---	129.3 (48 / 48) (34.7-238.7)	124 NNW 0.28 miles	188.58 (4 / 4) (168.5-200.9)	--- (0 / 0)	0
TLD Annual	12	---	519.7 (12 / 12) (164.5-734.3)	137A NNW 0.24 miles	734.3 (1 / 1)	--- (0 / 0)	0

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: ST 119 Direct Radiation (TLD) **Units: mR/period**

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	8	---	22.0 (4 / 4) (20.5-23.2)	119B S 0.31 Miles	22.0 (4 / 4) (20.5-23.2)	21.8 (4 / 4) (20.9-22.4)	0
TLD Annual	2	---	81.1 (1 / 1)	119C SSE 0.28 Miles	87.4 (1 / 1)	87.4 (1 / 1)	0

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: ST 120 Direct Radiation (TLD) **Units: mR/period**

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	4	---	22.2(4 / 4) (20.9-23.4)	120 SSE 0.32 Miles	22.2(4 / 4) (20.9-23.4)	--- (0 / 0)	0
TLD Annual	1	---	89.2 (1 / 1)	120 SSE 0.32 Miles	89.2 (1 / 1)	--- (0 / 0)	0

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Air Particulate/Air Radioiodine **Units: pCi/m^3**

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	0.0171 (570/570) (0.0016-0.0688)	57 N 0.70 Miles	0.0179 (52/52) (0.0030-0.0633)	0.0149 (52/52) (0.0027 - 0.0473)	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

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

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	---(1 / 24)[(b)]	29 SSE 11.76 miles	0.257(1/12) (-1.51-2.59)	--- (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

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

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	5.97 (12 / 12) (3.09-8.98)	27 E 3.2 miles	5.97 (12 / 12) (3.09-8.98)	---(0 / 0)	0
H-3	4	2000	--- (1/ 4)	27 E 3.2 miles	222 (1/4) (28.0-577)	--- (0 / 0)	0
Mn-54	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Fe-59	12	30	--- (0 / 12)	---	---	--- (0 / 0)	0
Co-58	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Co-60	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Zn-65	12	30	--- (0 / 12)	---	---	--- (0 / 0)	0
Zr/Nb-95	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Cs-134	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0
Cs-137	12	18	--- (0 / 12)	---	---	--- (0 / 0)	0
Ba/La-140	12	15	--- (0 / 12)	---	---	--- (0 / 0)	0

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

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

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

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Water-SWTF (102B) **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 Alpha	12	---	---(0 / 12)	---	---	--- (0 / 0)	0
Gross Beta	12	4.0	14.0 (12 / 12) (9.1-24.5)	102B SSE 0.5 miles	14.0 (12 / 12) (9.1-24.5)	--- (0 / 0)	0
H-3	12	2000	738 (12 / 12) (432-1080)	102B SSE 0.5 miles	738 (12 / 12) (432-1080)	--- (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 B-5.1, B-5.2, Tables B-6.1, B-6.2, Tables B-7.1, B-7.2, and Tables B-8.1, B-8.2.

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Water-FFTF Sewage (102A) **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 Alpha	12	---	---(0 / 12)	---	---	--- (0 / 0)	0
Gross Beta	12	4.0	7.05 (11 / 12) (0.204-15.7)	102A S 0.67 miles	7.05 (11 / 12) (0.204-15.7)	--- (0 / 0)	0
H-3	12	2000	2290 (12 / 12) (2080-2590)	102A S 0.67 miles	2290 (12 / 12) (2080-2590)	--- (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 B-5.1, B-5.2, Tables B-6.1, B-6.2, Tables B-7.1, B-7.2, and Tables B-8.1, B-8.2.

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Storm Water Outfall (101) **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	1.55 (2 / 12) (-0.249-6.68)	101 NE 0.19 miles	1.55 (2 / 12) (-0.249-6.68)	--- (0 / 0)	0
H-3	12	2000	1420 (7 / 12) (109-8790)	101 NE 0.19 miles	1420 (7 / 12) (109-8790)	--- (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 B-2.1, B-2.2, Tables B-3.1, B-3.2, and Tables B-4.1, B-4.2.

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

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	150 (2 / 2) (126-174)	34 ESE 3.32 Miles	150 (2 / 2) (126-174)	67.3 (2 / 2) (64.1-70.6)	0
Co-60	4	---	--- (0 / 2)	---	---	--- (0 / 2)	0

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

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Soil **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	5	150	--- (0 / 4)	---	---	--- (0 / 1)	0
Cs-137	5	180	28.0 (2 / 4) (-3.71-60.8)	1 S 1.25 Miles	60.8 (1 / 1)	51.3 (1 / 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, Tables A-8.1, A-8.2.

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Cooling Tower 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		
Co-60	2	---	--- (0 / 2)	---	---	--- (0 / 0)	0
Mn-54	2	---	--- (0 / 2)	---	---	--- (0 / 0)	0
Zn-65	2	---	--- (0 / 2)	---	---	--- (0 / 0)	0
Cs-134	2	150	--- (0 / 2)	---	---	--- (0 / 0)	0
Cs-137	2	180	134 (2 / 2) (115 – 153)	119 S 0.31 Miles	134 (2 / 2) (115 – 153)	--- (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 Figure 5.8.

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Sanitary Waste Treatment Facility 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		
Co-60	1	---	171 (1 / 1)	102D SSE 0.5 miles	171 (1 / 1)	--- (0 / 0)	0
Mn-54	1	---	--- (0 / 1)	---	---	--- (0 / 0)	0
Zn-65	1	---	--- (0 / 1)	---	---	--- (0 / 0)	0
Cs-134	1	150	--- (0 / 1)	---	---	--- (0 / 0)	0
Cs-137	1	180	142 (1/1)	102D SSE 0.5 miles	142 (1/1)	--- (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, Table B-9.1.

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calender Year 2008**

Medium: Roots **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	8	60	--- (0 / 4)	---	---	--- (0 / 4)	0
Cs-134	8	60	--- (0 / 4)	---	---	--- (0 / 4)	0
Cs-137	8	80	--- (0 / 4)	---	---	--- (0 / 4)	0

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

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Fruits **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	9	60	--- (0 / 5)	---	---	--- (0 / 4)	0
Cs-134	9	60	--- (0 / 5)	---	---	--- (0 / 4)	0
Cs-137	9	80	--- (0 / 5)	---	---	--- (0 / 4)	0

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

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

Medium: Vegetables **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	15	60	--- (0 / 9)	---	---	--- (0 / 6)	0
Cs-134	15	60	--- (0 / 9)	---	---	--- (0 / 6)	0
Cs-137	15	80	--- (0 / 9)	---	---	--- (0 / 6)	0

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

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

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	6	130	--- (0 / 3)	---	---	--- (0 / 3)	0
Fe-59	6	260	--- (0 / 3)	---	---	--- (0 / 3)	0
Co-58	6	130	--- (0 / 3)	---	---	--- (0 / 3)	0
Co-60	6	130	--- (0 / 3)	---	---	--- (0 / 3)	0
Zn-65	6	260	--- (0 / 3)	---	---	--- (0 / 3)	0
Cs-134	6	130	--- (0 / 3)	---	---	--- (0 / 3)	0
Cs-137	6	150	--- (0 / 3)	---	---	--- (0 / 3)	0

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

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

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

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

COLUMBIA GENERATING STATION **DOCKET NO. 50-397**

Benton County, Washington **Calendar Year 2008**

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 COMPARISION TO PREOPERATIONAL AND OPERATIONAL PERIODS

Results in mR/Standard Quarter

	Pre-Operational				Operational to 2007				2008 Operational			
Station	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	1.78	22.26	20.03	21.85	0.75	20.98
2	17.34	22.81	2.09	21.10	16.43	25.55	1.65	21.78	19.36	21.57	1.10	20.55
3	18.25	21.90	1.46	20.42	16.43	24.64	1.78	21.06	19.13	20.17	0.48	19.78
4	15.51	23.73	2.65	19.96	14.60	22.81	1.78	19.65	17.49	19.97	1.17	18.67
5	18.25	22.81	1.74	20.76	16.43	23.73	1.75	20.19	17.85	19.53	0.70	18.75
6	18.25	21.90	1.50	20.19	16.43	23.73	1.63	20.37	18.51	19.28	0.38	18.84
7	19.16	22.81	1.69	21.33	16.43	24.64	1.80	21.29	18.67	19.85	0.50	19.27
8	21.90	25.55	1.50	23.84	15.51	27.38	2.11	23.39	21.92	22.98	0.49	22.30
9	15.51	21.90	2.00	19.85	16.43	23.73	1.79	19.79	16.90	19.46	1.16	18.48
10	19.16	22.81	1.38	20.99	16.43	24.64	1.73	21.13	18.52	21.15	1.18	19.67
11	19.16	22.81	1.38	21.44	16.43	24.64	1.58	21.61	20.15	22.13	0.85	20.98
12	20.99	24.64	1.60	23.04	18.25	26.46	1.79	23.27	20.49	23.69	1.42	22.11
13	19.16	22.81	1.54	21.44	17.34	27.38	1.88	21.53	18.98	20.44	0.60	19.70
14	19.16	24.64	2.07	21.90	17.34	25.55	1.59	21.63	19.46	20.67	0.55	20.21
15	20.99	25.55	1.37	23.15	17.34	27.38	1.79	23.20	20.80	23.30	1.03	21.99
16	20.08	23.73	1.52	22.13	16.43	26.46	1.89	22.16	19.34	21.24	0.80	20.41
17	19.16	23.73	1.62	22.81	17.34	26.46	1.71	22.61	20.86	22.54	0.78	21.88
18	20.08	23.73	1.27	22.13	16.43	25.55	1.77	22.11	19.84	21.72	0.80	20.91
19	20.08	23.73	1.24	22.01	17.34	25.55	1.66	22.29	19.74	22.40	1.16	21.33
20	19.16	23.73	1.76	21.44	17.34	25.55	1.72	21.95	19.44	21.68	1.01	20.43
21	19.16	21.90	1.25	20.68	15.51	23.73	1.52	20.45	18.81	20.47	0.70	19.49
22	19.16	23.73	1.58	22.01	16.43	25.55	1.58	21.86	20.16	22.01	0.81	21.22
23	20.08	23.73	1.49	21.60	17.34	25.55	1.72	21.32	19.15	20.38	0.50	19.72
24	20.99	23.73	1.09	21.90	17.34	50.50	3.40	22.36	19.48	21.98	1.21	20.61
25	20.99	24.64	1.46	23.15	17.34	27.38	2.00	22.95	20.45	22.02	0.70	21.28
40	17.34	21.90	1.70	19.94	15.51	24.64	1.78	20.29	17.30	19.96	1.17	18.50
41	20.08	25.55	2.00	23.73	17.34	27.38	2.12	22.66	19.95	22.16	1.06	21.11
42	20.08	23.73	1.61	22.36	17.34	26.46	2.02	22.24	19.97	21.24	0.55	20.68
43	20.99	24.64	1.49	23.12	16.43	27.38	2.29	22.72	20.82	22.54	0.82	21.65
44	19.16	22.81	1.34	21.12	15.51	24.64	2.00	21.01	17.91	20.85	1.47	19.27
45	19.16	22.81	1.37	21.25	16.43	25.55	1.87	21.39	18.99	21.05	1.00	19.83
46	22.81	28.29	2.10	26.10	19.16	31.94	2.23	26.65	22.99	27.64	2.05	25.53
47	17.34	20.99	1.73	19.85	15.51	26.28	1.82	20.36	18.69	20.38	0.73	19.37
49	21.90	21.90	-	21.90	16.43	25.55	1.63	22.00	20.33	23.36	1.37	21.52
50	20.08	20.08	-	20.08	16.43	26.46	1.84	21.77	19.60	21.22	0.74	20.59
51	19.16	21.90	1.18	20.53	16.43	24.64	1.71	21.25	18.92	20.84	0.82	19.91
53	24.64	24.64	-	24.64	18.25	29.57	2.09	23.68	21.80	22.19	0.18	22.06
54	23.73	23.73	-	23.73	18.18	26.46	2.02	22.29	18.75	21.89	1.51	20.18
55	20.99	20.99	-	20.99	16.43	25.55	1.58	21.53	19.70	22.10	1.16	20.65
56	21.90	21.90	-	21.90	16.43	25.55	1.83	21.98	19.38	21.97	1.37	20.65
65	-	-	-	-	17.73	22.72	1.35	20.02	18.55	20.70	0.97	19.35

TABLE 5-3 (cont)
QUARTERLY TLD DATA SUMMARY WITH COMPARISION TO PREOPERATIONAL AND OPERATIONAL PERIODS

Results in mR/Standard Quarter

	Pre-Operational				Operational to 2007				2008 Operational			
Station	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	2.55	25.28	23.97	27.82	1.61	25.71
72(2S)	21.90	23.73	0.91	22.81	18.25	29.65	2.07	24.47	23.14	24.26	0.49	23.82
73(3S)	20.08	21.90	0.91	20.99	16.43	24.64	1.64	21.37	19.36	21.37	0.84	20.35
74(4S)	23.73	24.64	0.53	24.03	18.25	28.29	1.98	23.55	21.07	22.67	0.69	22.04
75(5S)	19.16	21.90	1.39	20.38	15.51	26.46	1.97	22.37	19.70	22.43	1.27	21.36
76(6S)	20.99	22.81	0.91	21.90	17.34	26.46	1.75	22.15	20.17	21.95	0.77	21.05
77(7S)	21.90	23.73	0.91	22.81	17.34	25.55	1.70	22.15	20.28	21.65	0.57	21.05
78(8S)	21.90	23.73	1.05	22.51	17.34	25.55	1.64	21.64	19.22	22.09	1.43	20.64
79(9S)	22.81	23.73	0.53	23.12	17.34	25.55	1.73	22.03	19.68	21.57	0.82	20.76
80(10S)	20.99	22.81	0.91	21.90	16.43	25.55	1.83	21.18	18.35	20.11	0.76	19.38
81(11S)	20.08	23.73	1.90	22.20	17.34	25.55	1.61	21.65	19.47	21.52	0.85	20.50
82(12S)	21.90	24.64	1.39	23.42	17.34	26.46	1.65	22.53	20.10	22.40	0.94	21.26
83(13S)	21.90	23.73	0.91	22.81	17.34	26.46	1.95	22.47	19.93	21.58	0.81	20.71
84(14S)	20.99	22.81	1.05	22.20	16.43	27.17	1.84	22.47	20.22	21.74	0.62	20.94
85(15S)	21.90	24.64	1.58	23.73	17.34	27.83	1.97	23.24	20.43	24.10	1.58	22.13
86(16S)	21.90	23.73	0.91	22.81	18.25	30.11	2.47	25.63	26.79	31.28	1.96	29.49
119B	-	-	-	-	19.36	25.64	1.53	22.20	20.52	23.18	1.27	21.98
119Ctrl	-	-	-	-	19.53	26.55	1.54	21.79	20.94	22.36	0.65	21.79
120East	-	-	-	-	19.78	31.12	2.08	22.50	20.90	23.41	1.12	22.17
121 (ISFSI)	-	-	-	-	20.81	130.27	-	76.03	81.83	98.63	-	91.78
122 (ISFSI)	-	-	-	-	19.62	39.25	-	27.63	34.74	42.49	-	39.82
123 (ISFSI)	-	-	-	-	24.99	159.27	-	103.02	132.01	160.33	-	149.65
124 (ISFSI)	-	-	-	-	26.89	201.05	-	131.10	168.49	200.91	-	188.58
125 (ISFSI)	-	-	-	-	26.46	131.76	-	92.27	112.17	135.52	-	127.01
126 (ISFSI)	-	-	-	-	26.00	80.22	-	59.63	70.19	145.68	-	118.79
127 (ISFSI)	-	-	-	-	28.97	65.28	-	50.81	54.62	102.08	-	85.90
128 (ISFSI)	-	-	-	-	25.64	86.73	-	60.59	76.71	187.25	-	152.92
129 (ISFSI)	-	-	-	-	30.16	69.86	-	52.98	60.58	138.08	-	115.74
136A (ISFSI)	-	-	-	-	28.99	66.80	-	49.20	43.61	205.64	-	157.19
137A (ISFSI)	-	-	-	-	29.47	75.39	-	52.39	53.11	238.74	-	179.66
138A (ISFSI)	-	-	-	-	28.28	82.41	-	48.10	45.92	196.68	-	144.19
Site 1	-	-	-	-	11.92	18.69	2.14	17.10	17.51	18.43	0.44	17.78
Site 4	-	-	-	-	17.05	32.44	5.30	19.39	17.02	18.66	0.75	17.87

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.
Standard Deviations not included for ISFSI TLDs as ISFSI dose rates increase over time with additional spent fuel storage.

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

Results in mR per Year

	Pre-Operational				1984-2007 Operational				2008
Station	Min	Max	Std Dev	MEAN	Min	Max	Std Dev	MEAN	Result
1	85.37	98.66	9.39	92.02	73.00	102.20	7.34	83.81	77.36
2	83.44	84.53	0.77	83.99	73.00	98.19	6.45	82.22	82.39
3	81.94	85.74	2.68	83.84	70.99	94.17	6.74	78.37	76.55
4	74.46	100.52	18.43	87.49	65.70	87.24	5.81	74.76	74.16
5	81.29	93.62	8.72	87.45	68.62	88.33	5.64	76.07	71.50
6	79.79	83.95	2.94	81.87	69.35	90.52	6.25	76.38	73.70
7	84.28	86.61	1.65	85.45	71.58	97.09	6.41	80.71	81.19
8	94.61	98.62	2.84	96.62	80.34	108.04	7.76	89.93	90.85
9	78.00	81.58	2.53	79.79	68.99	91.98	5.90	75.51	77.60
10	82.02	86.72	3.33	84.37	69.35	93.81	5.25	79.84	82.95
11	83.04	88.26	3.69	85.65	73.00	99.28	6.80	81.89	82.35
12	92.27	94.17	1.34	93.22	80.30	102.57	5.62	87.76	87.54
13	85.41	88.00	1.83	86.71	76.65	97.46	5.91	82.88	80.43
14	84.50	86.25	1.24	85.37	69.35	97.09	6.57	81.48	76.18
15	83.95	94.83	7.69	89.39	76.65	104.03	7.53	88.09	86.82
16	89.61	91.83	1.57	90.72	76.65	101.47	6.72	84.71	81.85
17	85.59	91.47	4.16	88.53	76.65	101.84	6.63	85.69	84.75
18	86.51	97.64	7.87	92.07	76.65	101.47	6.31	85.41	86.88
19	-	-	-	85.63	76.65	104.03	6.20	84.64	84.82
20	85.41	90.05	3.28	87.73	74.78	101.84	6.74	83.82	79.25
21	79.72	84.24	3.20	81.98	69.35	91.25	6.04	76.91	79.02
22	84.79	88.07	2.32	86.43	74.98	97.09	6.48	82.28	79.59
23	83.55	87.09	2.50	85.32	72.65	94.90	6.57	80.15	77.92
24	85.26	87.97	1.91	86.61	74.28	100.01	7.24	82.66	77.16
25	90.56	95.37	3.41	92.97	76.65	104.03	7.55	87.72	82.93
40	-	-	-	76.54	68.08	91.25	6.24	75.65	70.45
41	94.90	97.46	1.81	96.18	75.19	102.20	8.27	85.36	80.81
42	-	-	-	85.81	75.92	104.03	7.74	83.44	82.24
43	-	-	-	88.22	71.18	107.68	9.73	84.38	79.87
44	83.48	89.53	4.28	86.51	71.91	94.17	6.73	79.47	76.11
45	82.53	86.10	2.53	84.32	72.64	96.36	5.95	80.78	76.56
46	102.42	107.53	3.61	104.97	94.90	123.37	7.76	102.77	103.31
47	-	-	-	80.45	69.35	95.27	6.75	78.21	77.22
49	-	-	-	-	76.65	100.74	6.37	82.78	84.11
50	-	-	-	-	73.00	100.01	7.48	81.39	78.65
51	-	-	-	-	72.11	97.46	6.78	80.40	74.69
53	-	-	-	-	77.75	104.03	6.99	90.03	85.31
54	-	-	-	-	75.83	100.38	7.28	84.99	78.89
55	-	-	-	-	72.97	96.36	6.22	80.35	78.03
56	-	-	-	-	71.18	101.47	6.83	83.90	86.18
65	-	-	-	-	71.25	86.51	4.51	75.42	76.23

TABLE 5-4 (cont)
ANNUAL TLD DATA SUMMARY WITH COMPARISION TO PREOPERATIONAL AND OPERATIONAL PERIODS

Results in mR/Standard Quarter

	Pre-Operational				1984-2007 Operational				2008
Station	Min	Max	Std Dev	MEAN	Min	Max	Std Dev	MEAN	Result
71(1S)	-	-	-	88.04	83.95	112.06	7.16	96.97	108.38
72(2S)	-	-	-	91.54	83.95	110.96	6.89	93.71	93.84
73(3S)	-	-	-	83.69	73.00	94.90	6.03	80.38	80.29
74(4S)	-	-	-	88.99	80.30	106.22	6.36	89.81	89.75
75(5S)	-	-	-	86.32	73.00	100.74	6.66	84.40	86.47
76(6S)	-	-	-	88.26	76.65	101.47	5.61	84.52	85.19
77(7S)	-	-	-	89.90	73.00	99.28	6.11	83.86	84.54
78(8S)	-	-	-	89.94	73.00	97.71	6.53	82.64	82.36
79(9S)	-	-	-	91.98	73.00	101.11	6.29	83.21	78.02
80(10S)	-	-	-	85.30	69.42	97.09	7.03	80.66	77.08
81(11S)	-	-	-	82.67	72.19	96.36	6.85	81.04	77.27
82(12S)	-	-	-	89.79	74.83	101.47	7.00	85.04	80.93
83(13S)	-	-	-	91.10	76.65	99.65	6.83	86.25	84.52
84(14S)	-	-	-	84.06	76.03	99.28	6.44	84.74	83.31
85(15S)	-	-	-	92.13	80.30	105.85	6.12	89.72	89.38
86(16S)	-	-	-	87.82	87.60	112.79	7.87	99.08	119.82
119B	-	-	-	-	75.92	107.68	9.35	82.95	81.13
119Ctrl	-	-	-	-	77.75	101.84	7.39	85.17	87.44
120East	-	-	-	-	78.11	112.79	10.53	87.54	89.17
121 (ISFSI)	-	-	-	-	177.76	377.80	-	298.03	366.31
122 (ISFSI)	-	-	-	-	76.29	144.07	-	106.87	164.53
123 (ISFSI)	-	-	-	-	126.22	567.27	-	412.90	627.95
124 (ISFSI)	-	-	-	-	128.66	700.28	-	498.61	714.20
125 (ISFSI)	-	-	-	-	119.59	499.10	-	360.32	520.11
126 (ISFSI)	-	-	-	-	123.06	288.46	-	234.00	482.43
127 (ISFSI)	-	-	-	-	120.60	235.81	-	198.86	350.83
128 (ISFSI)	-	-	-	-	112.96	302.81	-	236.92	596.87
129 (ISFSI)	-	-	-	-	121.78	244.35	-	202.84	463.59
136A (ISFSI)	-	-	-	-	119.31	237.05	-	192.73	637.58
137A (ISFSI)	-	-	-	-	124.36	262.61	-	205.46	734.29
138A (ISFSI)	-	-	-	-	122.70	243.27	-	182.14	577.56
Site 1	-	-	-	-	68.59	70.18	1.12	69.38	73.97
Site 4	-	-	-	-	46.44	68.05	15.28	57.25	68.26

Table 5-4 Notes:

The preoperational period was from 1982-1983. Only one annual preoperational exchange was made at some locations.

Stations 49-56 were first monitored during the Fourth Quarter of 1983.

Stations 65 was added in 1997.

Stations 119B, 119Ctrl, and 120 were added in 1995.

Stations 121 and 122 were added in 1998 to gather baseline data for the ISFSI.

Stations 123-129 and 136A-138A were added in the 2nd Quarter of 2002.

Stations Site 1 and 4 were added in 2006

Standard Deviations not included for ISFSI TLDs as ISFSI dose rates increase over time with additional spent fuel storage.

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[4] and 10 CFR 50 Appendix B[10]. The contractors used for sample analysis, Energy Northwest Environmental Services and Battelle PNNL, maintain quality control programs to ensure that analytical results are accurate, precise, and defensible. The Energy Northwest Quality Department performs audits of the REMP records and activities biennially. The following sections summarize the quality assurance and quality control aspects of the TLD, sample collection, and sample analysis components of the REMP.

6.1 Quality Control for the Energy Northwest Environmental TLD Program

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

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

Reader QC dosimeters are prepared by Battelle at the Pacific Northwest National Laboratory and serve as indicators that the reader calibration is satisfactory and that the TLDs were processed correctly. These TLDs are annealed and then given a known exposure (typically 100 mR) to a cesium-137 source. The number of QC dosimeters used during each processing is generally 10% of the number of field dosimeters. Evaluation of the 2008 reader QC dosimeter results indicated satisfactory agreement for all four quarters and the annual processing results.

Spiked TLDs are submitted by Energy Northwest for processing along with the environmental TLDs. The processing results from these QA TLDs are used to demonstrate reader performance during environmental TLD processing. Quarterly spikes receive a target exposure of 22 mR and annual spikes receive a target exposure of 88 mR. The spiked dosimeters are processed with the field dosimeters to verify the accuracy and consistency of the environmental TLD evaluations. Results were on average -0.85% of the known exposure rate. Results are listed in Table 6-1.

6.2 Quality Control for the Environmental Sample Program

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

6.2.1 Sample Collection Quality Control

Duplicate samples are routinely collected and submitted for analysis. 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

Laboratory Sample Preparations - Analytical balances used in the laboratory for sample preparations are calibrated every six months. Daily checks are performed prior to use on all analytical balances; these checks are documented on sample preparation forms and span the range of intended use when checked.

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

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

6.3 Sample Batch Quality Control

Sample batches are analyzed along with sample blanks and known-addition samples (or spiked samples) as appropriate, and as dictated by the sample type, primary analytes of interest, and method being used. The following is a summary of sample batch QC activities.

Iodine-131 Cartridges - At least one blank charcoal cartridge was analyzed with each batch of samples assayed. At least one known-addition sample was analyzed with each batch. For the known-addition samples, the 356 keV peak of Ba-133 was evaluated as a proxy for I-131.

Gross Beta Filters - One or more blank filters were measured with each set of filters assayed. At least one unused blank AP filter and at least one known-addition AP filter (or spiked laboratory control sample) was analyzed with each batch.

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

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

Tritium in Water - Blank and low level known addition samples were measured with each batch. At least one replicate sample was prepared and analyzed inside of each batch.

6.4 Laboratory Intercomparison Program Participation

Participation in laboratory intercomparison studies is mandatory for all laboratories performing analyses of CGS REMP samples. Intercomparison studies provide a consistent and effective means to evaluate laboratory performance on sample analyses. Results from studies should fall within the control limits specified for the study or corrective actions should be performed.

Energy Northwest participated in the following intercomparison programs in 2008:

- Analytics, Inc. Cross Check Program
- Environmental Resource Associates (ERA) MRAD and RadCheM Proficiency Programs
- Department of Energy Mixed Analyte Performance Evaluation Program (MAPEP)

The results of Energy Northwest Environmental Services participation in intercomparison studies done in 2008 are shown in Table 6-2. Participation in the ERA and Analytics programs serves to meet the intercomparision program requirements specified in the ODCM. Participation in the MAPEP program is supplemental.

In addition to the programs 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.

6.5 Problems Identified by Laboratory Quality Control Program

Results of the Fall 2008 ERA (MRAD 75) I-131 in milk QC analysis were outside the ERA acceptance range on one of the detectors with results of the second detector biased low but within the acceptance range. Investigation revealed that there was a difference in the standard and sample resin heights used in this analysis which had the effect of biasing results low. New efficiency calibration files were developed using standards with the same resin height as the samples. Re-analysis of the MRAD 75 I-131 spectrums with the new calibration files gave results within the acceptance range for both detectors. 100% recovery of the I-131 is probably not achieved by the extraction process used, however no corrections are made for less than full recovery. Review of 2008 results showed all but one of the I-131 in milk samples were analyzed on the second detector where QC results were always within the acceptance range. This QC analysis will be performed twice in 2009 to ensure acceptable performance is maintained.

TABLE 6-1
2008 ENVIRONMENTAL SPIKED DOSIMETER RESULTS

DISTRIBUTION PERIOD	GIVEN EXPOSURE (mR)	REPORTED EXPOSURE (mR)	BIAS (%)
First Quarter	22	21.88	-0.57%
		20.99	-4.58%
		21.88	-0.56%
		22.09	0.39%
		22.52	2.36%
		22.48	2.19%
Second Quarter	22	20.67	-6.07%
		21.35	-2.95%
		20.24	-8.01%
		21.50	-2.28%
		21.45	-2.51%
		21.12	-3.98%
Third Quarter	22	21.5	-2.26%
		20.87	-5.12%
		21.55	2.03%
		22.21	0.97%
		23.00	4.57%
		22.27	1.22%
Fourth Quarter	22	21.36	-2.91%
		22.01	0.04%
		21.20	-3.63%
		22.43	1.96%
		22.58	2.65%
		21.99	-0.05%
Annual	88	89.88	-2.13%
		87.75	0.29%
		85.93	2.35%
		87.20	0.91%
		88.54	-0.61%
		87.21	0.90%

TABLE 6-2
ENW REMP PROGRAM CROSS CHECKS PERFORMANCE RESULTS

ERA MRAD- 008 Results Spring 2008					
Standard/Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation
Air Filter Radionuclides					
Americium-241	pCi/Filter	50.6	50.1	29.3 - 68.7	Acceptable
Cesium-134	pCi/Filter	488	523	341 - 647	Acceptable
Cesium-137	pCi/Filter	1600	1450	1090 - 1900	Acceptable
Cobalt-60	pCi/Filter	754	730	565 - 912	Acceptable
Manganese-54	pCi/Filter	< 10	0		Acceptable
Zinc-65	pCi/Filter	989	872	604 - 1210	Acceptable
Air Filter Gross Alpha/Beta					
Gross Alpha	pCi/Filter	10.4	8.8	4.56 - 13.2	Acceptable
Gross Beta	pCi/Filter	89.1	92.2	56.8 - 135	Acceptable
Water Radionuclides					
Americium-241	pCi/L	97	90.9	62.0 - 124	Acceptable
Cesium-134	pCi/L	680	751	555 - 862	Acceptable
Cesium-137	pCi/L	2020	1990	1690 - 2380	Acceptable
Cobalt-60	pCi/L	1410	1420	1240 - 1680	Acceptable
Manganese-54	pCi/L	< 17	0		Acceptable
Zinc-65	pCi/L	729	694	588 - 865	Acceptable
Water Gross Alpha/Beta					
Gross Alpha	pCi/L	121	157	69.7 - 233	Acceptable
Gross Beta	pCi/L	90	122	71.4 - 179	Acceptable
Water Tritium					
Tritium	pCi/L	25755	25800	16800 - 38100	Acceptable
Soil Radionuclides					
Actinium-228	pCi/kg	1060	1180	757 - 1660	Acceptable
Americium-241	pCi/kg	1210	1230	735 - 1580	Acceptable
Bismuth-212	pCi/kg	845	1360	357 - 2030	Acceptable
Bismuth-214	pCi/kg	1890	1790	1100 - 2570	Acceptable
Cesium-134	pCi/kg	4930	5640	3630 - 6790	Acceptable
Cesium-137	pCi/kg	5720	6010	4600 - 7810	Acceptable
Cobalt-60	pCi/kg	4820	5130	3730 - 6890	Acceptable
Lead-212	pCi/kg	1010	1080	697 - 1520	Acceptable
Lead-214	pCi/kg	2030	2020	1210 - 3010	Acceptable
Manganese-54	pCi/kg	< 50	0		Acceptable
Potassium-40	pCi/kg	9560	11000	7980 - 14900	Acceptable
Zinc-65	pCi/kg	2610	2660	2110 - 3570	Acceptable
Vegetation Radionuclides					
Americium-241	pCi/kg	1220	1260	718 - 1730	Acceptable
Cesium-134	pCi/kg	1310	1540	882 - 2130	Acceptable
Cesium-137	pCi/kg	1100	1100	807 - 1530	Acceptable
Cobalt-60	pCi/kg	880	888	600 - 1280	Acceptable
Manganese-54	pCi/kg	< 30	0		Acceptable
Potassium-40	pCi/kg	20000	24600	17700 - 34800	Acceptable
Zinc-65	pCi/kg	1500	1430	1030 - 1960	Acceptable
Americium-241	pCi/kg	1220	1260	718 - 1730	Acceptable

TABLE 6-2
ENW REMP PROGRAM CROSS CHECKS PERFORMANCE RESULTS

ERA MRAD-009 Results Fall 2008					
Standard/Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation
Air Filter Radionuclides					
Americium-241	pCi/Filter	76.6	67.3	39.4 - 92.3	Acceptable
Cesium-134	pCi/Filter	634	623	406 - 771	Acceptable
Cesium-137	pCi/Filter	822	761	572 - 1000	Acceptable
Cobalt-60	pCi/Filter	455	425	329 - 531	Acceptable
Manganese-54	pCi/Filter	< 6	0		Acceptable
Zinc-65	pCi/Filter	526	452	313 - 626	Acceptable
Air Filter Gross Alpha/Beta					
Gross Alpha	pCi/Filter	21	20.8	11.6 - 36.6	Acceptable
Gross Beta	pCi/Filter	33.3	36.2	22.3 - 52.9	Acceptable
Water Radionuclides					
Americium-241	pCi/L	172	161	110 - 220	Acceptable
Cesium-134	pCi/L	1110	1240	916 - 1420	Acceptable
Cesium-137	pCi/L	1280	1270	1080 - 1520	Acceptable
Cobalt-60	pCi/L	1120	1130	984 - 1340	Acceptable
Manganese-54	pCi/L	< 16	0		Acceptable
Zinc-65	pCi/L	1040	987	836 - 1230	Acceptable
Water Gross Alpha/Beta					
Gross Alpha	pCi/L	59.1	75.3	33.4 - 112	Acceptable
Gross Beta	pCi/L	47.1	62.9	36.8 - 92.3	Acceptable
Water Tritium					
Tritium	pCi/L	27874	28800	18800 - 42600	Acceptable
Soil Radionuclides					
Actinium-228	pCi/kg	1100	1320	846 - 1860	Acceptable
Americium-241	pCi/kg	832	1050	627 - 1350	Acceptable
Bismuth-212	pCi/kg	656	1540	404 - 2300	Acceptable
Bismuth-214	pCi/kg	850	851	522 - 1220	Acceptable
Cesium-134	pCi/kg	3060	3470	2230 - 4180	Acceptable
Cesium-137	pCi/kg	5010	5390	4120 - 7000	Acceptable
Cobalt-60	pCi/kg	5540	6040	4390 - 8110	Acceptable
Lead-212	pCi/kg	1030	1520	980 - 2140	Acceptable
Lead-214	pCi/kg	896	948	568 - 1410	Acceptable
Manganese-54	pCi/kg	< 76	0		Acceptable
Potassium-40	pCi/kg	9440	11100	8050 - 15000	Acceptable
Zinc-65	pCi/kg	2310	2450	1940 - 3290	Acceptable
Vegetation Radionuclides					
Americium-241	pCi/kg	2720	2790	1590 - 3830	Acceptable
Cesium-134	pCi/kg	675	761	436 - 1050	Acceptable
Cesium-137	pCi/kg	529	525	385 - 729	Acceptable
Cobalt-60	pCi/kg	455	455	308 - 654	Acceptable
Manganese-54	pCi/kg	< 22	0		Acceptable
Potassium-40	pCi/kg	33400	34000	24400 - 48200	Acceptable
Zinc-65	pCi/kg	1280	1260	910 - 1720	Acceptable

TABLE 6-2
ENW REMP PROGRAM CROSS CHECKS PERFORMANCE RESULTS

2008 Analytics Crosscheck Results I-131 Charcoal Cartridge						
Sample ID	Analysis	Units	Result	Ref Value	Flag	(%) Bias
E5831-723	I-131	pCi	57.1	59.7	Accept	-4.4%
A22900-88	I-131	uCi	0.767	0.797	Accept	-3.8%

ERA MRAD-75 Results Fall 2008 I-131 In Milk							
Analyte	Units	Detector	Ref Value	Initial result	Re-analyzed Results	Acceptance Range	
I-131	pCi/l	#1	28.1	23.6	26.0	23.4	33.0
I-131	pCi/l	#2	28.1	21.7	23.6	23.4	33.0
Note: See section 6.5 for discussion of results							

TABLE 6-2
ENW REMP PROGRAM CROSS CHECKS PERFORMANCE RESULTS

MAPEP Series 18 Results Spring 2008

MAPEP-07-MaW18: **Radiological Water Standard** Units: (Bq/L)

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range	
Cesium-134	-0.02		Accept			
Cesium-137	-0.02		Accept			
Cobalt-57	22.5	22.8	Accept	-1.3	16	29.6
Cobalt-60	8.4	8.4	Accept	0	5.88	10.92
Hydrogen-3	496	472	Accept	5.1	330	614
Manganese-54	12.7	12.1	Accept	5	8.5	15.7
Zinc-65	16.8	16.3	Accept	3.1	11.4	21.2

MAPEP-07-GrF18: **Gross Alpha/Beta Air Filter** Units: Bq/sample

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range	
Gross alpha	0.105	0.348	Accept	-69.8	>0.0	0.696
Gross beta	0.242	0.286	Accept	-15.4	0.143	0.429

MAPEP-07-RdF18: **Radiological Air Filter** Units: Bq/sample

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range	
Cesium-134	2.23	2.52	Accept	-11.5	1.76	3.28
Cesium-137	2.71	2.7	Accept	0.4	1.89	3.51
Cobalt-57	3.58	3.55	Accept	0.8	2.49	4.62
Cobalt-60	1.4	1.31	Accept	6.9	0.92	1.7
Manganese-54	0.005		Accept			
Zinc-65	2.26	2.04	Accept	10.8	1.43	2.65

MAPEP-07-GrW18: **Gross Alpha/Beta Water** Units: Bq/L

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range	
Gross alpha	1.0	1.40	Accept	-28.5	>0.0	2.798
Gross beta	3.0	2.43	Accept	23.5	1.22	3.65

MAPEP-07-MaS18: **Radiological Soil Standard** Units: Bq/kg

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range	
Americium-241	104	127.2	Accept	-18.2	89	165.4
Cesium-134	779.1	854	Accept	-8.8	598	1110
Cesium-137	568	545	Accept	4.2	382	709
Cobalt-57	417.1	421	Accept	-0.9	295	547
Cobalt-60	3.0	2.9	Accept	N/A	N/A	N/A
Manganese-54	594.8	570	Accept	4.4	399	741
Potassium-40	646.2	571	Accept	13.2	400	742
Zinc-65	-0.2		Accept			

TABLE 6-2
ENW REMP PROGRAM CROSS CHECKS PERFORMANCE RESULTS

MAPEP Series 19 Results Fall 2008

MAPEP-08-MaW19: **Radiological Water Standard** Units: (Bq/L)

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range	
Americium-241	0.14		Accept			
Cesium-134	17.1	19.5	Accept	-12.3	13.7	25.4
Cesium-137	24.5	23.6	Accept	3.8	16.5	30.7
Cobalt-57	0.01		Accept			
Cobalt-60	11.6	11.6	Accept	0	8.1	15.1
Hydrogen-3	340.4	341	Accept	-0.2	239	443
Manganese-54	14.65	13.7	Accept	6.9	9.6	17.8
Zinc-65	19.23	17.1	Accept	12.5	12	22.2

MAPEP-08-GrF19: **Gross Alpha/Beta Air Filter** Units: Bq/sample

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range	
Gross alpha	0.003		Accept			
Gross beta	0.48	0.525	Accept	-8.6	0.263	0.788

MAPEP-08-RdF19: **Radiological Air Filter** Units: Bq/sample

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range	
Americium-241	0.11		Accept			
Cesium-134	2.07	2.63	Accept,W	-21.3	1.84	3.42
Cesium-137	-0.08		Accept			
Cobalt-57	1.44	1.5	Accept	-4	1.05	1.95
Cobalt-60	0.04		Accept			
Manganese-54	2.84	2.64	Accept	7.6	1.85	3.43
Zinc-65	1	0.94	Accept	6.4	0.66	1.22

MAPEP-08-GrW19: **Gross Alpha/Beta Water** Units: Bq/L

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range
Gross alpha	0.082	0.56	Accept		
Gross beta	0.049	1.85	Accept		

MAPEP-08-MaS19: **Radiological Soil Standard** Units: Bq/kg

Analyte	Result	Ref Value	Flag	(%) Bias	Acceptance Range	
Americium-241	57.5	69.1	Accept	-16.8	48.4	89.8
Cesium-134	537	581	Accept	-7.7	407	755
Cesium-137	1.3	2.8	Accept	N/A	N/A	N/A
Cobalt-57	331	333	Accept	-0.6	233	433
Cobalt-60	148	145	Accept	1.7	102	189
Manganese-54	417	415	Accept	0.4	291	540
Potassium-40	892	570	No	56.4	399	741
Zinc-65	-1.9		Accept			

Notes: K-40 result biased high due to presence of K-40 in filler material. OK

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7.0 REFERENCES

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8.0 ERRATA

8.0 ERRATA

Revisions to the Columbia Generating Stations 2007 Annual Radiological Environmental Monitoring Report are listed below.

In Table 6.2, ENW REMP Program Cross Check Performance Results, the following information was not included in the 2007 report as final results had not been received back from the QC supplier in time to include in the report.

2007 Analytics Crosscheck Results I-131 Charcoal Cartridge						
Sample ID	**Analysis**	**Units**	**Result**	**Ref Value**	**Flag**	**(%) Bias**
CC A21892-88	I-131	uCi	0.568	0.566	Accept	0.35%

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APPENDIX A

2008 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT COLUMBIA GENERATING STATION

DATA TABLES A and B

Covers Sample Collection Period January 2008 to December 2008

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Prepared by:

Energy Northwest - Environmental Services Staff
Richland, WA

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FORWARD

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

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

Also included in most case 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

2008 QUARTERLY & ANNUAL TLD RESULTS

Results in milli-Roentgen (mR)

Station ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Quarterly Sum	Annual TLD Result	Ratio Quarterly Sum / Annual
1	20.03	20.88	21.17	21.85	83.93	77.36	1.08
2	21.39	19.36	21.57	19.90	82.22	82.39	1.00
3	20.17	19.13	20.11	19.71	79.11	76.55	1.03
4	17.49	19.31	17.89	19.97	74.67	74.16	1.01
5	19.53	17.85	18.98	18.64	75.00	71.50	1.05
6	18.51	18.52	19.03	19.28	75.34	73.70	1.02
7	19.11	18.67	19.85	19.43	77.06	81.19	0.95
8	21.95	21.92	22.98	22.37	89.22	90.85	0.98
9	16.90	18.36	19.23	19.46	73.94	77.60	0.95
10	18.52	20.05	18.95	21.15	78.67	82.95	0.95
11	20.15	21.07	20.57	22.13	83.91	82.35	1.02
12	20.49	22.82	21.46	23.69	88.46	87.54	1.01
13	18.98	19.80	19.58	20.44	78.81	80.43	0.98
14	19.46	20.12	20.58	20.67	80.84	76.18	1.06
15	20.80	21.96	21.92	23.30	87.98	86.82	1.01
16	19.34	20.35	20.72	21.24	81.65	81.85	1.00
17	20.86	21.69	22.44	22.54	87.53	84.75	1.03
18	19.84	21.25	20.81	21.72	83.62	86.88	0.96
19	19.74	21.93	21.26	22.40	85.33	84.82	1.01
20	19.82	19.44	21.68	20.80	81.74	79.25	1.03
21	18.81	19.36	19.33	20.47	77.97	79.02	0.99
22	20.16	21.64	21.05	22.01	84.86	79.59	1.07
23	19.63	19.15	20.38	19.70	78.86	77.92	1.01
24	19.48	21.28	19.72	21.98	82.45	77.16	1.07
25	20.45	20.98	21.67	22.02	85.12	82.93	1.03
40	17.87	18.87	17.30	19.96	74.00	70.45	1.05
41	20.48	21.84	19.95	22.16	84.43	80.81	1.04
42	21.24	19.97	20.95	20.54	82.71	82.24	1.01
43	20.82	22.14	21.12	22.54	86.62	79.87	1.08
44	17.91	20.21	18.13	20.85	77.09	76.11	1.01
45	19.02	20.25	18.99	21.05	79.30	76.56	1.04
46	22.99	26.63	24.86	27.64	102.13	103.31	0.99
47	18.69	19.34	19.07	20.38	77.48	77.22	1.00
49	20.33	21.74	20.65	23.36	86.08	84.11	1.02
50	20.45	21.08	19.60	21.22	82.36	78.65	1.05
51	18.92	20.22	19.65	20.84	79.63	74.69	1.07
53	22.10	22.14	22.19	21.80	88.22	85.31	1.03
54	18.75	20.99	19.09	21.89	80.72	78.89	1.02
55	19.70	21.08	19.73	22.10	82.61	78.03	1.06
56	19.56	21.71	19.38	21.97	82.62	86.18	0.96
65	18.74	19.40	18.55	20.70	77.39	76.23	1.02

1st Q 12/28/07 to 3/28/08 - 2nd Q 3/28/08 to 6/27/08 - 3rd Q 6/27/08 to 9/25/08 - 4th Q 9/25/08 to 12/30/08

TABLE A-1.1

2008 QUARTERLY & ANNUAL TLD RESULTS

Results in milli-Roentgen (mR)

Station ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Quarterly Sum	Annual TLD Result	Ratio Quarterly Sum / Annual
71	23.97	25.90	25.15	27.816	102.84	108.38	0.95
72	23.14	23.79	24.08	24.263	95.28	93.84	1.02
73	19.36	20.13	20.56	21.373	81.42	80.29	1.01
74	21.07	22.03	22.37	22.671	88.15	89.75	0.98
75	19.70	22.43	21.05	22.277	85.45	86.47	0.99
76	21.35	20.17	21.95	20.741	84.21	85.19	0.99
77	20.28	21.09	21.18	21.652	84.20	84.54	1.00
78	19.22	21.63	19.62	22.094	82.56	82.36	1.00
79	19.68	21.14	20.65	21.574	83.05	78.02	1.06
80	18.35	19.29	19.76	20.109	77.51	77.08	1.01
81	19.47	20.69	20.33	21.520	82.00	77.27	1.06
82	20.10	21.23	21.32	22.395	85.04	80.93	1.05
83	20.12	19.93	21.21	21.580	82.85	84.52	0.98
84	20.22	20.93	20.88	21.740	83.77	83.31	1.01
85	20.43	22.57	21.42	24.103	88.53	89.38	0.99
86	26.79	30.49	29.42	31.280	117.98	119.82	0.98

TABLE A-1.2

2008 QUARTERLY & ANNUAL TLD RESULTS- SUMMARY

Results in milli-Roentgen (mR)

Location	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
Quarterly Indicator TLDs	20.95	17.30	31.28	224	224
Quarterly Control TLDs	18.48	16.90	19.46	4	4
Annual Indicator TLDs	82.64	70.45	119.82	56	56
Annual Control TLDs	77.60	77.60	77.60	1	1

Table A-2.1

GROSS BETA ON AIR PARTICULATE FILTERS

Results in pCi per Cubic Meter

Collection Period	Station 01 Result		Error	Station 04 Result		Error	Station 05 Result		Error
01/01/08 - 01/08/08	1.20E-02	±	6.38E-04	1.15E-02	±	6.25E-04	1.14E-02	±	6.19E-04
01/08/08 - 01/14/08	5.69E-03	±	4.73E-04	4.77E-03	±	4.35E-04	4.91E-03	±	4.42E-04
01/14/08 - 01/22/08	1.67E-02	±	7.05E-04	2.05E-02	±	7.85E-04	1.50E-02	±	6.68E-04
01/22/08 - 01/29/08	5.63E-02	±	1.34E-03	5.54E-02	±	1.32E-03	4.41E-02	±	1.17E-03
01/29/08 - 02/05/08	3.73E-03	±	3.56E-04	4.01E-03	±	3.70E-04	3.64E-03	±	3.51E-04
02/05/08 - 02/12/08	3.61E-03	±	3.56E-04	4.64E-03	±	3.99E-04	4.94E-03	±	4.09E-04
02/12/08 - 02/19/08	1.15E-02	±	6.25E-04	1.29E-02	±	6.65E-04	8.55E-03	±	5.39E-04
02/19/08 - 02/26/08	4.65E-02	±	1.28E-03	4.52E-02	±	1.26E-03	3.54E-02	±	1.11E-03
02/26/08 - 03/04/08	1.63E-02	±	7.45E-04	1.56E-03	±	7.28E-04	1.23E-02	±	6.44E-04
03/04/08 - 03/11/08	1.35E-02	±	6.79E-04	1.38E-02	±	6.88E-04	1.06E-02	±	6.03E-04
03/11/08 - 03/18/08	7.02E-03	±	4.86E-04	7.58E-03	±	5.07E-04	5.96E-03	±	4.47E-04
03/18/08 - 03/25/08	9.81E-03	±	5.76E-04	1.14E-02	±	6.22E-04	8.79E-03	±	5.47E-04
03/25/08 - 04/01/08	7.23E-03	±	4.94E-04	8.37E-03	±	5.34E-04	6.25E-03	±	4.65E-04
04/01/08 - 04/08/08	8.80E-03	±	5.46E-04	7.71E-03	±	5.13E-04	5.62E-03	±	4.37E-04
04/08/08 - 04/15/08	1.03E-02	±	5.92E-04	1.42E-02	±	6.96E-04	1.02E-02	±	5.92E-04
04/15/08 - 04/22/08	8.05E-03	±	5.26E-04	1.03E-02	±	5.94E-04	7.92E-03	±	5.20E-04
04/22/08 - 04/29/08	1.56E-02	±	7.32E-04	1.79E-02	±	7.83E-04	1.70E-02	±	7.67E-04
04/29/08 - 05/06/08	1.09E-02	±	6.10E-04	1.34E-02	±	6.78E-04	1.27E-02	±	6.55E-04
05/06/08 - 05/13/08	1.02E-02	±	5.88E-04	1.14E-02	±	6.28E-04	1.04E-02	±	5.98E-04
05/13/08 - 05/20/08	8.62E-03	±	6.04E-04	1.14E-02	±	6.72E-04	8.81E-03	±	6.05E-04
05/20/08 - 05/27/08	3.97E-03	±	4.61E-04	4.39E-03	±	4.74E-04	3.52E-03	±	4.44E-04
05/27/08 - 06/03/08	1.00E-02	±	6.32E-04	1.45E-02	±	7.44E-04	1.03E-02	±	6.42E-04
06/03/08 - 06/10/08	3.21E-03	±	4.18E-04	3.56E-03	±	4.32E-04	4.13E-03	±	4.55E-04
06/10/08 - 06/17/08	8.50E-03	±	6.00E-04	1.10E-02	±	6.65E-04	8.88E-03	±	6.07E-04
06/17/08 - 06/24/08	1.17E-02	±	6.92E-04	1.26E-02	±	7.18E-04	1.13E-02	±	6.84E-04
06/24/08 - 07/01/08	7.76E-03	±	5.80E-04	1.16E-02	±	6.82E-04	9.40E-03	±	6.28E-04
07/01/08 - 07/08/08	1.16E-02	±	6.66E-04	1.27E-02	±	6.96E-04	1.22E-02	±	6.86E-04
07/08/08 - 07/15/08	9.09E-03	±	6.18E-04	1.20E-02	±	6.95E-04	1.05E-02	±	6.53E-04
07/15/08 - 07/22/08	1.29E-02	±	7.02E-04	1.40E-02	±	7.27E-04	1.46E-02	±	7.43E-04
07/22/08 - 07/29/08	8.58E-03	±	5.93E-04	1.04E-02	±	6.47E-04	1.13E-02	±	6.68E-04
07/29/08 - 08/05/08	5.77E-03	±	5.04E-04	9.88E-03	±	6.24E-04	7.09E-03	±	5.44E-04
08/05/08 - 08/12/08	1.23E-02	±	6.97E-04	1.76E-02	±	8.22E-04	1.35E-02	±	7.30E-04
08/12/08 - 08/19/08	1.17E-02	±	6.72E-04	1.58E-02	±	7.71E-04	1.47E-02	±	7.41E-04
08/19/08 - 08/26/08	4.09E-03	±	4.53E-04	7.70E-03	±	5.72E-04	4.86E-03	±	4.83E-04
08/26/08 - 09/02/08	5.55E-03	±	5.13E-04	8.07E-03	±	6.00E-04	5.49E-03	±	5.19E-04
09/02/08 - 09/09/08	1.13E-02	±	7.52E-04	1.42E-02	±	7.44E-04	1.16E-02	±	6.80E-04
09/09/08 - 09/16/08	1.82E-02	±	8.31E-04	1.79E-02	±	8.28E-04	1.81E-02	±	8.29E-04
09/16/08 - 09/23/08	3.25E-02	±	1.11E-03	2.95E-02	±	1.06E-03	2.74E-02	±	1.02E-03
09/23/08 - 09/30/08	1.64E-02	±	7.97E-04	1.52E-02	±	7.72E-04	1.38E-02	±	7.38E-04
09/30/08 - 10/07/08	2.64E-02	±	1.00E-03	2.22E-02	±	9.21E-04	2.18E-02	±	9.10E-04
10/07/08 - 10/14/08	1.26E-02	±	7.03E-04	1.07E-02	±	6.56E-04	1.26E-02	±	7.04E-04
10/14/08 - 10/21/08	2.16E-02	±	9.18E-04	1.64E-02	±	8.08E-04	1.65E-02	±	8.11E-04
10/21/08 - 10/28/08	2.30E-02	±	9.34E-04	2.07E-02	±	8.83E-04	2.22E-02	±	9.13E-04
10/28/08 - 11/04/08	6.22E-02	±	1.56E-03	5.11E-02	±	1.41E-03	5.28E-02	±	1.43E-03
11/04/08 - 11/11/08	1.34E-02	±	7.31E-04	1.02E-02	±	6.50E-04	1.15E-02	±	6.81E-04
11/11/08 - 11/18/08	2.37E-02	±	9.46E-04	2.19E-02	±	9.10E-04	2.12E-02	±	8.96E-04
11/18/08 - 11/25/08	3.09E-02	±	1.08E-03	2.78E-02	±	1.02E-03	2.84E-02	±	1.04E-03
11/25/08 - 12/02/08	5.36E-02	±	1.43E-03	4.14E-02	±	1.25E-03	4.23E-02	±	1.26E-03
12/02/08 - 12/09/08	3.57E-02	±	1.16E-03	2.59E-02	±	9.87E-04	2.77E-02	±	1.02E-03
12/09/08 - 12/16/08	1.79E-02	±	8.46E-04	2.18E-02	±	9.25E-04	1.57E-02	±	7.98E-04
12/16/08 - 12/23/08	4.25E-02	±	1.28E-03	4.39E-02	±	1.30E-03	3.96E-02	±	1.23E-03
12/23/08 - 12/30/08	6.07E-02	±	1.54E-03	4.84E-02	±	1.36E-03	3.87E-02	±	1.21E-03

NVS = Valid sample not obtained due to sampler failure

Table A-2.1

GROSS BETA ON AIR PARTICULATE FILTERS

Results in pCi per Cubic Meter

Collection Period	Station 06 Result		Station 06 Error	Station 07 Result		Station 07 Error	Station 08 Result		Station 08 Error
01/01/08 - 01/08/08	1.43E-02	±	6.97E-04	1.29E-02	±	6.60E-04	1.30E-02	±	6.62E-04
01/08/08 - 01/14/08	7.20E-03	±	5.34E-04	5.71E-03	±	4.77E-04	5.59E-03	±	4.70E-04
01/14/08 - 01/22/08	1.75E-02	±	7.21E-04	1.87E-02	±	7.46E-04	1.60E-02	±	6.92E-04
01/22/08 - 01/29/08	4.95E-02	±	1.25E-03	4.96E-02	±	1.24E-03	4.60E-02	±	1.20E-03
01/29/08 - 02/05/08	3.10E-03	±	3.30E-04	3.99E-03	±	3.69E-04	3.39E-03	±	3.38E-04
02/05/08 - 02/12/08	3.44E-03	±	3.51E-04	3.40E-03	±	3.45E-04	4.28E-03	±	3.78E-04
02/12/08 - 02/19/08	9.98E-03	±	5.82E-04	1.12E-02	±	6.14E-04	1.02E-02	±	5.91E-04
02/19/08 - 02/26/08	4.02E-02	±	1.19E-03	4.61E-02	±	1.28E-03	4.00E-02	±	1.19E-03
02/26/08 - 03/04/08	1.33E-02	±	6.73E-04	1.65E-02	±	7.50E-04	1.32E-02	±	6.72E-04
03/04/08 - 03/11/08	1.16E-02	±	6.33E-04	1.17E-02	±	6.32E-04	1.28E-02	±	6.63E-04
03/11/08 - 03/18/08	5.28E-03	±	4.20E-04	7.35E-03	±	5.00E-04	5.56E-03	±	4.34E-04
03/18/08 - 03/25/08	9.45E-03	±	5.65E-04	9.60E-03	±	5.72E-04	9.33E-03	±	5.64E-04
03/25/08 - 04/01/08	5.97E-03	±	4.53E-04	6.59E-03	±	4.76E-04	5.96E-03	±	4.49E-04
04/01/08 - 04/08/08	8.66E-03	±	5.43E-04	8.55E-03	±	5.40E-04	8.34E-03	±	5.30E-04
04/08/08 - 04/15/08	1.27E-02	±	6.59E-04	1.22E-02	±	6.45E-04	1.24E-02	±	6.51E-04
04/15/08 - 04/22/08	8.13E-03	±	5.28E-04	8.57E-03	±	5.41E-04	8.20E-03	±	5.31E-04
04/22/08 - 04/29/08	1.51E-02	±	7.21E-04	1.67E-02	±	7.57E-04	1.55E-02	±	7.30E-04
04/29/08 - 05/06/08	1.18E-02	±	6.40E-04	1.25E-02	±	6.56E-04	1.27E-02	±	6.62E-04
05/06/08 - 05/13/08	1.22E-02	±	6.46E-04	1.18E-02	±	6.36E-04	1.22E-02	±	6.44E-04
05/13/08 - 05/20/08	8.67E-03	±	6.01E-04	1.02E-02	±	6.42E-04	9.52E-03	±	6.23E-04
05/20/08 - 05/27/08	4.05E-03	±	4.63E-04	5.04E-03	±	4.98E-04	3.73E-03	±	4.52E-04
05/27/08 - 06/03/08	1.30E-02	±	7.09E-04	1.25E-02	±	6.96E-04	1.20E-02	±	6.86E-04
06/03/08 - 06/10/08	3.63E-03	±	4.33E-04	2.49E-03	±	3.89E-04	3.41E-03	±	4.26E-04
06/10/08 - 06/17/08	1.04E-02	±	6.50E-04	8.96E-03	±	6.11E-04	8.54E-03	±	5.96E-04
06/17/08 - 06/24/08	1.22E-02	±	7.07E-04	1.22E-02	±	7.09E-04	9.52E-03	±	6.38E-04
06/24/08 - 07/01/08	9.83E-03	±	6.38E-04	7.30E-03	±	5.64E-04	9.65E-03	±	6.36E-04
07/01/08 - 07/08/08	1.40E-02	±	7.28E-04	1.34E-02	±	7.16E-04	1.13E-02	±	6.62E-04
07/08/08 - 07/15/08	1.11E-02	±	6.68E-04	1.22E-02	±	6.95E-04	9.18E-03	±	6.18E-04
07/15/08 - 07/22/08	1.42E-02	±	7.33E-04	1.46E-02	±	7.42E-04	1.26E-02	±	6.91E-04
07/22/08 - 07/29/08	9.46E-03	±	6.17E-04	1.21E-02	±	6.87E-04	9.41E-03	±	6.16E-04
07/29/08 - 08/05/08	7.76E-03	±	5.64E-04	7.88E-03	±	5.68E-04	8.48E-03	±	5.84E-04
08/05/08 - 08/12/08	1.36E-02	±	7.30E-04	1.71E-02	±	8.08E-04	1.37E-02	±	7.33E-04
08/12/08 - 08/19/08	1.49E-02	±	7.51E-04	1.67E-02	±	7.92E-04	1.48E-02	±	7.47E-04
08/19/08 - 08/26/08	6.09E-03	±	5.20E-04	5.72E-03	±	5.07E-04	7.26E-03	±	5.59E-04
08/26/08 - 09/02/08	6.50E-03	±	5.51E-04	6.53E-03	±	5.52E-04	6.72E-03	±	5.58E-04
09/02/08 - 09/09/08	1.08E-02	±	6.58E-04	1.41E-02	±	7.42E-04	1.10E-02	±	6.68E-04
09/09/08 - 09/16/08	1.65E-02	±	7.92E-04	1.83E-02	±	8.35E-04	1.84E-02	±	8.38E-04
09/16/08 - 09/23/08	2.77E-02	±	1.02E-03	2.95E-02	±	1.06E-03	2.75E-02	±	1.02E-03
09/23/08 - 09/30/08	1.28E-02	±	7.11E-04	1.63E-02	±	7.95E-04	1.50E-02	±	7.68E-04
09/30/08 - 10/07/08	2.09E-02	±	8.93E-04	2.67E-02	±	1.01E-03	2.12E-02	±	9.00E-04
10/07/08 - 10/14/08	1.26E-02	±	7.06E-04	1.08E-02	±	6.57E-04	1.06E-02	±	6.52E-04
10/14/08 - 10/21/08	2.14E-02	±	9.13E-04	1.78E-02	±	8.42E-04	1.57E-02	±	7.93E-04
10/21/08 - 10/28/08	2.31E-02	±	9.37E-04	1.90E-02	±	8.49E-04	1.93E-02	±	8.54E-04
10/28/08 - 11/04/08	5.98E-02	±	1.53E-03	5.20E-02	±	1.42E-03	4.72E-02	±	1.35E-03
11/04/08 - 11/11/08	1.36E-02	±	7.36E-04	1.30E-02	±	7.22E-04	1.14E-02	±	6.82E-04
11/11/08 - 11/18/08	2.40E-02	±	9.51E-04	2.18E-02	±	9.09E-04	2.06E-02	±	8.85E-04
11/18/08 - 11/25/08	3.05E-02	±	1.07E-03	2.36E-02	±	9.46E-04	2.68E-02	±	1.01E-03
11/25/08 - 12/02/08	5.84E-02	±	1.51E-03	4.57E-02	±	1.32E-03	3.98E-02	±	1.23E-03
12/02/08 - 12/09/08	3.12E-02	±	1.08E-03	2.99E-02	±	1.06E-03	2.51E-02	±	9.71E-04
12/09/08 - 12/16/08	1.93E-02	±	8.77E-04	1.55E-02	±	7.92E-04	1.35E-02	±	7.48E-04
12/16/08 - 12/23/08	4.58E-02	±	1.33E-03	3.64E-02	±	1.19E-03	3.75E-02	±	1.20E-03
12/23/08 - 12/30/08	5.85E-02	±	1.51E-03	6.88E-02	±	1.65E-03	5.04E-02	±	1.40E-03

NVS = Valid sample not obtained due to sampler failure

Table A-2.1

GROSS BETA ON AIR PARTICULATE FILTERS

Results in pCi per Cubic Meter

Collection Period	Station 09 Result		Station 09 Error	Station 21 Result		Station 21 Error	Station 23 Result		Station 23 Error
01/01/08 - 01/08/08	1.15E-02	±	6.22E-04	1.43E-02	±	6.96E-04	1.49E-02	±	7.12E-04
01/08/08 - 01/14/08	4.18E-03	±	4.09E-04	6.30E-03	±	4.98E-04	5.85E-03	±	4.82E-04
01/14/08 - 01/22/08	1.33E-02	±	6.28E-04	1.91E-02	±	7.54E-04	1.94E-02	±	7.60E-04
01/22/08 - 01/29/08	4.40E-02	±	1.17E-03	5.39E-02	±	1.30E-03	4.81E-02	±	1.23E-03
01/29/08 - 02/05/08	3.38E-03	±	3.38E-04	3.51E-03	±	3.46E-04	3.79E-03	±	3.56E-04
02/05/08 - 02/12/08	2.72E-03	±	3.08E-04	3.19E-03	±	3.32E-04	4.06E-03	±	3.69E-04
02/12/08 - 02/19/08	8.24E-03	±	5.29E-04	1.18E-02	±	6.31E-04	1.01E-02	±	5.86E-04
02/19/08 - 02/26/08	3.09E-02	±	1.04E-03	4.30E-02	±	1.23E-03	4.05E-02	±	1.19E-03
02/26/08 - 03/04/08	9.86E-03	±	5.78E-04	1.37E-02	±	6.82E-04	1.54E-02	±	7.23E-04
03/04/08 - 03/11/08	8.54E-03	±	5.41E-04	1.22E-02	±	6.46E-04	1.10E-02	±	6.14E-04
03/11/08 - 03/18/08	4.90E-03	±	4.09E-04	6.41E-03	±	4.65E-04	5.91E-03	±	4.49E-04
03/18/08 - 03/25/08	9.07E-03	±	5.58E-04	1.07E-02	±	6.01E-04	1.01E-02	±	5.87E-04
03/25/08 - 04/01/08	6.20E-03	±	4.60E-04	5.78E-03	±	4.46E-04	6.24E-03	±	4.64E-04
04/01/08 - 04/08/08	7.86E-03	±	5.17E-04	7.34E-03	±	5.00E-04	8.94E-03	±	5.54E-04
04/08/08 - 04/15/08	9.55E-03	±	5.71E-04	1.35E-02	±	6.83E-04	1.24E-02	±	6.52E-04
04/15/08 - 04/22/08	8.22E-03	±	5.32E-04	9.55E-03	±	5.74E-04	8.73E-03	±	5.47E-04
04/22/08 - 04/29/08	1.44E-02	±	7.03E-04	1.75E-02	±	7.75E-04	1.57E-02	±	7.30E-04
04/29/08 - 05/06/08	1.06E-02	±	5.99E-04	1.17E-02	±	6.30E-04	1.21E-02	±	6.44E-04
05/06/08 - 05/13/08	1.03E-02	±	5.94E-04	1.14E-02	±	6.23E-04	1.03E-02	±	5.93E-04
05/13/08 - 05/20/08	3.94E-03	±	6.05E-04	1.07E-02	±	6.55E-04	9.44E-03	±	6.23E-04
05/20/08 - 05/27/08	4.50E-03	±	4.81E-04	5.75E-03	±	5.20E-04	3.26E-03	±	4.37E-04
05/27/08 - 06/03/08	1.31E-02	±	7.09E-04	1.37E-02	±	7.26E-04	1.39E-02	±	7.28E-04
06/03/08 - 06/10/08	3.31E-03	±	4.21E-04	3.64E-03	±	4.33E-04	3.21E-03	±	4.17E-04
06/10/08 - 06/17/08	1.04E-02	±	6.48E-04	1.00E-02	±	6.38E-04	8.42E-03	±	5.95E-04
06/17/08 - 06/24/08	1.03E-02	±	6.61E-04	1.32E-02	±	7.32E-04	5.98E-03	±	7.41E-04
06/24/08 - 07/01/08	9.91E-03	±	6.37E-04	1.24E-02	±	7.03E-04	9.53E-03	±	6.95E-04
07/01/08 - 07/08/08	1.25E-02	±	6.91E-04	1.46E-02	±	7.42E-04	1.29E-02	±	6.99E-04
07/08/08 - 07/15/08	9.77E-03	±	6.34E-04	1.26E-02	±	7.04E-04	1.05E-02	±	6.53E-04
07/15/08 - 07/22/08	1.53E-02	±	7.56E-04	1.74E-02	±	8.04E-04	1.44E-02	±	7.38E-04
07/22/08 - 07/29/08	8.95E-03	±	6.06E-04	1.01E-02	±	6.35E-04	8.78E-03	±	5.99E-04
07/29/08 - 08/05/08	8.16E-03	±	5.78E-04	8.66E-03	±	5.90E-04	7.76E-03	±	5.67E-04
08/05/08 - 08/12/08	1.43E-02	±	7.45E-04	1.60E-02	±	7.83E-04	1.70E-02	±	8.06E-04
08/12/08 - 08/19/08	1.44E-02	±	7.39E-04	1.48E-02	±	7.48E-04	1.62E-02	±	7.78E-04
08/19/08 - 08/26/08	6.42E-03	±	5.28E-04	7.26E-03	±	5.55E-04	6.24E-03	±	5.24E-04
08/26/08 - 09/02/08	4.59E-03	±	4.93E-04	6.51E-03	±	5.49E-04	6.47E-03	±	5.54E-04
09/02/08 - 09/09/08	1.26E-02	±	7.05E-04	1.18E-02	±	6.91E-04	1.22E-02	±	6.97E-04
09/09/08 - 09/16/08	1.59E-02	±	7.81E-04	1.76E-02	±	8.18E-04	2.06E-02	±	8.80E-04
09/16/08 - 09/23/08	2.72E-02	±	1.02E-03	2.97E-02	±	1.06E-03	3.22E-02	±	1.10E-03
09/23/08 - 09/30/08	1.41E-02	±	7.47E-04	1.46E-02	±	7.54E-04	1.51E-02	±	7.70E-04
09/30/08 - 10/07/08	1.67E-02	±	8.04E-04	2.24E-02	±	9.23E-04	2.31E-02	±	9.37E-04
10/07/08 - 10/14/08	9.45E-03	±	6.22E-04	1.22E-02	±	6.91E-04	1.15E-02	±	6.75E-04
10/14/08 - 10/21/08	1.57E-02	±	7.94E-04	1.87E-02	±	8.59E-04	1.83E-02	±	8.50E-04
10/21/08 - 10/28/08	1.85E-02	±	8.36E-04	1.97E-02	±	8.62E-04	1.78E-02	±	8.20E-04
10/28/08 - 11/04/08	4.18E-02	±	1.27E-03	5.70E-02	±	1.49E-03	5.12E-02	±	1.41E-03
11/04/08 - 11/11/08	1.16E-02	±	6.86E-04	1.37E-02	±	7.42E-04	1.30E-02	±	7.22E-04
11/11/08 - 11/18/08	2.19E-02	±	9.11E-04	2.25E-02	±	9.23E-04	1.97E-02	±	8.67E-04
11/18/08 - 11/25/08	2.24E-02	±	9.22E-04	2.98E-02	±	1.06E-03	2.60E-02	±	9.93E-04
11/25/08 - 12/02/08	4.73E-02	±	1.34E-03	4.89E-02	±	1.37E-03	4.33E-02	±	1.28E-03
12/02/08 - 12/09/08	2.38E-02	±	9.45E-04	3.52E-02	±	1.15E-03	2.84E-02	±	1.03E-03
12/09/08 - 12/16/08	1.93E-02	±	8.75E-04	1.80E-02	±	8.48E-04	1.26E-02	±	7.26E-04
12/16/08 - 12/23/08	4.62E-02	±	1.34E-03	4.27E-02	±	1.28E-03	4.99E-02	±	1.39E-03
12/23/08 - 12/30/08	4.28E-02	±	1.28E-03	6.02E-02	±	1.53E-03	6.39E-02	±	1.59E-03

NVS = Valid sample not obtained due to sampler failure

Table A-2.1

GROSS BETA ON AIR PARTICULATE FILTERS

Results in pCi per Cubic Meter

Collection Period	Station40 Result		Error	Station 48 Result		Error	Station 57 Result		Error
01/01/08 - 01/08/08	1.40E-02	±	6.94E-04	1.44E-02	±	7.01E-04	1.51E-02	±	7.13E-04
01/08/08 - 01/14/08	5.92E-03	±	4.86E-04	6.25E-03	±	4.98E-04	8.10E-03	±	5.65E-04
01/14/08 - 01/22/08	1.69E-02	±	7.11E-04	1.96E-02	±	7.66E-04	1.76E-02	±	7.25E-04
01/22/08 - 01/29/08	4.73E-02	±	1.22E-03	5.54E-02	±	1.32E-03	5.54E-02	±	1.32E-03
01/29/08 - 02/05/08	3.30E-03	±	3.35E-04	3.39E-03	±	3.41E-04	4.25E-03	±	3.79E-04
02/05/08 - 02/12/08	4.31E-03	±	3.81E-04	4.24E-03	±	3.80E-04	3.30E-03	±	3.38E-04
02/12/08 - 02/19/08	1.01E-02	±	5.85E-04	1.04E-02	±	5.93E-04	1.11E-02	±	6.13E-04
02/19/08 - 02/26/08	4.04E-02	±	1.19E-03	4.23E-02	±	1.22E-03	4.40E-02	±	1.25E-03
02/26/08 - 03/04/08	1.25E-02	±	6.51E-04	1.30E-02	±	6.65E-04	1.61E-02	±	7.44E-04
03/04/08 - 03/11/08	1.12E-02	±	6.20E-04	1.19E-02	±	6.39E-04	1.19E-02	±	6.36E-04
03/11/08 - 03/18/08	5.43E-03	±	4.28E-04	5.45E-03	±	4.28E-04	5.36E-03	±	4.23E-04
03/18/08 - 03/25/08	1.00E-02	±	5.82E-04	9.72E-03	±	5.79E-04	9.86E-03	±	5.76E-04
03/25/08 - 04/01/08	6.75E-03	±	4.78E-04	6.56E-03	±	4.81E-04	6.73E-03	±	4.77E-04
04/01/08 - 04/08/08	7.62E-03	±	5.11E-04	8.83E-03	±	5.50E-04	8.63E-03	±	5.53E-04
04/08/08 - 04/15/08	1.25E-02	±	6.53E-04	1.09E-02	±	6.10E-04	1.25E-02	±	6.53E-04
04/15/08 - 04/22/08	7.35E-03	±	5.06E-04	8.56E-03	±	5.44E-04	8.72E-03	±	5.43E-04
04/22/08 - 04/29/08	1.51E-02	±	7.21E-04	1.46E-02	±	7.10E-04	1.69E-02	±	7.62E-04
04/29/08 - 05/06/08	1.22E-02	±	6.46E-04	1.36E-02	±	6.81E-04	1.35E-02	±	6.80E-04
05/06/08 - 05/13/08	9.19E-03	±	5.63E-04	1.05E-02	±	5.99E-04	1.08E-02	±	6.08E-04
05/13/08 - 05/20/08	9.00E-03	±	6.11E-04	1.03E-02	±	6.43E-04	1.10E-02	±	6.63E-04
05/20/08 - 05/27/08	3.99E-03	±	4.63E-04	3.65E-03	±	4.50E-04	4.54E-03	±	4.84E-04
05/27/08 - 06/03/08	1.23E-02	±	6.94E-04	1.11E-02	±	6.61E-04	1.18E-02	±	6.81E-04
06/03/08 - 06/10/08	2.91E-03	±	4.04E-04	2.20E-03	±	3.76E-04	3.02E-03	±	4.09E-04
06/10/08 - 06/17/08	8.66E-03	±	6.04E-04	8.82E-03	±	6.09E-04	1.02E-02	±	6.46E-04
06/17/08 - 06/24/08	1.31E-02	±	7.28E-04	1.35E-02	±	7.38E-04	1.24E-02	±	7.17E-04
06/24/08 - 07/01/08	1.22E-02	±	7.02E-04	1.11E-02	±	6.70E-04	1.02E-02	±	6.48E-04
07/01/08 - 07/08/08	1.29E-02	±	7.03E-04	1.47E-02	±	7.43E-04	1.36E-02	±	7.16E-04
07/08/08 - 07/15/08	1.08E-02	±	6.62E-04	1.20E-02	±	6.91E-04	1.15E-02	±	6.79E-04
07/15/08 - 07/22/08	1.42E-02	±	7.35E-04	1.53E-02	±	7.61E-04	1.40E-02	±	7.29E-04
07/22/08 - 07/29/08	1.06E-02	±	6.51E-04	1.17E-02	±	6.77E-04	1.10E-02	±	6.58E-04
07/29/08 - 08/05/08	9.05E-03	±	6.03E-04	9.86E-03	±	6.25E-04	7.43E-03	±	5.56E-04
08/05/08 - 08/12/08	1.70E-02	±	8.07E-04	1.80E-02	±	8.25E-04	1.43E-02	±	7.47E-04
08/12/08 - 08/19/08	1.55E-02	±	7.65E-04	1.61E-02	±	7.78E-04	1.49E-02	±	7.50E-04
08/19/08 - 08/26/08	6.83E-03	±	5.46E-04	7.61E-03	±	5.69E-04	6.59E-03	±	5.36E-04
08/26/08 - 09/02/08	7.73E-03	±	5.90E-04	7.42E-03	±	5.81E-04	5.46E-03	±	5.17E-04
09/02/08 - 09/09/08	1.46E-02	±	7.58E-04	1.40E-02	±	7.41E-04	1.29E-02	±	7.15E-04
09/09/08 - 09/16/08	2.20E-02	±	9.15E-04	1.86E-02	±	8.43E-04	1.65E-02	±	7.93E-04
09/16/08 - 09/23/08	3.52E-02	±	1.15E-03	3.25E-02	±	1.11E-03	2.97E-02	±	1.06E-03
09/23/08 - 09/30/08	1.62E-02	±	7.94E-04	1.54E-02	±	7.75E-04	1.28E-02	±	7.11E-04
09/30/08 - 10/07/08	2.76E-02	±	1.02E-03	2.27E-02	±	9.27E-04	2.40E-02	±	9.54E-04
10/07/08 - 10/14/08	1.25E-02	±	7.02E-04	1.12E-02	±	6.69E-04	1.28E-02	±	4.73E-04
10/14/08 - 10/21/08	1.78E-02	±	8.40E-04	1.76E-02	±	8.34E-04	2.16E-02	±	6.22E-04
10/21/08 - 10/28/08	2.32E-02	±	9.33E-04	2.09E-02	±	8.90E-04	2.25E-02	±	6.30E-04
10/28/08 - 11/04/08	5.67E-02	±	1.48E-03	5.34E-02	±	1.44E-03	5.91E-02	±	1.09E-03
11/04/08 - 11/11/08	1.27E-02	±	7.17E-04	1.41E-02	±	7.51E-04	1.60E-02	±	5.32E-04
11/11/08 - 11/18/08	2.40E-02	±	9.55E-04	2.60E-02	±	9.92E-04	2.77E-02	±	1.02E-03
11/18/08 - 11/25/08	2.91E-02	±	1.05E-03	2.70E-02	±	1.01E-03	2.82E-02	±	1.03E-03
11/25/08 - 12/02/08	NVS	±		5.11E-02	±	1.40E-03	4.98E-02	±	1.38E-03
12/02/08 - 12/09/08	NVS	±		3.35E-02	±	1.12E-03	3.53E-02	±	1.15E-03
12/09/08 - 12/16/08	2.31E-02	±	9.51E-04	2.00E-02	±	8.90E-04	1.76E-02	±	8.41E-04
12/16/08 - 12/23/08	5.92E-02	±	1.53E-03	4.42E-02	±	1.31E-03	4.17E-02	±	1.27E-03
12/23/08 - 12/30/08	6.29E-02	±	1.58E-03	5.81E-02	±	1.51E-03	6.33E-02	±	1.58E-03

NVS = Valid sample not obtained due to sampler failure

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	1.71E-02	1.56E-03	6.88E-02	570	570
Gross Beta Controls	1.49E-02	2.72E-03	4.73E-02	52	52

TABLE A-3.1

GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS

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

Location and Quarter Station 1 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	8.66E-02	±	1.62E-02	1.16E-02
K-40		-2.06E-03	±	1.07E-02	1.12E-02
MN-54		-1.98E-04	±	5.55E-04	8.55E-04
FE-59		-8.80E-04	±	2.55E-03	3.93E-03
CO-60		9.20E-05	±	5.02E-04	7.85E-04
ZN-65		0.00E+00	±	1.66E-03	2.77E-03
CS-134		-1.09E-06	±	4.30E-04	7.05E-04
CS-137		8.20E-06	±	4.25E-04	6.96E-04
BALA140		1.04E-05	±	1.09E-02	1.79E-02
RA-226		0.00E+00	±	6.83E-03	1.14E-02
RU-106		1.60E-03	±	3.21E-02	5.21E-02

Location and Quarter Station 1 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.76E-02	±	1.29E-02	4.94E-03
K-40		-5.04E-03	±	1.30E-02	1.12E-02
MN-54		0.00E+00	±	1.02E-04	1.69E-04
FE-59		8.48E-04	±	2.01E-03	2.91E-03
CO-60		2.63E-04	±	4.12E-04	5.78E-04
ZN-65		-2.68E-04	±	9.22E-04	1.42E-03
CS-134		0.00E+00	±	2.62E-04	4.36E-04
CS-137		5.17E-05	±	3.26E-04	5.20E-04
BALA140		0.00E+00	±	3.91E-03	6.52E-03
RA-226	+	7.58E-03	±	4.75E-03	6.28E-03
RU-106		0.00E+00	±	2.70E-03	4.50E-03

Location and Quarter Station 1 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.36E-01	±	2.03E-02	1.23E-02
K-40		-2.40E-03	±	1.41E-02	1.24E-02
MN-54		1.69E-04	±	4.72E-04	7.15E-04
FE-59		-7.01E-05	±	3.19E-03	5.22E-03
CO-60		6.40E-06	±	5.10E-04	8.36E-04
ZN-65		-1.86E-04	±	1.26E-03	2.00E-03
CS-134		4.85E-06	±	3.93E-04	6.45E-04
CS-137		-7.75E-06	±	4.87E-04	7.98E-04
BALA140		8.19E-03	±	1.59E-02	2.13E-02
RA-226		2.38E-03	±	8.12E-03	1.44E-02
RU-106		6.60E-04	±	3.95E-03	6.28E-03

Location and Quarter Station 1 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.06E-01	±	1.47E-02	4.73E-03
K-40		5.81E-04	±	6.58E-03	1.24E-02
MN-54		1.15E-06	±	5.99E-04	9.82E-04
FE-59		8.34E-04	±	2.83E-03	4.33E-03
CO-60		0.00E+00	±	1.62E-04	2.70E-04
ZN-65		1.04E-04	±	9.79E-04	1.57E-03
CS-134		6.73E-05	±	4.17E-04	6.67E-04
CS-137		-1.39E-04	±	4.80E-04	7.49E-04
BALA140		-4.20E-03	±	1.23E-02	1.87E-02
RA-226		1.42E-03	±	8.99E-03	1.58E-02
RU-106		5.47E-04	±	4.30E-03	6.92E-03

Location and Quarter Station 4 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	8.06E-02	±	1.43E-02	8.71E-03
K-40		-6.21E-04	±	8.85E-03	1.35E-02
MN-54		2.65E-04	±	4.56E-04	6.53E-04
FE-59		2.87E-04	±	2.19E-03	3.51E-03
CO-60		-1.24E-04	±	5.92E-04	9.27E-04
ZN-65		0.00E+00	±	1.66E-03	2.77E-03
CS-134		-1.32E-05	±	4.25E-04	6.96E-04
CS-137		8.91E-05	±	5.00E-04	7.98E-04
BALA140		0.00E+00	±	4.59E-03	7.65E-03
RA-226		0.00E+00	±	8.23E-03	1.37E-02
RU-106		-1.22E-03	±	3.39E-02	5.53E-02

Location and Quarter Station 4 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.20E-01	±	1.42E-02	4.39E-03
K-40		-3.80E-03	±	9.62E-03	1.10E-02
MN-54		-1.08E-04	±	4.65E-04	7.37E-04
FE-59		0.00E+00	±	2.68E-03	4.46E-03
CO-60		0.00E+00	±	6.11E-04	1.02E-03
ZN-65		-4.80E-04	±	1.14E-03	1.74E-03
CS-134		-1.01E-05	±	2.74E-04	4.47E-04
CS-137		1.11E-04	±	3.07E-04	4.67E-04
BALA140		0.00E+00	±	3.92E-03	6.53E-03
RA-226		4.54E-03	±	4.81E-03	7.04E-03
RU-106		1.07E-03	±	3.11E-03	4.79E-03

Location and Quarter Station 4 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.37E-01	±	1.91E-02	1.05E-02
K-40		-2.30E-03	±	1.32E-02	1.21E-02
MN-54		-3.62E-05	±	5.38E-04	8.73E-04
FE-59		0.00E+00	±	3.95E-03	6.58E-03
CO-60		-1.74E-04	±	5.97E-04	9.24E-04
ZN-65		0.00E+00	±	2.41E-03	4.01E-03
CS-134		9.78E-05	±	3.42E-04	5.29E-04
CS-137		-1.15E-04	±	4.63E-04	7.27E-04
BALA140		6.62E-03	±	1.76E-02	2.57E-02
RA-226		-1.41E-03	±	1.09E-02	1.48E-02
RU-106		-5.81E-04	±	4.06E-03	6.50E-03

Location and Quarter Station 4 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.58E-02	±	1.57E-02	1.06E-02
K-40		1.31E-03	±	5.58E-03	1.07E-02
MN-54		2.78E-04	±	4.93E-04	7.18E-04
FE-59		0.00E+00	±	3.23E-03	5.39E-03
CO-60		2.80E-04	±	5.56E-04	8.13E-04
ZN-65		-2.81E-04	±	1.47E-03	2.34E-03
CS-134		0.00E+00	±	5.67E-04	9.45E-04
CS-137		2.53E-04	±	4.00E-04	5.68E-04
BALA140		6.46E-03	±	8.57E-03	1.05E-02
RA-226		4.10E-03	±	8.34E-03	1.44E-02
RU-106		1.81E-05	±	3.52E-03	5.78E-03

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

1st Q 1/1/08 to 4/1/08 - 2nd Q 4/1/08 to 7/1/08 - 3rd Q 7/1/08 to 9/30/08 - 4th Q 9/30/08 to 12/30/08

TABLE A-3.1

GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS

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

Location and Quarter Station 5 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	6.97E-02	±	1.39E-02	9.55E-03
K-40		-3.33E-03	±	2.17E-02	1.26E-02
MN-54		1.80E-04	±	4.62E-04	6.96E-04
FE-59		-4.18E-04	±	2.49E-03	3.97E-03
CO-60		0.00E+00	±	1.81E-04	3.02E-04
ZN-65		2.15E-04	±	1.10E-03	1.73E-03
CS-134		9.00E-06	±	3.96E-04	6.49E-04
CS-137		-3.04E-05	±	4.62E-04	7.52E-04
BALA140		-3.43E-03	±	1.43E-02	2.22E-02
RA-226	+	1.24E-02	±	6.63E-03	8.78E-03
RU-106		-5.76E-03	±	3.32E-02	5.23E-02

Location and Quarter Station 5 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.85E-02	±	1.35E-02	7.21E-03
K-40		-7.76E-03	±	5.18E-02	1.38E-02
MN-54		0.00E+00	±	4.87E-04	8.11E-04
FE-59		-8.03E-04	±	2.57E-03	3.95E-03
CO-60		9.35E-05	±	4.26E-04	6.68E-04
ZN-65		-2.09E-04	±	8.34E-04	1.29E-03
CS-134		5.73E-06	±	3.49E-04	5.73E-04
CS-137		0.00E+00	±	4.30E-04	7.16E-04
BALA140		-6.82E-04	±	8.91E-03	1.43E-02
RA-226		4.18E-03	±	5.06E-03	7.57E-03
RU-106		0.00E+00	±	7.78E-04	1.30E-03

Location and Quarter Station 5 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.31E-01	±	1.93E-02	1.09E-02
K-40		-4.73E-03	±	5.24E-02	1.24E-02
MN-54		9.36E-05	±	5.03E-04	7.96E-04
FE-59		-1.87E-04	±	2.57E-03	4.13E-03
CO-60		0.00E+00	±	5.60E-04	9.33E-04
ZN-65		0.00E+00	±	1.20E-03	2.01E-03
CS-134		-1.23E-04	±	5.05E-04	8.02E-04
CS-137		4.50E-06	±	4.34E-04	7.13E-04
BALA140		-2.87E-03	±	2.27E-02	3.63E-02
RA-226		2.66E-03	±	8.75E-03	1.53E-02
RU-106		-1.63E-03	±	5.51E-03	8.68E-03

Location and Quarter Station 5 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.32E-02	±	1.41E-02	6.84E-03
K-40		-7.08E-04	±	8.56E-03	1.29E-02
MN-54		1.54E-04	±	4.42E-04	6.70E-04
FE-59		2.94E-04	±	2.37E-03	3.77E-03
CO-60		-4.93E-05	±	5.84E-04	9.44E-04
ZN-65		0.00E+00	±	3.46E-04	5.76E-04
CS-134		-1.39E-04	±	4.65E-04	7.30E-04
CS-137		-1.39E-04	±	5.88E-04	9.35E-04
BALA140		3.09E-05	±	1.03E-02	1.69E-02
RA-226		-3.04E-03	±	1.63E-02	1.56E-02
RU-106		0.00E+00	±	3.61E-03	6.01E-03

Location and Quarter Station 6 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	7.98E-02	±	1.39E-02	8.34E-03
K-40		-2.10E-03	±	1.19E-02	1.18E-02
MN-54		1.40E-05	±	5.63E-04	9.22E-04
FE-59		0.00E+00	±	6.29E-04	1.05E-03
CO-60		3.15E-04	±	5.22E-04	7.19E-04
ZN-65		1.62E-04	±	1.14E-03	1.81E-03
CS-134		-1.49E-04	±	4.44E-04	6.91E-04
CS-137		0.00E+00	±	6.49E-04	1.08E-03
BALA140		5.68E-03	±	8.89E-03	1.06E-02
RA-226		0.00E+00	±	7.42E-03	1.24E-02
RU-106		-1.02E-02	±	3.74E-02	5.78E-02

Location and Quarter Station 6 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.13E-01	±	1.46E-02	7.82E-03
K-40		-4.18E-03	±	1.32E-02	1.23E-02
MN-54		5.34E-05	±	3.92E-04	6.28E-04
FE-59		0.00E+00	±	7.46E-04	1.24E-03
CO-60		4.76E-05	±	3.19E-04	5.03E-04
ZN-65		-4.25E-04	±	1.18E-03	1.82E-03
CS-134		-1.33E-07	±	2.96E-04	4.94E-04
CS-137		1.10E-04	±	2.97E-04	4.50E-04
BALA140		-4.51E-03	±	1.40E-02	2.15E-02
RA-226	+	6.96E-03	±	4.41E-03	5.73E-03
RU-106		1.45E-03	±	3.06E-03	4.58E-03

Location and Quarter Station 6 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.31E-01	±	1.85E-02	9.93E-03
K-40		-2.26E-03	±	1.30E-02	1.21E-02
MN-54		-1.64E-05	±	5.10E-04	8.33E-04
FE-59		0.00E+00	±	1.07E-03	1.79E-03
CO-60		-1.23E-04	±	5.99E-04	9.44E-04
ZN-65		-3.90E-04	±	1.44E-03	2.26E-03
CS-134		-2.25E-04	±	5.66E-04	8.84E-04
CS-137		-1.73E-04	±	4.99E-04	7.73E-04
BALA140		5.58E-05	±	1.86E-02	3.05E-02
RA-226		7.99E-04	±	9.10E-03	1.60E-02
RU-106		5.78E-04	±	3.96E-03	6.32E-03

Location and Quarter Station 6 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.10E-01	±	1.74E-02	1.21E-02
K-40		-5.84E-03	±	1.88E-01	1.93E-02
MN-54		5.89E-06	±	4.53E-04	7.43E-04
FE-59		-9.34E-04	±	3.54E-03	5.54E-03
CO-60		1.71E-04	±	3.51E-04	4.76E-04
ZN-65		-4.30E-05	±	1.34E-03	2.19E-03
CS-134		-1.02E-04	±	4.97E-04	7.94E-04
CS-137		-5.43E-05	±	4.97E-04	8.03E-04
BALA140		-2.06E-03	±	1.11E-02	1.74E-02
RA-226		5.94E-04	±	9.37E-03	1.65E-02
RU-106		2.43E-03	±	4.04E-03	5.87E-03

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

1st Q 1/1/08 to 4/1/08 - 2nd Q 4/1/08 to 7/1/08 - 3rd Q 7/1/08 to 9/30/08 - 4th Q 9/30/08 to 12/30/08

TABLE A-3.1

GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS

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

Location and Quarter Station 7 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	7.79E-02	±	1.42E-02	8.80E-03
K-40		-5.84E-03	±	7.10E-02	1.11E-02
MN-54		4.87E-05	±	3.95E-04	6.30E-04
FE-59		3.27E-04	±	2.07E-03	3.29E-03
CO-60		2.51E-04	±	4.03E-04	5.13E-04
ZN-65		-2.10E-05	±	1.02E-03	1.68E-03
CS-134		3.73E-07	±	4.64E-04	7.59E-04
CS-137		-1.13E-04	±	4.58E-04	7.19E-04
BALA140		0.00E+00	±	4.80E-03	8.00E-03
RA-226		0.00E+00	±	8.82E-03	1.47E-02
RU-106		6.15E-03	±	4.00E-02	6.37E-02

Location and Quarter Station 7 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.06E-01	±	1.40E-02	7.06E-03
K-40		-9.79E-03	±	3.92E-02	1.02E-02
MN-54		-1.49E-05	±	3.99E-04	6.52E-04
FE-59		0.00E+00	±	4.70E-03	7.83E-03
CO-60		0.00E+00	±	4.32E-04	7.20E-04
ZN-65		-1.31E-04	±	1.12E-03	1.80E-03
CS-134		-2.83E-05	±	3.77E-04	6.13E-04
CS-137		6.20E-05	±	2.89E-04	4.52E-04
BALA140		-3.23E-03	±	1.26E-02	1.95E-02
RA-226	+	7.13E-03	±	4.31E-03	5.46E-03
RU-106		6.99E-04	±	2.84E-03	4.44E-03

Location and Quarter Station 7 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.44E-01	±	2.06E-02	1.20E-02
K-40		-2.63E-03	±	1.81E-02	1.36E-02
MN-54		0.00E+00	±	4.82E-04	8.04E-04
FE-59		-1.35E-03	±	4.76E-03	7.46E-03
CO-60		0.00E+00	±	1.63E-04	2.71E-04
ZN-65		-7.47E-07	±	1.88E-03	3.08E-03
CS-134		1.04E-04	±	4.91E-04	7.83E-04
CS-137		-4.16E-04	±	6.81E-04	1.04E-03
BALA140		-7.52E-03	±	2.81E-02	4.38E-02
RA-226		2.91E-03	±	1.01E-02	1.73E-02
RU-106		-8.66E-04	±	5.09E-03	8.16E-03

Location and Quarter Station 7 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	8.28E-02	±	1.38E-02	7.34E-03
K-40		-4.44E-03	±	4.00E-02	1.23E-02
MN-54		1.23E-05	±	5.88E-04	9.64E-04
FE-59		-4.04E-04	±	3.30E-03	5.30E-03
CO-60		3.77E-05	±	5.83E-04	9.47E-04
ZN-65		1.02E-04	±	1.23E-03	1.99E-03
CS-134		-2.35E-04	±	5.31E-04	8.22E-04
CS-137		-1.25E-04	±	5.30E-04	8.40E-04
BALA140		-3.59E-03	±	1.14E-02	1.74E-02
RA-226		1.92E-03	±	8.89E-03	1.56E-02
RU-106		1.52E-03	±	3.63E-03	5.44E-03

Location and Quarter Station 8 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	8.07E-02	±	1.37E-02	7.29E-03
K-40		-3.17E-04	±	6.23E-03	1.13E-02
MN-54		-7.52E-06	±	5.14E-04	8.42E-04
FE-59		1.43E-05	±	1.91E-03	3.14E-03
CO-60		0.00E+00	±	1.81E-04	3.02E-04
ZN-65		4.20E-04	±	1.07E-03	1.59E-03
CS-134		0.00E+00	±	5.27E-04	8.79E-04
CS-137		-7.99E-05	±	5.11E-04	8.19E-04
BALA140		2.59E-03	±	1.14E-02	1.75E-02
RA-226		0.00E+00	±	7.87E-03	1.31E-02
RU-106		-2.39E-03	±	3.78E-02	6.13E-02

Location and Quarter Station 8 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.07E-01	±	1.38E-02	5.52E-03
K-40		-7.46E-03	±	2.33E-02	1.09E-02
MN-54		9.04E-05	±	3.43E-04	5.31E-04
FE-59		-6.59E-04	±	2.89E-03	4.54E-03
CO-60		7.84E-05	±	3.88E-04	6.08E-04
ZN-65		3.47E-06	±	8.10E-04	1.33E-03
CS-134		2.24E-05	±	3.19E-04	5.18E-04
CS-137		5.04E-05	±	3.27E-04	5.22E-04
BALA140		6.28E-03	±	1.11E-02	1.52E-02
RA-226		5.01E-03	±	4.03E-03	5.43E-03
RU-106		6.37E-04	±	3.12E-03	4.94E-03

Location and Quarter Station 8 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.42E-01	±	2.03E-02	1.18E-02
K-40		-4.72E-03	±	6.18E-02	1.37E-02
MN-54		9.92E-05	±	5.58E-04	8.88E-04
FE-59		1.26E-03	±	3.60E-03	5.45E-03
CO-60		-7.31E-05	±	6.25E-04	1.01E-03
ZN-65		0.00E+00	±	3.19E-03	5.32E-03
CS-134		-2.95E-05	±	5.79E-04	9.46E-04
CS-137		-5.08E-05	±	4.36E-04	7.01E-04
BALA140		0.00E+00	±	3.17E-02	5.28E-02
RA-226		5.70E-03	±	7.97E-03	1.37E-02
RU-106		-1.83E-03	±	4.67E-03	7.18E-03

Location and Quarter Station 8 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.47E-02	±	1.72E-02	1.32E-02
K-40		-2.73E-03	±	1.83E-02	1.34E-02
MN-54		7.58E-05	±	5.36E-04	8.59E-04
FE-59		0.00E+00	±	3.43E-03	5.72E-03
CO-60		2.83E-04	±	4.31E-04	5.70E-04
ZN-65		6.25E-05	±	1.35E-03	2.21E-03
CS-134		-1.90E-05	±	3.89E-04	6.34E-04
CS-137		-5.57E-05	±	5.00E-04	8.07E-04
BALA140		2.55E-03	±	1.21E-02	1.89E-02
RA-226		2.55E-03	±	8.68E-03	1.52E-02
RU-106		-4.84E-04	±	4.25E-03	6.85E-03

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

1st Q 1/1/08 to 4/1/08 - 2nd Q 4/1/08 to 7/1/08 - 3rd Q 7/1/08 to 9/30/08 - 4th Q 9/30/08 to 12/30/08

TABLE A-3.1

GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS

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

Location and Quarter Station 9 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	7.02E-02	±	1.35E-02	7.99E-03
K-40		-2.41E-03	±	1.47E-02	1.26E-02
MN-54		1.98E-05	±	5.39E-04	8.81E-04
FE-59		1.32E-04	±	1.93E-03	3.12E-03
CO-60		1.41E-04	±	6.22E-04	9.73E-04
ZN-65		-2.24E-05	±	1.03E-03	1.69E-03
CS-134		0.00E+00	±	5.75E-04	9.59E-04
CS-137		-6.38E-05	±	4.63E-04	7.43E-04
BALA140		0.00E+00	±	4.83E-03	8.04E-03
RA-226		0.00E+00	±	5.54E-03	9.23E-03
RU-106		-6.41E-04	±	3.35E-02	5.48E-02

Location and Quarter Station 9 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.03E-02	±	1.33E-02	7.17E-03
K-40		-4.84E-03	±	1.25E-02	1.16E-02
MN-54		-4.69E-05	±	3.54E-04	5.65E-04
FE-59		0.00E+00	±	2.80E-03	4.66E-03
CO-60		0.00E+00	±	4.44E-04	7.40E-04
ZN-65		-2.24E-04	±	1.22E-03	1.94E-03
CS-134		-4.86E-05	±	3.41E-04	5.49E-04
CS-137		1.36E-04	±	3.25E-04	4.89E-04
BALA140		-3.71E-03	±	1.51E-02	2.36E-02
RA-226		4.56E-03	±	4.34E-03	6.12E-03
RU-106		8.96E-04	±	2.97E-03	4.59E-03

Location and Quarter Station 9 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.53E-01	±	2.04E-02	1.12E-02
K-40		-2.94E-03	±	1.75E-02	1.23E-02
MN-54		3.93E-04	±	5.59E-04	7.98E-04
FE-59		0.00E+00	±	5.67E-03	9.44E-03
CO-60		-7.05E-05	±	4.45E-04	7.00E-04
ZN-65		-2.84E-05	±	1.31E-03	2.14E-03
CS-134		-1.69E-04	±	4.48E-04	6.92E-04
CS-137		7.12E-05	±	3.90E-04	6.17E-04
BALA140		-4.36E-04	±	1.56E-02	2.54E-02
RA-226		3.22E-03	±	9.00E-03	1.56E-02
RU-106		8.78E-04	±	3.54E-03	5.50E-03

Location and Quarter Station 9 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.91E-02	±	1.54E-02	8.24E-03
K-40		-3.78E-03	±	2.86E-02	1.30E-02
MN-54		6.01E-05	±	4.49E-04	7.18E-04
FE-59		1.22E-03	±	2.00E-03	2.52E-03
CO-60		-8.43E-05	±	6.69E-04	1.08E-03
ZN-65		-3.21E-04	±	1.22E-03	1.89E-03
CS-134		-9.98E-05	±	4.49E-04	7.14E-04
CS-137		-3.48E-05	±	4.76E-04	7.73E-04
BALA140		0.00E+00	±	4.32E-03	7.20E-03
RA-226		4.09E-03	±	8.37E-03	1.45E-02
RU-106		2.16E-03	±	1.78E-03	1.70E-03

Location and Quarter Station 21 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	8.06E-02	±	1.48E-02	1.03E-02
K-40		-9.83E-04	±	8.62E-03	1.22E-02
MN-54		-7.98E-06	±	4.92E-04	8.06E-04
FE-59		0.00E+00	±	2.15E-03	3.59E-03
CO-60		2.25E-04	±	5.96E-04	8.95E-04
ZN-65		-2.03E-04	±	1.11E-03	1.75E-03
CS-134		1.68E-04	±	4.51E-04	6.99E-04
CS-137		1.83E-04	±	3.65E-04	5.30E-04
BALA140		-6.61E-04	±	1.64E-02	2.68E-02
RA-226		0.00E+00	±	7.41E-03	1.23E-02
RU-106		0.00E+00	±	3.46E-02	5.77E-02

Location and Quarter Station 21 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.14E-01	±	1.46E-02	7.08E-03
K-40		-5.42E-03	±	1.33E-02	1.10E-02
MN-54		0.00E+00	±	4.88E-04	8.13E-04
FE-59		-9.07E-04	±	2.78E-03	4.27E-03
CO-60		-7.41E-06	±	3.88E-04	6.35E-04
ZN-65		0.00E+00	±	8.88E-04	1.48E-03
CS-134		-1.59E-04	±	3.56E-04	5.46E-04
CS-137		5.42E-06	±	2.28E-04	3.73E-04
BALA140		0.00E+00	±	4.14E-03	6.91E-03
RA-226		6.09E-03	±	4.83E-03	6.76E-03
RU-106		1.14E-03	±	2.66E-03	3.95E-03

Location and Quarter Station 21 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.36E-01	±	2.00E-02	1.31E-02
K-40		-2.80E-03	±	1.71E-02	1.26E-02
MN-54		1.99E-05	±	4.67E-04	7.61E-04
FE-59		0.00E+00	±	5.67E-03	9.45E-03
CO-60		3.03E-05	±	3.61E-04	5.77E-04
ZN-65		0.00E+00	±	1.71E-03	2.84E-03
CS-134		-1.50E-04	±	4.35E-04	6.76E-04
CS-137		-3.57E-05	±	4.67E-04	7.58E-04
BALA140		0.00E+00	±	3.19E-02	5.31E-02
RA-226		7.06E-03	±	7.55E-03	1.28E-02
RU-106		4.10E-05	±	2.29E-03	3.74E-03

Location and Quarter Station 21 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.27E-02	±	1.49E-02	8.82E-03
K-40		-1.59E-03	±	9.74E-03	1.16E-02
MN-54		1.31E-04	±	5.24E-04	8.21E-04
FE-59		0.00E+00	±	4.86E-03	8.10E-03
CO-60		9.31E-06	±	4.30E-04	7.03E-04
ZN-65		1.38E-04	±	9.10E-04	1.43E-03
CS-134		-1.72E-04	±	5.19E-04	8.16E-04
CS-137		1.22E-05	±	4.42E-04	7.23E-04
BALA140		0.00E+00	±	4.33E-03	7.22E-03
RA-226		-2.78E-03	±	1.53E-02	1.55E-02
RU-106		-1.07E-03	±	4.77E-03	7.57E-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 per cubic meter, results decay corrected for decay during sample collection period

Location and Quarter Station 23 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.13E-02	±	1.57E-02	1.06E-02
K-40		-5.84E-03	±	1.33E-01	1.51E-02
MN-54		0.00E+00	±	6.09E-04	1.02E-03
FE-59		-9.02E-04	±	2.63E-03	4.05E-03
CO-60		0.00E+00	±	6.81E-04	1.13E-03
ZN-65		0.00E+00	±	1.67E-03	2.78E-03
CS-134		-2.59E-06	±	3.96E-04	6.50E-04
CS-137		-7.53E-05	±	5.10E-04	8.18E-04
BALA140		-3.16E-03	±	1.79E-02	2.83E-02
RA-226		1.01E-05	±	7.34E-03	1.21E-02
RU-106		-8.32E-03	±	3.17E-02	4.86E-02

Location and Quarter Station 23 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.10E-01	±	1.46E-02	6.62E-03
K-40		-4.40E-03	±	9.89E-02	1.18E-02
MN-54		3.03E-05	±	3.99E-04	6.46E-04
FE-59		5.95E-04	±	2.79E-03	4.38E-03
CO-60		2.48E-05	±	4.27E-04	6.93E-04
ZN-65		0.00E+00	±	1.86E-03	3.11E-03
CS-134		-6.91E-05	±	3.69E-04	5.89E-04
CS-137		5.51E-05	±	2.30E-04	3.51E-04
BALA140		-3.32E-03	±	1.78E-02	2.82E-02
RA-226		1.22E-03	±	5.05E-03	9.16E-03
RU-106		5.34E-04	±	2.98E-03	4.72E-03

Location and Quarter Station 23 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.58E-01	±	2.13E-02	1.15E-02
K-40		-7.16E-04	±	8.89E-03	1.33E-02
MN-54		-7.98E-05	±	6.22E-04	1.00E-03
FE-59		0.00E+00	±	6.95E-03	1.16E-02
CO-60		0.00E+00	±	9.71E-04	1.62E-03
ZN-65		0.00E+00	±	2.70E-03	4.50E-03
CS-134		-2.34E-06	±	3.59E-04	5.89E-04
CS-137		0.00E+00	±	5.89E-04	9.81E-04
BALA140		1.99E-06	±	1.72E-02	2.78E-02
RA-226		-1.02E-02	±	3.86E-01	1.68E-02
RU-106		1.51E-04	±	3.81E-03	6.21E-03

Location and Quarter Station 23 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	8.65E-02	±	1.40E-02	6.58E-03
K-40		5.16E-04	±	7.14E-03	1.32E-02
MN-54		0.00E+00	±	6.59E-04	1.10E-03
FE-59		-7.64E-04	±	2.80E-03	4.30E-03
CO-60		0.00E+00	±	1.62E-04	2.70E-04
ZN-65		-9.57E-05	±	1.04E-03	1.67E-03
CS-134		1.56E-04	±	3.10E-04	4.51E-04
CS-137		-1.19E-04	±	4.85E-04	7.65E-04
BALA140		3.81E-03	±	1.35E-02	2.07E-02
RA-226		3.65E-03	±	8.06E-03	1.41E-02
RU-106		4.58E-04	±	4.03E-03	6.49E-03

Location and Quarter Station 40 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	7.05E-02	±	1.50E-02	1.15E-02
K-40		-1.73E-03	±	1.23E-02	1.32E-02
MN-54		-1.14E-06	±	5.21E-04	8.58E-04
FE-59		-7.28E-04	±	2.76E-03	4.33E-03
CO-60		-1.45E-04	±	6.11E-04	9.52E-04
ZN-65		-4.91E-04	±	1.56E-03	2.42E-03
CS-134		4.95E-06	±	4.39E-04	7.20E-04
CS-137		-8.70E-05	±	4.95E-04	7.90E-04
BALA140		5.22E-03	±	1.51E-02	2.25E-02
RA-226		0.00E+00	±	6.79E-03	1.13E-02
RU-106		-5.61E-03	±	3.20E-02	5.02E-02

Location and Quarter Station 40 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.12E-01	±	1.52E-02	8.48E-03
K-40		5.00E-04	±	4.89E-03	9.19E-03
MN-54		8.09E-06	±	4.44E-04	7.29E-04
FE-59		5.65E-04	±	1.68E-03	2.44E-03
CO-60		-4.88E-05	±	4.12E-04	6.60E-04
ZN-65		-1.54E-04	±	9.42E-04	1.50E-03
CS-134		7.33E-05	±	3.48E-04	5.53E-04
CS-137		0.00E+00	±	5.68E-04	9.47E-04
BALA140		-3.24E-03	±	1.36E-02	2.09E-02
RA-226		-2.14E-04	±	4.47E-03	8.04E-03
RU-106		1.67E-03	±	3.27E-03	4.89E-03

Location and Quarter Station 40 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.56E-01	±	2.02E-02	1.01E-02
K-40		-1.32E-03	±	1.32E-02	1.54E-02
MN-54		-1.13E-04	±	5.77E-04	9.17E-04
FE-59		0.00E+00	±	5.68E-03	9.46E-03
CO-60		1.80E-04	±	4.63E-04	6.82E-04
ZN-65		-8.14E-04	±	1.91E-03	2.96E-03
CS-134		-9.66E-05	±	4.74E-04	7.56E-04
CS-137		1.56E-04	±	4.43E-04	6.79E-04
BALA140		-2.52E-03	±	2.63E-02	4.25E-02
RA-226		2.22E-03	±	8.92E-03	1.56E-02
RU-106		1.25E-03	±	5.10E-03	8.07E-03

Location and Quarter Station 40 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.17E-01	±	1.84E-02	1.06E-02
K-40		-2.12E-03	±	1.45E-02	1.51E-02
MN-54		3.33E-04	±	5.43E-04	7.73E-04
FE-59		-8.24E-04	±	3.90E-03	6.14E-03
CO-60		3.13E-04	±	3.53E-04	3.29E-04
ZN-65		-2.99E-04	±	1.32E-03	2.05E-03
CS-134		0.00E+00	±	5.22E-04	8.69E-04
CS-137		0.00E+00	±	6.84E-04	1.14E-03
BALA140		0.00E+00	±	5.08E-03	8.47E-03
RA-226		-1.51E-04	±	1.05E-02	1.82E-02
RU-106		-1.19E-04	±	4.67E-03	7.64E-03

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

1st Q 1/1/08 to 4/1/08 - 2nd Q 4/1/08 to 7/1/08 - 3rd Q 7/1/08 to 9/30/08 - 4th Q 9/30/08 to 12/30/08

TABLE A-3.1

GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE FILTERS

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

Location and Quarter Station 48 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	7.79E-02	±	1.58E-02	1.25E-02
K-40		-3.36E-03	±	2.61E-02	1.41E-02
MN-54		-7.09E-06	±	4.20E-04	6.87E-04
FE-59		3.73E-04	±	1.81E-03	2.80E-03
CO-60		0.00E+00	±	1.81E-04	3.02E-04
ZN-65		-1.89E-04	±	1.32E-03	2.11E-03
CS-134		-5.40E-05	±	4.03E-04	6.47E-04
CS-137		-9.05E-05	±	5.03E-04	8.02E-04
BALA140		0.00E+00	±	2.42E-02	4.03E-02
RA-226		0.00E+00	±	7.16E-03	1.19E-02
RU-106		-1.03E-02	±	4.01E-02	6.24E-02

Location and Quarter Station 48 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.24E-01	±	1.52E-02	6.71E-03
K-40		9.68E-04	±	5.16E-03	9.45E-03
MN-54		-8.03E-05	±	3.85E-04	6.08E-04
FE-59		4.12E-04	±	2.45E-03	3.86E-03
CO-60		1.74E-05	±	4.39E-04	7.16E-04
ZN-65		-4.42E-05	±	1.08E-03	1.76E-03
CS-134		0.00E+00	±	4.31E-04	7.18E-04
CS-137		4.51E-05	±	2.48E-04	3.88E-04
BALA140		0.00E+00	±	4.84E-03	8.06E-03
RA-226		7.67E-04	±	4.78E-03	8.77E-03
RU-106		2.50E-06	±	3.20E-03	5.25E-03

Location and Quarter Station 48 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.64E-01	±	2.07E-02	9.92E-03
K-40		-6.90E-04	±	7.99E-03	1.24E-02
MN-54		2.15E-04	±	3.97E-04	5.60E-04
FE-59		1.05E-03	±	3.02E-03	4.50E-03
CO-60		-1.67E-04	±	6.96E-04	1.10E-03
ZN-65		-3.00E-04	±	1.37E-03	2.16E-03
CS-134		-8.61E-05	±	4.42E-04	7.05E-04
CS-137		3.96E-05	±	4.67E-04	7.57E-04
BALA140		0.00E+00	±	4.54E-02	7.57E-02
RA-226		-4.11E-03	±	1.91E-02	1.46E-02
RU-106		-1.06E-03	±	4.19E-03	6.57E-03

Location and Quarter Station 48 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.01E-01	±	1.57E-02	8.24E-03
K-40		-5.84E-03	±	1.33E-01	1.51E-02
MN-54		1.33E-04	±	4.52E-04	6.95E-04
FE-59		0.00E+00	±	2.60E-03	4.34E-03
CO-60		0.00E+00	±	5.58E-04	9.30E-04
ZN-65		0.00E+00	±	2.03E-03	3.39E-03
CS-134		-4.91E-05	±	3.89E-04	6.25E-04
CS-137		1.09E-04	±	4.60E-04	7.25E-04
BALA140		-3.50E-04	±	1.66E-02	2.71E-02
RA-226		-2.89E-03	±	1.59E-02	1.57E-02
RU-106		-2.20E-05	±	4.78E-03	7.85E-03

Location and Quarter Station 57 1st Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.63E-02	±	1.66E-02	1.07E-02
K-40		-1.17E-03	±	9.30E-03	1.24E-02
MN-54		1.47E-04	±	3.82E-04	5.64E-04
FE-59		-6.76E-05	±	2.79E-03	4.56E-03
CO-60		0.00E+00	±	6.82E-04	1.14E-03
ZN-65		-3.96E-04	±	1.45E-03	2.26E-03
CS-134		-2.37E-05	±	4.77E-04	7.79E-04
CS-137		1.02E-04	±	4.57E-04	7.21E-04
BALA140		0.00E+00	±	5.68E-03	9.47E-03
RA-226		0.00E+00	±	5.95E-03	9.92E-03
RU-106		-1.58E-04	±	4.06E-02	6.67E-02

Location and Quarter Station 57 2nd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.21E-01	±	1.50E-02	6.90E-03
K-40		-1.68E-03	±	1.04E-02	9.31E-03
MN-54		1.56E-04	±	3.76E-04	5.66E-04
FE-59		0.00E+00	±	7.94E-04	1.32E-03
CO-60		2.85E-05	±	3.66E-04	5.90E-04
ZN-65		8.84E-05	±	9.96E-04	1.61E-03
CS-134		0.00E+00	±	4.74E-04	7.91E-04
CS-137		0.00E+00	±	3.73E-04	6.22E-04
BALA140		-6.30E-04	±	1.24E-02	2.00E-02
RA-226		-1.73E-03	±	6.93E-03	7.88E-03
RU-106		-1.10E-04	±	3.43E-03	5.61E-03

Location and Quarter Station 57 3rd Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	1.40E-01	±	2.00E-02	1.20E-02
K-40		-5.84E-03	±	2.33E-02	9.03E-03
MN-54		-7.40E-05	±	5.37E-04	8.61E-04
FE-59		0.00E+00	±	5.75E-03	9.58E-03
CO-60		1.74E-04	±	4.21E-04	6.08E-04
ZN-65		0.00E+00	±	1.71E-03	2.85E-03
CS-134		-5.74E-05	±	4.65E-04	7.50E-04
CS-137		0.00E+00	±	4.02E-04	6.70E-04
BALA140		-4.30E-03	±	2.29E-02	3.59E-02
RA-226		-2.88E-03	±	1.63E-02	1.61E-02
RU-106		-1.77E-03	±	5.27E-03	8.25E-03

Location and Quarter Station 57 4th Q 08

Nuclide	RQ	Activity		Error	MDA
BE-7	+	9.57E-02	±	1.27E-02	7.05E-03
K-40		-2.44E-03	±	1.53E-02	8.31E-03
MN-54		-5.98E-05	±	3.91E-04	6.27E-04
FE-59		1.76E-04	±	2.14E-03	3.46E-03
CO-60		1.73E-04	±	3.49E-04	5.04E-04
ZN-65		-3.11E-04	±	9.77E-04	1.51E-03
CS-134		-1.18E-04	±	3.39E-04	5.30E-04
CS-137		-3.12E-05	±	3.98E-04	6.47E-04
BALA140		0.00E+00	±	3.16E-03	5.26E-03
RA-226		1.02E-05	±	5.37E-03	9.74E-03
RU-106		3.78E-04	±	3.02E-03	4.85E-03

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

1st Q 1/1/08 to 4/1/08 - 2nd Q 4/1/08 to 7/1/08 - 3rd Q 7/1/08 to 9/30/08 - 4th Q 9/30/08 to 12/30/08

TABLE A-3.2

GAMMA SPECTROMETRY RESULTS OF AIR PARTICULATE 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
BALA140	Ind	-6.39E-05	-7.52E-03	8.19E-03	2.26E-02	44	0
BALA140	Cntl	-1.04E-03	-3.71E-03	0.00E+00	1.61E-02	4	0
BE-7	Ind	1.09E-01	6.97E-02	1.64E-01	9.23E-03	44	44
BE-7	Cntl	1.03E-01	7.02E-02	1.53E-01	8.66E-03	4	4
CO-60	Ind	5.13E-05	-1.74E-04	3.15E-04	7.24E-04	44	0
CO-60	Cntl	-3.42E-06	-8.43E-05	1.41E-04	8.72E-04	4	0
CS-134	Ind	-3.30E-05	-2.35E-04	1.68E-04	6.89E-04	44	0
CS-134	Cntl	-7.93E-05	-1.69E-04	0.00E+00	7.28E-04	4	0
CS-137	Ind	-1.15E-05	-4.16E-04	2.53E-04	7.25E-04	44	0
CS-137	Cntl	2.72E-05	-6.38E-05	1.36E-04	6.55E-04	4	0
FE-59	Ind	-6.32E-05	-1.35E-03	1.26E-03	4.83E-03	44	0
FE-59	Cntl	3.39E-04	0.00E+00	1.22E-03	4.94E-03	4	0
K-40	Ind	-2.96E-03	-9.79E-03	1.31E-03	1.24E-02	44	0
K-40	Cntl	-3.49E-03	-4.84E-03	-2.41E-03	1.24E-02	4	0
MN-54	Ind	4.28E-05	-1.98E-04	3.33E-04	7.65E-04	44	0
MN-54	Cntl	1.07E-04	-4.69E-05	3.93E-04	7.40E-04	4	0
RA-226	Ind	1.47E-03	-1.02E-02	1.24E-02	1.24E-02	44	4
RA-226	Cntl	2.97E-03	0.00E+00	4.56E-03	1.14E-02	4	0
RU-106	Ind	-6.89E-04	-1.03E-02	6.15E-03	1.88E-02	44	0
RU-106	Cntl	8.23E-04	-6.41E-04	2.16E-03	1.67E-02	4	0
ZN-65	Ind	-1.04E-04	-8.14E-04	4.20E-04	2.23E-03	44	0
ZN-65	Cntl	-1.49E-04	-3.21E-04	-2.24E-05	1.92E-03	4	0

Ind = Indicator Stations Cntl = Control Stations

TABLE A-4.1

GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS

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

Collection Period	Station 1 RQ	Activity		Error	MDA	Station 9 RQ	Activity		Error	MDA
1/1/2008 - 1/8/2008		4.18E-03	±	8.77E-03	1.34E-02		3.07E-03	±	8.77E-03	1.37E-02
1/8/2008 - 1/14/2008		6.50E-03	±	1.10E-02	1.66E-02		4.30E-03	±	1.05E-02	1.61E-02
1/14/2008 - 1/22/2008		4.73E-03	±	9.30E-03	1.43E-02		2.67E-03	±	1.01E-02	1.61E-02
1/22/2008 - 1/29/2008		3.77E-03	±	1.04E-02	1.64E-02		1.22E-03	±	9.43E-03	1.52E-02
1/29/2008 - 2/5/2008		1.13E-04	±	9.98E-03	1.64E-02		-3.03E-03	±	1.02E-02	1.61E-02
2/5/2008 - 2/12/2008		-2.79E-04	±	8.68E-03	1.42E-02		-5.23E-03	±	1.35E-02	2.14E-02
2/12/2008 - 2/19/2008		-1.74E-03	±	1.13E-02	1.82E-02		-2.95E-03	±	1.27E-02	2.04E-02
2/19/2008 - 2/26/2008		-2.49E-03	±	1.15E-02	1.84E-02		-1.56E-04	±	1.12E-02	1.84E-02
2/26/2008 - 3/4/2008		-2.40E-03	±	1.01E-02	1.61E-02		-2.85E-03	±	1.12E-02	1.79E-02
3/4/2008 - 3/11/2008		-2.57E-03	±	1.08E-02	1.72E-02		-2.93E-03	±	1.10E-02	1.74E-02
3/11/2008 - 3/18/2008		-1.47E-03	±	9.50E-03	1.53E-02		-2.09E-04	±	1.10E-02	1.80E-02
3/18/2008 - 3/25/2008		1.81E-03	±	1.10E-02	1.77E-02		-1.56E-03	±	1.01E-02	1.62E-02
3/25/2008 - 4/1/2008		-1.79E-03	±	1.09E-02	1.76E-02		-3.70E-04	±	9.54E-03	1.56E-02
4/1/2008 - 4/8/2008		2.90E-05	±	8.92E-03	1.46E-02		-1.07E-03	±	1.13E-02	1.83E-02
4/8/2008 - 4/15/2008		2.04E-04	±	8.68E-03	1.42E-02		1.62E-03	±	8.62E-03	1.38E-02
4/15/2008 - 4/22/2008		-2.70E-03	±	9.38E-03	1.48E-02		1.58E-04	±	8.99E-03	1.48E-02
4/22/2008 - 4/29/2008		1.06E-03	±	9.09E-03	1.47E-02		4.26E-03	±	9.54E-03	1.47E-02
4/29/2008 - 5/6/2008		-7.38E-04	±	1.07E-02	1.74E-02		-3.07E-04	±	1.06E-02	1.74E-02
5/6/2008 - 5/13/2008		-2.64E-04	±	8.81E-03	1.44E-02		-1.72E-03	±	1.03E-02	1.66E-02
5/13/2008 - 5/20/2008		-3.10E-03	±	1.09E-02	1.73E-02		3.67E-03	±	1.33E-02	2.09E-02
5/20/2008 - 5/27/2008		1.38E-03	±	9.15E-03	1.47E-02		-1.62E-03	±	9.70E-03	1.56E-02
5/27/2008 - 6/3/2008		5.85E-03	±	1.04E-02	1.59E-02		-2.97E-03	±	1.21E-02	1.93E-02
6/3/2008 - 6/10/2008		7.02E-04	±	8.86E-03	1.44E-02		4.71E-03	±	9.74E-03	1.50E-02
6/10/2008 - 6/17/2008		-1.09E-03	±	1.07E-02	1.74E-02		4.64E-03	±	7.41E-03	1.07E-02
6/17/2008 - 6/24/2008		5.09E-03	±	7.03E-03	1.01E-02		2.24E-04	±	6.16E-03	1.01E-02
6/24/2008 - 7/1/2008		-1.99E-03	±	7.78E-03	1.23E-02		-7.62E-04	±	7.94E-03	1.29E-02
7/1/2008 - 7/8/2008		1.52E-03	±	6.98E-03	1.11E-02		-1.50E-03	±	7.63E-03	1.22E-02
7/8/2008 - 7/15/2008		8.34E-04	±	5.60E-03	8.91E-03		-1.27E-03	±	8.27E-03	1.33E-02
7/15/2008 - 7/22/2008		2.64E-03	±	7.60E-03	1.18E-02		-9.02E-04	±	7.13E-03	1.15E-02
7/22/2008 - 7/29/2008		1.39E-03	±	6.64E-03	1.05E-02		-2.82E-03	±	8.00E-03	1.25E-02
7/29/2008 - 8/5/2008		-8.38E-04	±	9.82E-03	1.60E-02		-2.89E-03	±	1.04E-02	1.65E-02
8/5/2008 - 8/12/2008		5.23E-03	±	7.57E-03	1.09E-02		-3.19E-03	±	1.03E-02	1.64E-02
8/12/2008 - 8/19/2008		2.70E-03	±	9.63E-03	1.52E-02		4.48E-03	±	8.77E-03	1.33E-02
8/19/2008 - 8/26/2008		1.03E-03	±	9.98E-03	1.62E-02		2.56E-03	±	1.02E-02	1.63E-02
8/26/2008 - 9/2/2008		2.50E-03	±	8.66E-03	1.36E-02		-1.17E-03	±	1.02E-02	1.66E-02
9/2/2008 - 9/9/2008		1.13E-02	±	1.29E-02	1.88E-02		-3.89E-03	±	1.18E-02	1.87E-02
9/9/2008 - 9/16/2008		-3.31E-03	±	1.12E-02	1.78E-02		3.13E-04	±	9.42E-03	1.54E-02
9/16/2008 - 9/23/2008		-2.81E-03	±	1.03E-02	1.64E-02		-1.75E-03	±	1.02E-02	1.65E-02
9/23/2008 - 9/30/2008		-2.40E-03	±	1.11E-02	1.78E-02		5.58E-03	±	8.79E-03	1.31E-02
9/30/2008 - 10/7/2008		-7.37E-04	±	7.42E-03	1.20E-02		-2.51E-04	±	1.13E-02	1.85E-02
10/7/2008 - 10/14/2008		-2.79E-03	±	8.77E-03	1.38E-02		-1.65E-03	±	7.00E-03	1.10E-02
10/14/2008 - 10/21/2008		-9.93E-04	±	6.91E-03	1.11E-02		-2.80E-04	±	7.19E-03	1.18E-02
10/21/2008 - 10/28/2008		-4.99E-03	±	1.32E-02	2.10E-02		-1.56E-03	±	1.22E-02	1.98E-02
10/28/2008 - 11/4/2008		0.00E+00	±	1.03E-02	1.71E-02		-1.91E-03	±	1.16E-02	1.87E-02
11/4/2008 - 11/11/2008		4.43E-03	±	9.13E-03	1.40E-02		-1.22E-04	±	8.05E-03	1.32E-02
11/11/2008 - 11/18/2008		-4.31E-04	±	1.11E-02	1.81E-02		-8.68E-05	±	9.69E-03	1.59E-02
11/18/2008 - 11/25/2008		-8.18E-05	±	1.15E-02	1.89E-02		0.00E+00	±	1.09E-02	1.81E-02
11/25/2008 - 12/2/2008		-2.71E-03	±	1.02E-02	1.62E-02		-4.78E-04	±	8.24E-03	1.34E-02
12/2/2008 - 12/9/2008		8.52E-04	±	7.86E-03	1.27E-02		2.33E-05	±	7.80E-03	1.28E-02
12/9/2008 - 12/16/2008		-1.05E-03	±	1.01E-02	1.64E-02		-5.70E-03	±	1.27E-02	2.00E-02
12/16/2008 - 12/23/2008		9.61E-04	±	1.02E-02	1.66E-02		3.18E-03	±	9.49E-03	1.50E-02
12/23/2008 - 12/30/2008		4.84E-03	±	9.07E-03	1.38E-02		-6.58E-04	±	9.71E-03	1.58E-02

NVS = Valid sample not obtained due to sampler failure.

TABLE A-4.1

GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS

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

Collection Period	Station 4 RQ	Activity		Error	MDA	Station 21 RQ	Activity		Error	MDA
1/1/2008 - 1/8/2008		4.18E-03	±	8.77E-03	1.34E-02		3.07E-03	±	8.77E-03	1.37E-02
1/8/2008 - 1/14/2008		6.50E-03	±	1.10E-02	1.66E-02		4.30E-03	±	1.05E-02	1.61E-02
1/14/2008 - 1/22/2008		4.73E-03	±	9.30E-03	1.43E-02		2.67E-03	±	1.01E-02	1.61E-02
1/22/2008 - 1/29/2008		3.77E-03	±	1.04E-02	1.64E-02		1.22E-03	±	9.43E-03	1.52E-02
1/29/2008 - 2/5/2008		1.13E-04	±	9.98E-03	1.64E-02		-3.03E-03	±	1.02E-02	1.61E-02
2/5/2008 - 2/12/2008		-2.79E-04	±	8.68E-03	1.42E-02		-5.23E-03	±	1.35E-02	2.14E-02
2/12/2008 - 2/19/2008		-1.74E-03	±	1.13E-02	1.82E-02		-2.95E-03	±	1.27E-02	2.04E-02
2/19/2008 - 2/26/2008		-2.49E-03	±	1.15E-02	1.84E-02		-1.56E-04	±	1.12E-02	1.84E-02
2/26/2008 - 3/4/2008		-2.40E-03	±	1.01E-02	1.61E-02		-2.85E-03	±	1.12E-02	1.79E-02
3/4/2008 - 3/11/2008		-2.57E-03	±	1.08E-02	1.72E-02		-2.93E-03	±	1.10E-02	1.74E-02
3/11/2008 - 3/18/2008		-1.47E-03	±	9.50E-03	1.53E-02		-2.09E-04	±	1.10E-02	1.80E-02
3/18/2008 - 3/25/2008		1.81E-03	±	1.10E-02	1.77E-02		-1.56E-03	±	1.01E-02	1.62E-02
3/25/2008 - 4/1/2008		-1.79E-03	±	1.09E-02	1.76E-02		-3.70E-04	±	9.54E-03	1.56E-02
4/1/2008 - 4/8/2008		2.90E-05	±	8.92E-03	1.46E-02		-1.07E-03	±	1.13E-02	1.83E-02
4/8/2008 - 4/15/2008		2.04E-04	±	8.68E-03	1.42E-02		1.62E-03	±	8.62E-03	1.38E-02
4/15/2008 - 4/22/2008		-2.70E-03	±	9.38E-03	1.48E-02		1.58E-04	±	8.99E-03	1.48E-02
4/22/2008 - 4/29/2008		1.06E-03	±	9.09E-03	1.47E-02		4.26E-03	±	9.54E-03	1.47E-02
4/29/2008 - 5/6/2008		-7.38E-04	±	1.07E-02	1.74E-02		-3.07E-04	±	1.06E-02	1.74E-02
5/6/2008 - 5/13/2008		-2.64E-04	±	8.81E-03	1.44E-02		-1.72E-03	±	1.03E-02	1.66E-02
5/13/2008 - 5/20/2008		-3.10E-03	±	1.09E-02	1.73E-02		2.37E-03	±	8.58E-03	1.35E-02
5/20/2008 - 5/27/2008		1.38E-03	±	9.15E-03	1.47E-02		-1.62E-03	±	9.70E-03	1.56E-02
5/27/2008 - 6/3/2008		5.85E-03	±	1.04E-02	1.59E-02		-2.97E-03	±	1.21E-02	1.93E-02
6/3/2008 - 6/10/2008		7.02E-04	±	8.86E-03	1.44E-02		4.71E-03	±	9.74E-03	1.50E-02
6/10/2008 - 6/17/2008		-1.09E-03	±	1.07E-02	1.74E-02		4.64E-03	±	7.41E-03	1.07E-02
6/17/2008 - 6/24/2008		5.09E-03	±	7.03E-03	1.01E-02		2.24E-04	±	6.16E-03	1.01E-02
6/24/2008 - 7/1/2008		-1.99E-03	±	7.78E-03	1.23E-02		-7.62E-04	±	7.94E-03	1.29E-02
7/1/2008 - 7/8/2008		1.52E-03	±	6.98E-03	1.11E-02		-1.50E-03	±	7.63E-03	1.22E-02
7/8/2008 - 7/15/2008		8.34E-04	±	5.60E-03	8.91E-03		-1.27E-03	±	8.27E-03	1.33E-02
7/15/2008 - 7/22/2008		2.64E-03	±	7.60E-03	1.18E-02		-9.02E-04	±	7.13E-03	1.15E-02
7/22/2008 - 7/29/2008		1.39E-03	±	6.64E-03	1.05E-02		-2.82E-03	±	8.00E-03	1.25E-02
7/29/2008 - 8/5/2008		-8.38E-04	±	9.82E-03	1.60E-02		-2.89E-03	±	1.04E-02	1.65E-02
8/5/2008 - 8/12/2008		5.23E-03	±	7.57E-03	1.09E-02		-3.19E-03	±	1.03E-02	1.64E-02
8/12/2008 - 8/19/2008		2.70E-03	±	9.63E-03	1.52E-02		4.48E-03	±	8.77E-03	1.33E-02
8/19/2008 - 8/26/2008		1.03E-03	±	9.98E-03	1.62E-02		2.56E-03	±	1.02E-02	1.63E-02
8/26/2008 - 9/2/2008		2.50E-03	±	8.66E-03	1.36E-02		-1.17E-03	±	1.02E-02	1.66E-02
9/2/2008 - 9/9/2008		9.29E-03	±	1.06E-02	1.54E-02		-3.89E-03	±	1.18E-02	1.87E-02
9/9/2008 - 9/16/2008		-3.31E-03	±	1.12E-02	1.78E-02		3.13E-04	±	9.42E-03	1.54E-02
9/16/2008 - 9/23/2008		-2.81E-03	±	1.03E-02	1.64E-02		-1.75E-03	±	1.02E-02	1.65E-02
9/23/2008 - 9/30/2008		-2.40E-03	±	1.11E-02	1.78E-02		5.58E-03	±	8.79E-03	1.31E-02
9/30/2008 - 10/7/2008		-7.37E-04	±	7.42E-03	1.20E-02		-2.51E-04	±	1.13E-02	1.85E-02
10/7/2008 - 10/14/2008		-2.79E-03	±	8.77E-03	1.38E-02		-1.65E-03	±	7.00E-03	1.10E-02
10/14/2008 - 10/21/2008		-9.93E-04	±	6.91E-03	1.11E-02		-2.80E-04	±	7.19E-03	1.18E-02
10/21/2008 - 10/28/2008		-4.99E-03	±	1.32E-02	2.10E-02		-1.56E-03	±	1.22E-02	1.98E-02
10/28/2008 - 11/4/2008		0.00E+00	±	1.03E-02	1.71E-02		-1.91E-03	±	1.16E-02	1.87E-02
11/4/2008 - 11/11/2008		4.43E-03	±	9.13E-03	1.40E-02		-1.22E-04	±	8.05E-03	1.32E-02
11/11/2008 - 11/18/2008		-4.31E-04	±	1.11E-02	1.81E-02		-8.68E-05	±	9.69E-03	1.59E-02
11/18/2008 - 11/25/2008		-8.18E-05	±	1.15E-02	1.89E-02		0.00E+00	±	1.09E-02	1.81E-02
11/25/2008 - 12/2/2008		-2.71E-03	±	1.02E-02	1.62E-02		-4.78E-04	±	8.24E-03	1.34E-02
12/2/2008 - 12/9/2008		8.52E-04	±	7.86E-03	1.27E-02		2.33E-05	±	7.80E-03	1.28E-02
12/9/2008 - 12/16/2008		-1.05E-03	±	1.01E-02	1.64E-02		-5.70E-03	±	1.27E-02	2.00E-02
12/16/2008 - 12/23/2008		9.61E-04	±	1.02E-02	1.66E-02		3.18E-03	±	9.49E-03	1.50E-02
12/23/2008 - 12/30/2008		4.84E-03	±	9.07E-03	1.38E-02		-6.58E-04	±	9.71E-03	1.58E-02

NVS = Valid sample not obtained due to sampler failure.

TABLE A-4.1

GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS

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

		Station 5				Station 23			
Collection Period		RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
1/1/2008 -	1/8/2008		4.18E-03 ±	8.77E-03	1.34E-02		2.31E-03 ±	8.66E-03	1.36E-02
1/8/2008 -	1/14/2008		6.50E-03 ±	1.10E-02	1.66E-02		-6.02E-04 ±	1.21E-02	1.98E-02
1/14/2008 -	1/22/2008		4.73E-03 ±	9.30E-03	1.43E-02		7.00E-04 ±	1.10E-02	1.79E-02
1/22/2008 -	1/29/2008		3.77E-03 ±	1.04E-02	1.64E-02		5.79E-03 ±	9.76E-03	1.47E-02
1/29/2008 -	2/5/2008		1.13E-04 ±	9.98E-03	1.64E-02		-1.51E-03 ±	1.03E-02	1.66E-02
2/5/2008 -	2/12/2008		-2.79E-04 ±	8.68E-03	1.42E-02		-4.17E-04 ±	1.21E-02	1.98E-02
2/12/2008 -	2/19/2008		-1.74E-03 ±	1.13E-02	1.82E-02		1.58E-03 ±	1.22E-02	1.98E-02
2/19/2008 -	2/26/2008		-2.49E-03 ±	1.15E-02	1.84E-02		6.32E-03 ±	9.93E-03	1.49E-02
2/26/2008 -	3/4/2008		-2.40E-03 ±	1.01E-02	1.61E-02		1.46E-03 ±	6.33E-03	1.02E-02
3/4/2008 -	3/11/2008		-2.57E-03 ±	1.08E-02	1.72E-02		6.89E-05 ±	1.06E-02	1.73E-02
3/11/2008 -	3/18/2008		-1.47E-03 ±	9.50E-03	1.53E-02		-2.94E-03 ±	1.04E-02	1.65E-02
3/18/2008 -	3/25/2008		1.81E-03 ±	1.10E-02	1.77E-02		-2.15E-03 ±	1.21E-02	1.95E-02
3/25/2008 -	4/1/2008		-1.79E-03 ±	1.09E-02	1.76E-02		3.16E-03 ±	9.89E-03	1.56E-02
4/1/2008 -	4/8/2008		2.90E-05 ±	8.92E-03	1.46E-02		-1.84E-03 ±	1.12E-02	1.81E-02
4/8/2008 -	4/15/2008		2.04E-04 ±	8.68E-03	1.42E-02		1.06E-03 ±	7.60E-03	1.22E-02
4/15/2008 -	4/22/2008		-2.70E-03 ±	9.38E-03	1.48E-02		-3.38E-03 ±	1.17E-02	1.85E-02
4/22/2008 -	4/29/2008		1.06E-03 ±	9.09E-03	1.47E-02		-2.23E-03 ±	1.06E-02	1.70E-02
4/29/2008 -	5/6/2008		-7.38E-04 ±	1.07E-02	1.74E-02		-4.95E-03 ±	1.35E-02	2.14E-02
5/6/2008 -	5/13/2008		-2.64E-04 ±	8.81E-03	1.44E-02		-1.66E-03 ±	1.02E-02	1.64E-02
5/13/2008 -	5/20/2008		-3.10E-03 ±	1.09E-02	1.73E-02		1.07E-04 ±	1.14E-02	1.88E-02
5/20/2008 -	5/27/2008		1.38E-03 ±	9.15E-03	1.47E-02		-2.45E-03 ±	1.01E-02	1.61E-02
5/27/2008 -	6/3/2008		5.85E-03 ±	1.04E-02	1.59E-02		9.25E-04 ±	1.04E-02	1.69E-02
6/3/2008 -	6/10/2008		7.02E-04 ±	8.86E-03	1.44E-02		-2.79E-03 ±	1.00E-02	1.58E-02
6/10/2008 -	6/17/2008		-1.09E-03 ±	1.07E-02	1.74E-02		7.04E-03 ±	1.01E-02	1.50E-02
6/17/2008 -	6/24/2008		5.09E-03 ±	7.03E-03	1.01E-02		0.00E+00 ±	1.41E-02	2.36E-02
6/24/2008 -	7/1/2008		-1.99E-03 ±	7.78E-03	1.23E-02		-4.46E-03 ±	1.01E-02	1.57E-02
7/1/2008 -	7/8/2008		1.52E-03 ±	6.98E-03	1.11E-02		1.98E-03 ±	7.37E-03	1.16E-02
7/8/2008 -	7/15/2008		8.34E-04 ±	5.60E-03	8.91E-03		-7.15E-05 ±	6.88E-03	1.13E-02
7/15/2008 -	7/22/2008		2.64E-03 ±	7.60E-03	1.18E-02		-5.28E-04 ±	7.70E-03	1.25E-02
7/22/2008 -	7/29/2008		1.39E-03 ±	6.64E-03	1.05E-02		-1.46E-03 ±	7.62E-03	1.21E-02
7/29/2008 -	8/5/2008		-8.38E-04 ±	9.82E-03	1.60E-02		6.04E-03 ±	8.48E-03	1.23E-02
8/5/2008 -	8/12/2008		5.23E-03 ±	7.57E-03	1.09E-02		-2.69E-03 ±	1.20E-02	1.92E-02
8/12/2008 -	8/19/2008		2.70E-03 ±	9.63E-03	1.52E-02		0.00E+00 ±	1.31E-02	2.18E-02
8/19/2008 -	8/26/2008		1.03E-03 ±	9.98E-03	1.62E-02		3.07E-03 ±	1.05E-02	1.67E-02
8/26/2008 -	9/2/2008		2.50E-03 ±	8.66E-03	1.36E-02		2.17E-03 ±	1.02E-02	1.63E-02
9/2/2008 -	9/9/2008		9.29E-03 ±	1.06E-02	1.54E-02		5.20E-03 ±	9.50E-03	1.44E-02
9/9/2008 -	9/16/2008		-3.31E-03 ±	1.12E-02	1.78E-02		-1.60E-03 ±	1.04E-02	1.68E-02
9/16/2008 -	9/23/2008		-2.81E-03 ±	1.03E-02	1.64E-02		3.98E-03 ±	1.14E-02	1.80E-02
9/23/2008 -	9/30/2008		-2.40E-03 ±	1.11E-02	1.78E-02		0.00E+00 ±	1.31E-02	2.19E-02
9/30/2008 -	10/7/2008		-7.37E-04 ±	7.42E-03	1.20E-02		-3.03E-03 ±	1.07E-02	1.70E-02
10/7/2008 -	10/14/2008		-2.79E-03 ±	8.77E-03	1.38E-02		1.37E-03 ±	7.18E-03	1.14E-02
10/14/2008 -	10/21/2008		-9.93E-04 ±	6.91E-03	1.11E-02		-3.13E-03 ±	9.02E-03	1.42E-02
10/21/2008 -	10/28/2008		-4.99E-03 ±	1.32E-02	2.10E-02		9.34E-04 ±	1.54E-02	2.52E-02
10/28/2008 -	11/4/2008		0.00E+00 ±	1.03E-02	1.71E-02		-2.39E-04 ±	1.05E-02	1.72E-02
11/4/2008 -	11/11/2008		4.43E-03 ±	9.13E-03	1.40E-02		-3.39E-04 ±	1.04E-02	1.70E-02
11/11/2008 -	11/18/2008		-4.31E-04 ±	1.11E-02	1.81E-02		-8.68E-05 ±	9.69E-03	1.59E-02
11/18/2008 -	11/25/2008		-8.18E-05 ±	1.15E-02	1.89E-02		-3.72E-03 ±	1.21E-02	1.92E-02
11/25/2008 -	12/2/2008		-2.71E-03 ±	1.02E-02	1.62E-02		8.30E-03 ±	9.29E-03	1.32E-02
12/2/2008 -	12/9/2008		8.52E-04 ±	7.86E-03	1.27E-02		-1.96E-03 ±	8.85E-03	1.41E-02
12/9/2008 -	12/16/2008		-1.05E-03 ±	1.01E-02	1.64E-02		1.51E-03 ±	1.17E-02	1.90E-02
12/16/2008 -	12/23/2008		9.61E-04 ±	1.02E-02	1.66E-02		0.00E+00 ±	1.35E-02	2.25E-02
12/23/2008 -	12/30/2008		4.84E-03 ±	9.07E-03	1.38E-02		-2.77E-04 ±	9.52E-03	1.56E-02

NVS = Valid sample not obtained due to sampler failure.

TABLE A-4.1

GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS

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

		Station 6				Station 40			
Collection Period		RQ	Activity	Error	MDA	RQ	Activity	Error	MDA
1/1/2008 -	1/8/2008		4.18E-03 ±	8.77E-03	1.34E-02		2.31E-03 ±	8.66E-03	1.36E-02
1/8/2008 -	1/14/2008		6.50E-03 ±	1.10E-02	1.66E-02		-6.02E-04 ±	1.21E-02	1.98E-02
1/14/2008 -	1/22/2008		4.73E-03 ±	9.30E-03	1.43E-02		7.00E-04 ±	1.10E-02	1.79E-02
1/22/2008 -	1/29/2008		3.77E-03 ±	1.04E-02	1.64E-02		5.79E-03 ±	9.76E-03	1.47E-02
1/29/2008 -	2/5/2008		1.13E-04 ±	9.98E-03	1.64E-02		-1.51E-03 ±	1.03E-02	1.66E-02
2/5/2008 -	2/12/2008		-2.79E-04 ±	8.68E-03	1.42E-02		-4.17E-04 ±	1.21E-02	1.98E-02
2/12/2008 -	2/19/2008		-1.74E-03 ±	1.13E-02	1.82E-02		1.58E-03 ±	1.22E-02	1.98E-02
2/19/2008 -	2/26/2008		-2.49E-03 ±	1.15E-02	1.84E-02		6.32E-03 ±	9.93E-03	1.49E-02
2/26/2008 -	3/4/2008		-2.40E-03 ±	1.01E-02	1.61E-02		1.46E-03 ±	6.33E-03	1.02E-02
3/4/2008 -	3/11/2008		-2.57E-03 ±	1.08E-02	1.72E-02		6.89E-05 ±	1.06E-02	1.73E-02
3/11/2008 -	3/18/2008		-1.47E-03 ±	9.50E-03	1.53E-02		-2.94E-03 ±	1.04E-02	1.65E-02
3/18/2008 -	3/25/2008		1.81E-03 ±	1.10E-02	1.77E-02		-2.15E-03 ±	1.21E-02	1.95E-02
3/25/2008 -	4/1/2008		-1.79E-03 ±	1.09E-02	1.76E-02		3.16E-03 ±	9.89E-03	1.56E-02
4/1/2008 -	4/8/2008		2.90E-05 ±	8.92E-03	1.46E-02		-1.84E-03 ±	1.12E-02	1.81E-02
4/8/2008 -	4/15/2008		2.04E-04 ±	8.68E-03	1.42E-02		1.06E-03 ±	7.60E-03	1.22E-02
4/15/2008 -	4/22/2008		-2.70E-03 ±	9.38E-03	1.48E-02		-3.38E-03 ±	1.17E-02	1.85E-02
4/22/2008 -	4/29/2008		1.06E-03 ±	9.09E-03	1.47E-02		-2.23E-03 ±	1.06E-02	1.70E-02
4/29/2008 -	5/6/2008		-7.38E-04 ±	1.07E-02	1.74E-02		-4.95E-03 ±	1.35E-02	2.14E-02
5/6/2008 -	5/13/2008		-2.64E-04 ±	8.81E-03	1.44E-02		-1.66E-03 ±	1.02E-02	1.64E-02
5/13/2008 -	5/20/2008		-3.10E-03 ±	1.09E-02	1.73E-02		1.07E-04 ±	1.14E-02	1.88E-02
5/20/2008 -	5/27/2008		1.38E-03 ±	9.15E-03	1.47E-02		-2.45E-03 ±	1.01E-02	1.61E-02
5/27/2008 -	6/3/2008		5.85E-03 ±	1.04E-02	1.59E-02		9.25E-04 ±	1.04E-02	1.69E-02
6/3/2008 -	6/10/2008		7.02E-04 ±	8.86E-03	1.44E-02		-2.79E-03 ±	1.00E-02	1.58E-02
6/10/2008 -	6/17/2008		-1.09E-03 ±	1.07E-02	1.74E-02		7.04E-03 ±	1.01E-02	1.50E-02
6/17/2008 -	6/24/2008		5.09E-03 ±	7.03E-03	1.01E-02		0.00E+00 ±	8.85E-03	1.48E-02
6/24/2008 -	7/1/2008		-1.99E-03 ±	7.78E-03	1.23E-02		-3.82E-03 ±	8.69E-03	1.34E-02
7/1/2008 -	7/8/2008		1.52E-03 ±	6.98E-03	1.11E-02		1.98E-03 ±	7.37E-03	1.16E-02
7/8/2008 -	7/15/2008		8.34E-04 ±	5.60E-03	8.91E-03		-7.15E-05 ±	6.88E-03	1.13E-02
7/15/2008 -	7/22/2008		2.64E-03 ±	7.60E-03	1.18E-02		-5.28E-04 ±	7.70E-03	1.25E-02
7/22/2008 -	7/29/2008		1.39E-03 ±	6.64E-03	1.05E-02		-1.46E-03 ±	7.62E-03	1.21E-02
7/29/2008 -	8/5/2008		-8.38E-04 ±	9.82E-03	1.60E-02		6.04E-03 ±	8.48E-03	1.23E-02
8/5/2008 -	8/12/2008		5.23E-03 ±	7.57E-03	1.09E-02		-2.69E-03 ±	1.20E-02	1.92E-02
8/12/2008 -	8/19/2008		2.70E-03 ±	9.63E-03	1.52E-02		0.00E+00 ±	1.31E-02	2.18E-02
8/19/2008 -	8/26/2008		1.03E-03 ±	9.98E-03	1.62E-02		3.07E-03 ±	1.05E-02	1.67E-02
8/26/2008 -	9/2/2008		2.50E-03 ±	8.66E-03	1.36E-02		2.17E-03 ±	1.02E-02	1.63E-02
9/2/2008 -	9/9/2008		9.29E-03 ±	1.06E-02	1.54E-02		5.20E-03 ±	9.50E-03	1.44E-02
9/9/2008 -	9/16/2008		-3.31E-03 ±	1.12E-02	1.78E-02		-1.60E-03 ±	1.04E-02	1.68E-02
9/16/2008 -	9/23/2008		-2.81E-03 ±	1.03E-02	1.64E-02		3.98E-03 ±	1.14E-02	1.80E-02
9/23/2008 -	9/30/2008		-2.40E-03 ±	1.11E-02	1.78E-02		0.00E+00 ±	1.31E-02	2.19E-02
9/30/2008 -	10/7/2008		-7.37E-04 ±	7.42E-03	1.20E-02		-3.03E-03 ±	1.07E-02	1.70E-02
10/7/2008 -	10/14/2008		-2.79E-03 ±	8.77E-03	1.38E-02		1.37E-03 ±	7.18E-03	1.14E-02
10/14/2008 -	10/21/2008		-9.93E-04 ±	6.91E-03	1.11E-02		-3.13E-03 ±	9.02E-03	1.42E-02
10/21/2008 -	10/28/2008		-4.99E-03 ±	1.32E-02	2.10E-02		9.34E-04 ±	1.54E-02	2.52E-02
10/28/2008 -	11/4/2008		0.00E+00 ±	1.03E-02	1.71E-02		-2.39E-04 ±	1.05E-02	1.72E-02
11/4/2008 -	11/11/2008		4.43E-03 ±	9.13E-03	1.40E-02		-3.39E-04 ±	1.04E-02	1.70E-02
11/11/2008 -	11/18/2008		-4.31E-04 ±	1.11E-02	1.81E-02		-8.68E-05 ±	9.69E-03	1.59E-02
11/18/2008 -	11/25/2008		-8.18E-05 ±	1.15E-02	1.89E-02		-3.72E-03 ±	1.21E-02	1.92E-02
11/25/2008 -	12/2/2008		-2.71E-03 ±	1.02E-02	1.62E-02		NVS ±		
12/2/2008 -	12/9/2008		8.52E-04 ±	7.86E-03	1.27E-02		NVS ±		
12/9/2008 -	12/16/2008		-1.05E-03 ±	1.01E-02	1.64E-02		1.51E-03 ±	1.17E-02	1.90E-02
12/16/2008 -	12/23/2008		9.61E-04 ±	1.02E-02	1.66E-02		0.00E+00 ±	1.35E-02	2.25E-02
12/23/2008 -	12/30/2008		4.84E-03 ±	9.07E-03	1.38E-02		-2.77E-04 ±	9.52E-03	1.56E-02

NVS = Valid sample not obtained due to sampler failure.

TABLE A-4.1

GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS

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

		Station 7				Station 48			
Collection Period		RQ Activity		Error	MDA	RQ Activity		Error	MDA
1/1/2008 -	1/8/2008	3.07E-03	±	8.77E-03	1.37E-02	2.31E-03	±	8.66E-03	1.36E-02
1/8/2008 -	1/14/2008	4.30E-03	±	1.05E-02	1.61E-02	-6.02E-04	±	1.21E-02	1.98E-02
1/14/2008 -	1/22/2008	2.67E-03	±	1.01E-02	1.61E-02	7.00E-04	±	1.10E-02	1.79E-02
1/22/2008 -	1/29/2008	1.22E-03	±	9.43E-03	1.52E-02	5.79E-03	±	9.76E-03	1.47E-02
1/29/2008 -	2/5/2008	-3.03E-03	±	1.02E-02	1.61E-02	-1.51E-03	±	1.03E-02	1.66E-02
2/5/2008 -	2/12/2008	-5.23E-03	±	1.35E-02	2.14E-02	-4.17E-04	±	1.21E-02	1.98E-02
2/12/2008 -	2/19/2008	-2.95E-03	±	1.27E-02	2.04E-02	1.58E-03	±	1.22E-02	1.98E-02
2/19/2008 -	2/26/2008	-1.56E-04	±	1.12E-02	1.84E-02	6.32E-03	±	9.93E-03	1.49E-02
2/26/2008 -	3/4/2008	-2.85E-03	±	1.12E-02	1.79E-02	1.46E-03	±	6.33E-03	1.02E-02
3/4/2008 -	3/11/2008	-2.93E-03	±	1.10E-02	1.74E-02	6.89E-05	±	1.06E-02	1.73E-02
3/11/2008 -	3/18/2008	-2.09E-04	±	1.10E-02	1.80E-02	-2.94E-03	±	1.04E-02	1.65E-02
3/18/2008 -	3/25/2008	-1.56E-03	±	1.01E-02	1.62E-02	-2.15E-03	±	1.21E-02	1.95E-02
3/25/2008 -	4/1/2008	-3.70E-04	±	9.54E-03	1.56E-02	3.16E-03	±	9.89E-03	1.56E-02
4/1/2008 -	4/8/2008	-1.07E-03	±	1.13E-02	1.83E-02	-1.84E-03	±	1.12E-02	1.81E-02
4/8/2008 -	4/15/2008	1.62E-03	±	8.62E-03	1.38E-02	1.06E-03	±	7.60E-03	1.22E-02
4/15/2008 -	4/22/2008	1.58E-04	±	8.99E-03	1.48E-02	-3.38E-03	±	1.17E-02	1.85E-02
4/22/2008 -	4/29/2008	4.26E-03	±	9.54E-03	1.47E-02	-2.23E-03	±	1.06E-02	1.70E-02
4/29/2008 -	5/6/2008	-3.07E-04	±	1.06E-02	1.74E-02	-4.95E-03	±	1.35E-02	2.14E-02
5/6/2008 -	5/13/2008	-1.72E-03	±	1.03E-02	1.66E-02	-1.66E-03	±	1.02E-02	1.64E-02
5/13/2008 -	5/20/2008	2.37E-03	±	8.58E-03	1.35E-02	1.07E-04	±	1.14E-02	1.88E-02
5/20/2008 -	5/27/2008	-1.62E-03	±	9.70E-03	1.56E-02	-2.45E-03	±	1.01E-02	1.61E-02
5/27/2008 -	6/3/2008	-2.97E-03	±	1.21E-02	1.93E-02	9.25E-04	±	1.04E-02	1.69E-02
6/3/2008 -	6/10/2008	4.71E-03	±	9.74E-03	1.50E-02	-2.79E-03	±	1.00E-02	1.58E-02
6/10/2008 -	6/17/2008	4.64E-03	±	7.41E-03	1.07E-02	7.04E-03	±	1.01E-02	1.50E-02
6/17/2008 -	6/24/2008	2.24E-04	±	6.16E-03	1.01E-02	0.00E+00	±	8.85E-03	1.48E-02
6/24/2008 -	7/1/2008	-7.62E-04	±	7.94E-03	1.29E-02	-3.82E-03	±	8.69E-03	1.34E-02
7/1/2008 -	7/8/2008	-1.50E-03	±	7.63E-03	1.22E-02	1.98E-03	±	7.37E-03	1.16E-02
7/8/2008 -	7/15/2008	-1.27E-03	±	8.27E-03	1.33E-02	-7.15E-05	±	6.88E-03	1.13E-02
7/15/2008 -	7/22/2008	-9.02E-04	±	7.13E-03	1.15E-02	-5.28E-04	±	7.70E-03	1.25E-02
7/22/2008 -	7/29/2008	-2.82E-03	±	8.00E-03	1.25E-02	-1.46E-03	±	7.62E-03	1.21E-02
7/29/2008 -	8/5/2008	-2.89E-03	±	1.04E-02	1.65E-02	6.04E-03	±	8.48E-03	1.23E-02
8/5/2008 -	8/12/2008	-3.19E-03	±	1.03E-02	1.64E-02	-2.69E-03	±	1.20E-02	1.92E-02
8/12/2008 -	8/19/2008	4.48E-03	±	8.77E-03	1.33E-02	0.00E+00	±	1.31E-02	2.18E-02
8/19/2008 -	8/26/2008	2.56E-03	±	1.02E-02	1.63E-02	3.07E-03	±	1.05E-02	1.67E-02
8/26/2008 -	9/2/2008	-1.17E-03	±	1.02E-02	1.66E-02	2.17E-03	±	1.02E-02	1.63E-02
9/2/2008 -	9/9/2008	-3.89E-03	±	1.18E-02	1.87E-02	5.20E-03	±	9.50E-03	1.44E-02
9/9/2008 -	9/16/2008	3.13E-04	±	9.42E-03	1.54E-02	-1.60E-03	±	1.04E-02	1.68E-02
9/16/2008 -	9/23/2008	-1.75E-03	±	1.02E-02	1.65E-02	3.98E-03	±	1.14E-02	1.80E-02
9/23/2008 -	9/30/2008	5.58E-03	±	8.79E-03	1.31E-02	0.00E+00	±	1.31E-02	2.19E-02
9/30/2008 -	10/7/2008	-2.51E-04	±	1.13E-02	1.85E-02	-3.03E-03	±	1.07E-02	1.70E-02
10/7/2008 -	10/14/2008	-1.65E-03	±	7.00E-03	1.10E-02	1.37E-03	±	7.18E-03	1.14E-02
10/14/2008 -	10/21/2008	-2.80E-04	±	7.19E-03	1.18E-02	-3.13E-03	±	9.02E-03	1.42E-02
10/21/2008 -	10/28/2008	-1.56E-03	±	1.22E-02	1.98E-02	9.34E-04	±	1.54E-02	2.52E-02
10/28/2008 -	11/4/2008	-1.91E-03	±	1.16E-02	1.87E-02	-2.39E-04	±	1.05E-02	1.72E-02
11/4/2008 -	11/11/2008	-1.22E-04	±	8.05E-03	1.32E-02	-3.39E-04	±	1.04E-02	1.70E-02
11/11/2008 -	11/18/2008	-8.68E-05	±	9.69E-03	1.59E-02	-8.68E-05	±	9.69E-03	1.59E-02
11/18/2008 -	11/25/2008	0.00E+00	±	1.09E-02	1.81E-02	-3.72E-03	±	1.21E-02	1.92E-02
11/25/2008 -	12/2/2008	-4.78E-04	±	8.24E-03	1.34E-02	8.30E-03	±	9.29E-03	1.32E-02
12/2/2008 -	12/9/2008	2.33E-05	±	7.80E-03	1.28E-02	-1.96E-03	±	8.85E-03	1.41E-02
12/9/2008 -	12/16/2008	-5.70E-03	±	1.27E-02	2.00E-02	1.51E-03	±	1.17E-02	1.90E-02
12/16/2008 -	12/23/2008	3.18E-03	±	9.49E-03	1.50E-02	0.00E+00	±	1.35E-02	2.25E-02
12/23/2008 -	12/30/2008	-6.58E-04	±	9.71E-03	1.58E-02	-2.77E-04	±	9.52E-03	1.56E-02

NVS = Valid sample not obtained due to sampler failure.

TABLE A-4.1

GAMMA SPECTROMETRY RESULTS OF I-131 ON CHARCOAL FILTERS

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

		Station 8				Station 57			
Collection Period		RQ Activity		Error	MDA	RQ Activity		Error	MDA
1/1/2008 -	1/8/2008	3.07E-03	±	8.77E-03	1.37E-02	2.31E-03	±	8.66E-03	1.36E-02
1/8/2008 -	1/14/2008	4.30E-03	±	1.05E-02	1.61E-02	-6.02E-04	±	1.21E-02	1.98E-02
1/14/2008 -	1/22/2008	2.67E-03	±	1.01E-02	1.61E-02	7.00E-04	±	1.10E-02	1.79E-02
1/22/2008 -	1/29/2008	1.22E-03	±	9.43E-03	1.52E-02	5.79E-03	±	9.76E-03	1.47E-02
1/29/2008 -	2/5/2008	-3.03E-03	±	1.02E-02	1.61E-02	-1.51E-03	±	1.03E-02	1.66E-02
2/5/2008 -	2/12/2008	-5.23E-03	±	1.35E-02	2.14E-02	-4.17E-04	±	1.21E-02	1.98E-02
2/12/2008 -	2/19/2008	-2.95E-03	±	1.27E-02	2.04E-02	1.58E-03	±	1.22E-02	1.98E-02
2/19/2008 -	2/26/2008	-1.56E-04	±	1.12E-02	1.84E-02	6.32E-03	±	9.93E-03	1.49E-02
2/26/2008 -	3/4/2008	-2.85E-03	±	1.12E-02	1.79E-02	1.46E-03	±	6.33E-03	1.02E-02
3/4/2008 -	3/11/2008	-2.93E-03	±	1.10E-02	1.74E-02	6.89E-05	±	1.06E-02	1.73E-02
3/11/2008 -	3/18/2008	-2.09E-04	±	1.10E-02	1.80E-02	-2.94E-03	±	1.04E-02	1.65E-02
3/18/2008 -	3/25/2008	-1.56E-03	±	1.01E-02	1.62E-02	-2.15E-03	±	1.21E-02	1.95E-02
3/25/2008 -	4/1/2008	-3.70E-04	±	9.54E-03	1.56E-02	3.16E-03	±	9.89E-03	1.56E-02
4/1/2008 -	4/8/2008	-1.07E-03	±	1.13E-02	1.83E-02	-1.93E-03	±	1.17E-02	1.89E-02
4/8/2008 -	4/15/2008	1.62E-03	±	8.62E-03	1.38E-02	1.06E-03	±	7.60E-03	1.22E-02
4/15/2008 -	4/22/2008	1.58E-04	±	8.99E-03	1.48E-02	-3.38E-03	±	1.17E-02	1.85E-02
4/22/2008 -	4/29/2008	4.26E-03	±	9.54E-03	1.47E-02	-2.23E-03	±	1.06E-02	1.70E-02
4/29/2008 -	5/6/2008	-3.07E-04	±	1.06E-02	1.74E-02	-4.95E-03	±	1.35E-02	2.14E-02
5/6/2008 -	5/13/2008	-1.72E-03	±	1.03E-02	1.66E-02	-1.66E-03	±	1.02E-02	1.64E-02
5/13/2008 -	5/20/2008	2.37E-03	±	8.58E-03	1.35E-02	1.07E-04	±	1.14E-02	1.88E-02
5/20/2008 -	5/27/2008	-1.62E-03	±	9.70E-03	1.56E-02	-2.45E-03	±	1.01E-02	1.61E-02
5/27/2008 -	6/3/2008	-2.97E-03	±	1.21E-02	1.93E-02	9.25E-04	±	1.04E-02	1.69E-02
6/3/2008 -	6/10/2008	4.71E-03	±	9.74E-03	1.50E-02	-2.79E-03	±	1.00E-02	1.58E-02
6/10/2008 -	6/17/2008	4.64E-03	±	7.41E-03	1.07E-02	7.04E-03	±	1.01E-02	1.50E-02
6/17/2008 -	6/24/2008	2.24E-04	±	6.16E-03	1.01E-02	0.00E+00	±	8.85E-03	1.48E-02
6/24/2008 -	7/1/2008	-7.62E-04	±	7.94E-03	1.29E-02	-3.82E-03	±	8.69E-03	1.34E-02
7/1/2008 -	7/8/2008	-1.50E-03	±	7.63E-03	1.22E-02	1.98E-03	±	7.37E-03	1.16E-02
7/8/2008 -	7/15/2008	-1.27E-03	±	8.27E-03	1.33E-02	-7.15E-05	±	6.88E-03	1.13E-02
7/15/2008 -	7/22/2008	-9.02E-04	±	7.13E-03	1.15E-02	-5.28E-04	±	7.70E-03	1.25E-02
7/22/2008 -	7/29/2008	-2.82E-03	±	8.00E-03	1.25E-02	-1.46E-03	±	7.62E-03	1.21E-02
7/29/2008 -	8/5/2008	-2.89E-03	±	1.04E-02	1.65E-02	6.04E-03	±	8.48E-03	1.23E-02
8/5/2008 -	8/12/2008	-3.19E-03	±	1.03E-02	1.64E-02	-2.69E-03	±	1.20E-02	1.92E-02
8/12/2008 -	8/19/2008	4.48E-03	±	8.77E-03	1.33E-02	0.00E+00	±	1.31E-02	2.18E-02
8/19/2008 -	8/26/2008	2.56E-03	±	1.02E-02	1.63E-02	3.07E-03	±	1.05E-02	1.67E-02
8/26/2008 -	9/2/2008	-1.17E-03	±	1.02E-02	1.66E-02	2.17E-03	±	1.02E-02	1.63E-02
9/2/2008 -	9/9/2008	-3.89E-03	±	1.18E-02	1.87E-02	5.20E-03	±	9.50E-03	1.44E-02
9/9/2008 -	9/16/2008	3.13E-04	±	9.42E-03	1.54E-02	-1.60E-03	±	1.04E-02	1.68E-02
9/16/2008 -	9/23/2008	-1.75E-03	±	1.02E-02	1.65E-02	3.98E-03	±	1.14E-02	1.80E-02
9/23/2008 -	9/30/2008	5.58E-03	±	8.79E-03	1.31E-02	0.00E+00	±	1.31E-02	2.19E-02
9/30/2008 -	10/7/2008	-2.51E-04	±	1.13E-02	1.85E-02	-3.03E-03	±	1.07E-02	1.70E-02
10/7/2008 -	10/14/2008	-1.65E-03	±	7.00E-03	1.10E-02	6.29E-04	±	3.30E-03	5.26E-03
10/14/2008 -	10/21/2008	-2.80E-04	±	7.19E-03	1.18E-02	-1.44E-03	±	4.15E-03	6.52E-03
10/21/2008 -	10/28/2008	-1.56E-03	±	1.22E-02	1.98E-02	4.29E-04	±	7.07E-03	1.16E-02
10/28/2008 -	11/4/2008	-1.91E-03	±	1.16E-02	1.87E-02	-1.10E-04	±	4.83E-03	7.92E-03
11/4/2008 -	11/11/2008	-1.22E-04	±	8.05E-03	1.32E-02	-1.56E-04	±	4.79E-03	7.85E-03
11/11/2008 -	11/18/2008	-8.68E-05	±	9.69E-03	1.59E-02	-8.68E-05	±	9.69E-03	1.59E-02
11/18/2008 -	11/25/2008	0.00E+00	±	1.09E-02	1.81E-02	-3.72E-03	±	1.21E-02	1.92E-02
11/25/2008 -	12/2/2008	-4.78E-04	±	8.24E-03	1.34E-02	8.30E-03	±	9.29E-03	1.32E-02
12/2/2008 -	12/9/2008	2.33E-05	±	7.80E-03	1.28E-02	-1.96E-03	±	8.85E-03	1.41E-02
12/9/2008 -	12/16/2008	-5.70E-03	±	1.27E-02	2.00E-02	1.51E-03	±	1.17E-02	1.90E-02
12/16/2008 -	12/23/2008	3.18E-03	±	9.49E-03	1.50E-02	0.00E+00	±	1.35E-02	2.25E-02
12/23/2008 -	12/30/2008	-6.58E-04	±	9.71E-03	1.58E-02	-2.77E-04	±	9.52E-03	1.56E-02

NVS = Valid sample not obtained due to sampler failure.

TABLE A-4.2

I-131 ON CHARCOAL FILTERS - SUMMARY

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

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
I-131	Ind	2.19E-04	-5.70E-03	1.13E-02	1.57E-02	570	0
I-131	Cntl	-2.53E-04	-5.70E-03	5.58E-03	1.57E-02	52	0

Ind = Indicator Stations Cntl = Control Station

Table A-5.1

GROSS BETA IN WATER

Results in pCi per liter

Collection Period	ST 26 River/Drinking Cntl RQ	Activity		Error	ST 29 River/Drinking Ind RQ	Activity		Error	ST 27 CW Discharge RQ	Activity		Error
01/02/08 - 02/04/08		1.13E-01	±	2.76E-01		2.26E-01	±	2.93E-01	+	8.29E+00	±	1.06E+00
02/02/08 - 03/10/08		4.49E-02	±	4.55E-01		-9.53E-02	±	4.32E-01	+	5.86E+00	±	8.58E-01
03/03/08 - 04/02/08		-1.59E+00	±	5.24E-01		2.78E-01	±	7.22E-01	+	4.75E+00	±	1.23E+00
04/02/08 - 05/05/08		-4.18E-01	±	5.24E-01		0.00E+00	±	5.18E-01	+	8.98E+00	±	1.13E+00
05/05/08 - 06/02/08		-6.79E-01	±	7.73E-01		-1.51E+00	±	8.07E-01	+	7.31E+00	±	1.22E+00
06/02/08 - 07/02/08		-4.33E-01	±	6.63E-01		-9.19E-01	±	6.91E-01	+	7.34E+00	±	1.15E+00
07/02/08 - 08/04/08		1.63E-01	±	6.34E-01		4.05E-01	±	6.48E-01	+	5.08E+00	±	1.05E+00
08/04/08 - 09/03/08		1.08E+00	±	6.56E-01		1.87E+00	±	7.03E-01	+	7.85E+00	±	1.10E+00
09/03/08 - 10/01/08		2.63E-03	±	5.98E-01	+	2.59E+00	±	7.60E-01	+	5.04E+00	±	9.74E-01
10/01/08 - 11/05/08		9.25E-02	±	6.92E-01		-1.05E+00	±	7.51E-01	+	3.68E+00	±	9.54E-01
11/05/08 - 12/01/08		9.29E-01	±	6.63E-01		5.74E-01	±	6.21E-01	+	3.09E+00	±	8.50E-01
12/01/08 - 01/06/09		9.40E-01	±	7.22E-01		7.22E-01	±	7.14E-01	+	4.40E+00	±	1.01E+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	2.02E-02	-1.59E+00	1.08E+00	12	0
ST 29 Indicator	2.57E-01	-1.51E+00	2.59E+00	12	1
ST 27 Discharge	5.97E+00	3.09E+00	8.98E+00	12	12

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

TABLE A-6.1

TRITIUM IN WATER

Results in pCi per liter

Location	Description	Collection Period			RQ	Activity		Error
26	River/Drinking Control	01/02/08	-	04/02/08		2.85E+01	±	9.74E+01
		04/02/08	-	07/02/08		5.01E+01	±	9.71E+01
		07/02/08	-	10/01/08		5.48E+01	±	9.67E+01
		10/01/08	-	01/06/09		4.07E+01	±	9.43E+01
29	River/Drinking Indicator	01/02/08	-	04/02/08		7.49E+01	±	9.90E+01
		04/02/08	-	07/02/08		3.81E+01	±	9.64E+01
		07/02/08	-	10/01/08		9.83E+01	±	9.71E+01
		10/01/08	-	01/06/09		1.62E+02	±	9.60E+01
27	Plant Discharge	01/02/08	-	04/02/08		2.80E+01	±	1.00E+02
		04/02/08	-	07/02/08		1.48E+02	±	1.00E+02
		07/02/08	-	10/01/08		1.35E+02	±	9.79E+01
		10/01/08	-	01/06/09	+	5.77E+02	±	1.05E+02
31	Ground Water Well 1	03/03/08				-6.19E+00	±	8.57E+01
		06/02/08				-1.41E+01	±	9.89E+01
		09/03/08				7.38E+01	±	9.73E+01
		12/01/08				2.76E+01	±	9.18E+01
32	Ground Water Well 2	03/03/08				-1.63E+01	±	9.83E+01
		06/02/08				-1.36E+02	±	9.72E+01
		09/03/08				1.69E+00	±	9.15E+01
		12/01/08				1.69E+01	±	8.97E+01
52	Ground Water Well 3	03/03/08				-2.98E+01	±	9.47E+01
		06/02/08				-4.50E+01	±	1.00E+02
		09/03/08				1.89E+02	±	1.00E+02
		12/01/08				3.43E+01	±	9.64E+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	4.35E+01	2.85E+01	5.48E+01	4	0
River/Drinking Indicator	9.34E+01	3.81E+01	1.62E+02	4	0
Discharge Indicator	2.22E+02	2.80E+01	5.77E+02	4	1
Ground Water Indicator	7.98E+00	-1.36E+02	1.89E+02	12	0

Quarterly tritium values reported here 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 per liter, corrected for decay during collection period

Location 26 collected 2/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-1.21E+01	±	1.61E+01	2.49E+01
K-40		-6.19E+00	±	2.44E+01	4.32E+01
CR-51		8.61E-01	±	2.24E+01	3.67E+01
MN-54		-1.24E-02	±	1.32E+00	2.17E+00
CO-58		-6.41E-01	±	1.56E+00	2.44E+00
FE-59		2.43E-01	±	4.42E+00	7.21E+00
CO-60		0.00E+00	±	1.92E+00	3.20E+00
ZN-65		-1.05E-01	±	3.42E+00	5.60E+00
ZRNB-95		-1.07E-01	±	1.48E+00	2.41E+00
I-131		-1.81E+00	±	5.25E+00	8.42E+00
CS-134		1.35E-02	±	1.04E+00	1.72E+00
CS-137		9.90E-01	±	1.47E+00	2.24E+00
BALA140		1.11E+00	±	4.01E+00	6.33E+00
RA-226		4.73E+01	±	4.41E+01	6.92E+01

Location 26 collected 3/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		2.87E-01	±	1.58E+01	2.59E+01
K-40		-3.11E+01	±	5.30E+01	4.39E+01
CR-51		1.03E+01	±	1.61E+01	2.51E+01
MN-54		2.99E-01	±	1.34E+00	2.15E+00
CO-58		-2.01E-01	±	1.47E+00	2.37E+00
FE-59		-1.62E+00	±	4.66E+00	7.30E+00
CO-60		-3.32E-01	±	1.32E+00	2.09E+00
ZN-65		1.39E-01	±	2.81E+00	4.59E+00
ZRNB-95		-1.01E-01	±	1.63E+00	2.66E+00
I-131		2.51E+00	±	4.26E+00	6.66E+00
CS-134		-6.54E-01	±	1.35E+00	2.11E+00
CS-137		3.77E-01	±	1.47E+00	2.35E+00
BALA140		-3.65E-02	±	3.05E+00	5.00E+00
RA-226		1.39E+01	±	4.65E+01	7.93E+01

Location 26 collected 4/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.06E+01	±	1.52E+01	2.34E+01
K-40		1.29E+01	±	2.20E+01	4.34E+01
CR-51		9.31E+00	±	2.03E+01	3.25E+01
MN-54		3.13E-01	±	1.22E+00	1.94E+00
CO-58		-1.58E-02	±	1.35E+00	2.22E+00
FE-59		0.00E+00	±	2.16E+00	3.60E+00
CO-60		1.30E-01	±	1.40E+00	2.26E+00
ZN-65		-4.87E-02	±	2.81E+00	4.61E+00
ZRNB-95		-2.35E-01	±	1.58E+00	2.56E+00
I-131		2.30E+00	±	4.91E+00	7.81E+00
CS-134		2.21E-02	±	1.40E+00	2.30E+00
CS-137		7.21E-01	±	1.19E+00	1.79E+00
BALA140		-7.43E-01	±	4.34E+00	6.98E+00
RA-226		1.74E+00	±	4.35E+01	7.54E+01

Location 26 collected 5/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-3.26E+00	±	1.71E+01	2.77E+01
K-40		2.25E+00	±	1.98E+01	4.18E+01
CR-51		-4.29E+00	±	1.94E+01	3.15E+01
MN-54		-7.92E-03	±	1.25E+00	2.06E+00
CO-58		-3.92E-01	±	1.58E+00	2.53E+00
FE-59		6.93E-02	±	3.99E+00	6.55E+00
CO-60		-3.70E-01	±	1.41E+00	2.23E+00
ZN-65		-1.15E+00	±	3.36E+00	5.30E+00
ZRNB-95		3.92E-03	±	1.51E+00	2.49E+00
I-131		-4.33E-02	±	5.81E+00	9.54E+00
CS-134		-1.72E-01	±	1.44E+00	2.34E+00
CS-137		5.75E-01	±	1.33E+00	2.07E+00
BALA140		-1.26E+00	±	4.22E+00	6.63E+00
RA-226		1.84E+01	±	4.64E+01	7.89E+01

Location 26 collected 6/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-5.72E-01	±	1.53E+01	2.51E+01
K-40		2.20E+00	±	2.30E+01	4.60E+01
CR-51		3.61E+00	±	1.78E+01	2.88E+01
MN-54		-8.61E-02	±	1.30E+00	2.12E+00
CO-58		-2.32E-01	±	1.56E+00	2.52E+00
FE-59		-8.32E-01	±	4.96E+00	7.99E+00
CO-60		4.10E-02	±	1.37E+00	2.25E+00
ZN-65		1.66E+00	±	2.77E+00	4.17E+00
ZRNB-95		8.67E-01	±	1.45E+00	2.22E+00
I-131		-1.41E+00	±	4.45E+00	7.17E+00
CS-134		-5.03E-01	±	1.28E+00	2.02E+00
CS-137		6.56E-01	±	1.57E+00	2.47E+00
BALA140		7.40E-01	±	3.36E+00	5.35E+00
RA-226		5.57E+00	±	4.50E+01	7.74E+01

Location 26 collected 7/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		0.00E+00	±	1.54E+01	2.56E+01
K-40		-4.13E+01	±	7.81E+01	4.34E+01
CR-51		-3.66E+00	±	1.65E+01	2.66E+01
MN-54		-5.05E-01	±	1.39E+00	2.19E+00
CO-58		3.82E-02	±	1.32E+00	2.16E+00
FE-59		6.67E-02	±	4.40E+00	7.22E+00
CO-60		4.87E-01	±	1.20E+00	1.83E+00
ZN-65		-1.95E-01	±	2.97E+00	4.85E+00
ZRNB-95		-6.03E-03	±	1.54E+00	2.53E+00
I-131		-1.83E+00	±	4.08E+00	6.45E+00
CS-134		-4.75E-01	±	1.54E+00	2.46E+00
CS-137		3.90E-02	±	1.31E+00	2.15E+00
BALA140		0.00E+00	±	4.61E+00	7.68E+00
RA-226		-3.89E+00	±	3.57E+01	5.73E+01

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

TABLE A-7.1

GAMMA SPECTROMETRY RESULTS OF WATER

STATION 26 - River/Drinking Control

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

Location 26 collected 8/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		5.74E+00	±	1.34E+01	2.11E+01
K-40		-1.47E+01	±	3.67E+01	3.81E+01
CR-51		0.00E+00	±	1.58E+01	2.63E+01
MN-54		3.16E-01	±	1.18E+00	1.87E+00
CO-58		0.00E+00	±	1.69E+00	2.82E+00
FE-59		0.00E+00	±	8.60E-01	1.43E+00
CO-60		4.09E-02	±	1.38E+00	2.26E+00
ZN-65		1.92E+00	±	2.82E+00	4.18E+00
ZRNB-95		-4.02E-01	±	1.62E+00	2.60E+00
I-131		1.55E+00	±	3.18E+00	4.93E+00
CS-134		1.13E+00	±	1.05E+00	1.49E+00
CS-137		-4.82E-02	±	1.23E+00	2.01E+00
BALA140		0.00E+00	±	5.91E+00	9.85E+00
RA-226		-1.43E+01	±	5.16E+01	6.04E+01

Location 26 collected 9/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-3.88E-01	±	1.92E+01	3.15E+01
K-40		-9.34E+00	±	2.95E+01	5.00E+01
CR-51		-4.05E-01	±	2.08E+01	3.41E+01
MN-54		-1.70E-01	±	1.72E+00	2.80E+00
CO-58		-2.48E-01	±	1.93E+00	3.13E+00
FE-59		8.92E-01	±	4.52E+00	7.22E+00
CO-60		-4.24E-01	±	1.80E+00	2.88E+00
ZN-65		-8.77E-01	±	4.06E+00	6.55E+00
ZRNB-95		1.02E+00	±	1.97E+00	3.10E+00
I-131		3.51E+00	±	7.23E+00	1.15E+01
CS-134		-5.72E-01	±	1.92E+00	3.10E+00
CS-137		0.00E+00	±	1.74E+00	2.91E+00
BALA140		2.12E-03	±	5.27E+00	8.57E+00
RA-226		-4.25E+00	±	4.27E+01	7.16E+01

Location 26 collected 10/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-8.42E+00	±	2.02E+01	3.25E+01
K-40		-3.86E+01	±	6.15E+01	5.14E+01
CR-51		-9.98E+00	±	2.34E+01	3.77E+01
MN-54		-5.31E-02	±	1.64E+00	2.70E+00
CO-58		8.38E-01	±	1.74E+00	2.71E+00
FE-59		-2.08E-03	±	5.93E+00	9.67E+00
CO-60		2.31E-01	±	1.69E+00	2.73E+00
ZN-65		6.50E-02	±	3.96E+00	6.51E+00
ZRNB-95		1.54E+00	±	1.99E+00	3.05E+00
I-131		3.21E+00	±	7.11E+00	1.14E+01
CS-134		6.88E-01	±	1.83E+00	2.93E+00
CS-137		1.57E-01	±	1.76E+00	2.88E+00
BALA140		2.82E-02	±	4.61E+00	7.56E+00
RA-226		-3.23E+00	±	3.90E+01	6.75E+01

Location 26 collected 11/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-1.67E+00	±	1.57E+01	2.56E+01
K-40		-2.54E+01	±	3.93E+01	4.84E+01
CR-51		-1.18E+01	±	2.32E+01	3.72E+01
MN-54		-1.93E-01	±	1.67E+00	2.71E+00
CO-58		-5.03E-01	±	2.04E+00	3.29E+00
FE-59		1.91E-01	±	5.47E+00	8.96E+00
CO-60		3.94E-02	±	1.76E+00	2.89E+00
ZN-65		3.44E-01	±	3.55E+00	5.77E+00
ZRNB-95		-3.72E-01	±	2.22E+00	3.59E+00
I-131		-2.63E-01	±	6.30E+00	1.03E+01
CS-134		-5.61E-01	±	1.64E+00	2.63E+00
CS-137		6.92E-01	±	1.77E+00	2.81E+00
BALA140		1.05E-01	±	4.48E+00	7.35E+00
RA-226		-1.72E+01	±	5.39E+01	7.15E+01

Location 26 collected 12/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		3.18E+00	±	1.56E+01	2.53E+01
K-40		-2.96E+01	±	5.04E+01	5.23E+01
CR-51		8.32E-01	±	1.90E+01	3.11E+01
MN-54		8.38E-01	±	1.62E+00	2.54E+00
CO-58		-1.45E-01	±	1.43E+00	2.32E+00
FE-59		-8.05E-01	±	5.08E+00	8.19E+00
CO-60		-1.44E-01	±	1.67E+00	2.72E+00
ZN-65		-9.03E-01	±	3.66E+00	5.87E+00
ZRNB-95		-2.46E-01	±	1.74E+00	2.83E+00
I-131		9.97E-02	±	3.47E+00	5.69E+00
CS-134		-3.18E-01	±	1.75E+00	2.84E+00
CS-137		-5.74E-01	±	1.64E+00	2.61E+00
BALA140		1.30E+00	±	3.70E+00	5.77E+00
RA-226		-3.71E+00	±	4.12E+01	7.01E+01

Location 26 collected 1/5/2009

Nuclide	RQ	Activity		Error	MDA
BE-7		-3.83E+00	±	1.66E+01	2.68E+01
K-40		-1.38E+01	±	3.46E+01	5.19E+01
CR-51		5.26E+00	±	2.15E+01	3.49E+01
MN-54		-4.71E-01	±	1.77E+00	2.84E+00
CO-58		-3.75E-02	±	1.94E+00	3.18E+00
FE-59		1.71E+00	±	4.81E+00	7.53E+00
CO-60		8.41E-01	±	1.85E+00	2.89E+00
ZN-65		-1.19E+00	±	4.34E+00	6.96E+00
ZRNB-95		-1.43E-01	±	1.37E+00	2.22E+00
I-131		4.16E-01	±	5.22E+00	8.53E+00
CS-134		3.21E-01	±	1.60E+00	2.59E+00
CS-137		-6.16E-01	±	1.93E+00	3.10E+00
BALA140		-1.41E+00	±	5.49E+00	8.75E+00
RA-226		-1.20E+01	±	4.76E+01	6.98E+01

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

TABLE A-7.1

GAMMA SPECTROMETRY RESULTS OF WATER

STATION 29 - River/Drinking Indicator

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

Location 29 collected 2/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-2.65E-01	±	1.67E+01	2.75E+01
K-40		-2.99E+01	±	5.50E+01	4.56E+01
CR-51		0.00E+00	±	2.04E+01	3.41E+01
MN-54		-2.30E-01	±	1.27E+00	2.05E+00
CO-58		5.66E-01	±	1.64E+00	2.59E+00
FE-59		1.50E+00	±	4.86E+00	7.66E+00
CO-60		4.73E-01	±	1.24E+00	1.91E+00
ZN-65		4.73E-02	±	1.89E+00	3.09E+00
ZRNB-95		5.24E-02	±	1.43E+00	2.34E+00
I-131		2.33E+00	±	4.65E+00	7.32E+00
CS-134		-4.05E-01	±	1.36E+00	2.18E+00
CS-137		8.28E-01	±	1.29E+00	1.95E+00
BALA140		-9.33E-01	±	4.17E+00	6.63E+00
RA-226		6.26E+01	±	4.62E+01	7.18E+01

Location 29 collected 3/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		0.00E+00	±	1.87E+01	3.12E+01
K-40		-3.35E-01	±	1.96E+01	4.17E+01
CR-51		4.04E+00	±	1.17E+01	1.85E+01
MN-54		4.61E-02	±	1.13E+00	1.85E+00
CO-58		-6.97E-01	±	1.70E+00	2.68E+00
FE-59		0.00E+00	±	4.40E+00	7.34E+00
CO-60		1.90E-01	±	1.36E+00	2.20E+00
ZN-65		-6.68E-02	±	3.28E+00	5.38E+00
ZRNB-95		-2.17E-01	±	1.60E+00	2.60E+00
I-131		4.08E-01	±	5.67E+00	9.28E+00
CS-134		7.49E-01	±	1.33E+00	2.06E+00
CS-137		6.04E-01	±	1.31E+00	2.03E+00
BALA140		7.77E-02	±	4.13E+00	6.78E+00
RA-226		8.15E+00	±	4.51E+01	7.76E+01

Location 29 collected 4/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-7.67E+00	±	1.75E+01	2.79E+01
K-40		-3.03E+00	±	2.32E+01	4.41E+01
CR-51		-1.15E+01	±	2.16E+01	3.43E+01
MN-54		7.52E-01	±	1.17E+00	1.75E+00
CO-58		1.62E-01	±	1.46E+00	2.36E+00
FE-59		0.00E+00	±	4.62E+00	7.70E+00
CO-60		-9.23E-02	±	1.42E+00	2.32E+00
ZN-65		1.71E-01	±	2.56E+00	4.16E+00
ZRNB-95		1.24E-01	±	1.86E+00	3.04E+00
I-131		2.69E+00	±	6.49E+00	1.03E+01
CS-134		-3.53E-02	±	1.31E+00	2.15E+00
CS-137		-5.15E-01	±	1.49E+00	2.36E+00
BALA140		0.00E+00	±	4.04E+00	6.73E+00
RA-226		-2.10E+01	±	9.75E+01	8.14E+01

Location 29 collected 5/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-3.20E-01	±	1.33E+01	2.18E+01
K-40		-1.26E+01	±	3.08E+01	4.47E+01
CR-51		1.07E+01	±	1.98E+01	3.14E+01
MN-54		-1.98E-01	±	1.20E+00	1.93E+00
CO-58		2.56E-02	±	1.49E+00	2.44E+00
FE-59		1.24E+00	±	4.68E+00	7.42E+00
CO-60		0.00E+00	±	2.70E-01	4.50E-01
ZN-65		-8.60E-01	±	3.32E+00	5.29E+00
ZRNB-95		-6.30E-01	±	1.87E+00	2.98E+00
I-131		1.20E-01	±	5.84E+00	9.59E+00
CS-134		-5.94E-01	±	1.45E+00	2.29E+00
CS-137		3.33E-01	±	1.30E+00	2.07E+00
BALA140		-5.59E-01	±	4.24E+00	6.84E+00
RA-226		-1.21E+00	±	4.94E+01	8.17E+01

Location 29 collected 6/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-1.53E-01	±	1.37E+01	2.26E+01
K-40		-2.19E+00	±	2.39E+01	4.57E+01
CR-51		1.91E-01	±	1.84E+01	3.02E+01
MN-54		-4.44E-01	±	1.48E+00	2.36E+00
CO-58		1.82E-01	±	1.45E+00	2.34E+00
FE-59		2.86E-02	±	3.75E+00	6.16E+00
CO-60		-2.47E-02	±	1.37E+00	2.24E+00
ZN-65		1.09E+00	±	3.09E+00	4.86E+00
ZRNB-95		0.00E+00	±	1.73E+00	2.88E+00
I-131		-1.23E-01	±	4.60E+00	7.55E+00
CS-134		1.09E-01	±	1.35E+00	2.21E+00
CS-137		2.79E-01	±	1.29E+00	2.07E+00
BALA140		0.00E+00	±	3.15E+00	5.24E+00
RA-226		-3.61E+00	±	5.23E+01	8.01E+01

Location 29 collected 7/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		5.06E+00	±	1.32E+01	2.07E+01
K-40		-3.22E+01	±	5.13E+01	4.27E+01
CR-51		-2.97E+00	±	1.80E+01	2.92E+01
MN-54		-3.40E-02	±	1.31E+00	2.15E+00
CO-58		6.34E-01	±	1.53E+00	2.38E+00
FE-59		1.49E+00	±	4.82E+00	7.58E+00
CO-60		0.00E+00	±	1.20E+00	2.00E+00
ZN-65		0.00E+00	±	5.67E+00	9.45E+00
ZRNB-95		-5.05E-03	±	1.57E+00	2.58E+00
I-131		-7.65E-01	±	7.82E+00	1.28E+01
CS-134		-4.55E-01	±	1.35E+00	2.15E+00
CS-137		4.46E-01	±	1.05E+00	1.61E+00
BALA140		-1.44E+00	±	5.68E+00	9.01E+00
RA-226		-5.30E+00	±	3.97E+01	6.01E+01

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

TABLE A-7.1

GAMMA SPECTROMETRY RESULTS OF WATER

STATION 29 - River/Drinking Indicator

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

Location 29 collected 8/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-4.66E+00	±	1.49E+01	2.39E+01
K-40		-2.68E+01	±	7.25E+01	3.75E+01
CR-51		-2.60E+00	±	1.78E+01	2.89E+01
MN-54		-7.29E-03	±	1.27E+00	2.08E+00
CO-58		1.25E-01	±	1.29E+00	2.09E+00
FE-59		8.74E-01	±	4.02E+00	6.38E+00
CO-60		-6.03E-03	±	1.18E+00	1.93E+00
ZN-65		1.60E-01	±	2.88E+00	4.69E+00
ZRNB-95		1.98E-01	±	1.56E+00	2.53E+00
I-131		-2.14E+00	±	4.87E+00	7.71E+00
CS-134		-5.31E-01	±	1.37E+00	2.18E+00
CS-137		3.42E-01	±	1.40E+00	2.24E+00
BALA140		-1.48E+00	±	3.87E+00	5.97E+00
RA-226		1.26E+00	±	3.30E+01	5.97E+01

Location 29 collected 9/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		6.22E+00	±	1.74E+01	2.78E+01
K-40		-3.42E+01	±	5.33E+01	5.07E+01
CR-51		4.08E+00	±	2.15E+01	3.49E+01
MN-54		7.51E-01	±	1.81E+00	2.88E+00
CO-58		-7.24E-01	±	2.15E+00	3.43E+00
FE-59		-1.26E+00	±	5.82E+00	9.34E+00
CO-60		-4.11E-03	±	1.59E+00	2.61E+00
ZN-65		4.26E-02	±	4.06E+00	6.67E+00
ZRNB-95		0.00E+00	±	2.05E+00	3.41E+00
I-131		-2.60E+00	±	8.23E+00	1.33E+01
CS-134		-1.41E-03	±	1.90E+00	3.10E+00
CS-137		1.15E+00	±	1.65E+00	2.54E+00
BALA140		8.76E-02	±	5.82E+00	9.55E+00
RA-226		-1.15E+01	±	4.45E+01	6.67E+01

Location 29 collected 10/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-3.16E-01	±	1.75E+01	2.87E+01
K-40		-3.19E+01	±	5.16E+01	5.14E+01
CR-51		1.10E+01	±	2.13E+01	3.40E+01
MN-54		-1.53E-01	±	1.74E+00	2.84E+00
CO-58		-3.56E-01	±	2.02E+00	3.26E+00
FE-59		-1.23E+00	±	5.88E+00	9.44E+00
CO-60		-3.56E-01	±	1.97E+00	3.18E+00
ZN-65		-1.19E+00	±	3.85E+00	6.13E+00
ZRNB-95		4.42E-02	±	2.21E+00	3.63E+00
I-131		-1.16E+00	±	7.88E+00	1.29E+01
CS-134		-3.82E-01	±	1.89E+00	3.06E+00
CS-137		-3.95E-01	±	1.72E+00	2.77E+00
BALA140		-1.50E+00	±	6.11E+00	9.75E+00
RA-226		-4.67E+00	±	4.07E+01	6.84E+01

Location 29 collected 11/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		2.28E+00	±	1.88E+01	3.07E+01
K-40		-3.83E+01	±	6.22E+01	5.19E+01
CR-51		8.26E+00	±	2.11E+01	3.39E+01
MN-54		-1.57E-02	±	1.49E+00	2.44E+00
CO-58		-4.79E-01	±	1.95E+00	3.13E+00
FE-59		1.22E-01	±	5.17E+00	8.48E+00
CO-60		-3.73E-01	±	1.98E+00	3.20E+00
ZN-65		2.79E-03	±	4.25E+00	7.00E+00
ZRNB-95		1.90E+00	±	1.83E+00	2.69E+00
I-131		2.96E+00	±	7.75E+00	1.24E+01
CS-134		2.07E-01	±	1.81E+00	2.95E+00
CS-137		-2.81E-01	±	1.69E+00	2.74E+00
BALA140		-7.14E-01	±	6.08E+00	9.85E+00
RA-226		-2.92E+01	±	6.43E+01	6.88E+01

Location 29 collected 12/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		5.96E+00	±	1.67E+01	2.68E+01
K-40		-2.35E+01	±	4.24E+01	5.15E+01
CR-51		-6.26E-01	±	1.85E+01	3.04E+01
MN-54		0.00E+00	±	1.80E+00	3.00E+00
CO-58		-5.85E-01	±	1.89E+00	3.02E+00
FE-59		1.48E+00	±	4.80E+00	7.58E+00
CO-60		0.00E+00	±	9.65E-01	1.61E+00
ZN-65		-4.88E-01	±	4.18E+00	6.81E+00
ZRNB-95		1.68E-01	±	1.95E+00	3.19E+00
I-131		-1.52E+00	±	5.17E+00	8.35E+00
CS-134		3.94E-01	±	1.66E+00	2.69E+00
CS-137		3.27E-02	±	1.87E+00	3.07E+00
BALA140		-2.83E-01	±	3.74E+00	6.07E+00
RA-226		-3.01E+01	±	6.62E+01	6.95E+01

Location 29 collected 1/5/2009

Nuclide	RQ	Activity		Error	MDA
BE-7		2.71E-01	±	1.41E+01	2.31E+01
K-40		-2.78E+01	±	4.51E+01	5.04E+01
CR-51		2.51E+00	±	1.97E+01	3.21E+01
MN-54		0.00E+00	±	1.87E+00	3.11E+00
CO-58		-2.13E-02	±	1.62E+00	2.65E+00
FE-59		-4.53E-01	±	5.77E+00	9.41E+00
CO-60		6.03E-01	±	1.84E+00	2.93E+00
ZN-65		-6.41E-02	±	3.26E+00	5.36E+00
ZRNB-95		3.69E-03	±	2.11E+00	3.46E+00
I-131		2.84E-01	±	6.86E+00	1.13E+01
CS-134		2.89E-02	±	1.76E+00	2.89E+00
CS-137		9.30E-02	±	1.80E+00	2.94E+00
BALA140		-1.24E+00	±	6.12E+00	9.83E+00
RA-226		-1.52E+01	±	5.10E+01	7.05E+01

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

TABLE A-7.1

GAMMA SPECTROMETRY RESULTS OF WATER

STATION 27 - Plant Discharge Indicator

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

Location 27 collected 2/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.54E+01	±	1.40E+01	2.06E+01
K-40		-8.18E+00	±	2.60E+01	4.35E+01
CR-51		4.39E-01	±	1.82E+01	2.98E+01
MN-54		-1.48E-01	±	1.52E+00	2.48E+00
CO-58		1.84E-01	±	1.19E+00	1.92E+00
FE-59		2.74E-01	±	4.29E+00	6.99E+00
CO-60		8.90E-02	±	1.30E+00	2.12E+00
ZN-65		-8.24E-01	±	3.49E+00	5.59E+00
ZRNB-95		5.24E-03	±	1.51E+00	2.48E+00
I-131		4.29E-01	±	5.58E+00	9.13E+00
CS-134		4.66E-01	±	1.38E+00	2.19E+00
CS-137		-3.24E-01	±	1.43E+00	2.29E+00
BALA140		2.32E-01	±	3.77E+00	6.14E+00
RA-226		6.81E+00	±	4.55E+01	7.82E+01

Location 27 collected 3/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.16E+01	±	1.16E+01	1.68E+01
K-40		-4.02E+00	±	2.66E+01	4.73E+01
CR-51		7.42E+00	±	1.97E+01	3.16E+01
MN-54		-1.55E-01	±	1.54E+00	2.51E+00
CO-58		0.00E+00	±	1.68E+00	2.80E+00
FE-59		-8.19E-02	±	4.50E+00	7.38E+00
CO-60		0.00E+00	±	1.75E+00	2.92E+00
ZN-65		7.17E-01	±	3.37E+00	5.40E+00
ZRNB-95		-9.23E-04	±	1.77E+00	2.91E+00
I-131		-1.66E+00	±	5.36E+00	8.63E+00
CS-134		2.88E-02	±	1.04E+00	1.71E+00
CS-137		-4.28E-01	±	1.49E+00	2.38E+00
BALA140		-1.16E+00	±	3.64E+00	5.68E+00
RA-226		8.64E+00	±	4.96E+01	8.46E+01

Location 27 collected 4/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.64E+01	±	1.47E+01	2.16E+01
K-40		4.16E+01	±	2.54E+01	4.45E+01
CR-51		-8.85E+00	±	2.37E+01	3.81E+01
MN-54		1.10E+00	±	1.52E+00	2.30E+00
CO-58		-2.02E-01	±	1.46E+00	2.36E+00
FE-59		1.21E+00	±	4.76E+00	7.56E+00
CO-60		-9.23E-02	±	1.53E+00	2.49E+00
ZN-65		-1.22E+00	±	3.42E+00	5.38E+00
ZRNB-95		-5.27E-01	±	1.68E+00	2.67E+00
I-131		1.42E+00	±	6.42E+00	1.04E+01
CS-134		-4.56E-01	±	1.54E+00	2.46E+00
CS-137		-8.96E-01	±	1.73E+00	2.72E+00
BALA140		9.27E-02	±	4.28E+00	7.01E+00
RA-226		-8.19E+00	±	6.01E+01	7.92E+01

Location 27 collected 5/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.59E+01	±	1.45E+01	2.13E+01
K-40		4.36E+00	±	2.15E+01	4.37E+01
CR-51		7.49E+00	±	2.11E+01	3.39E+01
MN-54		-2.46E-01	±	1.48E+00	2.39E+00
CO-58		-3.19E-01	±	1.47E+00	2.36E+00
FE-59		6.77E-02	±	4.29E+00	7.04E+00
CO-60		0.00E+00	±	1.50E+00	2.50E+00
ZN-65		-7.66E-01	±	3.46E+00	5.55E+00
ZRNB-95		-9.15E-02	±	1.47E+00	2.39E+00
I-131		-2.16E+00	±	5.75E+00	9.20E+00
CS-134		-4.85E-01	±	1.45E+00	2.32E+00
CS-137		9.28E-05	±	1.40E+00	2.31E+00
BALA140		-8.38E-02	±	3.27E+00	5.35E+00
RA-226		-1.29E+01	±	7.45E+01	8.30E+01

Location 27 collected 6/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.26E+01	±	1.44E+01	2.18E+01
K-40		1.41E+01	±	2.29E+01	4.44E+01
CR-51		-7.06E+00	±	1.85E+01	2.97E+01
MN-54		2.54E-01	±	1.19E+00	1.90E+00
CO-58		1.32E+00	±	1.42E+00	2.05E+00
FE-59		4.00E+00	±	3.98E+00	5.49E+00
CO-60		6.63E-01	±	1.25E+00	1.87E+00
ZN-65		1.07E-02	±	2.67E+00	4.39E+00
ZRNB-95		6.30E-01	±	1.28E+00	1.97E+00
I-131		2.79E+00	±	4.06E+00	6.33E+00
CS-134		0.00E+00	±	1.88E+00	3.14E+00
CS-137		5.97E-01	±	1.37E+00	2.13E+00
BALA140		2.05E-01	±	2.83E+00	4.60E+00
RA-226		-1.26E+01	±	7.18E+01	8.11E+01

Location 27 collected 7/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		6.44E-01	±	1.25E+01	2.04E+01
K-40		-3.43E+01	±	5.61E+01	4.29E+01
CR-51		3.85E+00	±	1.65E+01	2.65E+01
MN-54		-6.44E-02	±	1.19E+00	1.94E+00
CO-58		6.43E-01	±	1.27E+00	1.92E+00
FE-59		0.00E+00	±	2.33E+00	3.88E+00
CO-60		4.49E-01	±	1.13E+00	1.73E+00
ZN-65		-1.68E+00	±	4.02E+00	6.34E+00
ZRNB-95		0.00E+00	±	1.45E+00	2.42E+00
I-131		-2.29E+00	±	6.24E+00	9.94E+00
CS-134		2.21E-01	±	1.12E+00	1.79E+00
CS-137		-8.09E-01	±	1.57E+00	2.45E+00
BALA140		-8.82E-01	±	4.58E+00	7.30E+00
RA-226		-8.43E+00	±	4.52E+01	6.15E+01

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

TABLE A-7.1

GAMMA SPECTROMETRY RESULTS OF WATER

STATION 27 - Plant Discharge Indicator

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

Location 27 collected 8/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-3.28E+00	±	1.43E+01	2.30E+01
K-40		-6.93E-01	±	1.82E+01	3.63E+01
CR-51		3.12E+00	±	1.48E+01	2.40E+01
MN-54		-3.63E-01	±	1.34E+00	2.13E+00
CO-58		0.00E+00	±	1.82E+00	3.04E+00
FE-59		-4.29E-02	±	3.85E+00	6.31E+00
CO-60		5.63E-01	±	1.33E+00	2.04E+00
ZN-65		1.23E-01	±	3.05E+00	4.99E+00
ZRNB-95		-5.78E-01	±	1.57E+00	2.47E+00
I-131		0.00E+00	±	4.44E+00	7.39E+00
CS-134		2.91E-01	±	1.24E+00	1.98E+00
CS-137		-2.05E-01	±	1.42E+00	2.31E+00
BALA140		9.67E-01	±	3.64E+00	5.72E+00
RA-226		-1.09E+01	±	4.84E+01	6.24E+01

Location 27 collected 9/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		4.02E+00	±	1.68E+01	2.71E+01
K-40		-3.24E+01	±	4.80E+01	4.93E+01
CR-51		7.64E+00	±	1.71E+01	2.74E+01
MN-54		8.69E-01	±	1.75E+00	2.75E+00
CO-58		8.21E-01	±	1.69E+00	2.64E+00
FE-59		1.12E+00	±	5.64E+00	9.08E+00
CO-60		3.47E-01	±	1.82E+00	2.93E+00
ZN-65		0.00E+00	±	7.77E+00	1.30E+01
ZRNB-95		6.31E-01	±	1.93E+00	3.08E+00
I-131		-8.46E-01	±	4.08E+00	6.62E+00
CS-134		-1.64E-03	±	1.32E+00	2.18E+00
CS-137		-3.53E-01	±	1.80E+00	2.92E+00
BALA140		-7.53E-01	±	4.08E+00	6.56E+00
RA-226		-3.60E+00	±	4.20E+01	7.12E+01

Location 27 collected 10/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-4.07E+00	±	1.77E+01	2.87E+01
K-40		-2.02E+01	±	3.91E+01	5.14E+01
CR-51		-1.39E+00	±	2.09E+01	3.43E+01
MN-54		1.07E-01	±	1.79E+00	2.93E+00
CO-58		-1.38E-01	±	2.06E+00	3.37E+00
FE-59		-4.76E-02	±	4.86E+00	7.97E+00
CO-60		5.66E-01	±	1.58E+00	2.49E+00
ZN-65		-1.63E+00	±	4.14E+00	6.56E+00
ZRNB-95		8.57E-01	±	1.78E+00	2.78E+00
I-131		4.57E+00	±	6.62E+00	1.04E+01
CS-134		-8.25E-01	±	2.02E+00	3.24E+00
CS-137		7.87E-03	±	1.90E+00	3.12E+00
BALA140		-1.14E-01	±	4.92E+00	8.06E+00
RA-226		-2.31E+01	±	5.94E+01	7.08E+01

Location 27 collected 11/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		5.29E+00	±	1.46E+01	2.33E+01
K-40		-2.22E+01	±	4.00E+01	5.07E+01
CR-51		4.05E-01	±	1.77E+01	2.91E+01
MN-54		-1.07E+00	±	1.91E+00	2.99E+00
CO-58		-7.36E-01	±	1.93E+00	3.07E+00
FE-59		-8.40E-01	±	5.37E+00	8.67E+00
CO-60		-6.77E-02	±	1.40E+00	2.28E+00
ZN-65		-2.67E-01	±	3.56E+00	5.81E+00
ZRNB-95		-6.77E-01	±	2.22E+00	3.57E+00
I-131		2.10E+00	±	4.96E+00	7.95E+00
CS-134		9.82E-02	±	1.79E+00	2.94E+00
CS-137		6.28E-01	±	1.63E+00	2.59E+00
BALA140		1.51E+00	±	4.30E+00	6.74E+00
RA-226		1.59E+01	±	3.75E+01	6.74E+01

Location 27 collected 12/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		7.00E-01	±	1.42E+01	2.33E+01
K-40		-2.78E+01	±	4.56E+01	5.07E+01
CR-51		-2.75E+00	±	1.92E+01	3.14E+01
MN-54		8.91E-02	±	1.64E+00	2.68E+00
CO-58		0.00E+00	±	2.08E+00	3.46E+00
FE-59		6.89E-02	±	5.03E+00	8.26E+00
CO-60		1.37E-01	±	1.69E+00	2.75E+00
ZN-65		3.98E-01	±	2.42E+00	3.87E+00
ZRNB-95		-2.70E-02	±	1.82E+00	2.99E+00
I-131		7.24E-02	±	4.54E+00	7.45E+00
CS-134		1.02E-01	±	2.19E+00	3.58E+00
CS-137		3.99E-01	±	1.23E+00	1.95E+00
BALA140		-6.24E-01	±	3.84E+00	6.17E+00
RA-226		-1.53E+01	±	5.12E+01	7.06E+01

Location 27 collected 1/5/2009

Nuclide	RQ	Activity		Error	MDA
BE-7		0.00E+00	±	1.65E+01	2.75E+01
K-40		-8.51E+00	±	3.08E+01	5.19E+01
CR-51		8.44E+00	±	2.20E+01	3.55E+01
MN-54		-5.39E-01	±	1.77E+00	2.83E+00
CO-58		1.40E+00	±	1.92E+00	2.94E+00
FE-59		-5.40E-01	±	4.99E+00	8.10E+00
CO-60		1.48E-01	±	1.78E+00	2.91E+00
ZN-65		-9.20E-01	±	3.86E+00	6.19E+00
ZRNB-95		1.78E-01	±	2.09E+00	3.41E+00
I-131		-1.98E-03	±	5.66E+00	9.48E+00
CS-134		3.20E-01	±	1.71E+00	2.78E+00
CS-137		1.52E+00	±	1.65E+00	2.49E+00
BALA140		-1.23E+00	±	4.85E+00	7.70E+00
RA-226		-5.87E+00	±	4.15E+01	6.83E+01

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

TABLE A-7.1

GAMMA SPECTROMETRY RESULTS OF MONITORING WELL SAMPLES

STATION 31 - Ground Water Well 1

Results in pCi per liter

Location 31 collected 3/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		4.96E-01	±	1.81E+01	2.96E+01
K-40		-3.78E+01	±	1.20E+02	6.68E+01
CR-51		-1.43E+01	±	2.47E+01	3.91E+01
MN-54		-1.01E+00	±	2.45E+00	3.84E+00
CO-58		2.58E-01	±	2.31E+00	3.75E+00
FE-59		-1.20E+00	±	5.18E+00	8.18E+00
CO-60		6.73E-01	±	1.77E+00	2.69E+00
ZN-65		0.00E+00	±	2.30E+01	3.84E+01
ZRNB-95		-9.02E-01	±	2.71E+00	4.30E+00
I-131		-8.41E-01	±	2.69E+00	4.31E+00
CS-134		-9.28E-02	±	2.53E+00	4.14E+00
CS-137		-1.15E+00	±	2.81E+00	4.43E+00
BALA140		-5.62E-01	±	3.44E+00	5.52E+00
RA-226		8.25E+01	±	7.55E+01	1.18E+02

Location 31 collected 6/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		4.95E+00	±	2.01E+01	3.23E+01
K-40		-1.68E+01	±	5.25E+01	6.42E+01
CR-51		-5.20E+00	±	2.43E+01	3.94E+01
MN-54		8.63E-01	±	2.22E+00	3.46E+00
CO-58		-4.19E-01	±	2.33E+00	3.74E+00
FE-59		0.00E+00	±	6.98E+00	1.16E+01
CO-60		6.16E-03	±	2.45E+00	4.03E+00
ZN-65		0.00E+00	±	2.45E+01	4.08E+01
ZRNB-95		-1.68E-01	±	3.00E+00	4.91E+00
I-131		1.89E+00	±	2.95E+00	4.61E+00
CS-134		-6.81E-02	±	1.92E+00	3.15E+00
CS-137		-1.28E+00	±	2.97E+00	4.69E+00
BALA140		-8.42E-01	±	3.32E+00	5.25E+00
RA-226		2.16E+01	±	8.18E+01	1.37E+02

Location 31 collected 9/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.46E+00	±	2.43E+01	3.98E+01
K-40		-6.25E+01	±	2.74E+02	7.73E+01
CR-51		-3.27E+00	±	2.81E+01	4.60E+01
MN-54		6.34E-01	±	2.49E+00	3.97E+00
CO-58		-1.30E+00	±	3.51E+00	5.61E+00
FE-59		0.00E+00	±	7.33E+00	1.22E+01
CO-60		-3.56E-01	±	2.88E+00	4.67E+00
ZN-65		-5.26E+00	±	9.01E+00	1.42E+01
ZRNB-95		-2.29E+00	±	4.67E+00	7.47E+00
I-131		1.88E-01	±	3.43E+00	5.62E+00
CS-134		7.97E-01	±	7.79E+00	1.28E+01
CS-137		2.43E-01	±	2.61E+00	4.26E+00
BALA140		-1.37E-01	±	3.69E+00	6.04E+00
RA-226		1.26E+01	±	9.42E+01	1.62E+02

Location 31 collected 12/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-1.71E+01	±	3.23E+01	5.16E+01
K-40		-3.69E+01	±	1.11E+02	8.37E+01
CR-51		-2.46E+00	±	3.07E+01	5.02E+01
MN-54		1.06E+00	±	3.41E+00	5.47E+00
CO-58		5.26E-01	±	3.62E+00	5.89E+00
FE-59		-3.53E-04	±	8.64E+00	1.44E+01
CO-60		4.09E+00	±	3.63E+00	5.27E+00
ZN-65		-1.49E+01	±	1.46E+01	2.28E+01
ZRNB-95		-1.51E+00	±	4.38E+00	7.05E+00
I-131		-2.20E+00	±	4.10E+00	6.58E+00
CS-134		1.99E+00	±	2.43E+00	3.68E+00
CS-137		-4.13E-01	±	4.08E+00	6.66E+00
BALA140		-1.07E+00	±	4.88E+00	7.84E+00
RA-226		1.43E+00	±	1.03E+02	1.77E+02

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

TABLE A-7.1

GAMMA SPECTROMETRY RESULTS OF MONITORING WELL SAMPLES

STATION 32 - Ground Water Well 2

Results in pCi per liter

Location 32 collected 3/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		4.94E+00	±	2.43E+01	3.94E+01
K-40		-9.57E+00	±	5.50E+01	7.69E+01
CR-51		-7.83E+00	±	3.56E+01	5.80E+01
MN-54		-2.03E-01	±	3.39E+00	5.55E+00
CO-58		-9.34E-03	±	3.38E+00	5.55E+00
FE-59		1.45E+00	±	7.13E+00	1.14E+01
CO-60		-5.61E-01	±	3.27E+00	5.27E+00
ZN-65		-1.44E+00	±	4.64E+01	7.62E+01
ZRNB-95		-2.85E+00	±	5.17E+00	8.26E+00
I-131		-1.52E-01	±	4.79E+00	7.86E+00
CS-134		-2.34E+00	±	4.14E+00	6.60E+00
CS-137		-1.07E+00	±	3.76E+00	6.05E+00
BALA140		-7.42E-02	±	3.81E+00	6.26E+00
RA-226		9.64E+01	±	1.13E+02	1.81E+02

Location 32 collected 6/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-1.42E+01	±	3.87E+01	6.25E+01
K-40		-1.38E+01	±	5.73E+01	7.21E+01
CR-51		-1.39E+01	±	3.70E+01	5.99E+01
MN-54		-1.36E+00	±	3.70E+00	5.92E+00
CO-58		1.35E+00	±	2.82E+00	4.42E+00
FE-59		1.10E-01	±	7.46E+00	1.22E+01
CO-60		-4.86E-02	±	3.42E+00	5.61E+00
ZN-65		-2.17E+00	±	4.66E+01	7.66E+01
ZRNB-95		-1.88E+00	±	4.79E+00	7.71E+00
I-131		2.09E+00	±	4.23E+00	6.78E+00
CS-134		1.93E-01	±	9.09E+00	1.49E+01
CS-137		-4.13E+00	±	5.06E+00	7.94E+00
BALA140		-8.56E-01	±	4.59E+00	7.40E+00
RA-226		1.44E+01	±	1.26E+02	2.10E+02

Location 32 collected 9/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		0.00E+00	±	3.75E+01	6.26E+01
K-40		-3.48E+01	±	1.15E+02	8.90E+01
CR-51		1.82E+01	±	3.50E+01	5.64E+01
MN-54		1.94E+00	±	2.62E+00	3.96E+00
CO-58		1.05E+00	±	4.10E+00	6.63E+00
FE-59		-8.36E-01	±	9.69E+00	1.58E+01
CO-60		1.28E+00	±	3.75E+00	5.97E+00
ZN-65		5.51E+00	±	4.90E+01	8.05E+01
ZRNB-95		-3.83E+00	±	6.09E+00	9.74E+00
I-131		4.70E-01	±	4.75E+00	7.78E+00
CS-134		1.49E+00	±	2.49E+00	3.87E+00
CS-137		-2.62E+00	±	5.18E+00	8.28E+00
BALA140		3.25E-01	±	5.10E+00	8.33E+00
RA-226		-7.69E+00	±	1.31E+02	2.02E+02

Location 32 collected 12/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-2.80E-01	±	4.30E+01	7.06E+01
K-40		-4.71E+01	±	2.14E+02	1.04E+02
CR-51		1.57E+01	±	4.36E+01	7.09E+01
MN-54		2.79E-01	±	5.67E+00	9.29E+00
CO-58		-1.01E-01	±	4.83E+00	7.93E+00
FE-59		6.93E+00	±	1.22E+01	1.91E+01
CO-60		6.59E+00	±	4.94E+00	7.31E+00
ZN-65		5.51E+00	±	6.22E+01	1.02E+02
ZRNB-95		-5.32E+00	±	6.74E+00	1.07E+01
I-131		-4.38E-01	±	5.77E+00	9.46E+00
CS-134		3.99E-01	±	1.71E+01	2.80E+01
CS-137		-4.61E+00	±	6.39E+00	1.02E+01
BALA140		-4.23E-01	±	6.50E+00	1.06E+01
RA-226		-5.48E+00	±	1.54E+02	2.42E+02

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

TABLE A-7.1

GAMMA SPECTROMETRY RESULTS OF MONITORING WELL SAMPLES

STATION 52 - Ground Water Well 3

Results in pCi per liter

Location 52 collected 3/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-1.03E+01	±	2.15E+01	3.38E+01
K-40		-2.34E+01	±	6.22E+01	6.28E+01
CR-51		2.01E+00	±	1.60E+01	2.60E+01
MN-54		3.41E-01	±	1.82E+00	2.90E+00
CO-58		-2.46E-01	±	2.03E+00	3.28E+00
FE-59		2.90E+00	±	4.09E+00	5.61E+00
CO-60		0.00E+00	±	1.42E+00	2.36E+00
ZN-65		-6.67E-01	±	4.31E+00	6.92E+00
ZRNB-95		4.17E-01	±	1.81E+00	2.87E+00
I-131		7.72E-01	±	2.59E+00	4.14E+00
CS-134		9.51E-01	±	1.66E+00	2.51E+00
CS-137		9.81E-02	±	1.17E+00	1.89E+00
BALA140		0.00E+00	±	7.01E-01	1.17E+00
RA-226		1.26E+01	±	5.92E+01	1.02E+02

Location 52 collected 6/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		5.52E+00	±	1.58E+01	2.48E+01
K-40		1.98E+01	±	3.18E+01	6.01E+01
CR-51		-1.28E+01	±	2.16E+01	3.39E+01
MN-54		0.00E+00	±	1.33E+00	2.21E+00
CO-58		0.00E+00	±	2.83E+00	4.72E+00
FE-59		-2.27E-01	±	3.93E+00	6.38E+00
CO-60		8.66E-01	±	1.97E+00	2.97E+00
ZN-65		-9.10E-01	±	4.10E+00	6.49E+00
ZRNB-95		3.01E-01	±	2.03E+00	3.27E+00
I-131		9.64E-01	±	2.44E+00	3.85E+00
CS-134		-4.81E-02	±	1.68E+00	2.75E+00
CS-137		-3.72E-01	±	2.16E+00	3.48E+00
BALA140		-9.46E-01	±	3.00E+00	4.66E+00
RA-226		2.19E+01	±	6.43E+01	1.09E+02

Location 52 collected 9/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-3.63E+00	±	2.27E+01	3.69E+01
K-40		-4.61E+01	±	1.13E+02	7.16E+01
CR-51		-1.31E+01	±	2.80E+01	4.48E+01
MN-54		2.19E-03	±	2.72E+00	4.44E+00
CO-58		1.17E-01	±	2.07E+00	3.38E+00
FE-59		2.29E+00	±	7.26E+00	1.14E+01
CO-60		-1.06E-01	±	2.48E+00	4.05E+00
ZN-65		1.38E+00	±	5.15E+00	8.16E+00
ZRNB-95		-1.24E-01	±	2.88E+00	4.71E+00
I-131		-4.27E-01	±	4.27E+00	6.98E+00
CS-134		-5.36E-02	±	2.55E+00	4.19E+00
CS-137		6.21E-01	±	2.44E+00	3.90E+00
BALA140		-6.96E-01	±	4.61E+00	7.43E+00
RA-226		-1.79E+01	±	9.47E+01	1.35E+02

Location 52 collected 12/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		7.67E+00	±	2.40E+01	3.85E+01
K-40		-5.52E+01	±	1.79E+02	7.57E+01
CR-51		1.13E+01	±	1.99E+01	3.14E+01
MN-54		-3.11E-02	±	1.86E+00	3.05E+00
CO-58		-1.04E+00	±	2.61E+00	4.12E+00
FE-59		2.98E+00	±	7.14E+00	1.11E+01
CO-60		2.30E+00	±	2.99E+00	4.44E+00
ZN-65		1.13E-01	±	6.03E+00	9.89E+00
ZRNB-95		1.41E-01	±	2.47E+00	4.03E+00
I-131		-1.95E-01	±	1.99E+00	3.25E+00
CS-134		0.00E+00	±	3.98E+00	6.63E+00
CS-137		4.84E-02	±	2.48E+00	4.08E+00
BALA140		2.04E+00	±	3.42E+00	5.12E+00
RA-226		-2.00E+00	±	7.67E+01	1.33E+02

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

TABLE A-7.2

GAMMA SPECTROMETRY RESULTS OF WATER - SUMMARY

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

RIVER/DRINKING

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-6.66E-01	-1.50E+00	8.76E-02	7.69E+00	12	0
BALA140	Cntl	-1.34E-02	-1.41E+00	1.30E+00	7.15E+00	12	0
BE-7	Ind	5.35E-01	-7.67E+00	6.22E+00	2.61E+01	12	0
BE-7	Cntl	-8.73E-01	-1.21E+01	1.06E+01	2.63E+01	12	0
CO-58	Ind	-9.73E-02	-7.24E-01	6.34E-01	2.70E+00	12	0
CO-58	Cntl	-1.28E-01	-6.41E-01	8.38E-01	2.64E+00	12	0
CO-60	Ind	3.41E-02	-3.73E-01	6.03E-01	2.21E+00	12	0
CO-60	Cntl	4.50E-02	-4.24E-01	8.41E-01	2.52E+00	12	0
CR-51	Ind	1.92E+00	-1.15E+01	1.10E+01	3.10E+01	12	0
CR-51	Cntl	5.60E-03	-1.18E+01	1.03E+01	3.19E+01	12	0
CS-134	Ind	-7.64E-02	-5.94E-01	7.49E-01	2.49E+00	12	0
CS-134	Cntl	-8.97E-02	-6.54E-01	1.13E+00	2.38E+00	12	0
CS-137	Ind	2.43E-01	-5.15E-01	1.15E+00	2.37E+00	12	0
CS-137	Cntl	2.47E-01	-6.16E-01	9.90E-01	2.45E+00	12	0
FE-59	Ind	3.16E-01	-1.26E+00	1.50E+00	7.87E+00	12	0
FE-59	Cntl	-7.59E-03	-1.62E+00	1.71E+00	6.91E+00	12	0
I-131	Ind	4.01E-02	-2.60E+00	2.96E+00	1.02E+01	12	0
I-131	Cntl	6.87E-01	-1.83E+00	3.51E+00	8.20E+00	12	0
K-40	Ind	-2.19E+01	-3.83E+01	-3.35E-01	4.65E+01	12	0
K-40	Cntl	-1.61E+01	-4.13E+01	1.29E+01	4.62E+01	12	0
MN-54	Ind	3.89E-02	-4.44E-01	7.52E-01	2.37E+00	12	0
MN-54	Cntl	2.22E-02	-5.05E-01	8.38E-01	2.34E+00	12	0
RA-226	Ind	-4.15E+00	-3.01E+01	6.26E+01	7.14E+01	12	0
RA-226	Cntl	2.36E+00	-1.72E+01	4.73E+01	7.07E+01	12	0
ZN-65	Ind	-9.66E-02	-1.19E+00	1.09E+00	5.74E+00	12	0
ZN-65	Cntl	-2.86E-02	-1.19E+00	1.92E+00	5.41E+00	12	0
ZRNB-95	Ind	1.37E-01	-6.30E-01	1.90E+00	2.94E+00	12	0
ZRNB-95	Cntl	1.52E-01	-4.02E-01	1.54E+00	2.69E+00	12	0

Ind = Indicator Stations Cntl = Control Stations

TABLE A-7.2

GAMMA SPECTROMETRY RESULTS OF WATER - SUMMARY

DISCHARGE

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BE-7	Ind	6.28E+00	-4.07E+00	1.64E+01	2.30E+01	12	0
K-40	Ind	-8.19E+00	-3.43E+01	4.16E+01	4.64E+01	12	0
CR-51	Ind	1.56E+00	-8.85E+00	8.44E+00	3.09E+01	12	0
MN-54	Ind	-1.37E-02	-1.07E+00	1.10E+00	2.49E+00	12	0
CO-58	Ind	2.48E-01	-7.36E-01	1.40E+00	2.66E+00	12	0
FE-59	Ind	4.33E-01	-8.40E-01	4.00E+00	7.23E+00	12	0
CO-60	Ind	2.33E-01	-9.23E-02	6.63E-01	2.42E+00	12	0
ZN-65	Ind	-5.05E-01	-1.68E+00	7.17E-01	6.09E+00	12	0
ZRNB-95	Ind	3.33E-02	-6.77E-01	8.57E-01	2.76E+00	12	0
I-131	Ind	3.69E-01	-2.29E+00	4.57E+00	8.57E+00	12	0
CS-134	Ind	-2.01E-02	-8.25E-01	4.66E-01	2.52E+00	12	0
CS-137	Ind	1.15E-02	-8.96E-01	1.52E+00	2.47E+00	12	0
BALA140	Ind	-1.54E-01	-1.23E+00	1.51E+00	6.42E+00	12	0
RA-226	Ind	-5.80E+00	-2.31E+01	1.59E+01	7.32E+01	12	0

GROUNDWATER

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BE-7	Ind	-1.71E+00	-1.71E+01	7.67E+00	4.35E+01	12	0
K-40	Ind	-3.04E+01	-6.25E+01	1.98E+01	7.53E+01	12	0
CR-51	Ind	-2.12E+00	-1.43E+01	1.82E+01	4.63E+01	12	0
MN-54	Ind	2.09E-01	-1.36E+00	1.94E+00	4.51E+00	12	0
CO-58	Ind	1.54E-02	-1.30E+00	1.35E+00	4.92E+00	12	0
FE-59	Ind	1.20E+00	-1.20E+00	6.93E+00	1.16E+01	12	0
CO-60	Ind	1.23E+00	-5.61E-01	6.59E+00	4.55E+00	12	0
ZN-65	Ind	-1.07E+00	-1.49E+01	5.51E+00	4.02E+01	12	0
ZRNB-95	Ind	-1.50E+00	-5.32E+00	4.17E-01	6.25E+00	12	0
I-131	Ind	1.76E-01	-2.20E+00	2.09E+00	5.93E+00	12	0
CS-134	Ind	2.68E-01	-2.34E+00	1.99E+00	7.77E+00	12	0
CS-137	Ind	-1.22E+00	-4.61E+00	6.21E-01	5.49E+00	12	0
BALA140	Ind	-2.70E-01	-1.07E+00	2.04E+00	6.30E+00	12	0
RA-226	Ind	1.92E+01	-1.79E+01	9.64E+01	1.59E+02	12	0

Ind = Indicator Stations Cntl = Control Stations

TABLE A-8.1

GAMMA SPECTROMETRY RESULTS OF SOIL

Results in pCi per kilogram

Location & Date Station 1 5/19/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-2.82E+01	±	1.78E+02	2.88E+02
K-40	+	1.47E+04	±	1.09E+03	4.23E+02
CR-51		-2.75E+00	±	2.06E+02	3.39E+02
MN-54		2.21E-01	±	2.68E+01	4.40E+01
CO-58		3.21E+00	±	2.26E+01	3.65E+01
FE-59		1.76E+01	±	7.41E+01	1.18E+02
CO-60		-1.68E+00	±	2.98E+01	4.87E+01
ZN-65		-3.04E+01	±	7.35E+01	1.16E+02
ZRNB-95		0.00E+00	±	3.29E+01	5.49E+01
CS-134		1.93E+01	±	2.23E+01	3.34E+01
CS-137	+	6.08E+01	±	3.19E+01	4.33E+01
BALA140		0.00E+00	±	4.08E+01	6.80E+01
BI-214	+	4.61E+02	±	8.56E+01	8.84E+01
RA-226		8.78E+02	±	7.94E+02	1.28E+03

Location & Date Station 7 5/19/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.90E+01	±	1.84E+02	2.99E+02
K-40	+	1.38E+04	±	1.04E+03	3.88E+02
CR-51		5.70E+01	±	2.16E+02	3.49E+02
MN-54		1.07E+01	±	2.30E+01	3.57E+01
CO-58		-6.29E-01	±	1.46E+01	2.39E+01
FE-59		-1.51E+01	±	6.86E+01	1.10E+02
CO-60		-7.01E+00	±	3.22E+01	5.18E+01
ZN-65		-5.30E+01	±	8.51E+01	1.33E+02
ZRNB-95		-6.53E+00	±	2.66E+01	4.27E+01
CS-134		-3.76E+00	±	2.16E+00	5.01E+00
CS-137		-9.53E-01	±	2.73E+01	4.48E+01
BALA140		-1.05E+01	±	3.22E+01	5.02E+01
BI-214	+	4.70E+02	±	7.77E+01	7.36E+01
RA-226		7.72E+02	±	7.58E+02	1.22E+03

Location & Date Station 9a 5/19/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.38E+02	±	2.22E+02	3.43E+02
K-40	+	1.28E+04	±	1.06E+03	3.56E+02
CR-51		-7.12E+00	±	2.30E+02	3.78E+02
MN-54		-6.73E+00	±	2.62E+01	4.18E+01
CO-58		-7.30E-01	±	1.77E+01	2.89E+01
FE-59		-1.16E+01	±	8.10E+01	1.31E+02
CO-60		7.49E-01	±	3.02E+01	4.96E+01
ZN-65		0.00E+00	±	1.60E+02	2.66E+02
ZRNB-95		1.01E+00	±	2.41E+01	3.94E+01
CS-134		0.00E+00	±	4.66E+01	7.77E+01
CS-137	+	5.13E+01	±	3.44E+01	4.82E+01
BALA140		-5.07E+00	±	3.43E+01	5.49E+01
BI-214	+	5.38E+02	±	8.78E+01	7.79E+01
RA-226		9.49E+02	±	7.99E+02	1.28E+03

Location & Date Station 21 5/19/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		8.95E+01	±	1.71E+02	2.66E+02
K-40	+	1.38E+04	±	9.76E+02	3.13E+02
CR-51		-7.87E+00	±	1.93E+02	3.17E+02
MN-54		8.33E+00	±	2.11E+01	3.31E+01
CO-58		-1.14E+00	±	2.11E+01	3.44E+01
FE-59		-1.02E+01	±	6.21E+01	9.99E+01
CO-60		4.08E-01	±	2.71E+01	4.45E+01
ZN-65		-1.82E+01	±	6.36E+01	1.02E+02
ZRNB-95		9.85E+00	±	2.14E+01	3.33E+01
CS-134		-8.75E+00	±	2.10E+01	3.31E+01
CS-137		-3.71E+00	±	2.23E+01	3.60E+01
BALA140		0.00E+00	±	6.48E+00	1.08E+01
BI-214	+	3.09E+02	±	6.94E+01	8.12E+01
RA-226	+	1.17E+03	±	6.48E+02	1.01E+03

Location & Date Station 23 5/19/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-8.91E+01	±	2.00E+02	3.15E+02
K-40	+	1.42E+04	±	1.04E+03	3.15E+02
CR-51		-5.68E+01	±	2.00E+02	3.22E+02
MN-54		1.46E+01	±	2.83E+01	4.41E+01
CO-58		-9.16E+00	±	2.64E+01	4.18E+01
FE-59		-3.25E+00	±	6.79E+01	1.11E+02
CO-60		1.51E+01	±	3.37E+01	5.27E+01
ZN-65		-3.26E+01	±	7.59E+01	1.20E+02
ZRNB-95		1.05E+01	±	2.38E+01	3.72E+01
CS-134		-9.85E+00	±	2.46E+01	3.89E+01
CS-137	+	5.60E+01	±	2.75E+01	3.49E+01
BALA140		8.11E+00	±	2.41E+01	3.66E+01
BI-214	+	4.61E+02	±	7.98E+01	7.90E+01
RA-226		6.21E+02	±	7.20E+02	1.17E+03

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

TABLE A-8.2

GAMMA SPECTROMETRY RESULTS OF SOIL - SUMMARY

Results in pCi per kilogram

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-6.08E-01	-1.05E+01	8.11E+00	4.14E+01	4	0
BALA140	Cntl	-5.07E+00	-5.07E+00	-5.07E+00	5.49E+01	1	0
BE-7	Ind	-2.20E+00	-8.91E+01	8.95E+01	2.92E+02	4	0
BE-7	Cntl	1.38E+02	1.38E+02	1.38E+02	3.43E+02	1	0
BI-214	Ind	4.25E+02	3.09E+02	4.70E+02	8.05E+01	4	4
BI-214	Cntl	5.38E+02	5.38E+02	5.38E+02	7.79E+01	1	1
CO-58	Ind	-1.93E+00	-9.16E+00	3.21E+00	3.42E+01	4	0
CO-58	Cntl	-7.30E-01	-7.30E-01	-7.30E-01	2.89E+01	1	0
CO-60	Ind	1.71E+00	-7.01E+00	1.51E+01	4.94E+01	4	0
CO-60	Cntl	7.49E-01	7.49E-01	7.49E-01	4.96E+01	1	0
CR-51	Ind	-2.59E+00	-5.68E+01	5.70E+01	3.32E+02	4	0
CR-51	Cntl	-7.12E+00	-7.12E+00	-7.12E+00	3.78E+02	1	0
CS-134	Ind	-7.57E-01	-9.85E+00	1.93E+01	2.76E+01	4	0
CS-134	Cntl	0.00E+00	0.00E+00	0.00E+00	7.77E+01	1	0
CS-137	Ind	2.80E+01	-3.71E+00	6.08E+01	3.97E+01	4	2
CS-137	Cntl	5.13E+01	5.13E+01	5.13E+01	4.82E+01	1	1
FE-59	Ind	-2.76E+00	-1.51E+01	1.76E+01	1.10E+02	4	0
FE-59	Cntl	-1.16E+01	-1.16E+01	-1.16E+01	1.31E+02	1	0
K-40	Ind	1.41E+04	1.38E+04	1.47E+04	3.60E+02	4	4
K-40	Cntl	1.28E+04	1.28E+04	1.28E+04	3.56E+02	1	1
MN-54	Ind	8.46E+00	2.21E-01	1.46E+01	3.92E+01	4	0
MN-54	Cntl	-6.73E+00	-6.73E+00	-6.73E+00	4.18E+01	1	0
RA-226	Ind	8.61E+02	6.21E+02	1.17E+03	1.17E+03	4	1
RA-226	Cntl	9.49E+02	9.49E+02	9.49E+02	1.28E+03	1	0
ZN-65	Ind	-3.36E+01	-5.30E+01	-1.82E+01	1.18E+02	4	0
ZN-65	Cntl	0.00E+00	0.00E+00	0.00E+00	2.66E+02	1	0
ZRNB-95	Ind	3.45E+00	-6.53E+00	1.05E+01	4.20E+01	4	0
ZRNB-95	Cntl	1.01E+00	1.01E+00	1.01E+00	3.94E+01	1	0

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

TABLE A-9.1

GAMMA SPECTROMETRY RESULTS OF SEDIMENT

Results in pCi per kilogram

Station 33 Upstream Control

Collection Date: 3/10/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.52E+02	±	1.64E+02	2.57E+02
K-40	+	1.66E+04	±	7.30E+02	2.87E+02
CR-51		-4.22E+01	±	1.65E+02	2.68E+02
MN-54		2.20E-01	±	1.80E+01	2.96E+01
CO-58		8.05E-01	±	1.68E+01	2.76E+01
FE-59		5.49E-01	±	5.08E+01	8.34E+01
CO-60		9.86E+00	±	1.75E+01	2.74E+01
ZN-65		-2.67E+01	±	4.51E+01	7.14E+01
ZRNB-95		-1.11E+01	±	2.32E+01	3.72E+01
CS-134		1.23E+01	±	1.07E+01	1.59E+01
CS-137	+	6.41E+01	±	2.21E+01	3.07E+01
BALA140		0.00E+00	±	1.86E+01	3.11E+01
BI-214	+	6.03E+02	±	5.76E+01	5.83E+01
RA-226	+	1.78E+03	±	4.92E+02	6.70E+02

Collection Date: 10/15/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.08E+02	±	1.93E+02	3.04E+02
K-40	+	1.56E+04	±	9.66E+02	2.61E+02
CR-51		-8.80E+01	±	1.72E+02	2.73E+02
MN-54		-2.65E+00	±	2.05E+01	3.32E+01
CO-58		-6.27E+00	±	2.14E+01	3.42E+01
FE-59		1.04E+01	±	6.05E+01	9.76E+01
CO-60		1.57E+00	±	2.73E+01	4.47E+01
ZN-65		3.61E+00	±	4.79E+01	7.80E+01
ZRNB-95		-6.03E+00	±	2.50E+01	4.03E+01
CS-134		-5.85E+00	±	2.17E+01	3.49E+01
CS-137	+	7.06E+01	±	2.83E+01	2.92E+01
BALA140		-1.07E+00	±	2.50E+01	4.09E+01
BI-214	+	5.99E+02	±	8.12E+01	6.96E+01
RA-226	+	1.53E+03	±	6.46E+02	8.70E+02

Station 34 Downstream Indicator

Collection Date: 3/10/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-4.13E+01	±	1.53E+02	2.48E+02
K-40	+	1.52E+04	±	6.78E+02	2.94E+02
CR-51		8.61E+01	±	1.29E+02	2.05E+02
MN-54		8.37E+00	±	9.41E+00	1.39E+01
CO-58		-6.70E+00	±	1.59E+01	2.53E+01
FE-59		1.40E+01	±	4.31E+01	6.87E+01
CO-60		2.92E+00	±	1.60E+01	2.60E+01
ZN-65		-1.51E+01	±	3.66E+01	5.85E+01
ZRNB-95		-1.74E+00	±	1.72E+01	2.81E+01
CS-134		-3.18E+00	±	1.48E+01	2.41E+01
CS-137	+	1.74E+02	±	2.69E+01	2.53E+01
BALA140		-1.12E+01	±	3.22E+01	5.09E+01
BI-214	+	4.38E+02	±	4.78E+01	5.15E+01
RA-226	+	9.53E+02	±	4.02E+02	6.15E+02

Collection Date: 10/15/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.28E+02	±	1.79E+02	2.76E+02
K-40	+	1.63E+04	±	1.00E+03	2.40E+02
CR-51		1.20E+02	±	1.62E+02	2.51E+02
MN-54		-5.49E+00	±	2.17E+01	3.48E+01
CO-58		3.45E+00	±	1.77E+01	2.84E+01
FE-59		0.00E+00	±	5.71E+01	9.51E+01
CO-60		0.00E+00	±	2.85E+01	4.75E+01
ZN-65		-1.62E+01	±	6.04E+01	9.70E+01
ZRNB-95		-1.73E+00	±	2.22E+01	3.62E+01
CS-134		-5.33E+00	±	2.02E+01	3.25E+01
CS-137	+	1.26E+02	±	3.21E+01	3.56E+01
BALA140		-6.84E+00	±	2.21E+01	3.42E+01
BI-214	+	5.10E+02	±	7.36E+01	6.82E+01
RA-226	+	9.38E+02	±	5.39E+02	8.35E+02

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

TABLE A-9.2

GAMMA SPECTROMETRY RESULTS OF SEDIMENT - SUMMARY

Results in pCi per kilogram

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-9.01E+00	-1.12E+01	-6.84E+00	4.26E+01	2	0
BALA140	Cntl	-5.36E-01	-1.07E+00	0.00E+00	3.60E+01	2	0
BE-7	Ind	4.36E+01	-4.13E+01	1.28E+02	2.62E+02	2	0
BE-7	Cntl	1.30E+02	1.08E+02	1.52E+02	2.81E+02	2	0
BI-214	Ind	4.74E+02	4.38E+02	5.10E+02	5.98E+01	2	2
BI-214	Cntr	6.01E+02	5.99E+02	6.03E+02	6.40E+01	2	2
CO-58	Ind	-1.63E+00	-6.70E+00	3.45E+00	2.69E+01	2	0
CO-58	Cntl	-2.73E+00	-6.27E+00	8.05E-01	3.09E+01	2	0
CO-60	Ind	1.46E+00	0.00E+00	2.92E+00	3.67E+01	2	0
CO-60	Cntl	5.71E+00	1.57E+00	9.86E+00	3.60E+01	2	0
CR-51	Ind	1.03E+02	8.61E+01	1.20E+02	2.28E+02	2	0
CR-51	Cntl	-6.51E+01	-8.80E+01	-4.22E+01	2.71E+02	2	0
CS-134	Ind	-4.26E+00	-5.33E+00	-3.18E+00	2.83E+01	2	0
CS-134	Cntl	3.21E+00	-5.85E+00	1.23E+01	2.54E+01	2	0
CS-137	Ind	1.50E+02	1.26E+02	1.74E+02	3.05E+01	2	2
CS-137	Cntl	6.73E+01	6.41E+01	7.06E+01	2.99E+01	2	2
FE-59	Ind	7.00E+00	0.00E+00	1.40E+01	8.19E+01	2	0
FE-59	Cntl	5.45E+00	5.49E-01	1.04E+01	9.05E+01	2	0
K-40	Ind	1.57E+04	1.52E+04	1.63E+04	2.67E+02	2	2
K-40	Cntl	1.61E+04	1.56E+04	1.66E+04	2.74E+02	2	2
MN-54	Ind	1.44E+00	-5.49E+00	8.37E+00	2.43E+01	2	0
MN-54	Cntl	-1.22E+00	-2.65E+00	2.20E-01	3.14E+01	2	0
RA-226	Ind	9.45E+02	9.38E+02	9.53E+02	7.25E+02	2	2
RA-226	Cntl	1.66E+03	1.53E+03	1.78E+03	7.70E+02	2	2
ZN-65	Ind	-1.56E+01	-1.62E+01	-1.51E+01	7.77E+01	2	0
ZN-65	Cntl	-1.16E+01	-2.67E+01	3.61E+00	7.47E+01	2	0
ZRNB-95	Ind	-1.73E+00	-1.74E+00	-1.73E+00	3.21E+01	2	0
ZRNB-95	Cntl	-8.59E+00	-1.11E+01	-6.03E+00	3.87E+01	2	0

Ind = Indicator Stations Cntl = Control Stations

TABLE A-10.1

GAMMA SPECTROMETRY RESULTS OF FISH

Station 30 Columbia River - Station 38 Snake River

Results in pCi per kilogram (wet)

Location & Species	Collection Date	Nuclide	RQ	Activity		Error	MDA
Steelhead	11/12/08	BE-7		-1.70E+01	±	9.58E+01	1.53E+02
Station 30		K-40	+	3.25E+03	±	2.87E+02	1.12E+02
Indicator		CR-51		7.37E+01	±	1.77E+02	2.71E+02
		MN-54		-4.26E-03	±	4.89E+00	8.07E+00
		CO-58		1.41E+00	±	8.85E+00	1.41E+01
		FE-59		6.11E-01	±	4.78E+01	7.85E+01
		CO-60		0.00E+00	±	8.76E+00	1.46E+01
		ZN-65		-8.31E-01	±	1.80E+01	2.95E+01
		ZRNB-95		-3.41E+00	±	1.30E+01	2.06E+01
		CS-134		0.00E+00	±	7.21E+00	1.20E+01
		CS-137		3.69E+00	±	5.48E+00	8.02E+00
		BALA140		-3.31E+00	±	3.16E+02	5.18E+02
		Bi-214		1.13E+01	±	1.36E+01	2.22E+01
		RA-226		-2.31E+01	±	1.58E+02	1.83E+02
White Fish	12/04/08	BE-7		-1.41E+01	±	1.35E+02	2.19E+02
Station 30		K-40	+	3.28E+03	±	3.53E+02	1.54E+02
Indicator		CR-51		1.96E+02	±	2.35E+02	3.44E+02
		MN-54		4.04E+00	±	8.40E+00	1.26E+01
		CO-58		-1.17E+00	±	1.29E+01	2.09E+01
		FE-59		7.73E+00	±	5.18E+01	8.25E+01
		CO-60		0.00E+00	±	1.13E+01	1.89E+01
		ZN-65		0.00E+00	±	3.40E+01	5.67E+01
		ZRNB-95		1.65E+00	±	1.31E+01	2.10E+01
		CS-134		0.00E+00	±	1.05E+01	1.75E+01
		CS-137		4.09E+00	±	7.69E+00	1.15E+01
		BALA140		-3.23E+01	±	2.66E+02	4.24E+02
		Bi-214		2.26E+01	±	1.92E+01	3.03E+01
		RA-226		9.52E+01	±	1.48E+02	2.52E+02
Sucker	11/18/08	BE-7		-1.79E+01	±	9.35E+01	1.49E+02
Station 30		K-40	+	3.07E+03	±	2.89E+02	1.28E+02
Indicator		CR-51		1.22E+02	±	1.91E+02	2.85E+02
		MN-54		-2.00E-03	±	6.85E+00	1.13E+01
		CO-58		6.75E-01	±	1.05E+01	1.71E+01
		FE-59		-5.31E+00	±	4.52E+01	7.27E+01
		CO-60		-1.08E-01	±	7.06E+00	1.16E+01
		ZN-65		0.00E+00	±	2.41E+01	4.02E+01
		ZRNB-95		-8.06E-02	±	1.13E+01	1.86E+01
		CS-134		-9.12E-01	±	6.29E+00	1.02E+01
		CS-137		8.23E-01	±	5.74E+00	9.23E+00
		BALA140		-1.19E+02	±	3.56E+02	5.44E+02
		Bi-214	+	2.55E+01	±	1.40E+01	2.04E+01
		RA-226		-7.40E+00	±	1.07E+02	1.72E+02

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

TABLE A-10.1

GAMMA SPECTROMETRY RESULTS OF FISH

Station 30 Columbia River - Station 38 Snake River

Results in pCi per kilogram (wet)

Location & Species	Collection Date	Nuclide	RQ	Activity		Error	MDA
Steelhead	11/20/08	BE-7		0.00E+00	±	8.78E+01	1.46E+02
Station 38		K-40	+	2.79E+03	±	2.56E+02	1.11E+02
Control		CR-51		5.27E+01	±	1.42E+02	2.19E+02
		MN-54		0.00E+00	±	5.48E+00	9.13E+00
		CO-58		-1.79E+00	±	8.29E+00	1.31E+01
		FE-59		1.52E+01	±	3.61E+01	5.42E+01
		CO-60		1.82E+00	±	6.40E+00	1.00E+01
		ZN-65		-1.83E-01	±	1.40E+01	2.30E+01
		ZRNB-95		-1.40E+00	±	9.75E+00	1.57E+01
		CS-134		8.10E-01	±	4.09E+00	6.51E+00
		CS-137		1.09E+00	±	4.77E+00	7.56E+00
		BALA140		1.60E+01	±	2.25E+02	3.64E+02
		Bi-214		1.45E+01	±	1.14E+01	1.77E+01
		RA-226		2.46E+01	±	9.53E+01	1.66E+02
White Fish	12/10/08	BE-7		1.13E+01	±	1.80E+02	2.92E+02
Station 38		K-40	+	3.61E+03	±	5.01E+02	2.76E+02
Control		CR-51		0.00E+00	±	3.74E+02	6.23E+02
		MN-54		2.16E+00	±	1.15E+01	1.81E+01
		CO-58		6.82E+00	±	2.08E+01	3.22E+01
		FE-59		-1.94E+00	±	8.20E+01	1.34E+02
		CO-60		1.97E+00	±	1.53E+01	2.44E+01
		ZN-65		-2.03E+01	±	5.11E+01	7.96E+01
		ZRNB-95		-4.30E+00	±	1.79E+01	2.79E+01
		CS-134		-2.81E+00	±	1.31E+01	2.09E+01
		CS-137		9.08E+00	±	1.39E+01	2.03E+01
		BALA140		0.00E+00	±	8.68E+01	1.45E+02
		Bi-214		5.28E+01	±	3.50E+01	5.29E+01
		RA-226		6.14E+01	±	2.26E+02	4.09E+02
Sucker	12/03/08	BE-7		2.07E+00	±	7.12E+01	1.17E+02
Station 38		K-40	+	3.27E+03	±	2.93E+02	1.18E+02
Control		CR-51		4.33E+01	±	1.23E+02	1.91E+02
		MN-54		-9.15E-01	±	6.90E+00	1.11E+01
		CO-58		5.14E+00	±	7.65E+00	1.08E+01
		FE-59		5.11E+00	±	3.70E+01	5.92E+01
		CO-60		2.40E-01	±	7.86E+00	1.29E+01
		ZN-65		-8.45E-02	±	1.67E+01	2.75E+01
		ZRNB-95		3.83E-02	±	9.87E+00	1.62E+01
		CS-134		4.46E-01	±	5.06E+00	8.22E+00
		CS-137		7.92E-01	±	5.30E+00	8.50E+00
		BALA140		0.00E+00	±	1.96E+02	3.26E+02
		Bi-214		3.99E+00	±	1.17E+01	2.06E+01
		RA-226		-1.79E+01	±	1.28E+02	1.68E+02

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

TABLE A-10.2

GAMMA SPECTROMETRY RESULTS OF FISH - SUMMARY

Results in pCi per kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-5.16E+01	-1.19E+02	-3.31E+00	4.95E+02	3	0
BALA140	Cntl	5.35E+00	0.00E+00	1.60E+01	2.78E+02	3	0
BE-7	Ind	-1.63E+01	-1.79E+01	-1.41E+01	1.74E+02	3	0
BE-7	Cntl	4.46E+00	0.00E+00	1.13E+01	1.85E+02	3	0
Bi-214	Ind	1.98E+01	1.13E+01	2.55E+01	2.43E+01	3	1
Bi-214	Cntl	2.37E+01	3.99E+00	5.28E+01	3.04E+01	3	0
CO-58	Ind	3.05E-01	-1.17E+00	1.41E+00	1.74E+01	3	0
CO-58	Cntl	3.39E+00	-1.79E+00	6.82E+00	1.87E+01	3	0
CO-60	Ind	-3.61E-02	-1.08E-01	0.00E+00	1.50E+01	3	0
CO-60	Cntl	1.35E+00	2.40E-01	1.97E+00	1.58E+01	3	0
CR-51	Ind	1.30E+02	7.37E+01	1.96E+02	3.00E+02	3	0
CR-51	Cntl	3.20E+01	0.00E+00	5.27E+01	3.44E+02	3	0
CS-134	Ind	-3.04E-01	-9.12E-01	0.00E+00	1.32E+01	3	0
CS-134	Cntl	-5.17E-01	-2.81E+00	8.10E-01	1.19E+01	3	0
CS-137	Ind	2.87E+00	8.23E-01	4.09E+00	9.57E+00	3	0
CS-137	Cntl	3.65E+00	7.92E-01	9.08E+00	1.21E+01	3	0
FE-59	Ind	1.01E+00	-5.31E+00	7.73E+00	7.79E+01	3	0
FE-59	Cntl	6.14E+00	-1.94E+00	1.52E+01	8.26E+01	3	0
K-40	Ind	3.20E+03	3.07E+03	3.28E+03	1.31E+02	3	3
K-40	Cntl	3.22E+03	2.79E+03	3.61E+03	1.68E+02	3	3
MN-54	Ind	1.34E+00	-4.26E-03	4.04E+00	1.07E+01	3	0
MN-54	Cntl	4.16E-01	-9.15E-01	2.16E+00	1.28E+01	3	0
RA-226	Ind	2.15E+01	-2.31E+01	9.52E+01	2.02E+02	3	0
RA-226	Cntl	2.27E+01	-1.79E+01	6.14E+01	2.48E+02	3	0
ZN-65	Ind	-2.77E-01	-8.31E-01	0.00E+00	4.21E+01	3	0
ZN-65	Cntl	-6.85E+00	-2.03E+01	-8.45E-02	4.34E+01	3	0
ZRNB-95	Ind	-6.15E-01	-3.41E+00	1.65E+00	2.01E+01	3	0
ZRNB-95	Cntl	-1.89E+00	-4.30E+00	3.83E-02	1.99E+01	3	0

Ind = Indicator Stations Cntl = Control Stations

TABLE A-11.1

IODINE 131 IN MILK

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

Collection Date	Station 9b Control RQ	I-131 Activity		Error	I-131 MDA	Station 36 Indicator RQ	I-131 Activity		Error	I-131 MDA
01/21/08		-1.08E-01	±	3.54E-01	5.77E-01		-1.24E-01	±	3.20E-01	5.20E-01
02/25/08		-4.26E-03	±	2.64E-01	4.33E-01		3.95E-02	±	2.49E-01	4.08E-01
03/17/08		3.12E-02	±	2.71E-01	4.44E-01		6.77E-02	±	2.52E-01	4.11E-01
04/14/08		-5.23E-03	±	2.71E-01	4.45E-01		-8.92E-03	±	1.88E-01	3.08E-01
04/28/08		-3.62E-02	±	2.71E-01	4.45E-01		1.32E-02	±	2.60E-01	4.27E-01
05/12/08		8.15E-03	±	2.56E-01	4.21E-01		-4.78E-02	±	2.48E-01	4.05E-01
05/26/08		-5.24E-03	±	2.71E-01	4.46E-01		1.22E-03	±	2.37E-01	3.91E-01
06/09/08		-1.49E-03	±	2.55E-01	4.17E-01		2.85E-02	±	2.54E-01	4.16E-01
06/23/08		9.31E-02	±	2.04E-01	3.30E-01		1.76E-02	±	1.59E-01	2.61E-01
07/07/08		5.41E-03	±	2.26E-01	3.71E-01		-7.93E-02	±	1.98E-01	3.21E-01
07/21/08		3.11E-02	±	1.89E-01	3.09E-01		9.00E-02	±	1.69E-01	2.73E-01
08/11/08		3.48E-02	±	2.02E-01	3.30E-01		-2.24E-02	±	1.64E-01	2.68E-01
08/25/08		-9.69E-02	±	2.03E-01	3.28E-01		-5.33E-02	±	1.89E-01	3.08E-01
09/08/08		-3.52E-03	±	1.61E-01	2.64E-01		-5.95E-02	±	1.78E-01	2.88E-01
09/22/08		-6.30E-02	±	3.46E-01	5.66E-01		-2.06E-01	±	3.35E-01	5.42E-01
10/13/08		0.00E+00	±	2.13E-01	3.54E-01		1.41E-01	±	1.63E-01	2.59E-01
11/17/08		-7.11E-03	±	1.82E-01	2.99E-01		-1.70E-02	±	1.91E-01	3.13E-01
12/15/08		-6.25E-03	±	2.14E-01	3.51E-01		0.00E+00	±	1.87E-01	3.12E-01

TABLE A-11.2

IODINE 131 IN MILK - SUMMARY

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

Location	Average Activity	Activity Low	Activity High	Average MDA	Number Samples	Number Positive IDs
Indicator- St 36	-1.22E-02	-2.06E-01	1.41E-01	3.57E-01	18	0
Control - St 9b	-7.42E-03	-1.08E-01	9.31E-02	3.96E-01	18	0

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

TABLE A-12.1

GAMMA SPECTROMETRY RESULTS OF MILK

STATION 9b - CONTROL

Results in pCi per liter

Collection Date: 1/21/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-3.88E-02	±	4.03E+00	6.62E+00
CO-60		7.85E-01	±	3.34E+00	5.34E+00
ZN-65		3.12E+00	±	8.08E+00	1.28E+01
MN-54		-2.01E-03	±	2.33E+00	3.82E+00
CS-134		-6.89E-01	±	3.06E+00	4.94E+00
CS-137		2.36E+00	±	3.06E+00	4.62E+00
BALA140		-9.22E-01	±	4.81E+00	7.71E+00
K-40	+	1.45E+03	±	1.22E+02	8.26E+01
FE-59		-3.28E+00	±	9.43E+00	1.49E+01
RA-226		2.49E+01	±	8.36E+01	1.42E+02
ZRNB-95		2.47E+00	±	3.27E+00	4.97E+00
BE-7		-9.05E-01	±	2.14E+01	3.51E+01

Collection Date: 2/25/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-3.79E-01	±	3.29E+00	5.38E+00
CO-60		6.54E-01	±	3.00E+00	4.85E+00
ZN-65		-2.94E+00	±	6.51E+00	1.04E+01
MN-54		2.76E-02	±	2.53E+00	4.15E+00
CS-134		-1.74E-01	±	2.32E+00	3.80E+00
CS-137		-4.69E-01	±	2.33E+00	3.77E+00
BALA140		8.84E-01	±	2.72E+00	4.26E+00
K-40	+	1.42E+03	±	9.60E+01	6.10E+01
FE-59		2.81E+00	±	7.02E+00	1.11E+01
RA-226		-1.02E+01	±	7.26E+01	1.13E+02
ZRNB-95		1.20E+00	±	2.51E+00	3.98E+00
BE-7		-1.00E+00	±	1.81E+01	2.96E+01

Collection Date: 3/17/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		4.15E-01	±	3.00E+00	4.91E+00
CO-60		1.99E-01	±	2.61E+00	4.27E+00
ZN-65		4.39E-01	±	5.37E+00	8.78E+00
MN-54		1.89E-01	±	2.14E+00	3.50E+00
CS-134		-1.06E+00	±	2.25E+00	3.62E+00
CS-137		1.11E+00	±	2.28E+00	3.64E+00
BALA140		1.14E+00	±	2.52E+00	3.93E+00
K-40	+	1.39E+03	±	8.18E+01	5.18E+01
FE-59		-1.23E+00	±	6.27E+00	1.02E+01
RA-226		-2.30E+01	±	7.67E+01	1.02E+02
ZRNB-95		3.30E-01	±	2.00E+00	3.26E+00
BE-7		-2.12E-01	±	1.90E+01	3.12E+01

Collection Date: 4/14/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		9.79E-01	±	2.90E+00	4.64E+00
CO-60		-6.58E-02	±	3.47E+00	5.70E+00
ZN-65		-2.52E+00	±	7.66E+00	1.22E+01
MN-54		4.21E-01	±	2.91E+00	4.73E+00
CS-134		-2.45E-01	±	2.91E+00	4.75E+00
CS-137		0.00E+00	±	3.25E+00	5.42E+00
BALA140		1.95E+00	±	3.65E+00	5.49E+00
K-40	+	1.40E+03	±	1.16E+02	7.43E+01
FE-59		-9.61E-01	±	8.97E+00	1.46E+01
RA-226		-3.69E+01	±	1.26E+02	1.40E+02
ZRNB-95		3.79E-01	±	2.45E+00	3.96E+00
BE-7		-1.14E+01	±	2.66E+01	4.24E+01

Collection Date: 4/28/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-1.31E+00	±	4.25E+00	6.88E+00
CO-60		9.63E-01	±	3.88E+00	6.24E+00
ZN-65		2.95E+00	±	7.36E+00	1.16E+01
MN-54		-8.06E-01	±	2.78E+00	4.44E+00
CS-134		0.00E+00	±	3.95E+00	6.58E+00
CS-137		5.50E-02	±	3.08E+00	5.05E+00
BALA140		-9.36E-01	±	4.10E+00	6.54E+00
K-40	+	1.74E+03	±	1.25E+02	7.15E+01
FE-59		5.12E-01	±	9.16E+00	1.50E+01
RA-226		-1.30E+01	±	9.17E+01	1.38E+02
ZRNB-95		1.44E+00	±	2.96E+00	4.66E+00
BE-7		8.28E-01	±	2.11E+01	3.46E+01

Collection Date: 5/12/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		0.00E+00	±	4.00E+00	6.66E+00
CO-60		-1.48E-01	±	2.91E+00	4.75E+00
ZN-65		-3.62E-01	±	6.41E+00	1.05E+01
MN-54		-9.34E-02	±	2.50E+00	4.10E+00
CS-134		-9.34E-01	±	2.93E+00	4.70E+00
CS-137		0.00E+00	±	4.05E+00	6.75E+00
BALA140		-1.12E-02	±	4.53E+00	7.45E+00
K-40	+	1.45E+03	±	1.24E+02	8.42E+01
FE-59		-3.21E+00	±	1.05E+01	1.68E+01
RA-226		7.40E-01	±	7.66E+01	1.35E+02
ZRNB-95		1.98E+00	±	2.96E+00	4.56E+00
BE-7		7.58E+00	±	1.94E+01	3.08E+01

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

TABLE A-12.1

GAMMA SPECTROMETRY RESULTS OF MILK

STATION 9b - CONTROL

Results in pCi per liter

Collection Date: 5/26/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		1.19E+00	±	3.76E+00	6.06E+00
CO-60		5.54E-01	±	3.59E+00	5.82E+00
ZN-65		2.97E+00	±	6.99E+00	1.10E+01
MN-54		2.47E+00	±	2.94E+00	4.44E+00
CS-134		-1.39E-02	±	2.58E+00	4.25E+00
CS-137		0.00E+00	±	3.10E+00	5.17E+00
BALA140		-4.69E-02	±	3.79E+00	6.23E+00
K-40	+	1.45E+03	±	1.18E+02	7.54E+01
FE-59		-3.48E-01	±	6.75E+00	1.10E+01
RA-226		-4.76E+01	±	1.41E+02	1.37E+02
ZRNB-95		4.50E-01	±	3.07E+00	4.98E+00
BE-7		1.43E+01	±	2.58E+01	4.07E+01

Collection Date: 6/9/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-2.23E+00	±	4.11E+00	6.55E+00
CO-60		0.00E+00	±	4.03E+00	6.72E+00
ZN-65		-8.27E-02	±	6.66E+00	1.09E+01
MN-54		2.39E-01	±	2.96E+00	4.83E+00
CS-134		1.35E+00	±	2.94E+00	4.67E+00
CS-137		-5.70E-01	±	3.11E+00	5.03E+00
BALA140		-1.55E+00	±	4.27E+00	6.69E+00
K-40	+	1.51E+03	±	1.16E+02	6.90E+01
FE-59		-1.12E+00	±	8.96E+00	1.45E+01
RA-226		2.65E+01	±	8.21E+01	1.42E+02
ZRNB-95		-3.88E-01	±	3.22E+00	5.24E+00
BE-7		-9.97E-01	±	2.21E+01	3.62E+01

Collection Date: 6/23/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		1.07E+00	±	3.54E+00	5.71E+00
CO-60		-8.52E-01	±	3.78E+00	6.08E+00
ZN-65		6.23E-02	±	7.01E+00	1.15E+01
MN-54		1.68E+00	±	2.69E+00	4.13E+00
CS-134		0.00E+00	±	4.30E+00	7.17E+00
CS-137		1.34E+00	±	3.17E+00	5.01E+00
BALA140		-8.66E-01	±	3.97E+00	6.33E+00
K-40	+	1.47E+03	±	1.15E+02	6.88E+01
FE-59		-2.28E+00	±	8.67E+00	1.38E+01
RA-226		-1.70E+01	±	9.73E+01	1.39E+02
ZRNB-95		-7.06E-01	±	2.94E+00	4.72E+00
BE-7		7.12E+00	±	2.19E+01	3.50E+01

Collection Date: 7/7/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		1.44E+00	±	2.92E+00	4.58E+00
CO-60		6.28E-01	±	3.00E+00	4.79E+00
ZN-65		-1.44E+00	±	8.21E+00	1.33E+01
MN-54		8.14E-01	±	2.44E+00	3.83E+00
CS-134		1.20E+00	±	2.57E+00	4.03E+00
CS-137		-4.75E-01	±	2.91E+00	4.69E+00
BALA140		-6.26E-02	±	3.73E+00	6.11E+00
K-40	+	1.49E+03	±	1.24E+02	8.59E+01
FE-59		-1.33E+00	±	8.46E+00	1.36E+01
RA-226		1.06E+01	±	5.61E+01	1.01E+02
ZRNB-95		1.97E-02	±	2.44E+00	4.01E+00
BE-7		2.75E+00	±	2.29E+01	3.73E+01

Collection Date: 7/21/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		2.02E+00	±	3.09E+00	4.79E+00
CO-60		6.43E-01	±	3.57E+00	5.75E+00
ZN-65		1.42E+00	±	5.58E+00	8.85E+00
MN-54		1.19E+00	±	2.44E+00	3.76E+00
CS-134		-1.34E+00	±	3.06E+00	4.85E+00
CS-137		-5.18E-02	±	2.61E+00	4.28E+00
BALA140		-1.38E-01	±	3.35E+00	5.47E+00
K-40	+	1.52E+03	±	1.26E+02	8.48E+01
FE-59		-5.09E-01	±	8.32E+00	1.36E+01
RA-226		-2.35E+01	±	9.95E+01	1.11E+02
ZRNB-95		-3.11E-01	±	2.66E+00	4.32E+00
BE-7		-2.41E-01	±	2.01E+01	3.31E+01

Collection Date: 8/11/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-1.33E+00	±	3.38E+00	5.38E+00
CO-60		1.25E+00	±	3.46E+00	5.44E+00
ZN-65		4.91E+00	±	5.03E+00	6.92E+00
MN-54		2.62E-01	±	2.52E+00	4.09E+00
CS-134		0.00E+00	±	3.10E+00	5.17E+00
CS-137		1.13E-01	±	2.98E+00	4.89E+00
BALA140		0.00E+00	±	8.90E-01	1.48E+00
K-40	+	1.56E+03	±	1.27E+02	7.43E+01
FE-59		3.18E-01	±	8.70E+00	1.42E+01
RA-226		-8.69E+00	±	6.95E+01	1.07E+02
ZRNB-95		1.95E+00	±	2.69E+00	4.04E+00
BE-7		-3.01E+00	±	1.64E+01	2.63E+01

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

TABLE A-12.1

GAMMA SPECTROMETRY RESULTS OF MILK

STATION 9b - CONTROL

Results in pCi per liter

Collection Date: 8/25/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-1.23E+00	±	3.93E+00	6.34E+00
CO-60		-7.51E-01	±	4.42E+00	7.17E+00
ZN-65		2.95E+00	±	6.70E+00	1.05E+01
MN-54		-9.27E-01	±	3.10E+00	4.96E+00
CS-134		-5.96E-01	±	2.86E+00	4.62E+00
CS-137		9.81E-01	±	2.95E+00	4.70E+00
BALA140		-4.92E-01	±	4.23E+00	6.85E+00
K-40	+	1.51E+03	±	1.21E+02	7.50E+01
FE-59		3.79E-02	±	7.92E+00	1.30E+01
RA-226		1.83E+00	±	7.75E+01	1.37E+02
ZRNB-95		9.05E-01	±	2.04E+00	3.15E+00
BE-7		-1.26E+01	±	2.90E+01	4.64E+01

Collection Date: 9/8/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-1.39E+00	±	3.48E+00	5.58E+00
CO-60		1.45E+00	±	3.62E+00	5.71E+00
ZN-65		-2.03E+00	±	8.46E+00	1.36E+01
MN-54		-1.59E+00	±	3.07E+00	4.82E+00
CS-134		-1.59E+00	±	3.16E+00	5.01E+00
CS-137		0.00E+00	±	3.91E+00	6.51E+00
BALA140		-1.50E+00	±	4.31E+00	6.78E+00
K-40	+	1.48E+03	±	1.18E+02	7.35E+01
FE-59		-2.38E-01	±	8.03E+00	1.32E+01
RA-226		-4.78E+01	±	1.48E+02	1.43E+02
ZRNB-95		1.37E-01	±	3.06E+00	5.01E+00
BE-7		1.18E+01	±	2.23E+01	3.51E+01

Collection Date: 9/22/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-9.95E-03	±	2.73E+00	4.49E+00
CO-60		1.28E+00	±	3.48E+00	5.46E+00
ZN-65		-8.70E-01	±	6.44E+00	1.04E+01
MN-54		-4.11E-01	±	3.23E+00	5.25E+00
CS-134		-2.26E-01	±	2.65E+00	4.32E+00
CS-137		9.32E-02	±	2.19E+00	3.57E+00
BALA140		1.36E+00	±	3.17E+00	4.73E+00
K-40	+	1.48E+03	±	1.20E+02	6.80E+01
FE-59		-1.29E+00	±	9.38E+00	1.52E+01
RA-226		3.63E+01	±	5.62E+01	9.89E+01
ZRNB-95		-9.77E-02	±	2.48E+00	4.06E+00
BE-7		9.86E+00	±	1.59E+01	2.40E+01

Collection Date: 10/13/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		2.69E-01	±	3.02E+00	4.93E+00
CO-60		-5.82E-03	±	3.91E+00	6.44E+00
ZN-65		-4.93E-01	±	6.34E+00	1.03E+01
MN-54		2.70E-01	±	2.46E+00	3.99E+00
CS-134		-5.90E-01	±	2.94E+00	4.75E+00
CS-137		-2.47E-01	±	2.65E+00	4.31E+00
BALA140		0.00E+00	±	8.91E-01	1.48E+00
K-40	+	1.47E+03	±	1.25E+02	7.65E+01
FE-59		6.44E-02	±	7.87E+00	1.29E+01
RA-226		-1.52E+01	±	7.89E+01	1.08E+02
ZRNB-95		6.06E-01	±	2.91E+00	4.68E+00
BE-7		7.67E+00	±	2.02E+01	3.19E+01

Collection Date: 11/17/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		1.43E+00	±	3.28E+00	5.20E+00
CO-60		-1.16E-01	±	4.18E+00	6.85E+00
ZN-65		1.65E-01	±	7.24E+00	1.19E+01
MN-54		0.00E+00	±	4.05E+00	6.76E+00
CS-134		1.09E+00	±	2.84E+00	4.51E+00
CS-137		-2.91E-01	±	2.68E+00	4.35E+00
BALA140		-8.14E-01	±	3.43E+00	5.38E+00
K-40	+	7.57E+02	±	1.48E+02	2.07E+02
FE-59		-1.01E+00	±	9.17E+00	1.49E+01
RA-226		-5.80E-01	±	6.03E+01	1.07E+02
ZRNB-95		2.29E+00	±	2.85E+00	4.26E+00
BE-7		1.03E+01	±	2.19E+01	3.44E+01

Collection Date: 12/15/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-1.05E+00	±	3.44E+00	5.52E+00
CO-60		-1.55E+00	±	4.20E+00	6.66E+00
ZN-65		6.35E-02	±	7.19E+00	1.18E+01
MN-54		2.46E-01	±	2.45E+00	3.97E+00
CS-134		0.00E+00	±	4.08E+00	6.80E+00
CS-137		2.33E-01	±	2.77E+00	4.51E+00
BALA140		8.16E-01	±	3.43E+00	5.38E+00
K-40	+	1.54E+03	±	1.27E+02	7.51E+01
FE-59		3.13E+00	±	7.86E+00	1.22E+01
RA-226		1.12E+01	±	6.26E+01	1.11E+02
ZRNB-95		1.39E+00	±	2.63E+00	4.04E+00
BE-7		-9.08E-01	±	2.13E+01	3.48E+01

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

TABLE A-12.1

GAMMA SPECTROMETRY RESULTS OF MILK

STATION 36 - INDICATOR

Results in pCi per liter

Collection Date: 1/21/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-1.14E+00	±	3.97E+00	6.40E+00
CO-60		1.14E+00	±	3.51E+00	5.55E+00
ZN-65		-8.70E+00	±	1.06E+01	1.64E+01
MN-54		-2.71E-02	±	2.78E+00	4.56E+00
CS-134		1.78E+00	±	2.01E+00	2.90E+00
CS-137		1.32E+00	±	3.35E+00	5.30E+00
BALA140		-2.72E-01	±	4.13E+00	6.72E+00
K-40	+	1.57E+03	±	1.31E+02	9.11E+01
FE-59		0.00E+00	±	7.60E+00	1.27E+01
RA-226		-5.07E+00	±	9.16E+01	1.43E+02
ZRNB-95		-3.08E-02	±	3.49E+00	5.73E+00
BE-7		1.60E+01	±	2.24E+01	3.42E+01

Collection Date: 2/25/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-1.25E+00	±	4.14E+00	6.69E+00
CO-60		2.77E+00	±	3.76E+00	5.74E+00
ZN-65		-5.49E-03	±	8.28E+00	1.36E+01
MN-54		1.73E+00	±	2.93E+00	4.55E+00
CS-134		-6.86E-02	±	3.02E+00	4.95E+00
CS-137		-1.13E+00	±	3.50E+00	5.62E+00
BALA140		0.00E+00	±	5.67E+00	9.46E+00
K-40	+	1.54E+03	±	1.26E+02	8.22E+01
FE-59		1.84E+00	±	8.01E+00	1.28E+01
RA-226		-1.05E+01	±	9.14E+01	1.41E+02
ZRNB-95		-1.64E+00	±	3.40E+00	5.38E+00
BE-7		1.48E+01	±	2.33E+01	3.64E+01

Collection Date: 3/17/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-1.76E+00	±	3.80E+00	6.08E+00
CO-60		1.34E-01	±	3.36E+00	5.50E+00
ZN-65		2.82E+00	±	6.90E+00	1.09E+01
MN-54		1.33E-01	±	2.93E+00	4.80E+00
CS-134		-8.65E-01	±	3.36E+00	5.43E+00
CS-137		1.76E-01	±	3.37E+00	5.52E+00
BALA140		1.79E-01	±	2.51E+00	4.06E+00
K-40	+	1.48E+03	±	1.14E+02	6.54E+01
FE-59		0.00E+00	±	1.00E+01	1.67E+01
RA-226		1.55E+01	±	8.06E+01	1.41E+02
ZRNB-95		-1.52E-01	±	3.37E+00	5.52E+00
BE-7		1.09E+01	±	2.55E+01	4.06E+01

Collection Date: 4/14/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-7.63E-01	±	4.15E+00	6.75E+00
CO-60		1.57E-01	±	4.03E+00	6.60E+00
ZN-65		-2.78E+00	±	7.65E+00	1.22E+01
MN-54		-9.34E-01	±	3.06E+00	4.89E+00
CS-134		-2.18E-01	±	2.51E+00	4.09E+00
CS-137		-1.05E+00	±	3.57E+00	5.74E+00
BALA140		0.00E+00	±	6.43E+00	1.07E+01
K-40	+	1.51E+03	±	1.18E+02	7.27E+01
FE-59		3.58E+00	±	7.31E+00	1.13E+01
RA-226		-6.96E+00	±	8.34E+01	1.35E+02
ZRNB-95		-1.00E+00	±	3.25E+00	5.21E+00
BE-7		-2.42E+00	±	2.72E+01	4.44E+01

Collection Date: 4/28/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-6.89E-01	±	3.84E+00	6.24E+00
CO-60		-3.06E+00	±	4.55E+00	7.07E+00
ZN-65		3.63E-01	±	7.49E+00	1.23E+01
MN-54		-4.81E-01	±	2.99E+00	4.84E+00
CS-134		1.39E-02	±	2.64E+00	4.34E+00
CS-137		1.52E+00	±	2.83E+00	4.41E+00
BALA140		0.00E+00	±	3.38E+00	5.63E+00
K-40	+	1.40E+03	±	1.18E+02	7.82E+01
FE-59		-8.53E-01	±	8.41E+00	1.37E+01
RA-226		-3.72E+01	±	1.35E+02	1.49E+02
ZRNB-95		1.16E+00	±	3.03E+00	4.82E+00
BE-7		-9.77E+00	±	2.80E+01	4.50E+01

Collection Date: 5/12/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		8.73E-01	±	3.80E+00	6.16E+00
CO-60		1.30E+00	±	3.30E+00	5.19E+00
ZN-65		1.21E-01	±	6.87E+00	1.13E+01
MN-54		9.31E-01	±	2.81E+00	4.47E+00
CS-134		2.76E-01	±	2.63E+00	4.29E+00
CS-137		2.65E-01	±	3.01E+00	4.92E+00
BALA140		0.00E+00	±	7.48E-01	1.25E+00
K-40	+	1.57E+03	±	1.23E+02	7.43E+01
FE-59		1.07E+00	±	8.66E+00	1.40E+01
RA-226		4.29E+01	±	8.15E+01	1.41E+02
ZRNB-95		7.40E-01	±	2.58E+00	4.11E+00
BE-7		1.73E+00	±	2.18E+01	3.57E+01

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

TABLE A-12.1

GAMMA SPECTROMETRY RESULTS OF MILK

STATION 36 - INDICATOR

Results in pCi per liter

Collection Date: 5/26/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		0.00E+00	±	3.93E+00	6.55E+00
CO-60		1.76E+00	±	3.67E+00	5.74E+00
ZN-65		4.72E-01	±	7.41E+00	1.21E+01
MN-54		1.40E+00	±	2.76E+00	4.30E+00
CS-134		5.76E-01	±	2.26E+00	3.62E+00
CS-137		7.75E-01	±	3.16E+00	5.09E+00
BALA140		1.76E+00	±	3.59E+00	5.45E+00
K-40	+	1.51E+03	±	1.17E+02	6.92E+01
FE-59		1.12E+00	±	9.75E+00	1.59E+01
RA-226		-1.32E+01	±	9.70E+01	1.45E+02
ZRNB-95		1.09E+00	±	2.87E+00	4.56E+00
BE-7		4.18E+00	±	2.78E+01	4.52E+01

Collection Date: 6/9/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-1.55E+00	±	4.27E+00	6.89E+00
CO-60		1.54E+00	±	4.28E+00	6.82E+00
ZN-65		0.00E+00	±	9.39E+00	1.56E+01
MN-54		1.87E+00	±	3.07E+00	4.77E+00
CS-134		-1.82E+00	±	3.32E+00	5.26E+00
CS-137		-1.37E+00	±	3.87E+00	6.20E+00
BALA140		-8.21E-01	±	4.42E+00	7.09E+00
K-40	+	1.59E+03	±	1.20E+02	6.84E+01
FE-59		-4.98E-01	±	8.43E+00	1.38E+01
RA-226		-5.67E+00	±	8.76E+01	1.43E+02
ZRNB-95		-4.08E-02	±	2.81E+00	4.62E+00
BE-7		7.82E+00	±	2.43E+01	3.91E+01

Collection Date: 6/23/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-2.08E+00	±	3.68E+00	5.83E+00
CO-60		-7.65E-01	±	4.13E+00	6.68E+00
ZN-65		1.38E+00	±	6.41E+00	1.03E+01
MN-54		0.00E+00	±	3.97E+00	6.62E+00
CS-134		-1.57E+00	±	3.16E+00	5.02E+00
CS-137		-1.41E+00	±	3.19E+00	5.05E+00
BALA140		0.00E+00	±	4.65E+00	7.75E+00
K-40	+	1.56E+03	±	1.20E+02	7.31E+01
FE-59		-1.13E-01	±	8.17E+00	1.34E+01
RA-226		-2.72E+01	±	1.16E+02	1.46E+02
ZRNB-95		1.45E+00	±	2.77E+00	4.33E+00
BE-7		7.09E+00	±	2.12E+01	3.38E+01

Collection Date: 7/7/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		8.20E-01	±	3.66E+00	5.92E+00
CO-60		-1.04E+00	±	3.89E+00	6.22E+00
ZN-65		9.57E-01	±	6.99E+00	1.13E+01
MN-54		-4.93E-01	±	2.76E+00	4.44E+00
CS-134		-1.26E+00	±	3.09E+00	4.92E+00
CS-137		-4.13E-01	±	2.87E+00	4.64E+00
BALA140		-7.93E-02	±	2.92E+00	4.77E+00
K-40	+	1.45E+03	±	1.24E+02	8.75E+01
FE-59		0.00E+00	±	1.23E+01	2.06E+01
RA-226		-9.97E+00	±	6.01E+01	9.22E+01
ZRNB-95		-2.88E-01	±	2.25E+00	3.63E+00
BE-7		-7.85E+00	±	2.36E+01	3.77E+01

Collection Date: 7/21/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-9.01E-01	±	3.70E+00	5.97E+00
CO-60		3.57E-03	±	3.70E+00	6.10E+00
ZN-65		4.07E+00	±	7.15E+00	1.10E+01
MN-54		2.54E-01	±	2.62E+00	4.26E+00
CS-134		-1.80E+00	±	3.57E+00	5.66E+00
CS-137		1.24E+00	±	3.01E+00	4.73E+00
BALA140		8.29E-01	±	3.00E+00	4.67E+00
K-40	+	1.61E+03	±	1.30E+02	8.68E+01
FE-59		0.00E+00	±	6.42E+00	1.07E+01
RA-226		1.40E+01	±	6.60E+01	1.15E+02
ZRNB-95		-2.05E-01	±	2.78E+00	4.53E+00
BE-7		6.70E-01	±	2.24E+01	3.68E+01

Collection Date: 8/11/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		1.60E-02	±	2.85E+00	4.69E+00
CO-60		1.43E+00	±	3.52E+00	5.52E+00
ZN-65		1.36E+00	±	6.56E+00	1.05E+01
MN-54		-9.80E-01	±	2.89E+00	4.58E+00
CS-134		-3.73E-01	±	2.65E+00	4.29E+00
CS-137		9.05E-01	±	2.55E+00	4.01E+00
BALA140		-2.65E-01	±	3.38E+00	5.48E+00
K-40	+	1.49E+03	±	1.28E+02	8.21E+01
FE-59		-2.66E+00	±	9.54E+00	1.52E+01
RA-226		-3.03E+01	±	9.99E+01	1.04E+02
ZRNB-95		6.94E-01	±	2.31E+00	3.64E+00
BE-7		3.22E-02	±	2.08E+01	3.42E+01

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

TABLE A-12.1

GAMMA SPECTROMETRY RESULTS OF MILK

STATION 36 - INDICATOR

Results in pCi per liter

Collection Date: 8/25/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		1.09E+00	±	3.75E+00	6.06E+00
CO-60		-5.50E-01	±	4.10E+00	6.66E+00
ZN-65		-1.56E+00	±	7.13E+00	1.15E+01
MN-54		1.93E+00	±	2.69E+00	4.09E+00
CS-134		-7.12E-01	±	2.87E+00	4.63E+00
CS-137		-3.65E-02	±	2.99E+00	4.90E+00
BALA140		-6.16E-01	±	4.53E+00	7.33E+00
K-40	+	1.41E+03	±	1.11E+02	6.31E+01
FE-59		-1.06E+00	±	8.08E+00	1.31E+01
RA-226		-4.37E+00	±	8.11E+01	1.36E+02
ZRNB-95		-9.68E-01	±	3.30E+00	5.30E+00
BE-7		1.70E+01	±	2.41E+01	3.76E+01

Collection Date: 9/8/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		1.85E+00	±	3.83E+00	6.11E+00
CO-60		8.23E-01	±	3.58E+00	5.75E+00
ZN-65		-2.16E+00	±	7.69E+00	1.23E+01
MN-54		1.23E+00	±	2.38E+00	3.68E+00
CS-134		1.41E+00	±	2.67E+00	4.19E+00
CS-137		0.00E+00	±	3.67E+00	6.12E+00
BALA140		1.70E-01	±	3.91E+00	6.39E+00
K-40	+	1.39E+03	±	1.21E+02	8.22E+01
FE-59		-1.52E+00	±	8.68E+00	1.40E+01
RA-226		-1.36E+00	±	8.11E+01	1.40E+02
ZRNB-95		-1.52E+00	±	3.52E+00	5.60E+00
BE-7		1.04E+00	±	2.36E+01	3.87E+01

Collection Date: 9/22/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		1.27E+00	±	3.61E+00	5.78E+00
CO-60		-6.92E-01	±	3.86E+00	6.23E+00
ZN-65		-7.53E-01	±	5.23E+00	8.41E+00
MN-54		0.00E+00	±	4.31E+00	7.18E+00
CS-134		3.41E-01	±	2.58E+00	4.18E+00
CS-137		2.45E-01	±	2.60E+00	4.22E+00
BALA140		0.00E+00	±	8.60E-01	1.43E+00
K-40	+	4.76E+02	±	1.50E+02	2.26E+02
FE-59		1.55E+00	±	6.30E+00	9.92E+00
RA-226		1.62E+01	±	5.75E+01	1.03E+02
ZRNB-95		7.35E-01	±	2.84E+00	4.54E+00
BE-7		1.75E+01	±	2.07E+01	3.11E+01

Collection Date: 10/13/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		1.86E+00	±	2.67E+00	4.07E+00
CO-60		1.33E+00	±	3.75E+00	5.93E+00
ZN-65		1.10E+00	±	7.36E+00	1.19E+01
MN-54		-6.60E-01	±	2.87E+00	4.59E+00
CS-134		-7.02E-01	±	3.14E+00	5.07E+00
CS-137		4.37E-01	±	2.78E+00	4.49E+00
BALA140		4.17E-01	±	3.33E+00	5.34E+00
K-40	+	1.54E+03	±	1.25E+02	7.13E+01
FE-59		-1.49E+00	±	8.25E+00	1.33E+01
RA-226		2.51E+00	±	5.98E+01	1.07E+02
ZRNB-95		-4.26E-01	±	2.80E+00	4.53E+00
BE-7		3.43E+00	±	1.98E+01	3.20E+01

Collection Date: 11/17/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		-7.22E-02	±	2.75E+00	4.51E+00
CO-60		1.73E+00	±	3.10E+00	4.72E+00
ZN-65		-6.07E-01	±	7.18E+00	1.17E+01
MN-54		-9.44E-01	±	3.07E+00	4.88E+00
CS-134		0.00E+00	±	3.72E+00	6.19E+00
CS-137		-1.83E-01	±	2.43E+00	3.95E+00
BALA140		0.00E+00	±	8.51E-01	1.42E+00
K-40	+	1.65E+03	±	1.31E+02	7.62E+01
FE-59		-2.84E-02	±	8.62E+00	1.42E+01
RA-226		2.18E+01	±	6.01E+01	1.06E+02
ZRNB-95		8.79E-01	±	2.63E+00	4.16E+00
BE-7		0.00E+00	±	2.28E+01	3.81E+01

Collection Date: 12/15/2008

Nuclide	RQ	Activity		Error	MDA
BA-133		2.65E+00	±	3.03E+00	4.59E+00
CO-60		-8.77E-01	±	3.73E+00	5.98E+00
ZN-65		5.63E-02	±	7.18E+00	1.18E+01
MN-54		-7.95E-01	±	2.68E+00	4.26E+00
CS-134		-9.05E-01	±	2.98E+00	4.78E+00
CS-137		2.51E-03	±	2.62E+00	4.29E+00
BALA140		2.11E+00	±	3.09E+00	4.35E+00
K-40	+	1.45E+03	±	1.20E+02	6.93E+01
FE-59		2.21E-01	±	8.12E+00	1.33E+01
RA-226		-3.65E+01	±	1.08E+02	1.00E+02
ZRNB-95		1.97E+00	±	3.16E+00	4.87E+00
BE-7		-9.86E+00	±	2.49E+01	3.96E+01

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

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	1.32E-02	-2.08E+00	2.65E+00	5.54E+00	18	0
BA-133	Cntl	-8.21E-03	-2.23E+00	2.02E+00	5.27E+00	18	0
BALA140	Ind	1.90E-01	-6.96E+00	2.11E+00	5.23E+00	18	0
BALA140	Cntl	-6.58E-02	-3.69E+01	1.36E+00	5.17E+00	18	0
BE-7	Ind	4.02E+00	-9.86E+00	1.75E+01	3.58E+01	18	0
BE-7	Cntl	2.28E+00	-1.26E+01	1.43E+01	3.26E+01	18	0
CO-60	Ind	3.96E-01	-3.06E+00	2.77E+00	5.68E+00	18	0
CO-60	Cntl	2.74E-01	-1.55E+00	1.45E+00	5.48E+00	18	0
CS-134	Ind	-3.27E-01	-1.82E+00	1.51E+03	4.41E+00	18	0
CS-134	Cntl	-2.12E-01	-1.59E+00	1.40E+03	4.66E+00	18	0
CS-137	Ind	7.12E-02	-1.41E+00	3.58E+00	4.69E+00	18	0
CS-137	Cntl	2.32E-01	-9.61E-01	2.36E+00	4.54E+00	18	0
FE-59	Ind	6.46E-02	-2.66E+00	1.84E+00	1.31E+01	18	0
FE-59	Cntl	-5.52E-01	-1.14E+01	3.13E+00	1.29E+01	18	0
K-40	Ind	1.46E+03	-1.00E+00	1.65E+03	8.00E+01	18	18
K-40	Cntl	1.45E+03	3.79E-01	1.74E+03	7.68E+01	18	18
MN-54	Ind	2.31E-01	-9.80E-01	1.93E+00	4.51E+00	18	0
MN-54	Cntl	2.21E-01	-1.59E+00	2.47E+00	4.19E+00	18	0
RA-226	Ind	-4.19E+00	-3.72E+01	4.29E+01	1.20E+02	18	0
RA-226	Cntl	-7.30E+00	-4.78E+01	3.63E+01	1.17E+02	18	0
ZN-65	Ind	-2.14E-01	-8.70E+00	4.07E+00	1.13E+01	18	0
ZN-65	Cntl	4.62E-01	-2.94E+00	4.91E+00	1.04E+01	18	0
ZRNB-95	Ind	1.36E-01	-1.64E+00	1.97E+00	4.48E+00	18	0
ZRNB-95	Cntl	7.80E-01	-7.06E-01	2.47E+00	4.10E+00	18	0

Ind = Indicator Stations Cntl = Control Locations

TABLE A-15.1

GAMMA SPECTROMETRY RESULTS OF ROOTS

Results in pCi per kilogram (wet)

Station 37 Onion collected 6/16/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	1.33E+03	±	2.19E+02	1.34E+02
MN-54		0.00E+00	±	9.96E+00	1.66E+01
CO-58		0.00E+00	±	1.02E+01	1.70E+01
FE-59		-4.14E+00	±	2.16E+01	3.43E+01
CO-60		2.40E+00	±	7.59E+00	1.17E+01
ZN-65		0.00E+00	±	2.19E+01	3.66E+01
ZRNB-95		-8.46E-01	±	7.43E+00	1.20E+01
I-131		2.66E+00	±	5.64E+00	8.69E+00
CS-134		-2.72E+00	±	6.88E+00	1.07E+01
CS-137		-1.47E+00	±	6.50E+00	1.03E+01

Station 9c Onion collected 6/16/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	1.31E+03	±	2.11E+02	1.18E+02
MN-54		-1.55E+00	±	6.31E+00	9.91E+00
CO-58		-2.26E+00	±	7.72E+00	1.21E+01
FE-59		0.00E+00	±	1.47E+01	2.45E+01
CO-60		6.32E-02	±	7.95E+00	1.31E+01
ZN-65		-7.55E-02	±	1.55E+01	2.54E+01
ZRNB-95		-1.25E-01	±	4.99E+00	8.15E+00
I-131		-1.96E+00	±	6.81E+00	1.08E+01
CS-134		1.58E+00	±	4.79E+00	7.37E+00
CS-137		-4.40E-01	±	6.20E+00	1.01E+01

Station 37 Potato collected 7/14/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	4.72E+03	±	3.48E+02	1.29E+02
MN-54		-1.34E+00	±	5.78E+00	9.16E+00
CO-58		-1.31E+00	±	6.09E+00	9.69E+00
FE-59		4.06E+00	±	1.69E+01	2.66E+01
CO-60		-2.26E+00	±	8.07E+00	1.27E+01
ZN-65		0.00E+00	±	9.11E+00	1.52E+01
ZRNB-95		-1.94E+00	±	5.85E+00	9.15E+00
I-131		1.65E+00	±	4.94E+00	7.73E+00
CS-134		-1.02E+00	±	5.34E+00	8.55E+00
CS-137		-1.51E+00	±	5.59E+00	8.80E+00

Station 9c Potato collected 7/14/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	4.02E+03	±	3.25E+02	1.39E+02
MN-54		2.28E+00	±	4.73E+00	7.04E+00
CO-58		-8.72E-01	±	4.77E+00	7.57E+00
FE-59		0.00E+00	±	1.09E+01	1.82E+01
CO-60		-4.13E+00	±	9.73E+00	1.52E+01
ZN-65		-4.13E+00	±	1.75E+01	2.80E+01
ZRNB-95		-1.78E+00	±	6.17E+00	9.72E+00
I-131		1.03E-01	±	5.56E+00	9.13E+00
CS-134		-1.03E+00	±	5.73E+00	9.20E+00
CS-137		8.27E-03	±	5.14E+00	8.46E+00

Station 37 Potato collected 8/18/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	5.03E+03	±	3.72E+02	1.13E+02
MN-54		-1.29E+00	±	6.72E+00	1.07E+01
CO-58		8.49E-01	±	5.90E+00	9.47E+00
FE-59		-1.79E+00	±	1.70E+01	2.74E+01
CO-60		-1.08E+00	±	9.52E+00	1.54E+01
ZN-65		-4.33E+00	±	1.72E+01	2.73E+01
ZRNB-95		2.24E-02	±	5.99E+00	9.85E+00
I-131		-7.30E-01	±	5.17E+00	8.35E+00
CS-134		-2.58E-01	±	5.92E+00	9.68E+00
CS-137		-1.25E+00	±	5.97E+00	9.49E+00

Station 9c Potato collected 8/18/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	4.08E+03	±	3.37E+02	1.25E+02
MN-54		5.96E-01	±	6.66E+00	1.08E+01
CO-58		-5.13E-02	±	5.65E+00	9.28E+00
FE-59		6.17E-01	±	1.94E+01	3.17E+01
CO-60		-3.63E-01	±	8.55E+00	1.40E+01
ZN-65		4.88E+00	±	1.54E+01	2.41E+01
ZRNB-95		9.12E-01	±	6.17E+00	9.92E+00
I-131		-1.45E+00	±	5.13E+00	8.12E+00
CS-134		-5.13E-02	±	5.20E+00	8.53E+00
CS-137		-2.76E-01	±	5.00E+00	8.14E+00

Station 37 Potato collected 9/2/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	4.68E+03	±	3.61E+02	1.15E+02
MN-54		0.00E+00	±	6.92E+00	1.15E+01
CO-58		6.29E-02	±	4.33E+00	7.10E+00
FE-59		0.00E+00	±	2.18E+01	3.63E+01
CO-60		0.00E+00	±	1.44E+01	2.39E+01
ZN-65		-6.39E+00	±	2.08E+01	3.30E+01
ZRNB-95		-1.64E+00	±	5.27E+00	8.18E+00
I-131		-1.54E+00	±	5.27E+00	8.36E+00
CS-134		-1.46E-01	±	5.62E+00	9.21E+00
CS-137		-1.81E+00	±	6.68E+00	1.05E+01

Station 9c Potato collected 9/2/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	4.51E+03	±	3.74E+02	1.50E+02
MN-54		-1.16E+00	±	6.77E+00	1.08E+01
CO-58		1.45E+00	±	5.89E+00	9.27E+00
FE-59		-1.52E+00	±	2.07E+01	3.37E+01
CO-60		1.09E+00	±	8.49E+00	1.37E+01
ZN-65		0.00E+00	±	1.92E+01	3.20E+01
ZRNB-95		1.25E+00	±	5.20E+00	8.16E+00
I-131		1.16E+00	±	5.33E+00	8.52E+00
CS-134		-2.52E+00	±	6.36E+00	9.92E+00
CS-137		1.26E+00	±	5.93E+00	9.40E+00

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

TABLE A-15.2

GAMMA SPECTROMETRY RESULTS OF ROOTS - SUMMARY

Results in pCi per kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
CO-58	Ind	-9.97E-02	-1.31E+00	8.49E-01	1.08E+01	4	0
CO-58	Cntl	-4.33E-01	-2.26E+00	1.45E+00	9.57E+00	4	0
CO-60	Ind	-2.36E-01	-2.26E+00	2.40E+00	1.59E+01	4	0
CO-60	Cntl	-8.35E-01	-4.13E+00	1.09E+00	1.40E+01	4	0
CS-134	Ind	-1.04E+00	-2.72E+00	-1.46E-01	9.54E+00	4	0
CS-134	Cntl	-5.07E-01	-2.52E+00	1.58E+00	8.76E+00	4	0
CS-137	Ind	-1.51E+00	-1.81E+00	-1.25E+00	9.77E+00	4	0
CS-137	Cntl	1.38E-01	-4.40E-01	1.26E+00	9.02E+00	4	0
FE-59	Ind	-4.69E-01	-4.14E+00	4.06E+00	3.12E+01	4	0
FE-59	Cntl	-2.25E-01	-1.52E+00	6.17E-01	2.70E+01	4	0
I-131	Ind	5.10E-01	-1.54E+00	2.66E+00	8.28E+00	4	0
I-131	Cntl	-5.37E-01	-1.96E+00	1.16E+00	9.15E+00	4	0
K-40	Ind	3.94E+03	1.33E+03	5.03E+03	1.23E+02	4	4
K-40	Cntl	3.48E+03	1.31E+03	4.51E+03	1.33E+02	4	4
MN-54	Ind	-6.58E-01	-1.34E+00	0.00E+00	1.20E+01	4	0
MN-54	Cntl	4.35E-02	-1.55E+00	2.28E+00	9.65E+00	4	0
ZN-65	Ind	-2.68E+00	-6.39E+00	0.00E+00	2.80E+01	4	0
ZN-65	Cntl	1.69E-01	-4.13E+00	4.88E+00	2.74E+01	4	0
ZRNB-95	Ind	-1.10E+00	-1.94E+00	2.24E-02	9.80E+00	4	0
ZRNB-95	Cntl	6.46E-02	-1.78E+00	1.25E+00	8.99E+00	4	0

Ind = Indicator Station Cntl = Control Station

TABLE A-16.1

GAMMA SPECTROMETRY RESULTS OF FRUIT

Results in pCi per kilogram (wet)

Station 37 Cherries collected 6/16/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.72E+03	±	2.94E+02	1.25E+02
MN-54		-8.41E-01	±	7.64E+00	1.24E+01
CO-58		9.56E-01	±	6.50E+00	1.04E+01
FE-59		9.19E+00	±	2.27E+01	3.50E+01
CO-60		-3.63E+00	±	1.07E+01	1.68E+01
ZN-65		3.44E+00	±	1.70E+01	2.71E+01
ZRNB-95		8.33E-01	±	6.21E+00	9.99E+00
I-131		2.75E+00	±	4.89E+00	7.39E+00
CS-134		-1.53E+00	±	6.06E+00	9.62E+00
CS-137		2.56E-01	±	5.71E+00	9.31E+00

Station 9c Cherries collected 6/16/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.37E+03	±	2.78E+02	1.17E+02
MN-54		-7.55E-01	±	6.78E+00	1.10E+01
CO-58		1.58E+00	±	5.66E+00	8.80E+00
FE-59		-6.51E+00	±	2.15E+01	3.34E+01
CO-60		0.00E+00	±	1.17E+01	1.96E+01
ZN-65		3.68E+00	±	1.56E+01	2.46E+01
ZRNB-95		2.10E+00	±	5.35E+00	8.08E+00
I-131		-2.10E+00	±	6.61E+00	1.05E+01
CS-134		-2.29E+00	±	6.16E+00	9.58E+00
CS-137		-2.55E+00	±	7.41E+00	1.16E+01

Station 37 Apricots collected 7/14/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	4.15E+03	±	3.33E+02	1.49E+02
MN-54		2.99E+00	±	6.46E+00	9.93E+00
CO-58		-7.04E-01	±	5.90E+00	9.53E+00
FE-59		-1.55E+00	±	1.85E+01	3.00E+01
CO-60		3.47E+00	±	7.30E+00	1.11E+01
ZN-65		0.00E+00	±	2.74E+01	4.57E+01
ZRNB-95		-2.91E+00	±	6.16E+00	9.44E+00
I-131		1.56E+00	±	4.84E+00	7.58E+00
CS-134		-1.19E+00	±	5.81E+00	9.31E+00
CS-137		-1.46E+00	±	6.44E+00	1.03E+01

Station 9c Apricots collected 7/14/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.65E+03	±	2.63E+02	1.29E+02
MN-54		0.00E+00	±	4.19E+00	6.99E+00
CO-58		-1.84E+00	±	5.24E+00	8.09E+00
FE-59		1.07E+00	±	1.61E+01	2.62E+01
CO-60		-4.42E-02	±	6.26E+00	1.03E+01
ZN-65		-6.88E+00	±	1.68E+01	2.62E+01
ZRNB-95		3.15E+00	±	4.30E+00	5.95E+00
I-131		-2.46E+00	±	6.04E+00	9.42E+00
CS-134		2.44E+00	±	4.89E+00	7.44E+00
CS-137		-6.77E-01	±	5.58E+00	9.01E+00

Station 37 Peaches collected 8/18/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.20E+03	±	2.36E+02	1.10E+02
MN-54		1.06E+00	±	4.52E+00	7.11E+00
CO-58		-1.26E+00	±	5.21E+00	8.23E+00
FE-59		-2.18E+00	±	1.28E+01	2.03E+01
CO-60		-3.26E-01	±	5.94E+00	9.67E+00
ZN-65		2.49E+00	±	1.30E+01	2.07E+01
ZRNB-95		1.06E+00	±	4.89E+00	7.75E+00
I-131		-1.39E-02	±	3.55E+00	5.84E+00
CS-134		-4.87E-01	±	3.52E+00	5.64E+00
CS-137		1.40E-02	±	4.93E+00	8.11E+00

Station 9c Peaches collected 8/18/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	1.67E+03	±	2.22E+02	1.31E+02
MN-54		-9.34E-03	±	4.98E+00	8.19E+00
CO-58		-9.69E-01	±	5.66E+00	9.05E+00
FE-59		-2.37E+00	±	1.68E+01	2.69E+01
CO-60		0.00E+00	±	4.85E+00	8.08E+00
ZN-65		2.07E-01	±	1.47E+01	2.42E+01
ZRNB-95		-1.68E+00	±	6.03E+00	9.50E+00
I-131		6.38E-03	±	3.95E+00	6.48E+00
CS-134		0.00E+00	±	5.70E+00	9.51E+00
CS-137		4.00E-01	±	4.15E+00	6.68E+00

Station 37 Nectarines collected 9/2/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.41E+03	±	2.69E+02	1.30E+02
MN-54		0.00E+00	±	3.75E+00	6.25E+00
CO-58		-2.86E-01	±	3.16E+00	5.04E+00
FE-59		-4.74E+00	±	1.99E+01	3.15E+01
CO-60		-1.00E+00	±	8.38E+00	1.35E+01
ZN-65		8.57E-01	±	1.54E+01	2.51E+01
ZRNB-95		-4.99E-01	±	6.43E+00	1.05E+01
I-131		-1.21E+00	±	4.37E+00	6.90E+00
CS-134		2.91E+00	±	4.36E+00	6.26E+00
CS-137		-1.68E-01	±	4.57E+00	7.46E+00

Station 9c Nectarines collected 9/2/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	1.76E+03	±	2.27E+02	1.24E+02
MN-54		-3.49E-01	±	5.57E+00	9.05E+00
CO-58		-1.67E+00	±	5.79E+00	9.07E+00
FE-59		5.06E-01	±	1.63E+01	2.67E+01
CO-60		-6.68E-01	±	7.71E+00	1.25E+01
ZN-65		-2.89E+00	±	1.44E+01	2.29E+01
ZRNB-95		1.22E+00	±	4.25E+00	6.55E+00
I-131		3.24E+00	±	4.19E+00	6.04E+00
CS-134		-4.93E-01	±	5.23E+00	8.49E+00
CS-137		2.81E-01	±	5.84E+00	9.52E+00

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

TABLE A-16.1

GAMMA SPECTROMETRY RESULTS OF FRUIT

Results in pCi per kilogram (wet)

Station 92 Apples collected 9/25/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	1.02E+03	±	1.96E+02	1.34E+02
MN-54		1.10E+00	±	4.65E+00	7.22E+00
CO-58		2.47E-01	±	4.98E+00	8.10E+00
FE-59		-8.65E-01	±	1.71E+01	2.77E+01
CO-60		-2.48E-01	±	6.30E+00	1.03E+01
ZN-65		2.12E+00	±	1.37E+01	2.19E+01
ZRNB-95		3.38E-01	±	5.70E+00	9.28E+00
I-131		-2.16E+00	±	7.12E+00	1.13E+01
CS-134		1.68E+00	±	4.54E+00	6.91E+00
CS-137		-9.76E-01	±	6.31E+00	1.01E+01

TABLE A-16.2

GAMMA SPECTROMETRY RESULTS OF FRUIT- SUMMARY

Results in pCi per kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
CO-58	Ind	-2.10E-01	-1.26E+00	9.56E-01	8.27E+00	5	0
CO-58	Cntl	-7.24E-01	-1.84E+00	1.58E+00	8.75E+00	4	0
CO-60	Ind	-3.49E-01	-3.63E+00	3.47E+00	1.23E+01	5	0
CO-60	Cntl	-1.78E-01	-6.68E-01	0.00E+00	1.26E+01	4	0
CS-134	Ind	2.77E-01	-1.53E+00	2.91E+00	7.55E+00	5	0
CS-134	Cntl	-8.34E-02	-2.29E+00	2.44E+00	8.75E+00	4	0
CS-137	Ind	-4.66E-01	-1.46E+00	2.56E-01	9.05E+00	5	0
CS-137	Cntl	-6.38E-01	-2.55E+00	4.00E-01	9.19E+00	4	0
FE-59	Ind	-3.05E-02	-4.74E+00	9.19E+00	2.89E+01	5	0
FE-59	Cntl	-1.83E+00	-6.51E+00	1.07E+00	2.83E+01	4	0
I-131	Ind	1.84E-01	-2.16E+00	2.75E+00	7.80E+00	5	0
I-131	Cntl	-3.28E-01	-2.46E+00	3.24E+00	8.10E+00	4	0
K-40	Ind	2.50E+03	1.02E+03	4.15E+03	1.30E+02	5	5
K-40	Cntl	2.11E+03	1.67E+03	2.65E+03	1.25E+02	4	4
MN-54	Ind	8.63E-01	-8.41E-01	2.99E+00	8.57E+00	5	0
MN-54	Cntl	-2.78E-01	-7.55E-01	0.00E+00	8.80E+00	4	0
ZN-65	Ind	1.78E+00	0.00E+00	3.44E+00	2.81E+01	5	0
ZN-65	Cntl	-1.47E+00	-6.88E+00	3.68E+00	2.45E+01	4	0
ZRNB-95	Ind	-2.35E-01	-2.91E+00	1.06E+00	9.38E+00	5	0
ZRNB-95	Cntl	1.20E+00	-1.68E+00	3.15E+00	7.52E+00	4	0

Ind = Indicator stations Cntl = Control Stations

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

TABLE A-17.1

GAMMA SPECTROMETRY RESULTS OF VEGETABLES

Results in pCi per kilogram (wet)

Station 37 Asparagus collected 4/28/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.39E+03	±	3.14E+02	1.46E+02
MN-54		2.63E+00	±	6.78E+00	1.02E+01
CO-58		-9.06E-02	±	7.49E+00	1.23E+01
FE-59		1.02E+01	±	2.36E+01	3.56E+01
CO-60		5.00E-01	±	1.02E+01	1.66E+01
ZN-65		-6.49E-01	±	2.38E+01	3.90E+01
ZRNB-95		0.00E+00	±	1.31E+01	2.18E+01
I-131		1.08E+00	±	7.25E+00	1.17E+01
CS-134		0.00E+00	±	6.73E+00	1.12E+01
CS-137		1.14E+00	±	9.39E+00	1.52E+01
BALA140		-4.02E+00	±	1.24E+01	1.90E+01

Station 37 Green Bean collected 8/18/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.44E+03	±	2.90E+02	1.47E+02
MN-54		4.03E+00	±	6.49E+00	9.44E+00
CO-58		2.75E+00	±	5.40E+00	7.87E+00
FE-59		-7.52E+00	±	2.19E+01	3.39E+01
CO-60		3.79E-01	±	7.81E+00	1.27E+01
ZN-65		4.62E+00	±	1.18E+01	1.74E+01
ZRNB-95		1.01E-02	±	6.07E+00	9.98E+00
I-131		-2.15E+00	±	5.91E+00	9.22E+00
CS-134		9.50E-03	±	5.70E+00	9.37E+00
CS-137		4.27E-01	±	6.85E+00	1.11E+01
BALA140		7.84E-01	±	6.29E+00	9.91E+00

Station 37 Asparagus collected 5/19/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.57E+03	±	3.16E+02	2.05E+02
MN-54		4.68E-01	±	7.33E+00	1.19E+01
CO-58		-4.70E-02	±	6.75E+00	1.11E+01
FE-59		-6.71E+00	±	2.33E+01	3.64E+01
CO-60		-1.70E-01	±	1.00E+01	1.64E+01
ZN-65		9.26E+00	±	1.66E+01	2.46E+01
ZRNB-95		-2.50E+00	±	8.03E+00	1.26E+01
I-131		4.51E-02	±	6.23E+00	1.02E+01
CS-134		-1.59E+00	±	5.57E+00	8.72E+00
CS-137		2.19E+00	±	7.49E+00	1.18E+01
BALA140		-5.28E+00	±	1.29E+01	1.98E+01

Station 37 Bell Peppers collected 9/2/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	1.47E+03	±	2.58E+02	1.99E+02
MN-54		4.21E+00	±	8.87E+00	1.35E+01
CO-58		-1.01E-01	±	5.83E+00	9.55E+00
FE-59		0.00E+00	±	6.11E+00	1.02E+01
CO-60		-9.75E-02	±	8.91E+00	1.46E+01
ZN-65		-1.44E+00	±	1.68E+01	2.72E+01
ZRNB-95		2.32E+00	±	6.58E+00	1.01E+01
I-131		-5.70E-01	±	6.13E+00	9.94E+00
CS-134		-1.00E+00	±	7.23E+00	1.16E+01
CS-137		-6.54E-02	±	8.55E+00	1.40E+01
BALA140		-6.94E-01	±	8.51E+00	1.37E+01

Station 37 Cabbage collected 6/16/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.34E+03	±	3.11E+02	1.47E+02
MN-54		1.98E+00	±	8.60E+00	1.36E+01
CO-58		1.17E+00	±	6.51E+00	1.03E+01
FE-59		2.79E+00	±	2.20E+01	3.52E+01
CO-60		4.77E-01	±	9.33E+00	1.52E+01
ZN-65		4.28E+00	±	1.39E+01	2.11E+01
ZRNB-95		3.41E+00	±	8.66E+00	1.34E+01
I-131		3.92E+00	±	7.45E+00	1.14E+01
CS-134		6.75E-02	±	4.88E+00	8.00E+00
CS-137		1.26E+00	±	6.86E+00	1.09E+01
BALA140		-1.99E+00	±	8.67E+00	1.33E+01

Station 102g Cabbage collected 7/31/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	5.79E+03	±	4.83E+02	2.02E+02
MN-54		9.27E-01	±	8.58E+00	1.39E+01
CO-58		2.81E-02	±	9.06E+00	1.49E+01
FE-59		-5.44E+00	±	2.94E+01	4.70E+01
CO-60		3.67E+00	±	1.20E+01	1.88E+01
ZN-65		-2.27E+00	±	2.47E+01	4.01E+01
ZRNB-95		-4.03E+00	±	1.00E+01	1.56E+01
I-131		8.89E-01	±	7.00E+00	1.13E+01
CS-134		0.00E+00	±	1.11E+01	1.85E+01
CS-137		2.52E+00	±	7.74E+00	1.20E+01
BALA140		-5.36E-01	±	8.64E+00	1.39E+01

Station 37 Green Bean collected 7/14/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.45E+03	±	2.54E+02	1.29E+02
MN-54		-1.11E-01	±	4.59E+00	7.51E+00
CO-58		0.00E+00	±	6.77E+00	1.13E+01
FE-59		9.92E-02	±	1.38E+01	2.27E+01
CO-60		-1.64E+00	±	7.80E+00	1.24E+01
ZN-65		-2.00E+00	±	1.32E+01	2.11E+01
ZRNB-95		-8.08E-01	±	5.69E+00	9.16E+00
I-131		0.00E+00	±	4.41E+00	7.35E+00
CS-134		1.88E+00	±	5.19E+00	8.10E+00
CS-137		1.32E-01	±	4.92E+00	8.06E+00
BALA140		0.00E+00	±	2.37E+00	3.94E+00

Station 102g Cabbage collected 8/27/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	5.14E+03	±	4.85E+02	1.87E+02
MN-54		-1.46E+00	±	9.49E+00	1.52E+01
CO-58		-3.45E-02	±	8.68E+00	1.43E+01
FE-59		-2.93E+00	±	2.63E+01	4.22E+01
CO-60		6.59E-01	±	1.31E+01	2.14E+01
ZN-65		3.44E+00	±	2.26E+01	3.61E+01
ZRNB-95		-1.42E+00	±	1.01E+01	1.62E+01
I-131		5.73E-01	±	7.03E+00	1.14E+01
CS-134		6.33E-01	±	8.01E+00	1.30E+01
CS-137		4.89E+00	±	1.10E+01	1.69E+01
BALA140		-5.60E-01	±	1.31E+01	2.13E+01

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

TABLE A-17.1

GAMMA SPECTROMETRY RESULTS OF VEGETABLES

Results in pCi per kilogram (wet)

Station 102g Broad Leaf collected 10/8/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	4.19E+03	±	4.84E+02	2.22E+02
MN-54		3.19E+00	±	1.14E+01	1.79E+01
CO-58		-9.30E-01	±	1.14E+01	1.84E+01
FE-59		0.00E+00	±	8.13E+00	1.36E+01
CO-60		8.87E+00	±	1.51E+01	2.24E+01
ZN-65		-7.32E+00	±	3.11E+01	4.94E+01
ZRNB-95		-6.65E-01	±	1.04E+01	1.69E+01
I-131		-1.27E+00	±	8.81E+00	1.42E+01
CS-134		-4.45E+00	±	1.14E+01	1.77E+01
CS-137		-3.62E+00	±	1.35E+01	2.14E+01
BALA140		-5.18E+00	±	2.16E+01	3.43E+01

Station 9c Cabbage collected 7/14/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	1.61E+03	±	2.34E+02	1.87E+02
MN-54		-8.34E-01	±	5.27E+00	8.43E+00
CO-58		1.69E-01	±	4.99E+00	8.16E+00
FE-59		-3.76E+00	±	1.73E+01	2.74E+01
CO-60		9.42E-01	±	7.38E+00	1.19E+01
ZN-65		-1.16E-02	±	1.46E+01	2.40E+01
ZRNB-95		1.30E+00	±	5.09E+00	8.01E+00
I-131		1.43E+00	±	5.10E+00	8.04E+00
CS-134		-2.10E+00	±	5.68E+00	8.91E+00
CS-137		2.24E-01	±	4.87E+00	7.95E+00
BALA140		0.00E+00	±	1.05E+01	1.75E+01

Station 9c Asparagus collected 4/28/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.27E+03	±	3.31E+02	2.07E+02
MN-54		2.35E-01	±	9.96E+00	1.63E+01
CO-58		-1.42E+00	±	9.61E+00	1.54E+01
FE-59		-8.42E+00	±	3.46E+01	5.50E+01
CO-60		4.09E+00	±	1.21E+01	1.88E+01
ZN-65		0.00E+00	±	4.18E+01	6.97E+01
ZRNB-95		-3.04E+00	±	1.10E+01	1.74E+01
I-131		8.07E-01	±	8.30E+00	1.35E+01
CS-134		0.00E+00	±	1.01E+01	1.68E+01
CS-137		1.27E+00	±	8.21E+00	1.31E+01
BALA140		4.82E+00	±	1.27E+01	1.92E+01

Station 9c Green Bean collected 8/18/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	3.42E+03	±	3.91E+02	2.05E+02
MN-54		-2.05E+00	±	8.97E+00	1.42E+01
CO-58		-2.38E+00	±	7.65E+00	1.18E+01
FE-59		2.51E+00	±	2.25E+01	3.62E+01
CO-60		7.38E-02	±	1.12E+01	1.85E+01
ZN-65		6.08E+00	±	1.97E+01	3.05E+01
ZRNB-95		-2.78E+00	±	1.04E+01	1.65E+01
I-131		-1.12E+00	±	7.70E+00	1.24E+01
CS-134		2.06E+00	±	6.31E+00	9.74E+00
CS-137		3.25E+00	±	8.47E+00	1.30E+01
BALA140		1.15E-01	±	7.89E+00	1.29E+01

Station 9c Asparagus collected 5/19/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	2.64E+03	±	3.11E+02	1.78E+02
MN-54		2.17E+00	±	7.60E+00	1.19E+01
CO-58		-1.08E-01	±	7.26E+00	1.19E+01
FE-59		6.08E+00	±	1.93E+01	2.96E+01
CO-60		-2.63E+00	±	1.09E+01	1.73E+01
ZN-65		1.01E+01	±	1.66E+01	2.41E+01
ZRNB-95		-1.98E-01	±	6.92E+00	1.13E+01
I-131		-2.42E+00	±	8.57E+00	1.36E+01
CS-134		-2.55E-01	±	5.28E+00	8.60E+00
CS-137		2.61E+00	±	6.45E+00	9.77E+00
BALA140		-3.57E+00	±	1.27E+01	1.97E+01

Station 9c Bell Peppers collected 9/2/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	1.56E+03	±	2.17E+02	1.27E+02
MN-54		-2.07E-01	±	5.24E+00	8.56E+00
CO-58		4.47E-02	±	4.02E+00	6.59E+00
FE-59		2.34E-01	±	1.38E+01	2.26E+01
CO-60		-9.19E-02	±	5.80E+00	9.50E+00
ZN-65		1.94E+00	±	1.47E+01	2.37E+01
ZRNB-95		1.88E+00	±	5.17E+00	7.94E+00
I-131		3.65E-01	±	3.68E+00	5.95E+00
CS-134		-2.55E+00	±	6.18E+00	9.63E+00
CS-137		0.00E+00	±	8.06E+00	1.34E+01
BALA140		0.00E+00	±	2.32E+00	3.86E+00

Station 9c Cabbage collected 6/16/2008

Nuclide	RQ	Activity		Error	MDA
K-40	+	1.38E+03	±	2.24E+02	1.35E+02
MN-54		-2.45E-01	±	6.15E+00	1.00E+01
CO-58		2.83E-01	±	5.77E+00	9.39E+00
FE-59		5.37E+00	±	1.93E+01	3.00E+01
CO-60		1.41E-01	±	8.50E+00	1.39E+01
ZN-65		-1.50E-01	±	1.47E+01	2.41E+01
ZRNB-95		2.54E+00	±	7.18E+00	1.12E+01
I-131		-9.32E-02	±	4.88E+00	8.00E+00
CS-134		-1.16E+00	±	6.62E+00	1.06E+01
CS-137		-1.07E+00	±	7.14E+00	1.15E+01
BALA140		0.00E+00	±	2.93E+00	4.88E+00

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

TABLE A-17.2

GAMMA SPECTROMETRY RESULTS OF VEGETABLES

Results in pCi per kilogram (wet)

Nuclide		Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BALA140	Ind	-1.94E+00	-5.28E+00	7.84E-01	1.66E+01	9	0
BALA140	Ind	2.27E-01	-3.57E+00	4.82E+00	1.30E+01	6	0
CO-58	Ind	3.05E-01	-9.30E-01	2.75E+00	1.22E+01	9	0
CO-58	Cntl	-5.67E-01	-2.38E+00	2.83E-01	1.06E+01	6	0
CO-60	Ind	1.40E+00	-1.64E+00	8.87E+00	1.67E+01	9	0
CO-60	Cntl	4.20E-01	-2.63E+00	4.09E+00	1.50E+01	6	0
CS-134	Ind	-4.95E-01	-4.45E+00	1.88E+00	1.18E+01	9	0
CS-134	Cntl	-6.68E-01	-2.55E+00	2.06E+00	1.07E+01	6	0
CS-137	Ind	9.86E-01	-3.62E+00	4.89E+00	1.35E+01	9	0
CS-137	Cntl	1.05E+00	-1.07E+00	3.25E+00	1.15E+01	6	0
FE-59	Ind	-1.06E+00	-7.52E+00	1.02E+01	3.07E+01	9	0
FE-59	Cntl	3.34E-01	-8.42E+00	6.08E+00	3.35E+01	6	0
I-131	Ind	2.79E-01	-2.15E+00	3.92E+00	1.08E+01	9	0
I-131	Cntl	-1.72E-01	-2.42E+00	1.43E+00	1.03E+01	6	0
K-40	Ind	3.20E+03	1.47E+03	5.79E+03	1.76E+02	9	9
K-40	Cntl	2.15E+03	1.38E+03	3.42E+03	1.73E+02	6	6
MN-54	Ind	1.76E+00	-1.46E+00	4.21E+00	1.26E+01	9	0
MN-54	Cntl	-1.56E-01	-2.05E+00	2.17E+00	1.16E+01	6	0
ZN-65	Ind	8.79E-01	-7.32E+00	9.26E+00	3.07E+01	9	0
ZN-65	Cntl	3.00E+00	-1.50E-01	1.01E+01	3.27E+01	6	0
ZRNB-95	Ind	-4.09E-01	-4.03E+00	3.41E+00	1.40E+01	9	0
ZRNB-95	Cntl	-4.98E-02	-3.04E+00	2.54E+00	1.21E+01	6	0

Ind = Indicator Stations Cntl = Control Station

TABLE B-1.1

2008 QUARTERLY & ANNUAL SPECIAL INTEREST TLD RESULTS

Results in milli-Roentgen (mR)

Station ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Quarterly Sum	Annual	Ratio Quarterly Sum / Annual
119B	20.5	23.2	21.3	22.9	87.9	81.1	1.08
119 CNTL	20.9	22.4	21.6	22.2	87.2	87.4	1.00
120 EAST	20.9	22.7	21.6	23.4	88.7	89.2	0.99
121	98.6	81.8	90.3	96.4	367.1	366.3	1.00
122	34.7	40.8	41.2	42.5	159.3	164.5	0.97
123	132.0	154.7	160.3	151.6	598.6	627.9	0.95
124	168.5	200.9	191.5	193.4	754.3	714.2	1.06
125	112.2	131.3	135.5	129.0	508.0	520.1	0.98
126	70.2	124.5	145.7	134.8	475.2	482.4	0.98
127	54.6	88.7	102.1	98.2	343.6	350.8	0.98
128	76.7	173.3	187.3	174.5	611.7	596.9	1.02
129	60.6	128.8	138.1	135.5	462.9	463.6	1.00
136A	43.6	175.0	205.6	204.6	628.8	637.6	0.99
137A	53.1	204.8	238.7	222.0	718.6	734.3	0.98
138A	45.9	157.4	196.7	176.8	576.8	577.6	1.00

TABLE B-1.2

2008 QUARTERLY & ANNUAL SPECIAL INTEREST TLD RESULTS- SUMMARY

Results in milli-Roentgen (mR)

Location	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
ST 119 Quarterly Ind	22.0	20.5	23.2	4	4
ST 119 Quarterly Cntl	21.8	20.9	22.4	4	4
ST 120 Quarterly Ind	22.2	20.9	23.4	4	4
ISFSI Quarterly Ind	129.3	34.7	238.7	48	48
ISFSI Annual Ind	519.7	164.5	734.3	12	12

1st Q 12/28/07 to 3/28/08 - 2nd Q 3/28/08 to 6/27/08 - 3rd Q 6/27/08 to 9/25/08 - 4th Q 9/25/08 to 12/30/08

Ind = Indicator Station Cntl = Control Station

Stations 121 through 138A are TLD locations associated with ISFSI

TABLE B-2.1

GAMMA SPECTROMETRY RESULTS OF STORM DRAIN WATER

STATION 101

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

Collection Period:		01/02/08		2/4/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		-4.92E+00	± 2.32E+01	3.77E+01
K-40		5.66E+01	± 3.36E+01	6.18E+01
CR-51		3.09E+00	± 2.56E+01	4.18E+01
MN-54		-1.21E+00	± 2.28E+00	3.62E+00
CO-58		0.00E+00	± 2.37E+00	3.94E+00
FE-59		-1.84E+00	± 6.01E+00	9.57E+00
CO-60		1.44E-01	± 1.80E+00	2.94E+00
ZN-65		0.00E+00	± 7.47E+00	1.25E+01
ZRNB-95		1.46E-01	± 2.18E+00	3.57E+00
I-131		-4.05E-01	± 7.29E+00	1.20E+01
CS-134		1.63E+00	± 1.91E+00	2.97E+00
CS-137		9.74E-03	± 1.72E+00	2.83E+00
BALA140		0.00E+00	± 7.71E+00	1.29E+01
RA-226	+	1.06E+02	± 5.76E+01	8.99E+01

Collection Period:		02/04/08		3/3/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		7.65E-01	± 2.09E+01	3.43E+01
K-40		-2.16E+01	± 4.59E+01	5.44E+01
CR-51		7.39E+00	± 2.29E+01	3.72E+01
MN-54		2.23E-01	± 2.14E+00	3.49E+00
CO-58		6.09E-02	± 1.98E+00	3.25E+00
FE-59		-6.53E-01	± 5.86E+00	9.53E+00
CO-60		8.24E-01	± 1.84E+00	2.89E+00
ZN-65		-2.84E+00	± 5.21E+00	8.25E+00
ZRNB-95		1.12E+00	± 2.30E+00	3.65E+00
I-131		-2.92E+00	± 5.84E+00	9.40E+00
CS-134		-1.99E-01	± 1.87E+00	3.06E+00
CS-137		1.44E+00	± 1.74E+00	2.67E+00
BALA140		0.00E+00	± 6.95E+00	1.16E+01
RA-226		7.78E+00	± 5.47E+01	9.62E+01

Collection Period:		03/03/08		4/2/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		-9.70E+00	± 2.12E+01	3.41E+01
K-40		8.63E+00	± 2.82E+01	5.39E+01
CR-51		4.89E-01	± 2.18E+01	3.58E+01
MN-54		0.00E+00	± 2.47E+00	4.12E+00
CO-58		1.40E+00	± 2.11E+00	3.29E+00
FE-59		2.22E+00	± 5.30E+00	8.31E+00
CO-60		2.29E-01	± 2.08E+00	3.38E+00
ZN-65		-1.33E+00	± 4.84E+00	7.80E+00
ZRNB-95		1.61E+00	± 2.13E+00	3.31E+00
I-131		1.29E+00	± 6.10E+00	9.94E+00
CS-134		-5.59E-01	± 2.10E+00	3.41E+00
CS-137		8.87E-01	± 2.09E+00	3.33E+00
BALA140		1.75E+00	± 3.79E+00	5.84E+00
RA-226		-1.29E+01	± 6.28E+01	9.50E+01

Collection Period:		04/02/08		5/5/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		2.59E+00	± 2.04E+01	3.32E+01
K-40		-2.21E+01	± 4.80E+01	5.55E+01
CR-51		0.00E+00	± 2.28E+01	3.80E+01
MN-54		1.22E+00	± 1.93E+00	3.01E+00
CO-58		9.44E-01	± 2.32E+00	3.70E+00
FE-59		2.28E-01	± 5.96E+00	9.76E+00
CO-60		6.39E-01	± 1.84E+00	2.92E+00
ZN-65		-1.42E+00	± 4.53E+00	7.26E+00
ZRNB-95		-1.20E+00	± 2.53E+00	4.03E+00
I-131		-8.49E-01	± 5.98E+00	9.76E+00
CS-134		-1.83E-01	± 2.02E+00	3.31E+00
CS-137		9.35E-01	± 1.97E+00	3.13E+00
BALA140		3.40E+00	± 5.67E+00	8.79E+00
RA-226		4.73E+00	± 5.48E+01	9.64E+01

Collection Period:		05/05/08		6/2/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		2.54E-02	± 2.00E+01	3.28E+01
K-40		-1.45E+01	± 3.51E+01	5.09E+01
CR-51		-1.05E+01	± 2.49E+01	4.03E+01
MN-54		1.66E+00	± 2.09E+00	3.25E+00
CO-58		1.61E+00	± 1.99E+00	3.06E+00
FE-59		-1.79E-01	± 5.66E+00	9.27E+00
CO-60		9.56E-01	± 1.91E+00	2.99E+00
ZN-65		-6.46E-02	± 4.20E+00	6.90E+00
ZRNB-95		8.55E-01	± 2.32E+00	3.73E+00
I-131		1.83E-01	± 5.35E+00	8.78E+00
CS-134		2.87E-01	± 1.76E+00	2.86E+00
CS-137		-4.10E-01	± 1.90E+00	3.08E+00
BALA140		2.49E+00	± 4.60E+00	7.14E+00
RA-226		-2.08E+00	± 5.60E+01	9.64E+01

Collection Period:		06/02/08		7/2/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		1.34E+01	± 1.26E+01	1.86E+01
K-40		-7.65E+01	± 9.03E+01	5.90E+01
CR-51		-1.38E+00	± 1.87E+01	3.05E+01
MN-54		-8.45E-01	± 2.13E+00	3.41E+00
CO-58		4.23E-01	± 1.67E+00	2.68E+00
FE-59		-1.51E+00	± 5.50E+00	8.77E+00
CO-60		2.15E+00	± 1.83E+00	2.62E+00
ZN-65		-1.91E+00	± 4.23E+00	6.68E+00
ZRNB-95		-1.14E+00	± 2.26E+00	3.58E+00
I-131		2.77E-02	± 4.72E+00	7.76E+00
CS-134		-1.18E+00	± 2.04E+00	3.24E+00
CS-137		-3.14E-02	± 1.77E+00	2.90E+00
BALA140		-1.11E+00	± 3.74E+00	5.90E+00
RA-226		-1.29E+01	± 5.00E+01	7.03E+01

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

TABLE B-2.1

GAMMA SPECTROMETRY RESULTS OF STORM DRAIN WATER

STATION 101

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

Collection Period: 07/02/08 8/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		1.05E+01	±	1.63E+01	2.56E+01
K-40		-6.59E+01	±	7.37E+01	5.92E+01
CR-51		-7.06E+00	±	2.04E+01	3.29E+01
MN-54		5.47E-01	±	1.71E+00	2.73E+00
CO-58		2.10E-02	±	1.62E+00	2.65E+00
FE-59		3.23E+00	±	5.84E+00	9.04E+00
CO-60		5.91E-01	±	1.70E+00	2.69E+00
ZN-65		-9.83E-02	±	4.24E+00	6.96E+00
ZRNB-95		-8.14E-01	±	1.98E+00	3.14E+00
I-131		8.95E-01	±	5.00E+00	8.13E+00
CS-134		2.69E-01	±	1.78E+00	2.89E+00
CS-137		7.03E-04	±	1.56E+00	2.56E+00
BALA140		-2.03E-02	±	4.81E+00	7.92E+00
RA-226		-9.94E+00	±	4.73E+01	7.05E+01

Collection Period: 08/04/08 9/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		5.87E+00	±	1.76E+01	2.82E+01
K-40		-3.31E+01	±	4.99E+01	4.98E+01
CR-51		-1.11E+01	±	2.14E+01	3.43E+01
MN-54		-1.79E-02	±	1.55E+00	2.55E+00
CO-58		1.03E+00	±	1.82E+00	2.83E+00
FE-59		-1.70E+00	±	5.67E+00	9.02E+00
CO-60		-1.18E-02	±	1.62E+00	2.66E+00
ZN-65		-1.16E+00	±	3.69E+00	5.88E+00
ZRNB-95		-5.63E-01	±	2.02E+00	3.25E+00
I-131		-2.38E+00	±	5.41E+00	8.67E+00
CS-134		-8.39E-01	±	1.93E+00	3.08E+00
CS-137		0.00E+00	±	2.36E+00	3.93E+00
BALA140		0.00E+00	±	4.56E+00	7.60E+00
RA-226		-9.05E+00	±	4.47E+01	6.93E+01

Collection Period: 09/03/08 10/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-3.57E+00	±	1.79E+01	2.91E+01
K-40		-3.51E+01	±	5.53E+01	5.10E+01
CR-51		1.06E+01	±	1.84E+01	2.92E+01
MN-54		2.20E-01	±	1.60E+00	2.59E+00
CO-58		1.35E-01	±	1.55E+00	2.53E+00
FE-59		-1.19E+00	±	5.72E+00	9.20E+00
CO-60		2.39E-01	±	1.41E+00	2.27E+00
ZN-65		-1.87E+00	±	4.04E+00	6.36E+00
ZRNB-95		1.08E-01	±	1.88E+00	3.08E+00
I-131		-1.40E+00	±	4.28E+00	6.89E+00
CS-134		5.13E-01	±	1.80E+00	2.91E+00
CS-137		1.51E+00	±	1.77E+00	2.69E+00
BALA140		9.20E-01	±	4.09E+00	6.55E+00
RA-226		5.48E+00	±	3.75E+01	6.81E+01

Collection Period: 10/01/08 11/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		8.55E+00	±	1.83E+01	2.92E+01
K-40		-1.28E+01	±	3.44E+01	5.24E+01
CR-51		3.41E+00	±	1.51E+01	2.44E+01
MN-54		-7.46E-01	±	1.79E+00	2.83E+00
CO-58		2.04E-01	±	1.75E+00	2.85E+00
FE-59		8.00E-01	±	5.39E+00	8.71E+00
CO-60		-4.37E-01	±	1.99E+00	3.21E+00
ZN-65		1.23E+00	±	2.10E+00	3.07E+00
ZRNB-95		1.83E-01	±	2.02E+00	3.29E+00
I-131		2.06E+00	±	5.65E+00	9.09E+00
CS-134		2.27E-01	±	1.54E+00	2.50E+00
CS-137		3.85E-01	±	1.56E+00	2.50E+00
BALA140		-7.98E-01	±	4.83E+00	7.78E+00
RA-226		-2.39E+01	±	5.71E+01	6.79E+01

Collection Period: 11/05/08 12/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		3.39E+00	±	1.74E+01	2.82E+01
K-40		-2.73E+01	±	4.49E+01	5.06E+01
CR-51		2.80E+00	±	1.71E+01	2.79E+01
MN-54		1.15E+00	±	1.58E+00	2.40E+00
CO-58		7.91E-01	±	1.85E+00	2.93E+00
FE-59		-5.07E-01	±	5.07E+00	8.25E+00
CO-60		4.88E-01	±	1.81E+00	2.89E+00
ZN-65		1.45E+00	±	3.80E+00	6.00E+00
ZRNB-95		-1.66E-01	±	1.78E+00	2.91E+00
I-131		7.29E-01	±	4.19E+00	6.81E+00
CS-134		7.70E-01	±	1.54E+00	2.42E+00
CS-137		-9.05E-01	±	1.87E+00	2.95E+00
BALA140		3.31E-02	±	3.30E+00	5.42E+00
RA-226		-3.00E+00	±	4.19E+01	7.17E+01

Collection Period: 12/01/08 1/5/2009

Nuclide	RQ	Activity		Error	MDA
BE-7		4.21E+00	±	1.58E+01	2.55E+01
K-40		-2.33E+01	±	3.95E+01	4.97E+01
CR-51		-5.62E+00	±	2.13E+01	3.45E+01
MN-54		-8.31E-01	±	2.04E+00	3.25E+00
CO-58		-6.44E-01	±	1.85E+00	2.94E+00
FE-59		-2.32E+00	±	6.02E+00	9.51E+00
CO-60		9.25E-01	±	1.75E+00	2.70E+00
ZN-65		-1.17E+00	±	3.90E+00	6.23E+00
ZRNB-95		-1.09E-01	±	2.17E+00	3.55E+00
I-131		-1.84E+00	±	5.58E+00	9.01E+00
CS-134		1.13E+00	±	1.57E+00	2.44E+00
CS-137		8.82E-01	±	1.59E+00	2.47E+00
BALA140		-4.97E-01	±	4.90E+00	7.96E+00
RA-226		-1.12E+01	±	4.37E+01	6.61E+01

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

TABLE B-2.2

GAMMA SPECTROMETRY RESULTS OF STORM DRAIN WATER

STATION 101 Summary

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

Nuclide	Average Activity	Activity Low	Activity High	Average MDA	Number of Samples	Number of Positive IDs
BE-7	2.59E+00	-9.70E+00	1.34E+01	2.97E+01	12	0
K-40	-2.22E+01	-7.65E+01	5.66E+01	5.40E+01	12	0
CR-51	-6.56E-01	-1.11E+01	1.06E+01	3.39E+01	12	0
MN-54	1.14E-01	-1.21E+00	1.66E+00	3.10E+00	12	0
CO-58	4.98E-01	-6.44E-01	1.61E+00	3.06E+00	12	0
FE-59	-2.85E-01	-2.32E+00	3.23E+00	9.08E+00	12	0
CO-60	5.61E-01	-4.37E-01	2.15E+00	2.85E+00	12	0
ZN-65	-7.65E-01	-2.84E+00	1.45E+00	6.99E+00	12	0
ZRNB-95	2.79E-03	-1.20E+00	1.61E+00	3.42E+00	12	0
I-131	-3.83E-01	-2.92E+00	2.06E+00	8.85E+00	12	0
CS-134	1.56E-01	-1.18E+00	1.63E+00	2.92E+00	12	0
CS-137	3.92E-01	-9.05E-01	1.51E+00	2.92E+00	12	0
BALA140	5.14E-01	-1.11E+00	3.40E+00	7.94E+00	12	0
RA-226	3.27E+00	-2.39E+01	1.06E+02	7.98E+01	12	1

Table B-3.1

GROSS BETA IN STORM DRAIN WATER

Results in pCi per liter

Location	Collection Period			RQ	Activity		Error
St 101	01/02/08	-	02/04/08		1.18E+00	±	4.23E-01
	02/02/08	-	03/10/08		1.62E+00	±	5.90E-01
	03/03/08	-	04/02/08		6.01E-01	±	8.20E-01
	04/02/08	-	05/05/08		2.68E-01	±	5.76E-01
	05/05/08	-	06/02/08	+	6.68E+00	±	1.09E+00
	06/02/08	-	07/02/08		1.38E-01	±	6.58E-01
	07/02/08	-	08/04/08		-2.49E-01	±	6.56E-01
	08/04/08	-	09/03/08		1.48E+00	±	7.04E-01
	09/03/08	-	10/01/08		6.00E-01	±	6.79E-01
	10/01/08	-	11/05/08		2.42E+00	±	9.05E-01
	11/05/08	-	12/01/08	+	2.42E+00	±	7.92E-01
	12/01/08	-	01/06/09		1.48E+00	±	8.23E-01

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
1.55E+00	-2.49E-01	6.68E+00	12	2

Table B-4.1

TRITIUM IN STORM DRAIN WATER

Results in pCi per liter

Location	Collection Period			RQ	Activity		Error
St 101	01/02/08	-	02/04/08	+	2.95E+03	±	1.61E+02
	02/04/08	-	03/03/08	+	4.44E+02	±	1.08E+02
	03/03/08	-	04/02/08		2.09E+02	±	1.02E+02
	04/02/08	-	05/05/08		1.75E+02	±	1.02E+02
	05/05/08	-	06/02/08		1.26E+02	±	1.03E+02
	06/02/08	-	07/02/08	+	3.26E+02	±	1.02E+02
	07/02/08	-	08/04/08	+	3.56E+02	±	1.05E+02
	08/04/08	-	09/03/08		1.09E+02	±	9.86E+01
	09/03/08	-	10/01/08		2.38E+02	±	9.93E+01
	10/01/08	-	11/05/08	+	8.93E+02	±	1.16E+02
	11/05/08	-	12/01/08	+	2.47E+03	±	1.49E+02
	12/01/08	-	01/05/09	+	8.79E+03	±	2.39E+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
1.42E+03	1.09E+02	8.79E+03	12	7

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

Table B-5.1

GROSS ALPHA IN SANITARY WASTE TREATMENT WATER

Results in pCi per liter

Collection Period		ST 102A RQ	Activity		Error	ST 102B RQ	Activity		Error
01/02/08 -	02/04/08		5.01E-01	±	4.09E-01		0.00E+00	±	3.94E-01
02/02/08 -	03/10/08		-1.45E-01	±	3.34E-01		-4.47E-01	±	3.61E-01
03/03/08 -	04/02/08		4.13E-01	±	4.14E-01		6.09E-01	±	6.09E-01
04/02/08 -	05/05/08		-1.92E-01	±	3.33E-01		8.20E-01	±	7.24E-01
05/05/08 -	06/02/08		2.08E+00	±	8.65E-01		-1.03E+00	±	1.08E+00
06/02/08 -	07/02/08		-7.85E-02	±	7.15E-01		1.26E+00	±	1.22E+00
07/02/08 -	08/04/08		-1.11E+00	±	7.83E-01		1.05E+00	±	1.02E+00
08/04/08 -	09/03/08		-9.72E-01	±	8.15E-01		-6.59E-02	±	6.01E-01
09/03/08 -	10/01/08		-3.81E-01	±	5.65E-01		3.99E-01	±	7.19E-01
10/01/08 -	11/05/08		-1.25E-01	±	9.07E-01		9.39E-01	±	1.01E+00
11/05/08 -	12/01/08		-4.65E-01	±	8.05E-01		1.87E+00	±	1.25E+00
12/01/08 -	01/06/09		3.84E-01	±	6.92E-01		6.59E-01	±	7.36E-01

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	-6.82E-03	-1.11E+00	2.08E+00	12	0
ST 102B	5.06E-01	-1.03E+00	1.87E+00	12	0

Table B-6.1

GROSS BETA IN SANITARY WASTE TREATMENT WATER

Results in pCi per liter

Collection Period		ST 102A RQ	Activity		Error	ST 102B RQ	Activity		Error
01/02/08 -	02/04/08	+	1.40E+01	±	9.54E-01	+	2.45E+01	±	1.28E+00
02/02/08 -	03/10/08	+	5.16E+00	±	7.60E-01	+	1.07E+01	±	1.00E+00
03/03/08 -	04/02/08	+	6.21E+00	±	1.23E+00	+	1.49E+01	±	1.72E+00
04/02/08 -	05/05/08	+	2.74E+00	±	7.20E-01	+	9.10E+00	±	1.07E+00
05/05/08 -	06/02/08		2.04E-01	±	8.00E-01	+	1.10E+01	±	1.28E+00
06/02/08 -	07/02/08	+	5.27E+00	±	9.59E-01	+	1.32E+01	±	1.32E+00
07/02/08 -	08/04/08	+	5.21E+00	±	9.39E-01	+	1.14E+01	±	1.23E+00
08/04/08 -	09/03/08	+	9.57E+00	±	1.13E+00	+	1.16E+01	±	1.20E+00
09/03/08 -	10/01/08	+	5.62E+00	±	9.53E-01	+	1.24E+01	±	1.29E+00
10/01/08 -	11/05/08	+	1.57E+01	±	1.46E+00	+	1.55E+01	±	1.45E+00
11/05/08 -	12/01/08	+	6.39E+00	±	9.89E-01	+	1.87E+01	±	1.51E+00
12/01/08 -	01/06/09	+	8.47E+00	±	1.16E+00	+	1.54E+01	±	1.42E+00

TABLE B-6.2

GROSS BETA IN SANITARY WASTE TREATMENT WATER - SUMMARY

Results in pCi per liter

Location	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
ST 102A	7.05E+00	2.04E-01	1.57E+01	12	11
ST 102B	1.40E+01	9.10E+00	2.45E+01	12	12

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

TABLE B-7.1

GAMMA SPECTROMETRY RESULTS OF SANITARY WASTE TREATMENT WATER

STATION 102A

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

Collection Period: 01/02/08 2/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		5.03E+00	±	1.85E+01	2.98E+01
K-40		3.07E+01	±	3.13E+01	6.07E+01
CR-51		5.00E+00	±	2.04E+01	3.31E+01
MN-54		-1.37E-01	±	1.65E+00	2.70E+00
CO-58		1.35E+00	±	1.92E+00	2.95E+00
FE-59		0.00E+00	±	7.65E+00	1.27E+01
CO-60		9.24E-02	±	2.10E+00	3.44E+00
ZN-65		2.13E-02	±	4.10E+00	6.74E+00
ZRNB-95		1.80E+00	±	2.45E+00	3.83E+00
I-131		3.84E-02	±	8.08E+00	1.33E+01
CS-134		-6.85E-01	±	2.10E+00	3.39E+00
CS-137		4.49E-02	±	1.89E+00	3.11E+00
BALA140		3.31E+00	±	4.20E+00	6.07E+00
RA-226	+	1.11E+02	±	4.73E+01	6.99E+01

Collection Period: 02/04/08 3/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		2.05E-01	±	1.83E+01	3.00E+01
K-40		-2.02E+01	±	4.44E+01	5.44E+01
CR-51		-6.23E-01	±	2.13E+01	3.49E+01
MN-54		-2.62E-02	±	1.76E+00	2.89E+00
CO-58		4.10E-01	±	2.06E+00	3.34E+00
FE-59		1.42E+00	±	6.13E+00	9.87E+00
CO-60		2.08E-01	±	1.81E+00	2.95E+00
ZN-65		1.04E-02	±	3.75E+00	6.16E+00
ZRNB-95		-2.76E-01	±	2.65E+00	4.34E+00
I-131		-5.13E-01	±	5.86E+00	9.59E+00
CS-134		-6.83E-01	±	2.13E+00	3.44E+00
CS-137		0.00E+00	±	2.45E+00	4.08E+00
BALA140		-1.09E+00	±	4.97E+00	7.99E+00
RA-226		-1.87E+01	±	6.70E+01	9.46E+01

Collection Period: 03/03/08 4/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		9.37E+00	±	2.08E+01	3.34E+01
K-40		-1.87E+01	±	4.16E+01	5.33E+01
CR-51		-1.09E+01	±	2.56E+01	4.15E+01
MN-54		-4.58E-02	±	1.82E+00	2.99E+00
CO-58		6.11E-01	±	2.09E+00	3.36E+00
FE-59		6.01E-01	±	6.42E+00	1.05E+01
CO-60		4.70E-01	±	1.73E+00	2.77E+00
ZN-65		1.21E+00	±	4.56E+00	7.34E+00
ZRNB-95		1.28E+00	±	2.19E+00	3.45E+00
I-131		-1.76E+00	±	6.20E+00	1.01E+01
CS-134		-1.10E+00	±	2.04E+00	3.26E+00
CS-137		4.96E-02	±	2.05E+00	3.37E+00
BALA140		0.00E+00	±	4.67E+00	7.78E+00
RA-226		-2.27E+01	±	7.26E+01	9.72E+01

Collection Period: 04/02/08 5/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-4.05E+00	±	2.28E+01	3.71E+01
K-40		6.26E+00	±	2.80E+01	5.39E+01
CR-51		4.13E+00	±	2.47E+01	4.03E+01
MN-54		-1.83E-01	±	1.67E+00	2.72E+00
CO-58		-7.55E-02	±	2.17E+00	3.55E+00
FE-59		3.36E+00	±	6.17E+00	9.61E+00
CO-60		2.18E+00	±	2.30E+00	3.48E+00
ZN-65		3.09E-01	±	4.06E+00	6.62E+00
ZRNB-95		1.93E+00	±	2.29E+00	3.55E+00
I-131		3.64E+00	±	7.28E+00	1.17E+01
CS-134		9.44E-01	±	1.50E+00	2.35E+00
CS-137		0.00E+00	±	2.59E+00	4.32E+00
BALA140		1.51E-01	±	5.70E+00	9.35E+00
RA-226		6.35E+00	±	5.32E+01	9.40E+01

Collection Period: 05/05/08 6/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		5.98E+00	±	2.05E+01	3.31E+01
K-40		-2.56E-01	±	2.66E+01	5.23E+01
CR-51		4.17E-01	±	2.34E+01	3.85E+01
MN-54		1.30E+00	±	1.87E+00	2.91E+00
CO-58		-1.01E+00	±	2.38E+00	3.81E+00
FE-59		8.30E-01	±	5.78E+00	9.37E+00
CO-60		1.24E+00	±	2.04E+00	3.17E+00
ZN-65		0.00E+00	±	6.49E+00	1.08E+01
ZRNB-95		1.15E+00	±	1.93E+00	3.03E+00
I-131		2.08E+00	±	5.88E+00	9.52E+00
CS-134		-6.29E-01	±	2.14E+00	3.47E+00
CS-137		1.38E+00	±	2.08E+00	3.27E+00
BALA140		-1.68E+00	±	4.95E+00	7.85E+00
RA-226		-4.40E+01	±	9.47E+01	9.71E+01

Collection Period: 06/02/08 7/2/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-4.27E+00	±	1.43E+01	2.29E+01
K-40		-6.10E+01	±	6.55E+01	5.84E+01
CR-51		1.75E-01	±	2.21E+01	3.63E+01
MN-54		-1.12E-01	±	1.63E+00	2.67E+00
CO-58		2.35E-02	±	2.06E+00	3.38E+00
FE-59		3.59E-02	±	4.65E+00	7.64E+00
CO-60		0.00E+00	±	2.00E+00	3.34E+00
ZN-65		-9.95E-01	±	3.69E+00	5.90E+00
ZRNB-95		6.88E-01	±	1.93E+00	3.08E+00
I-131		2.39E+00	±	6.61E+00	1.06E+01
CS-134		-6.62E-01	±	2.06E+00	3.33E+00
CS-137		-6.00E-01	±	1.75E+00	2.80E+00
BALA140		-6.40E-01	±	5.61E+00	9.10E+00
RA-226		-2.23E+00	±	3.91E+01	6.80E+01

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

TABLE B-7.1

GAMMA SPECTROMETRY RESULTS OF SANITARY WASTE TREATMENT WATER

STATION 102A

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

Collection Period: 07/02/08 8/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		2.08E-01	±	1.75E+01	2.88E+01
K-40		-6.11E+00	±	2.82E+01	5.07E+01
CR-51		1.76E+00	±	2.16E+01	3.54E+01
MN-54		8.55E-01	±	1.13E+00	1.66E+00
CO-58		-5.01E-02	±	1.40E+00	2.29E+00
FE-59		-5.61E-02	±	4.53E+00	7.43E+00
CO-60		5.95E-01	±	1.73E+00	2.74E+00
ZN-65		1.65E-01	±	3.91E+00	6.40E+00
ZRNB-95		7.86E-01	±	1.85E+00	2.92E+00
I-131		1.83E+00	±	5.56E+00	8.97E+00
CS-134		-5.14E-02	±	1.77E+00	2.91E+00
CS-137		1.56E+00	±	1.68E+00	2.53E+00
BALA140		2.18E-01	±	4.37E+00	7.13E+00
RA-226		-7.17E+00	±	4.47E+01	7.11E+01

Collection Period: 08/04/08 9/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		0.00E+00	±	1.55E+01	2.58E+01
K-40		-2.61E+01	±	4.09E+01	4.90E+01
CR-51		-8.49E-01	±	1.80E+01	2.95E+01
MN-54		1.51E+00	±	1.85E+00	2.82E+00
CO-58		-3.02E-01	±	1.91E+00	3.09E+00
FE-59		5.62E-01	±	5.73E+00	9.32E+00
CO-60		1.92E-01	±	1.72E+00	2.80E+00
ZN-65		-1.84E+00	±	4.07E+00	6.41E+00
ZRNB-95		2.04E+00	±	1.39E+00	1.82E+00
I-131		2.52E+00	±	7.05E+00	1.13E+01
CS-134		-8.26E-01	±	1.75E+00	2.78E+00
CS-137		-5.30E-01	±	1.93E+00	3.10E+00
BALA140		-1.29E+00	±	5.38E+00	8.58E+00
RA-226		-8.67E+00	±	4.48E+01	6.98E+01

Collection Period: 09/03/08 10/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-5.99E-01	±	1.44E+01	2.35E+01
K-40		-2.97E+01	±	5.08E+01	5.25E+01
CR-51		-6.09E+00	±	2.12E+01	3.43E+01
MN-54		-7.21E-01	±	1.82E+00	2.88E+00
CO-58		1.33E+00	±	1.60E+00	2.39E+00
FE-59		-9.51E-01	±	5.33E+00	8.58E+00
CO-60		2.17E-01	±	1.43E+00	2.31E+00
ZN-65		2.46E+00	±	3.48E+00	5.27E+00
ZRNB-95		6.80E-01	±	1.72E+00	2.71E+00
I-131		-1.63E-02	±	6.48E+00	1.06E+01
CS-134		3.30E-01	±	1.81E+00	2.95E+00
CS-137		-3.33E-01	±	1.83E+00	2.97E+00
BALA140		-1.62E+00	±	5.70E+00	9.06E+00
RA-226		-7.96E+00	±	4.30E+01	6.83E+01

Collection Period: 10/01/08 11/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		3.12E+00	±	1.79E+01	2.91E+01
K-40		1.11E+01	±	2.59E+01	5.10E+01
CR-51		-2.64E+00	±	1.71E+01	2.78E+01
MN-54		0.00E+00	±	1.99E+00	3.32E+00
CO-58		1.46E-01	±	1.84E+00	3.01E+00
FE-59		-1.58E+00	±	5.39E+00	8.56E+00
CO-60		-2.04E-02	±	1.84E+00	3.03E+00
ZN-65		0.00E+00	±	3.74E+00	6.24E+00
ZRNB-95		-3.33E-01	±	2.03E+00	3.28E+00
I-131		-1.44E+00	±	5.60E+00	9.07E+00
CS-134		3.55E-02	±	1.72E+00	2.83E+00
CS-137		0.00E+00	±	2.01E+00	3.36E+00
BALA140		-2.56E-01	±	3.81E+00	6.20E+00
RA-226		-2.50E+01	±	6.33E+01	7.24E+01

Collection Period: 11/05/08 12/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-2.96E+00	±	1.68E+01	2.73E+01
K-40		-3.19E+01	±	5.12E+01	5.11E+01
CR-51		-2.56E-02	±	1.85E+01	3.04E+01
MN-54		3.69E-01	±	1.79E+00	2.88E+00
CO-58		-6.15E-01	±	1.79E+00	2.85E+00
FE-59		-2.13E+00	±	5.62E+00	8.88E+00
CO-60		3.73E-01	±	1.77E+00	2.84E+00
ZN-65		-2.37E+00	±	4.12E+00	6.42E+00
ZRNB-95		-7.67E-01	±	2.26E+00	3.63E+00
I-131		-1.63E+00	±	4.61E+00	7.43E+00
CS-134		5.22E-01	±	1.77E+00	2.85E+00
CS-137		1.25E+00	±	1.78E+00	2.75E+00
BALA140		4.15E-03	±	3.89E+00	6.40E+00
RA-226		-3.56E+00	±	4.07E+01	6.96E+01

Collection Period: 12/01/08 1/5/2009

Nuclide	RQ	Activity		Error	MDA
BE-7		-1.01E+01	±	1.96E+01	3.12E+01
K-40		-2.64E+01	±	4.32E+01	5.02E+01
CR-51		7.62E+00	±	1.86E+01	2.98E+01
MN-54		-2.86E-01	±	1.73E+00	2.81E+00
CO-58		-4.48E-01	±	1.73E+00	2.77E+00
FE-59		2.04E+00	±	5.27E+00	8.26E+00
CO-60		-2.11E-02	±	1.90E+00	3.12E+00
ZN-65		-1.52E+00	±	4.46E+00	7.11E+00
ZRNB-95		0.00E+00	±	2.60E+00	4.34E+00
I-131		2.58E-01	±	5.22E+00	8.55E+00
CS-134		-8.01E-01	±	1.98E+00	3.17E+00
CS-137		6.07E-01	±	1.71E+00	2.73E+00
BALA140		3.05E-01	±	3.98E+00	6.46E+00
RA-226		-1.51E+01	±	5.25E+01	7.22E+01

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

TABLE B-7.1

GAMMA SPECTROMETRY RESULTS OF SANITARY WASTE TREATMENT WATER

STATION 102B

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

Collection Period:		01/02/08		2/4/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		-2.85E+00	± 2.13E+01	3.48E+01
K-40		-1.32E+01	± 3.50E+01	6.08E+01
CR-51		1.12E+01	± 2.65E+01	4.27E+01
MN-54		-1.65E-01	± 1.63E+00	2.66E+00
CO-58		-3.73E-01	± 1.95E+00	3.14E+00
FE-59		-9.45E-01	± 6.61E+00	1.07E+01
CO-60		-5.17E-01	± 1.95E+00	3.13E+00
ZN-65		1.18E+00	± 4.27E+00	6.85E+00
ZRNB-95		1.61E-01	± 2.42E+00	3.96E+00
I-131		-1.73E+00	± 8.27E+00	1.35E+01
CS-134		5.33E-01	± 1.60E+00	2.56E+00
CS-137		-3.21E-02	± 1.66E+00	2.73E+00
BALA140		-7.26E-01	± 5.48E+00	8.88E+00
RA-226	+	9.20E+01	± 5.48E+01	8.57E+01

Collection Period:		02/04/08		3/3/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		3.62E+00	± 2.00E+01	3.25E+01
K-40		-5.13E+00	± 2.98E+01	5.25E+01
CR-51		7.10E+00	± 2.38E+01	3.87E+01
MN-54		1.33E-01	± 1.55E+00	2.53E+00
CO-58		9.40E-02	± 1.82E+00	2.97E+00
FE-59		7.28E-02	± 5.51E+00	9.04E+00
CO-60		7.77E-01	± 2.17E+00	3.46E+00
ZN-65		-9.98E-01	± 4.51E+00	7.28E+00
ZRNB-95		-6.60E-01	± 2.34E+00	3.77E+00
I-131		-3.46E+00	± 6.71E+00	1.08E+01
CS-134		-1.39E-02	± 1.99E+00	3.27E+00
CS-137		-6.04E-01	± 2.27E+00	3.68E+00
BALA140		3.32E-01	± 4.95E+00	8.07E+00
RA-226		-2.94E+00	± 5.59E+01	9.54E+01

Collection Period:		03/03/08		4/2/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		4.11E+00	± 2.11E+01	3.44E+01
K-40		1.54E+01	± 2.87E+01	5.39E+01
CR-51		7.11E+00	± 2.49E+01	4.05E+01
MN-54		2.39E+00	± 2.06E+00	3.09E+00
CO-58		0.00E+00	± 3.18E+00	5.30E+00
FE-59		3.64E+00	± 5.98E+00	9.21E+00
CO-60		4.42E-01	± 1.98E+00	3.19E+00
ZN-65		-3.41E-01	± 4.22E+00	6.89E+00
ZRNB-95		5.20E-01	± 1.82E+00	2.92E+00
I-131		5.46E+00	± 7.30E+00	1.15E+01
CS-134		-1.00E+00	± 2.01E+00	3.20E+00
CS-137		-6.90E-03	± 2.31E+00	3.81E+00
BALA140		7.47E-01	± 5.92E+00	9.61E+00
RA-226		2.26E+01	± 5.46E+01	9.55E+01

Collection Period:		04/02/08		5/5/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		-2.74E+00	± 2.34E+01	3.83E+01
K-40		-8.92E+00	± 3.47E+01	5.50E+01
CR-51		1.13E+01	± 2.49E+01	4.02E+01
MN-54		1.30E+00	± 2.02E+00	3.17E+00
CO-58		6.81E-01	± 2.07E+00	3.32E+00
FE-59		-2.33E+00	± 7.09E+00	1.13E+01
CO-60		2.36E+00	± 2.12E+00	3.13E+00
ZN-65		0.00E+00	± 5.68E+00	9.47E+00
ZRNB-95		7.49E-02	± 2.61E+00	4.29E+00
I-131		1.19E+01	± 7.97E+00	1.23E+01
CS-134		7.19E-01	± 1.96E+00	3.16E+00
CS-137		-1.28E-01	± 2.74E+00	4.49E+00
BALA140		-3.39E-02	± 5.75E+00	9.44E+00
RA-226		-2.32E+00	± 5.59E+01	9.60E+01

Collection Period:		05/05/08		6/2/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		-7.07E-01	± 1.92E+01	3.16E+01
K-40		7.88E+00	± 2.85E+01	5.44E+01
CR-51		-7.11E+00	± 2.47E+01	4.01E+01
MN-54		1.40E-01	± 2.24E+00	3.67E+00
CO-58		0.00E+00	± 2.11E+00	3.52E+00
FE-59		-1.10E-01	± 5.75E+00	9.44E+00
CO-60		3.70E-01	± 1.79E+00	2.89E+00
ZN-65		-1.29E+00	± 4.34E+00	6.97E+00
ZRNB-95		-5.00E-03	± 2.18E+00	3.58E+00
I-131		2.17E+00	± 6.44E+00	1.04E+01
CS-134		-1.14E+00	± 2.10E+00	3.34E+00
CS-137		-1.31E+00	± 2.46E+00	3.93E+00
BALA140		5.92E-02	± 4.98E+00	8.18E+00
RA-226		-5.86E+00	± 5.83E+01	9.60E+01

Collection Period:		06/02/08		7/2/2008
Nuclide	**RQ**	**Activity**	**Error**	**MDA**
BE-7		0.00E+00	± 1.73E+01	2.89E+01
K-40		-5.26E+01	± 5.99E+01	5.97E+01
CR-51		8.51E+00	± 1.94E+01	3.11E+01
MN-54		3.65E-01	± 1.83E+00	2.96E+00
CO-58		-5.72E-02	± 1.71E+00	2.80E+00
FE-59		3.47E-02	± 5.27E+00	8.66E+00
CO-60		-1.53E-02	± 1.84E+00	3.03E+00
ZN-65		0.00E+00	± 6.20E+00	1.03E+01
ZRNB-95		-2.03E-02	± 2.16E+00	3.55E+00
I-131		1.91E+00	± 8.33E+00	1.35E+01
CS-134		-9.68E-03	± 1.85E+00	3.05E+00
CS-137		-1.25E+00	± 2.23E+00	3.52E+00
BALA140		5.92E-01	± 5.85E+00	9.50E+00
RA-226		-1.48E+01	± 4.79E+01	6.60E+01

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

TABLE B-7.1

GAMMA SPECTROMETRY RESULTS OF SANITARY WASTE TREATMENT WATER

STATION 102B

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

Collection Period: 07/02/08 8/4/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		4.95E+00	±	1.72E+01	2.77E+01
K-40		-6.83E+00	±	2.84E+01	5.04E+01
CR-51		5.81E+00	±	1.97E+01	3.18E+01
MN-54		-7.78E-01	±	1.80E+00	2.85E+00
CO-58		-5.79E-01	±	1.89E+00	3.02E+00
FE-59		1.81E+00	±	3.90E+00	5.93E+00
CO-60		-3.69E-01	±	1.47E+00	2.34E+00
ZN-65		1.20E+00	±	4.19E+00	6.71E+00
ZRNB-95		3.03E-01	±	2.06E+00	3.35E+00
I-131		-9.08E-01	±	6.40E+00	1.04E+01
CS-134		-9.47E-01	±	1.93E+00	3.07E+00
CS-137		7.92E-01	±	1.63E+00	2.56E+00
BALA140		0.00E+00	±	5.10E+00	8.50E+00
RA-226		-8.44E+00	±	4.41E+01	6.92E+01

Collection Period: 08/04/08 9/3/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		2.70E+00	±	1.65E+01	2.69E+01
K-40		-8.29E+00	±	2.87E+01	4.99E+01
CR-51		-1.04E+00	±	2.19E+01	3.59E+01
MN-54		7.64E-01	±	1.78E+00	2.81E+00
CO-58		1.17E-01	±	2.00E+00	3.28E+00
FE-59		-3.53E-01	±	6.25E+00	1.02E+01
CO-60		-1.93E-03	±	1.88E+00	3.07E+00
ZN-65		-9.79E-01	±	4.14E+00	6.66E+00
ZRNB-95		6.81E-01	±	2.10E+00	3.36E+00
I-131		1.31E-01	±	7.23E+00	1.19E+01
CS-134		-3.71E-01	±	1.95E+00	3.16E+00
CS-137		-4.01E-01	±	1.87E+00	3.02E+00
BALA140		-1.47E+00	±	6.21E+00	9.94E+00
RA-226		-5.98E+00	±	4.17E+01	6.85E+01

Collection Period: 09/03/08 10/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		7.27E+00	±	1.54E+01	2.44E+01
K-40		5.34E-01	±	2.54E+01	5.15E+01
CR-51		3.72E+00	±	2.07E+01	3.37E+01
MN-54		1.02E+00	±	1.68E+00	2.60E+00
CO-58		8.77E-01	±	1.67E+00	2.60E+00
FE-59		1.23E-01	±	5.93E+00	9.72E+00
CO-60		-3.36E-01	±	1.73E+00	2.78E+00
ZN-65		-9.62E-03	±	2.99E+00	4.90E+00
ZRNB-95		5.80E-01	±	1.95E+00	3.13E+00
I-131		1.69E+00	±	5.07E+00	8.11E+00
CS-134		1.10E+00	±	1.65E+00	2.57E+00
CS-137		-7.55E-01	±	2.07E+00	3.31E+00
BALA140		0.00E+00	±	5.48E+00	9.13E+00
RA-226		-6.64E+00	±	4.37E+01	7.05E+01

Collection Period: 10/01/08 11/5/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		4.50E+00	±	1.71E+01	2.76E+01
K-40		-1.31E+01	±	3.20E+01	5.01E+01
CR-51		7.71E+00	±	2.09E+01	3.36E+01
MN-54		5.24E-01	±	1.74E+00	2.78E+00
CO-58		-1.50E-01	±	1.92E+00	3.14E+00
FE-59		-1.34E+00	±	4.84E+00	7.68E+00
CO-60		0.00E+00	±	1.70E+00	2.84E+00
ZN-65		-3.22E-01	±	3.73E+00	6.08E+00
ZRNB-95		1.41E-01	±	1.96E+00	3.20E+00
I-131		2.20E+00	±	5.33E+00	8.51E+00
CS-134		-4.75E-02	±	1.48E+00	2.42E+00
CS-137		-7.38E-01	±	2.02E+00	3.24E+00
BALA140		1.26E-01	±	4.77E+00	7.81E+00
RA-226		-9.99E+00	±	4.59E+01	6.98E+01

Collection Period: 11/05/08 12/1/2008

Nuclide	RQ	Activity		Error	MDA
BE-7		-6.63E+00	±	1.68E+01	2.69E+01
K-40		-3.40E+00	±	2.62E+01	5.02E+01
CR-51		2.76E+00	±	1.53E+01	2.49E+01
MN-54		-8.82E-01	±	1.88E+00	2.97E+00
CO-58		5.36E-01	±	1.87E+00	2.99E+00
FE-59		-1.65E+00	±	5.02E+00	7.93E+00
CO-60		2.13E-01	±	1.93E+00	3.14E+00
ZN-65		-5.91E-01	±	4.02E+00	6.51E+00
ZRNB-95		-9.35E-01	±	2.03E+00	3.21E+00
I-131		-9.44E-01	±	4.67E+00	7.59E+00
CS-134		1.56E-02	±	1.49E+00	2.45E+00
CS-137		2.58E-01	±	1.66E+00	2.69E+00
BALA140		1.04E+00	±	3.90E+00	6.19E+00
RA-226		-8.83E+00	±	4.31E+01	6.75E+01

Collection Period: 12/01/08 1/5/2009

Nuclide	RQ	Activity		Error	MDA
BE-7		-2.27E+00	±	1.56E+01	2.53E+01
K-40		-3.38E+01	±	5.56E+01	5.21E+01
CR-51		-9.25E+00	±	2.10E+01	3.38E+01
MN-54		4.56E-01	±	1.62E+00	2.60E+00
CO-58		-6.62E-02	±	1.73E+00	2.84E+00
FE-59		1.44E+00	±	5.26E+00	8.36E+00
CO-60		3.64E-01	±	1.78E+00	2.86E+00
ZN-65		0.00E+00	±	5.94E+00	9.90E+00
ZRNB-95		0.00E+00	±	2.59E+00	4.31E+00
I-131		1.34E+00	±	4.48E+00	7.19E+00
CS-134		9.45E-01	±	1.69E+00	2.66E+00
CS-137		-6.28E-01	±	1.93E+00	3.10E+00
BALA140		-1.54E+00	±	5.26E+00	8.36E+00
RA-226		-1.47E+01	±	4.80E+01	6.77E+01

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

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	BE-7	1.60E-01	-1.01E+01	9.37E+00	2.93E+01	12	0
	K-40	-1.44E+01	-6.11E+01	3.07E+01	5.31E+01	12	0
	CR-51	-1.70E-01	-1.09E+01	7.62E+00	3.43E+01	12	0
	MN-54	2.11E-01	-7.21E-01	1.51E+00	2.77E+00	12	0
	CO-58	1.14E-01	-1.01E+00	1.35E+00	3.07E+00	12	0
	FE-59	3.45E-01	-2.13E+00	3.36E+00	9.23E+00	12	0
	CO-60	4.60E-01	-2.11E-02	2.18E+00	3.00E+00	12	0
	ZN-65	-2.11E-01	-2.37E+00	2.46E+00	6.78E+00	12	0
	ZRNB-95	7.48E-01	-7.67E-01	2.04E+00	3.33E+00	12	0
	I-131	6.16E-01	-1.76E+00	3.64E+00	1.01E+01	12	0
	CS-134	-3.00E-01	-1.10E+00	9.44E-01	3.06E+00	12	0
	CS-137	2.86E-01	-6.00E-01	1.56E+00	3.20E+00	12	0
	BALA140	-2.16E-01	-1.68E+00	3.31E+00	7.66E+00	12	0
	RA-226	-3.18E+00	-4.40E+01	1.11E+02	7.87E+01	12	1
102B	BE-7	9.95E-01	-6.63E+00	7.27E+00	2.99E+01	12	0
	K-40	-1.01E+01	-5.26E+01	1.54E+01	5.34E+01	12	0
	CR-51	3.98E+00	-9.25E+00	1.13E+01	3.56E+01	12	0
	MN-54	4.39E-01	-8.82E-01	2.39E+00	2.89E+00	12	0
	CO-58	8.99E-02	-5.79E-01	8.77E-01	3.24E+00	12	0
	FE-59	3.14E-02	-2.33E+00	3.64E+00	9.02E+00	12	0
	CO-60	2.74E-01	-5.17E-01	2.36E+00	2.99E+00	12	0
	ZN-65	-1.80E-01	-1.29E+00	1.20E+00	7.38E+00	12	0
	ZRNB-95	7.00E-02	-9.35E-01	6.81E-01	3.55E+00	12	0
	I-131	1.65E+00	-3.46E+00	1.19E+01	1.05E+01	12	0
	CS-134	-1.85E-02	-1.14E+00	1.10E+00	2.91E+00	12	0
	CS-137	-3.95E-01	-1.31E+00	7.92E-01	3.34E+00	12	0
	BALA140	-7.27E-02	-1.54E+00	1.04E+00	8.63E+00	12	0
	RA-226	2.84E+00	-1.48E+01	9.20E+01	7.90E+01	12	1

TABLE B-8.1

TRITIUM IN SANITARY WASTE TREATMENT WATER

Results in pCi per liter

Location	Description	Collection Period			RQ	Activity		Error
102A	FFTF-Effluent	01/02/08	-	02/04/08	+	2.37E+03	±	1.52E+02
		02/04/08	-	03/03/08	+	2.29E+03	±	1.48E+02
		03/03/08	-	04/02/08	+	2.50E+03	±	1.53E+02
		04/02/08	-	05/05/08	+	2.59E+03	±	1.54E+02
		05/05/08	-	06/02/08	+	2.35E+03	±	1.52E+02
		06/02/08	-	07/02/08	+	2.23E+03	±	1.44E+02
		07/02/08	-	08/04/08	+	2.35E+03	±	1.49E+02
		08/04/08	-	09/03/08	+	2.29E+03	±	1.48E+02
		09/03/08	-	10/01/08	+	2.08E+03	±	1.41E+02
		10/01/08	-	11/05/08	+	2.21E+03	±	1.45E+02
		11/05/08	-	12/01/08	+	2.14E+03	±	1.42E+02
		12/01/08	-	01/05/09	+	2.09E+03	±	1.41E+02
102B	Monthly Headworks	01/02/08	-	02/04/08	+	7.50E+02	±	1.19E+02
		02/04/08	-	03/03/08	+	8.07E+02	±	1.18E+02
		03/03/08	-	04/02/08	+	1.06E+03	±	1.24E+02
		04/02/08	-	05/05/08	+	1.08E+03	±	1.24E+02
		05/05/08	-	06/02/08	+	7.03E+02	±	1.17E+02
		06/02/08	-	07/02/08	+	8.82E+02	±	1.15E+02
		07/02/08	-	08/04/08	+	8.64E+02	±	1.18E+02
		08/04/08	-	09/03/08	+	6.80E+02	±	1.14E+02
		09/03/08	-	10/01/08	+	6.41E+02	±	1.10E+02
		10/01/08	-	11/05/08	+	5.14E+02	±	1.07E+02
		11/05/08	-	12/01/08	+	4.32E+02	±	1.04E+02
		12/01/08	-	01/05/09	+	4.37E+02	±	1.03E+02

TABLE B-8.2

TRITIUM IN SANITARY WASTE TREATMENT WATER - SUMMARY

Results in pCi per liter

Location Description	Average Activity	Activity Low	Activity High	Number of Samples	Number of Positive IDs
102A & 102B	1.51E+03	4.32E+02	2.59E+03	24	24
102A FFTF Effluent	2.29E+03	2.08E+03	2.59E+03	12	12
102B Monthly Headworks	7.38E+02	4.32E+02	1.08E+03	12	12

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

TABLE B-9.1

GAMMA SPECTROMETRY RESULTS OF SPECIAL INTEREST SOILS & SEDIMENTS

Results in pCi per kilogram

SANITARY WASTE TREATMENT SEDIMENT

Location	Collection Date	Nuclide	RQ	Activity		Error	MDA
Station 102d	10/29/08	BE-7		8.25E+01	±	2.55E+02	4.00E+02
		K-40	+	9.17E+03	±	1.14E+03	4.67E+02
		CR-51		2.50E+02	±	2.38E+02	3.37E+02
		MN-54		5.40E-01	±	3.55E+01	5.83E+01
		CO-58		0.00E+00	±	4.66E+01	7.76E+01
		FE-59		-3.19E+01	±	9.19E+01	1.41E+02
		CO-60	+	1.71E+02	±	4.28E+01	5.84E+01
		ZN-65		-2.29E+01	±	8.73E+01	1.38E+02
		ZRNB-95		-7.43E+00	±	4.22E+01	6.79E+01
		CS-134		4.08E+00	±	3.42E+01	5.54E+01
		CS-137	+	1.42E+02	±	4.91E+01	5.18E+01
		BALA140		-1.80E-02	±	5.96E+01	9.78E+01
		BI-214	+	4.55E+02	±	1.16E+02	1.22E+02
		RA-226		1.13E+03	±	7.97E+02	1.25E+03

STORM DRAIN POND SEDIMENT

Results in pCi per kilogram

Location	Collection Date	Nuclide	RQ	Activity		Error	MDA
Station 101	05/19/08	BE-7		-1.42E+02	±	3.33E+02	5.27E+02
		K-40	+	9.40E+03	±	1.08E+03	4.90E+02
		CR-51		1.70E+02	±	2.67E+02	4.15E+02
		MN-54		1.83E+01	±	3.15E+01	4.75E+01
		CO-58		1.10E+00	±	2.92E+01	4.77E+01
		FE-59		-3.41E+00	±	7.98E+01	1.30E+02
		CO-60	+	4.29E+02	±	5.21E+01	3.16E+01
		ZN-65		-6.07E+01	±	1.11E+02	1.73E+02
		ZRNB-95		9.36E-01	±	3.75E+01	6.15E+01
		CS-134		1.23E+01	±	3.15E+01	4.96E+01
		CS-137	+	3.18E+02	±	6.66E+01	5.52E+01
		BALA140		0.00E+00	±	7.87E+01	1.31E+02
		BI-214	+	4.79E+02	±	1.11E+02	1.27E+02
		RA-226	+	2.59E+03	±	8.44E+02	1.19E+03

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 MONITORING WELL SAMPLES

Results in pCi per liter

Location MW-3 collected 7/23/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-8.15E+01	±	1.77E+02	9.27E+01
CR-51		9.17E+00	±	2.25E+01	3.59E+01
MN-54		4.24E-01	±	2.70E+00	4.36E+00
CO-58		1.69E-02	±	2.90E+00	4.76E+00
FE-59		0.00E+00	±	4.06E+00	6.77E+00
CO-60		-4.52E-01	±	3.05E+00	4.92E+00
ZN-65		1.02E+00	±	5.44E+00	8.71E+00
ZRNB-95		-1.91E+00	±	3.72E+00	5.84E+00
I-131		2.59E+00	±	3.82E+00	5.92E+00
CS-134		-1.51E+00	±	3.37E+00	5.35E+00
CS-137		-1.13E+00	±	3.02E+00	4.77E+00
BALA140		0.00E+00	±	9.87E-01	1.65E+00
BI-214	+	1.39E+02	±	1.53E+01	1.34E+01
RA-226		-5.71E+00	±	7.16E+01	1.14E+02

Location MW-5 collected 7/23/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-7.31E+01	±	1.43E+02	9.18E+01
CR-51		3.89E+00	±	2.18E+01	3.54E+01
MN-54		5.50E-02	±	2.55E+00	4.18E+00
CO-58		1.70E-01	±	2.78E+00	4.54E+00
FE-59		1.00E+00	±	7.36E+00	1.18E+01
CO-60		4.69E-01	±	2.69E+00	4.31E+00
ZN-65		-8.68E-01	±	1.96E+01	3.21E+01
ZRNB-95		-7.84E-01	±	3.42E+00	5.50E+00
I-131		-1.54E+00	±	3.67E+00	5.81E+00
CS-134		2.18E-01	±	6.32E+00	1.04E+01
CS-137		-6.87E-01	±	3.01E+00	4.83E+00
BALA140		-1.67E+00	±	4.91E+00	7.66E+00
BI-214	+	6.24E+01	±	1.06E+01	1.33E+01
RA-226		5.23E+00	±	6.33E+01	1.12E+02

Location MW-6 collected 7/23/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-7.44E+01	±	1.46E+02	9.15E+01
CR-51		4.43E+00	±	2.37E+01	3.84E+01
MN-54		-3.62E-01	±	2.93E+00	4.74E+00
CO-58		4.78E-01	±	2.60E+00	4.17E+00
FE-59		-1.72E+00	±	8.90E+00	1.43E+01
CO-60		1.16E-01	±	3.24E+00	5.31E+00
ZN-65		-1.53E+00	±	5.89E+00	9.35E+00
ZRNB-95		-1.39E+00	±	3.77E+00	6.01E+00
I-131		-1.72E+00	±	4.64E+00	7.41E+00
CS-134		0.00E+00	±	7.27E+00	1.21E+01
CS-137		8.35E-03	±	3.09E+00	5.08E+00
BALA140		-9.87E-01	±	4.57E+00	7.24E+00
BI-214	+	1.29E+02	±	1.37E+01	1.20E+01
RA-226		-3.62E+01	±	1.48E+02	1.23E+02

Location MW-7 collected 7/23/2008

Nuclide	RQ	Activity		Error	MDA
K-40		1.47E+01	±	4.36E+01	8.82E+01
CR-51		0.00E+00	±	2.77E+01	4.61E+01
MN-54		-6.21E-01	±	3.05E+00	4.91E+00
CO-58		1.27E+00	±	2.38E+00	3.62E+00
FE-59		-8.91E-02	±	7.93E+00	1.30E+01
CO-60		1.31E+00	±	2.62E+00	3.95E+00
ZN-65		-1.36E+00	±	7.29E+00	1.17E+01
ZRNB-95		1.90E-02	±	3.11E+00	5.11E+00
I-131		4.39E+00	±	3.52E+00	5.02E+00
CS-134		2.19E-01	±	6.87E+00	1.13E+01
CS-137		1.82E+00	±	2.36E+00	3.46E+00
BALA140		-1.45E+00	±	5.55E+00	8.80E+00
BI-214	+	7.95E+01	±	1.17E+01	1.34E+01
RA-226		-1.22E+01	±	8.20E+01	1.14E+02

Location MW-8 collected 7/23/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-4.95E+01	±	8.85E+01	9.00E+01
CR-51		-2.31E+00	±	2.07E+01	3.37E+01
MN-54		-1.59E-01	±	2.75E+00	4.48E+00
CO-58		0.00E+00	±	2.89E+00	4.82E+00
FE-59		0.00E+00	±	1.08E+01	1.80E+01
CO-60		-1.27E-01	±	2.61E+00	4.26E+00
ZN-65		1.74E+00	±	4.44E+00	6.78E+00
ZRNB-95		-1.64E+00	±	4.12E+00	6.56E+00
I-131		-1.72E+00	±	4.94E+00	7.89E+00
CS-134		-7.82E-02	±	2.14E+00	3.51E+00
CS-137		-4.88E-01	±	3.19E+00	5.17E+00
BALA140		2.87E+00	±	5.53E+00	8.36E+00
BI-214	+	7.19E+01	±	1.24E+01	1.25E+01
RA-226		1.01E+01	±	6.02E+01	1.07E+02

Location MW-9 collected 7/23/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-7.27E+01	±	1.32E+02	8.92E+01
CR-51		1.01E+01	±	2.68E+01	4.30E+01
MN-54		-3.43E-01	±	2.56E+00	4.14E+00
CO-58		2.96E-01	±	2.53E+00	4.10E+00
FE-59		0.00E+00	±	1.08E+01	1.80E+01
CO-60		-2.82E-01	±	2.69E+00	4.35E+00
ZN-65		-2.52E+00	±	7.16E+00	1.13E+01
ZRNB-95		2.88E-01	±	3.06E+00	4.98E+00
I-131		-2.46E+00	±	5.28E+00	8.36E+00
CS-134		-6.24E-02	±	1.74E+00	2.85E+00
CS-137		-5.35E-01	±	3.11E+00	5.03E+00
BALA140		-3.51E-03	±	4.92E+00	8.13E+00
BI-214	+	5.64E+01	±	1.07E+01	1.25E+01
RA-226		6.77E+00	±	5.78E+01	1.03E+02

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 MONITORING WELL SAMPLES

Results in pCi per liter

Location MW-9 collected 10/22/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-4.04E+01	±	1.05E+02	7.95E+01
CR-51		5.61E+00	±	2.73E+01	4.44E+01
MN-54		-1.00E+00	±	3.36E+00	5.37E+00
CO-58		-1.22E+00	±	3.22E+00	5.09E+00
FE-59		-2.84E+00	±	8.34E+00	1.31E+01
CO-60		5.83E-01	±	2.49E+00	3.93E+00
ZN-65		8.58E-01	±	3.56E+01	5.85E+01
ZRNB-95		-8.36E-01	±	3.39E+00	5.44E+00
I-131		4.25E-02	±	3.33E+00	5.48E+00
CS-134		-1.55E+00	±	6.23E+00	1.01E+01
CS-137		-1.01E+00	±	3.99E+00	6.44E+00
BALA140		3.62E-01	±	3.94E+00	6.40E+00
BI-214	+	2.51E+02	±	1.80E+01	1.21E+01
RA-226		-4.39E+00	±	8.98E+01	1.43E+02

Location MW-7 collected 10/22/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-3.08E+01	±	7.65E+01	7.70E+01
CR-51		-3.66E+00	±	2.70E+01	4.40E+01
MN-54		-1.44E-01	±	3.02E+00	4.93E+00
CO-58		-7.77E-01	±	2.77E+00	4.41E+00
FE-59		1.77E-01	±	6.70E+00	1.10E+01
CO-60		1.18E-02	±	3.19E+00	5.24E+00
ZN-65		-8.64E+00	±	1.07E+01	1.65E+01
ZRNB-95		2.01E+00	±	3.54E+00	5.54E+00
I-131		7.30E-01	±	2.95E+00	4.74E+00
CS-134		-2.97E+00	±	2.52E-01	5.87E-01
CS-137		1.68E-02	±	3.05E+00	5.01E+00
BALA140		-1.34E+00	±	4.08E+00	6.37E+00
BI-214	+	1.52E+02	±	1.47E+01	1.17E+01
RA-226		-3.65E+01	±	1.42E+02	1.25E+02

Location MW-8 collected 10/22/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-3.26E+01	±	8.85E+01	8.14E+01
CR-51		-3.45E+00	±	2.64E+01	4.30E+01
MN-54		-4.93E-01	±	2.88E+00	4.64E+00
CO-58		-2.25E-01	±	2.83E+00	4.61E+00
FE-59		-1.27E+00	±	7.26E+00	1.16E+01
CO-60		6.26E-01	±	2.96E+00	4.73E+00
ZN-65		-8.61E-01	±	3.13E+01	5.14E+01
ZRNB-95		-1.97E+00	±	4.15E+00	6.58E+00
I-131		9.95E-01	±	3.31E+00	5.32E+00
CS-134		-1.94E+00	±	3.64E+00	5.76E+00
CS-137		0.00E+00	±	4.48E+00	7.46E+00
BALA140		-2.70E-01	±	3.94E+00	6.41E+00
BI-214	+	1.85E+02	±	1.58E+01	1.16E+01
RA-226		-2.48E+01	±	1.13E+02	1.25E+02

Location MW-3 collected 10/22/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-2.30E+01	±	7.12E+01	8.25E+01
CR-51		1.71E+01	±	2.40E+01	3.74E+01
MN-54		-7.67E-02	±	2.59E+00	4.25E+00
CO-58		-3.73E-02	±	2.61E+00	4.28E+00
FE-59		2.69E+00	±	7.70E+00	1.20E+01
CO-60		3.80E-01	±	3.15E+00	5.10E+00
ZN-65		0.00E+00	±	2.60E+01	4.34E+01
ZRNB-95		-1.04E+00	±	3.15E+00	5.01E+00
I-131		-2.65E+00	±	4.57E+00	7.22E+00
CS-134		-2.10E+00	±	3.35E+00	5.23E+00
CS-137		0.00E+00	±	3.26E+00	5.43E+00
BALA140		2.54E-01	±	4.95E+00	8.07E+00
BI-214	+	1.19E+02	±	1.39E+01	1.21E+01
RA-226		4.26E+01	±	6.63E+01	1.14E+02

Location MW-6 collected 10/22/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-7.56E+01	±	1.13E+03	9.04E+01
CR-51		-6.30E+00	±	2.56E+01	4.14E+01
MN-54		-5.12E-01	±	2.89E+00	4.66E+00
CO-58		-2.36E-01	±	2.53E+00	4.11E+00
FE-59		-1.91E+00	±	8.65E+00	1.38E+01
CO-60		0.00E+00	±	3.26E+00	5.43E+00
ZN-65		-7.91E+00	±	1.04E+01	1.61E+01
ZRNB-95		-1.15E+00	±	3.19E+00	5.05E+00
I-131		-4.47E-01	±	4.47E+00	7.30E+00
CS-134		0.00E+00	±	8.19E+00	1.37E+01
CS-137		-1.67E+00	±	3.46E+00	5.43E+00
BALA140		2.86E-01	±	5.15E+00	8.41E+00
BI-214	+	1.38E+02	±	1.54E+01	1.33E+01
RA-226		4.53E+00	±	6.78E+01	1.19E+02

Location MW-5 collected 10/22/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-3.51E+01	±	7.13E+01	7.06E+01
CR-51		9.75E+00	±	2.52E+01	4.02E+01
MN-54		-8.75E-01	±	2.81E+00	4.45E+00
CO-58		-7.13E-01	±	2.57E+00	4.07E+00
FE-59		-1.33E+00	±	7.18E+00	1.15E+01
CO-60		8.51E-01	±	2.83E+00	4.45E+00
ZN-65		0.00E+00	±	1.99E+01	3.32E+01
ZRNB-95		1.21E-01	±	3.12E+00	5.11E+00
I-131		-2.30E-01	±	3.67E+00	6.00E+00
CS-134		-1.30E+00	±	3.48E+00	5.57E+00
CS-137		2.14E-01	±	2.66E+00	4.34E+00
BALA140		-4.01E-02	±	4.59E+00	7.54E+00
BI-214	+	8.09E+01	±	1.14E+01	1.19E+01
RA-226		-3.34E+01	±	1.20E+02	1.14E+02

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 MONITORING WELL SAMPLES

Results in pCi per liter

Location MW-10 collected 11/19/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-3.78E+01	±	1.07E+02	8.02E+01
CR-51		9.98E-01	±	2.59E+01	4.25E+01
MN-54		5.97E-01	±	3.21E+00	5.19E+00
CO-58		5.08E-02	±	3.25E+00	5.34E+00
FE-59		-5.23E-02	±	7.18E+00	1.18E+01
CO-60		-6.24E-01	±	3.24E+00	5.21E+00
ZN-65		-7.45E+00	±	1.25E+01	1.98E+01
ZRNB-95		-1.36E+00	±	3.55E+00	5.67E+00
I-131		1.17E+00	±	3.40E+00	5.49E+00
CS-134		0.00E+00	±	8.40E+00	1.40E+01
CS-137		-5.19E-02	±	3.31E+00	5.43E+00
BALA140		-2.28E+00	±	4.94E+00	7.74E+00
BI-214	+	1.72E+02		1.55E+01	1.28E+01
RA-226		2.81E+01	±	8.95E+01	1.54E+02

Location MW-11 collected 11/19/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-3.41E+01	±	9.49E+01	7.95E+01
CR-51		5.20E+00	±	2.58E+01	4.19E+01
MN-54		0.00E+00	±	3.21E+00	5.36E+00
CO-58		-5.61E-01	±	2.64E+00	4.25E+00
FE-59		-2.51E-01	±	7.03E+00	1.15E+01
CO-60		1.74E-02	±	2.75E+00	4.51E+00
ZN-65		-2.29E+01	±	1.56E+01	2.39E+01
ZRNB-95		-1.89E+00	±	4.02E+00	6.40E+00
I-131		-7.98E-01	±	3.73E+00	6.06E+00
CS-134		-1.72E+00	±	3.35E+00	5.31E+00
CS-137		-4.09E-01	±	3.23E+00	5.25E+00
BALA140		-1.82E+00	±	4.80E+00	7.57E+00
BI-214	+	1.44E+02		1.42E+01	1.22E+01
RA-226		-8.02E+00	±	9.72E+01	1.53E+02

Location MW-12 collected 11/19/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-3.29E+01	±	9.77E+01	8.27E+01
CR-51		1.20E+01	±	2.65E+01	4.26E+01
MN-54		1.16E-01	±	2.07E+00	3.37E+00
CO-58		-2.73E-01	±	2.91E+00	4.75E+00
FE-59		4.67E+00	±	7.59E+00	1.15E+01
CO-60		0.00E+00	±	3.31E+00	5.52E+00
ZN-65		-5.94E+00	±	9.33E+00	1.46E+01
ZRNB-95		-7.48E-02	±	3.21E+00	5.26E+00
I-131		6.21E-01	±	3.00E+00	4.87E+00
CS-134		6.75E-01	±	3.02E+00	4.88E+00
CS-137		-2.41E+00	±	4.00E+00	6.31E+00
BALA140		-8.93E-01	±	4.37E+00	7.01E+00
BI-214	+	1.29E+02		1.30E+01	1.27E+01
RA-226		-3.91E+01	±	1.51E+02	1.61E+02

Location MW-13 collected 11/19/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-5.48E+01	±	1.90E+02	8.36E+01
CR-51		1.12E+00	±	2.63E+01	4.32E+01
MN-54		1.57E+00	±	2.95E+00	4.56E+00
CO-58		-9.32E-01	±	3.09E+00	4.92E+00
FE-59		-1.92E-01	±	6.89E+00	1.13E+01
CO-60		4.08E-01	±	2.77E+00	4.45E+00
ZN-65		-5.45E+00	±	9.03E+00	1.41E+01
ZRNB-95		-1.79E+00	±	3.82E+00	6.04E+00
I-131		-3.97E-01	±	2.01E+00	3.23E+00
CS-134		-3.79E-01	±	3.10E+00	5.04E+00
CS-137		-9.49E-01	±	3.28E+00	5.25E+00
BALA140		-7.32E-01	±	4.19E+00	6.72E+00
BI-214	+	1.62E+02		1.52E+01	1.13E+01
RA-226		4.02E+01	±	7.01E+01	1.20E+02

Location MW-14 collected 11/19/2008

Nuclide	RQ	Activity		Error	MDA
K-40		-1.07E+01	±	5.22E+01	8.10E+01
CR-51		0.00E+00	±	2.65E+01	4.41E+01
MN-54		6.13E-01	±	2.70E+00	4.31E+00
CO-58		-7.31E-01	±	2.78E+00	4.43E+00
FE-59		-2.19E+00	±	8.21E+00	1.30E+01
CO-60		-1.41E-03	±	3.10E+00	5.10E+00
ZN-65		3.26E-01	±	5.90E+00	9.62E+00
ZRNB-95		-1.17E+00	±	3.51E+00	5.60E+00
I-131		0.00E+00	±	3.46E+00	5.77E+00
CS-134		-1.25E+00	±	2.54E+00	3.97E+00
CS-137		-1.11E+00	±	3.46E+00	5.53E+00
BALA140		4.47E-01	±	4.41E+00	7.15E+00
BI-214	+	1.22E+02		1.29E+01	1.03E+01
RA-226		-1.47E+01	±	8.79E+01	1.19E+02

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