ENERGY NORTHWEST

P.O. Box 968 ■ Richland, Washington 99352-0968

May 14, 2004
GO2-04-095

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

Energy Facility Site Evaluation Council
ATTN: EFSEC Manager
P.O. Box 43172
Olympia, WA 98504-3172

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397**
INDEPENDENT SPENT FUEL STORAGE INSTALLATION, DOCKET NO. 72-35
2003 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

References:
1) Columbia Generating Station Technical Specification 5.6.2
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 and separate data volume are submitted as enclosures to this letter. If you have questions regarding this information, they may be directed to JE McDonald at (509) 377-8137.

Respectfully,

WA Kiel for DWC

DW Coleman (Mail Drop PE20)
Manager, Regulatory Programs

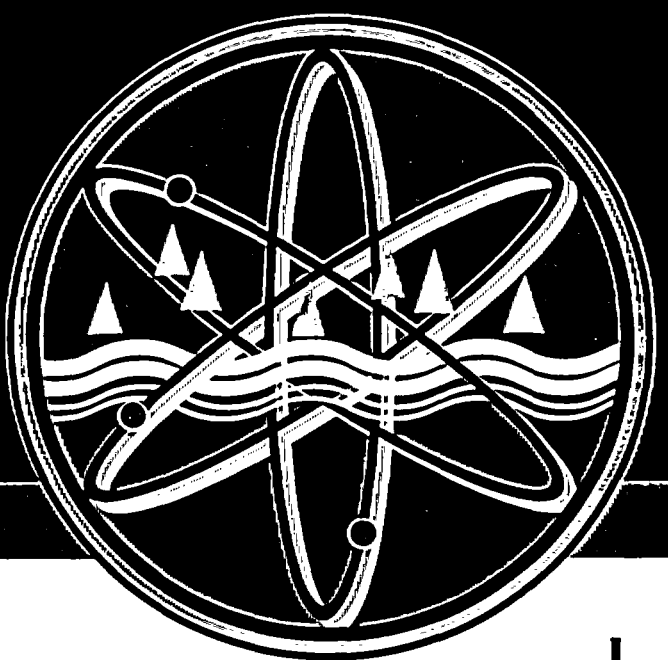
Enclosures

cc (report w/o data volume, except as noted):

D McBaugh (WDOH)
L Albin (WDOH)(w/ data vol)
JM Ayres (WDOE-Kenn)
L Vigue (WDFW)
RL Dirkes (PNNL)
RN Sherman (BPA/399)
BS Mallett (NRC RIV)
WA Macon (NRC NRR)
NRC Sr. Resident Inspector (988C)
TC Poindexter (Winston & Strawn)
Director, SFPO-NRC NMSS

IE25

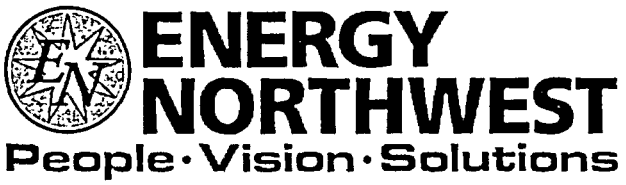
2003
Annual Radiological Environmental Operating Report



environmental
services

ENERGY NORTHWEST
People·Vision·Solutions

010171



COLUMBIA GENERATING STATION

2003ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

JANUARY 1 to DECEMBER 31, 2003

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Prepared by

J.E. McDonald and L.S. Schleder
Environmental Services
Energy Northwest
Richland, WA

and

Teledyne Brown Engineering Environmental Services
Knoxville, TN

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

The Energy Northwest Radiological Environmental Monitoring Program (REMP) evaluates the radiological impact of Columbia Generating Station operations on the environment in the airborne, direct radiation, waterborne, and ingestion pathways as specified in the Offsite Dose Calculation Manual (ODCM). Additional samples are collected at locations specified by the Site Certification Agreement (SCA) with the State of Washington Energy Facility Site Evaluation Council (EFSEC). Energy Northwest's Columbia Generating Station is a 1200 MW commercial nuclear power plant that achieved initial criticality on January 19, 1984.

Prior to 1999, Columbia Generating Station was on an annual refueling cycle. The outages usually occurred from the middle of April to early July. In 1999, Columbia Generating Station transitioned to a 24-month refueling cycle. The R-16 refueling outage took place from May to July 2003. The R-17 refueling outage is scheduled to begin in May 2005.

Samples of air, water, milk, soil, sediment, fish and garden produce were collected throughout the year and analyzed for radionuclides specific to plant operations. Radiation levels were also monitored continuously during 2003 with thermoluminescent dosimeters (TLDs).

Samples were collected in established areas near the plant and at other locations that could be affected by Columbia Generating Station effluents. This information was compared to samples taken in areas that were unlikely to be affected by plant operations. The 2003 REMP data was also compared to data collected during previous years of plant operation and to the data collected prior to initial plant operation.

Radiation levels near the Independent Spent Fuel Storage Installation (ISFSI) were monitored continuously using TLDs. The first of five dry storage casks was moved to the ISFSI in September 2002. No casks were placed in the ISFSI in 2003.

Results from most of the samples collected by the REMP during 2003 were below detection levels. Some analyses, such as gross beta in air and water, were above the detection level for nearly all samples. This is due to the low detection limit for the gross beta analysis and to the abundance of beta-emitting radionuclides that occur naturally in the environment. Other results above detection levels, such as cesium-137 in soil and sediment, reflect the effect of past Hanford activities or fallout from Chernobyl and past nuclear weapons testing.

Tritium and other radionuclides in river/drinking, well, and discharge water were in concentrations below detectable levels in almost all samples. During 2003, Columbia Generating Station did not have a liquid radwaste discharge to the Columbia River.

The REMP analytical results and TLD results were demonstrated to be accurate through intercomparison programs. Such intercomparisons tested the performance of Energy Northwest's monitoring program against other monitoring programs using known radioactive standards. Energy Northwest's REMP analytical contractor performed well in the Environmental Measurements Laboratory (EML) Quality Assessment Program, the Analytics, Inc. Cross Check Comparison Program, and other intercomparison studies conducted during 2003.

The analytical results from samples collected by the REMP in 2003 remained consistent with the results of environmental samples collected during the preoperational period and prior operational years. Based on the data, no significant new trends or changes in the environmental radiological levels around the plant were observed.

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 the radionuclide(s) being measured. It enables correction for the inherent sample background.

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 background sampling location, i.e., 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): 3.7×10^{10} disintegrations per second, or 2.22×10^{12} disintegrations per minute.

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

DOE: U.S. Department of Energy.

DOH: Washington State Department of Health.

EFSEC: Energy Facility Site Evaluation Council.

FFTF: U.S. Department of Energy's Fast Flux Test Facility near the Columbia Generating Station. Also known as the 400 Area.

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.

Indicator Station: A sampling location that could 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.

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

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

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

MDA: Minimum Detectable Activity.

NIST: National Institute of Standards and Technology.

NPDES: National Pollutant Discharge Elimination System.

NRC: U.S. Nuclear Regulatory Commission.

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

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

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.

Results: The results of sample collection are discussed and interpreted 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.

Roentgen: Unit of exposure to X or gamma (γ) radiation in air.

Site Certification Agreement (SCA): The Columbia Generating Station licensing agreement with the State of Washington.

Spike Sample: A sample containing a known concentration of the radionuclide(s) being measured.

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.

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

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, WNP-1 and Department of Energy's 400 Area.

TEDA: triethylene diamine

Thermoluminescent Dosimeter (TLD): A TLD contains 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

Energy Northwest's Columbia Generating Station is located in a sparsely populated shrub-steppe region within the Department of Energy's 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 directions.[20] Based on this, the focus of REMP sampling is the farming region east of the plant.

Because Columbia Generating Station is located on the Hanford Site, other potential sources of radioactive materials are in close proximity to Columbia Generating Station. For this reason, sampling locations near the plant provide useful information for separating the potential effects of Columbia Generating Station from those of other sources on the Hanford Site.

3.2 Program Background

The REMP is designed to conform to the regulatory guidance of the Nuclear Regulatory Commission (NRC) as provided by Regulatory Guides 4.1[1] and 4.8,[2] including the Radiological Assessment Branch Technical Position.[3] In addition, the REMP also meets the requirements of 10CFR72.44(d)(2).

The quality assurance aspects of the program and the thermoluminescent dosimetry are conducted in accordance with Regulatory Guides 4.15[4] and 4.13.[5] The REMP also must adhere 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 not only the environmental sampling and sample analysis aspects of the program, but also the reporting and quality assurance requirements of the program.

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, Chernobyl and nuclear weapons test fallout, meteorological conditions and seasonal changes.

A contract analytical laboratory is used in the analyses of REMP environmental samples. Teledyne Brown Engineering Environmental Services has performed the analysis of REMP samples since June 1986. Energy Northwest, until contracted to an outside vendor in 1996, processed the thermoluminescent dosimeters used in the REMP to assess the direct radiation. In 1997, Battelle Pacific Northwest National Laboratory became the environmental TLD processor. The TLDs are processed at its Richland, Washington laboratory.

radioactive effluents in the area. The monitoring results obtained during each year of plant operation are compared to the preoperational data and data from previous operating years to determine whether a significant accumulation of station-produced radionuclides has occurred in the environment.

Quarterly averages of the results are also compared to the NRC non-routine reporting levels listed in the ODCM. In addition to evaluating the environmental concentrations against federal standards or limits, the REMP also compares the results to state standards.[11, 12, 13] The results are discussed and interpreted 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. The quality assurance and quality control aspects of the program are also discussed in this report.

3.3 Program Objectives

The REMP provides a mechanism for determining whether the levels of radioactivity in the plant environs are within established limits and to ensure that the accumulation of radionuclides in the environment will not become significant as a result of station operations.

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 supplemental verification that the concentrations of radionuclides in the environment are not greater than anticipated.

4.0 PROGRAM DESCRIPTION

4.0 PROGRAM DESCRIPTION

The Columbia Generating Station Offsite Dose Calculation Manual (ODCM) defines the requirement for the Radiological Environmental Monitoring Program (REMP). The sampling plan presented in Table 4-1 in this report shows which samples are required by the ODCM and the Site Certification Agreement (SCA). The table also provides a summary of the sample locations, collection frequency, and types of analyses 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

Ninety-five sample locations were included in the monitoring program during 2003. Eighty-five indicator and three control (i.e. background) stations were located within a 10-mile (16-kilometer) radius of Columbia Generating Station. Three additional control stations and four indicator stations were outside the 10-mile radius from the plant. Sample stations are listed in Table 4-2 by meteorological sector, sample media and approximate distance from the plant. The numbers and locations of sample stations are based primarily on factors such as population distribution and meteorological conditions and also on station accessibility, security, and the requirements of applicable regulations. Other factors, such as the need to monitor locations that could be impacted by Columbia Generating Station operations, influence the location of REMP sampling sites.

The REMP sampling locations listed in Tables 4-1 and 4-2 are shown in Figures 4-1 and 4-2. Figure 4-3 shows the relative locations of the storm drain outfall and pond (Station 101) and the Sanitary Waste Treatment Facility (Station 102). Also shown are the cooling tower sediment disposal area (Station 119B and Station 119-Control) and the spray pond drainfield (Station 120), which are special interest stations.

4.1.1 Independent Spent Fuel Storage Installation (ISFSI)

During 2002, Energy Northwest constructed the Independent Spent Fuel Storage Installation (ISFSI) to provide additional storage of spent fuel. The spent fuel is stored in a HI-STORM dry storage cask, which is then placed on one of two concrete pads measuring 30-feet wide by 135-feet long. The ISFSI is located approximately 500 meters north-northwest of the reactor building. Initially, five dry storage casks were placed in the installation in 2002. The next placement of casks is scheduled for 2004.

REMP monitoring of the ISFSI consists of a set of quarterly and annual TLDs located at 10 stations on the isolation fence surrounding the pads. In addition, two other stations are located on other fence lines. Station 121 is located on a fence line approximately 200 meters north of the turbine building and Station 122 is located on the fence approximately 100 meters north of the ISFSI. Figure 4-4 shows the ISFSI location in relation to Columbia Generating Station. Figure 4-5 shows the location of the 10 TLD stations located around the ISFSI. These satisfy the monitoring requirements listed in 10CFR72.44(d)(2).

4.2 Land Use Census

The land use census for areas within five miles of Columbia Generating Station was performed in August. The objectives of the land use census are to identify the locations of the nearest milk animal, residence, and garden greater than 50 m^2 (approximately 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 were found, routine sampling of that dose pathway would be initiated at that new site.

The results of the 2003 land use census within five miles of Columbia Generating Station are presented in Table 4-3. One change from the 2002 land use census was observed. A garden that appeared to be greater than 50 m^2, was located approximately 4.1 miles ENE of the plant. No samples were available from the garden, which was out of production at the time of the census.

No milk animals are located within the 5-mile radius. The nearest milk location is located 7.2 miles east-southeast of Columbia Generating Station.

4.3 Sampling Methods

Energy Northwest personnel collected environmental samples in accordance to the program plan in Table 4-1. Documented procedures for sample collection and TLD handling are contained in the departmental instruction manual. The analytical contractor prepares and maintains the sample analyses procedures. Energy Northwest receives copies of the analytical procedures used.

The following sections describe the sampling and preparation methods.

4.3.1 Direct Radiation

During 2003, thermoluminescent dosimeters (TLDs) were used to determine the direct radiation levels at seventy-two (72) monitoring locations listed in Table 4-1. Control station TLDs (background) are located at Station 9A in Sunnyside and Station 119-Control, 0.2 mile south-southeast of the plant. The remaining TLDs served as indicator TLDs throughout the year.

Two sets of TLDs placed approximately three feet above ground were employed at each location. One set of TLDs was exchanged on a quarterly basis (Quarterly TLDs) and the other was exchanged on an annual basis (Annual TLDs). Exposure received by the field TLDs during transport to the TLD sites was monitored by a set of trip control dosimeters that accompanied the field dosimeters to and from the field locations. Another set of TLDs – building controls - were used to determine the exposure of the TLDs at the controlled 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.

Direct radiation levels were measured on Harshaw Model 8807 TLDs and processed by Battelle Pacific Northwest National Laboratory (PNNL) on a Harshaw Model 8800 Hot Gas Reader. This reader is calibrated weekly and immediately prior (same day) to processing environmental TLDs. The reader is calibrated in generic units (gU) using calibration dosimeters irradiated to known exposures of Cs-137. Each group of environmental TLDs that is processed includes "blank"

unirradiated TLDs and processing control dosimeters irradiated by PNNL to a known quantity of Cs-137. In addition, "blind spiked" irradiated 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.

A file containing "raw" element readings in gU is generated when the Harshaw TLD reader processes the environmental TLDs. This file is used by Energy Northwest to calculate environmental doses. A relative response factor of 1 gU/mR is applied to convert the TLD response to the Roentgen equivalent reading, then background and transit doses measured by control TLDs are subtracted. Doses are reported in mrem and no correction to dose equivalent is applied.

The exposure values determined for calibration dosimeters, as well as the exposures of QA dosimeters (processing control dosimeters), are based on a National Institute of Standards and Technology (NIST) traceable Cs-137 source. The exposure values for the audit dosimeters (spiked dosimeters) are based on the calculated field strength of an Energy Northwest Cs-137 source. Ionization chamber measurements made during TLD exposure are used to confirm the calculated exposure. If the calculated exposure and the ionization chamber reading differ by 5% or more, an investigation is performed to resolve the difference.

A Reuter Stokes pressurized ionization chamber (PICs) provides additional capability for measuring direct radiation exposure. This unit is no longer part of the routine monitoring program, but it may be used in special monitoring situations and is maintained as back-up monitoring systems.

4.3.2 Airborne Particulate/Iodine

Air particulate and air iodine (I-131) samples were obtained through the use of portable, low volume (1.5 cfm) constant flow-rate sampling units at each of 12 locations. The samples drawn at Station 9A (Figure 4-2) were considered control samples; the ones drawn at the other locations (Figure 4-1) were indicator samples. Air particulate samples were collected by drawing air through a 47-mm diameter glass fiber filter. Air iodine samples were collected by drawing air through a 57-mm diameter TEDA impregnated charcoal cartridge. The particulate air filter and charcoal cartridge were placed in tandem, particulate filter first, in a holder that attached to the air inlet of the sampler unit. The sampler units were placed in ventilated metal weatherproof housings mounted on elevated platforms at each air sample location. The filter media are changed weekly and shipped to the analytical contractor for analysis within one or two days of collection.

4.3.3 Water

There were nine locations for water sampling in 2003: two for the evaluation of river/drinking water, one for plant discharge water, three for groundwater, one for the storm drain water, and two for sanitary waste water. One river/drinking water location, Station 26, was used for evaluation of the plant intake water. This sample location is also a drinking water sample since Columbia Generating Station draws its drinking water from the intake water. It is the river/drinking water control sample because of its location upstream of the plant discharge. Station 29 was used to evaluate the water at the nearest drinking water location, the Richland Water Treatment Plant. This station, 11 miles downstream of the discharge, is the indicator station for river/drinking water.

The ODCM requirement for a downstream water sample "near but beyond the mixing zone" was met by sampling water from Station 27, the plant 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. Water is drawn at this location because it was not feasible to perform flow-proportional composite sampling in the mixing zone area of the river downstream from the plant discharge point. The Station 27 sample is also an indicator sample.

Composite samplers are installed at the Columbia River pumphouse to monitor the plant intake water (Control Station 26), and the cooling tower discharge line (Station 27). There is also a composite sampler at the other drinking water location (Station 29). The samplers collect 25-ml aliquots of water at regular intervals of time or flow. Non-routine analyses of the drinking water samples include strontium-90 and iodine-131 analyses. Strontium-90 analysis is required when the gross beta activity exceeds either eight pCi/liter or ten times the mean of the previous three months' activity for a specific location. Iodine-131 analysis is required when the dose calculated for the consumption of water exceeds one millirem per year. During 2003, neither of these analyses was required.

Three wells within the vicinity of Columbia Generating Station are used as groundwater sampling locations. These include a deep well on the Columbia Generating Station site (Station 52, 0.1 mile north of the Reactor Building) and two wells on the WNP-1 site (Station 31 and Station 32, 1.2 miles downgradient from Columbia Generating Station). Water from the Columbia Generating Station well can be used as a backup source for drinking and fire protection. Water from the WNP-1 wells supplies the drinking and fire protection water for the WNP-1 site. Although none of these wells draw from the unconfined aquifer, they are considered indicator samples. Quarterly grab samples were collected from each of these wells. One gallon (3.8 liters) was collected from each well for gamma analysis and one liter was drawn for tritium analysis.

Water samples were collected from the storm drain outfall (Station 101) using a flow-proportional composite sampler. These samples were analyzed for gross beta, gamma and tritium.

Since April of 1997, the SWTF has been receiving sanitary waste from the DOE 400 Area. Energy Northwest installed a flow meter and composite sampler on the 400 Area sewer line just above where the 400 Area/Plant Support Facility (PSF) intertie is located. This sampler (Station 102A) takes a flow-proportional composite sample that was collected and analyzed monthly as required by EFSEC Resolution No. 300.[16] Gross alpha and beta analysis, tritium analysis, and gamma analysis were performed on each sample. Another automatic water sampler is located at the headworks of the SWTF (ST102B) where a monthly composite sample is taken. This sample has gross alpha, gross beta, gamma and tritium analyses performed on it. The sampler is programmed to sample each time the lift station pumps waste into the headworks.

4.3.4 Soil

As required by the Site Certification Agreement (EFSEC Resolution No. 260[6]), an annual soil sample was collected at the indicator stations 1, 7, 21 and 23. One sample was collected at the control location, Station 9A (Figure 4-2).

Each sample was collected from an area of approximately one square foot to a depth of approximately one inch. Approximately two kilograms of soil were collected in each sample.

Soil samples were shipped to the analytical contractor after collection and analyzed for gamma activity. If the gamma isotopic analysis indicates that cesium levels in any of the indicator samples exceeds ten (10) times the level in the control sample, a strontium analysis is performed on the sample(s). Strontium analysis was required for Station 1, Station 7, and Station 23 during 2003.

4.3.5 Sediment

The collection of river sediment samples occurred in March and again in October. The collection of the upstream sediment sample (Station 33) was from a location approximately two miles upriver from the plant discharge. The downstream sample (Station 34) was collected approximately one mile downstream of the plant discharge. Each sample consisted of approximately two kilograms of the shallow surface sediment scooped from below the waterline. The samples were shipped to the analytical contractor.

As required by EFSEC Resolution No. 299,[17] two-kilogram sample of dried cooling tower sediment was collected from the sediment disposal cell (Station 119B, Figure 4-3) within thirty days of the completion of cleaning the cooling towers. In 2003, the cooling towers were cleaned once, hence, only one sample was collected for gamma spectrometry analysis.

4.3.6 Fish

The annual fish sampling was performed in late September and early October. Fish samples collected from the Columbia River (Station 30 in Figure 4-1) were indicator samples, whereas the fish collected on the Snake River (Stations 38 and 38A in Figure 4-2) were control samples.

Three separate fish samples, consisting of an anadromous species such as salmon, and two other species generally considered edible or potentially edible (such as carp, catfish and whitefish) were collected at each location. The fish were collected using electro-shocking except for the samples of the anadromous species, which were collected from the Ringold Fish Hatchery on the Columbia River and at the Lyons Ferry Fish Hatchery on the Snake River. The fish were filleted to obtain approximately one kilogram of edible flesh per sample. The fillets were placed in clean plastic bags and frozen until shipment to the analytical contractor. Fish are sampled annually unless elevated radiation levels related to plant operations are observed, in which case sampling is conducted semiannually.

4.3.7 Milk

Milk samples were collected monthly January through March and October through December and twice a month during the spring and summer months when cows were likely to be grazing or on fresh feed. Enough raw milk was collected from each sampling location to obtain a one-gallon sample after the cream had been skimmed off. The samples were refrigerated overnight and the cream skimmed off the next morning. The milk samples were chilled and shipped to the analytical contractor within a day of collection.

Routine samples were collected from two indicator locations (Stations 36 and 64) across the Columbia River in Franklin County. Milk samples were also collected at one indicator station

(Station 9B) in the Sunnyside/Grandview area (Figure 4-2). Station 9B in Sunnyside serves as an indicator station because a portion of the feed for the cows at that location is hay from Franklin County north of Pasco and downwind from Columbia Generating Station. That factor makes it unsuitable for use as a control location. Beginning in August 1998, samples of feed grown at Station 9B were collected monthly (labeled as Station 9G) as a substitute for the lost control station, which ceased operation in March 1998. Other dairies in the area have been checked for suitability as a new control location and were eliminated due to their use of feed grown in Franklin County. In June, access to Station 64 was limited by the dairy owner and sampling was terminated. There are no other dairies available within the 10-mile radius of the plant.

4.3.8 Garden Produce

Samples of local garden produce were collected monthly from April to September when the produce was readily available. When possible, three types of produce samples (a root crop, fruit, and a leafy vegetable) were collected at each location. The indicator samples were collected from a region in a predominant downwind direction (Station 37) where crops are irrigated with Columbia River water. The control samples were 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 were collected in September from Station 91, the Rio Vista Farms orchard, which is irrigated with Columbia River water.

4.4 Analytical Procedures

Described below are the analytical procedures used for analysis of the 2003 REMP samples. Teledyne Brown Engineering Environmental Services performed all routine analyses of REMP samples during 2003.

4.4.1 Gross Beta Activity on Particulate Filters

The particulate filters were counted in a gas flow-proportional counter after a delay of five or more days to allow for the radon-222 and radon-220 (thoron) daughter products to decay. An unused air particulate filter was counted as the blank with each weekly set of filters.

4.4.2 Measurement of Gamma Emitters

A shielded HPGe detector system was coupled to a computer-based data acquisition system which performed pulse height and gamma energy analysis. The information collected about each energy peak was compared to a library of known energy peaks. Isotopic identification was performed, as was the radioactivity quantification, using the appropriate fractional gamma ray abundance, half-life, appropriate background corrections, detector efficiency, and net counts in the peak region.

Milk and Water

A one, three, three and a half, or four liter Marinelli beaker was filled with a representative aliquot of the sample. The sample was then counted for an appropriate amount of time to meet the LLD requirement with a shielded high purity germanium (HPGe) detector coupled to a VAX-based data acquisition system that performs pulse height analysis.

Foodstuff

As much of the edible portion of the sample as possible was placed into a tared Marinelli beaker and weighed. The sample was then counted for an appropriate amount of time to meet the LLD requirement.

Vegetation

As much sample as possible was placed in a tared one-liter Marinelli beaker and counted for an appropriate amount of time to meet the LLD requirements. The sample was not dried prior to counting, so the results are given in terms of wet weight.

Soils and Sediments

A large quantity of the sample was dried at a temperature of approximately 100°C. As much sample as possible was loaded into a tared container and weighed. The sample was then counted for an appropriate amount of time to meet the LLD requirements.

Charcoal Cartridges (Air Iodine)

Charcoal filters were counted up to five at a time, with one positioned on the face of a HPGe detector and up to four on the side of the HPGe detector. Each HPGe detector is calibrated for both positions. The detection limit for a charcoal cartridge was determined (assuming no positive I-131) uniquely from the volume of air that passed through it, the counting time, and the elapsed time between collection and analysis time. In the event that iodine-131 was observed in the initial counting of a set, each charcoal cartridge in the set would then be positioned separately on the face of the detector and counted. The calculation was done using a cartridge collection efficiency of 98%.

Air Particulate Filters

Air particulate filters from each field station are retained and are composited quarterly. The filters are aligned one in front of another and counted for an appropriate amount of time to meet the LLD requirements.

4.4.3 Gross Alpha and Gross Beta Activity in Water

A one-liter aliquot, more or less depending on the volume received, of each sample is evaporated to a small volume in a beaker and qualitatively rinsed into a 2-inch diameter stainless steel planchette that is stamped with a concentric ring pattern to distribute residue evenly. The final evaporation of the sample is done under heat lamps. Residue mass is determined by weighing the planchette before and after mounting the sample. The planchette is counted for alpha and beta activity on an automatic proportional counter. The results were calculated using empirical self-absorption curves, that allow for the change of effective counting efficiency caused the sample residue mass.

4.4.4 Iodine-131 in Water

Two to three liters of sample were first equilibrated with a stable iodide carrier. A batch treatment with anion exchange resin was used to remove iodine from the sample. The iodine was then stripped from the resin with sodium hypochlorite solution, reduced with hydroxylamine hydrochloride, and extracted into toluene as free iodine. It is then back-extracted as iodide into a sodium bisulfite solution and precipitated as palladium iodide. The precipitate was weighed for chemical yield and mounted on a nylon planchette for low-level beta counting. The chemical yield is determined on the mounted filters. During 2003, this procedure was used only on intercomparison samples, since the doses calculated by means of ODCM methodology for the consumption of drinking water did not exceed one millirem per year.

4.4.5 Tritium in Water

The analysis of tritium in water was performed utilizing liquid scintillation. Liquid scintillation requires 10 milliliters of water mixed with 10 milliliters of liquid scintillation "cocktail." The mixture is then counted in an automatic liquid scintillation detector.

4.4.6 Strontium-89 and 90 in Water, Milk and Soil

During 2003, strontium analysis was required for soil samples at Station 1, Station 7, and Station 23. No strontium analyses were required for any water or milk sample. It was also used in laboratory intercomparison programs for water and sediment analyses. The techniques used to analyze for strontium in the various media are described below.

Water

Stable strontium carrier was added to one liter of sample and the volume was reduced by evaporation. Strontium was precipitated as $Sr(NO_3)_2$ using fuming (90%) nitric acid. A barium scavenge and an iron (ferric hydroxide) scavenge was performed by addition of stable yttrium carrier and a minimum of five day period for yttrium ingrowth. Yttrium was then precipitated as hydroxide, dissolved and reprecipitated as oxalate. The yttrium oxalate was mounted on a nylon planchette and was counted in a low-level beta counter to infer Sr-90 activity. Strontium-89 activity was determined by precipitating $SrCO_3$ from the sample after yttrium separation. This precipitate was mounted on a nylon planchette and was covered with an 80 mg/cm^2 aluminum absorber for low-level beta counting.

Milk

Stable strontium carrier was added to 1-liter of sample and the sample was first evaporated, then ashed in a muffle furnace. The ash was dissolved and strontium was precipitated as phosphate, then was dissolved and precipitated as $SrNO_3$ using fuming (90%) nitric acid. A barium chromate scavenge and an iron (ferric hydroxide) scavenge was then performed. Stable yttrium carrier was added and the sample was allowed to stand for a minimum of 5 days for yttrium ingrowth. Yttrium was then precipitated as hydroxide, dissolved and then re-precipitated as oxalate. The yttrium oxalate was mounted on a nylon planchette and counted in a low-level beta counter to infer Sr-90 activity. Strontium-89 was determined by precipitating $SrCO_3$ from the sample after yttrium separation. This precipitate was mounted on a nylon planchette and covered with an 80 mg/cm^2 aluminum absorber for low-level beta counting.

Soil and Sediment

The sample was first dried under heat lamps and an aliquot was taken. Stable strontium carrier was added and the sample was leached in hydrochloric acid. After filtering the mixture, strontium was precipitated from the liquid portion as phosphate. Strontium was precipitated as $Sr(NO_3)_2$ using fuming (90%) nitric acid. A barium chromate scavenge and an iron (ferric hydroxide) scavenge were then performed. Stable yttrium carrier was added and the sample was allowed to stand for five days or more for yttrium ingrowth. Yttrium was then precipitated as hydroxide, dissolved and reprecipitated as oxalate. The yttrium oxalate was mounted on a nylon planchette and counted in a low-level beta counter to infer strontium-90 activity. Strontium-89 activity was determined by precipitating $SrCO_3$ from the sample after yttrium separation. This precipitate was mounted on a nylon planchet and covered with an 80 mg/cm^2 aluminum absorber for low-level beta counting.

4.4.7 Iodine-131 in Milk

Three liters of sample were first equilibrated with stable iodide carrier. A batch treatment with anion exchange resin was used to remove iodine from the sample. The iodine was then stripped from the resin with sodium hypochlorite solution, reduced with hydroxylamine hydrochloride, and extracted into carbon tetrachloride as free iodine. It was then back-extracted as iodide into sodium bisulfite solution and precipitated as palladium iodide. The precipitate was weighed for chemical yield and mounted on a nylon planchet for low-level beta counting. The chemical yield was corrected by measuring the stable iodide content of the milk with a specific ion electrode.

4.5 Data Analysis Methods

Since mid-1984, the results of the REMP analyses have been presented as net results calculated from the gross or total counts determined for each radionuclide minus the background counts of the counting or detection instrument. Consequently, for several sample types, the results range from negative to positive numbers. This manner of presenting environmental data prevents the bias and loss of individual results inherent in the use of "less than" (<) values, where the "less than" numbers can have a variety of meanings, such as "less than the lower limit of detection (LLD)."

A listing of the LLDs determined for each analysis is provided in Table 4-4 as a reference when reviewing the sample results.

Plots of the sample results versus time are used to represent the results for analyses such as gross beta on air particulate filters, where the results are normally above the lower limits of detection. In such cases, the indicator station results are plotted with the control station results for easy comparison. Other data analysis techniques, such as frequency distributions, are also used to represent the data and to determine whether trends that could be attributed to Columbia Generating Station operations are evident.

Thermoluminescent dosimeter (TLD) data is presented in terms of the net mrem/day exposure rate. These results are determined from the total exposure (in mrem) calculated for each TLD from its total thermoluminescent output minus the TLD background, minus any transit (or trip) exposure received during distribution and retrieval, and divided by the number of days the TLD was in the field. Frequency distributions and graphs of TLD data by meteorological sector and distance from the plant are used to interpret trends in the results.

The TLD data summaries include the term "standard error." The standard error, which is the estimate of the precision of the mean, is used for the means of quarterly and annual data and is an indicator of the uncertainty associated with the results. The mean results of the quarterly TLDs are compared with the results of annual TLDs and expressed as a ratio by dividing the quarterly results by the annual result.

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 (by location) Iodine: Weekly gamma analysis.
	Soil[g](0/7)	9A, 1, 7, 21 and 23	Annually	Gamma isotopic[f]; strontium-90[h] Gamma isotopic
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] (3/4)	26, 27 and 29	Composite aliquots[m]; monthly collection	Gamma isotopic[f], gross beta, quarterly; tritium composite; strontium-90[n]; 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
	River Sediment (1/2)[q]	33 and 34	Semiannually	Gamma isotopic[f]
	Sanitary Waste Treatment Facility Sediment (0/1)	102	Annually	Gamma Isotopic[f]
	Cooling Tower Sediment Disposal Area	119B	Within 30 days following Cooling Tower cleaning event	Gamma Isotopic[f]
4.	**INGESTION**			
	Milk[r] (3/3)	9B, 9G[s], 36, 64	Semimonthly during grazing season, monthly at other times	Gamma isotopic[f]; iodine-131; strontium-90[t]
	Fish[u] (0/2)	30, 38	Annually[v]	Gamma isotopic[f]
	Garden Produce[w] (1/3)	9C, 91[x] and 37	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 (cont.)
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM PLAN

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. The SCA also requires certain numbers of sampling stations for each type of media.

(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) The SCA requires nine or more air sampling stations.

(e) Particulate sample filters will be analyzed for gross beta after at least 24 to 48 hours to allow for the decay of radon daughter products. 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.

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

(g) Soil samples are collected to satisfy the requirements of the SCA for Columbia Generating Station. The SCA requires that soil samples be collected at five air-sampling locations.

(h) Strontium-90 analysis shall be performed on any indicator soil sample having cesium results greater than ten times the results for the control location.

(i) TLD refers to thermoluminescent dosimeter. For purposes of the REMP, a TLD is a phosphor card with multiple read-out areas in each badge case. TLDs used in the REMP meet the requirements of Reg Guide 4.13[5] and ANSI N545-1975, except for specified energy-dependence response. Correlation factors are available for energy ranges with response outside of specified tolerances.

(j) TLD Stations 71-86 are special interest stations and are not included among the 34 routine TLD stations required by the ODCM Table 6.3.1-1). Their alternate designations are 1S-16S. The SCA requires that 25 or more TLD stations are located within a 10-mile radius of the plant.

(k) Pressurized ion chambers (PICs) are required by EFSEC Resolution No. 260 to be maintained as a supplemental or backup system. PICs were used at various locations during 2003 to provide supplemental information.

(l) The term "river/drinking water," instead of "surface/drinking water," is used throughout this report because the surface water is taken from the Columbia River. Station 26, Columbia Generating Station makeup water intake from the Columbia River is both an upstream surface, or river, water sample and the drinking water control sample location. The Station 29 sample 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. The SCA 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. Station 101, the storm drain pond, and Station 102, the Sanitary Waste Treatment Facility, are unique sampling locations.

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

(n) When the gross beta activity in drinking water exceeds 8 pCi/liter, a strontium-90 analysis is performed.

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

(p) The SCA requires sampling from wells used for fire protection and as backup drinking water sources.

(q) The SCA 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 Columbia Generating Station. Routine milk samples are collected in areas of high dose potential instead of within 5 kilometers, due to the locations of milk animals. The SCA requires at least three milk locations within the 10-mile radius of the plant and one in a control location. Energy Northwest currently has access to only one dairy within a 10-mile radius of the plant (Station 36). Sampling at Station 64 was terminated in June 2003.

(s) Samples of feed for dairy animals are collected at Station 9G in lieu of milk at a control station. The dairy cattle at Station 9B are not suitable for use as a control because a portion of their feed comes from the Franklin County area across the Columbia River from Columbia Generating Station.

TABLE 4-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM PLAN

FOOTNOTES (cont.):

(t) If cesium-134 or cesium-137 is measured in an individual milk sample in excess of 30 pCi/l, then the strontium-90 analysis will be performed.

(u) There are no species fished commercially while in the Hanford Reach of the Columbia River. The most recreationally and commercially important species in the area are anadromous (primarily salmonids), which ascend rivers from the ocean for breeding. Three fish species are normally obtained from hatcheries due to their threatened status. Snake River samples are obtained from the Lyons Ferry Fish Hatchery. The Columbia River samples are obtained at the Ringold Fish Hatchery.

(v) If an impact is indicated, sampling will be conducted semiannually.

(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.

TABLE 4-2
REMP SAMPLE STATIONS AND REQUIREMENTS

SECTOR[a]	STATION[b] NUMBER	DISTANCE[c]	ODCM[d]	STATE[e]	OTHER[f]
N (1)	52	0.1	GW		
	71(1S)	0.3			TLD
	47	0.7		TLD	
	57	0.7	AP/AI		
	18	1.1	TLD	TLD	
	53	7.6	TLD		
NNE (2)	72(2S)	0.4			TLD
	2	1.8	TLD	TLD	
	54	6.1	TLD		
NE (3)	101	0.2			SW
	73(3S)	0.5			TLD
	19	1.8	TLD	TLD	
	48	4.6	AP/AI		
	46	5.0	TLD		
ENE (4)	74(4S)	0.4			TLD
	21	1.5		TLD, AP/AI, SO	
	20	1.9	TLD	TLD	
	11	3.1		TLD	
	33	3.6		SE	
	45	4.5	TLD		
	44	5.9	TLD		
E (5)	75(5S)	0.4			TLD
	22	2.1	TLD		
	10	3.1	TLD	TLD	
	26	3.2	SW, DW	SW	
	27	3.2		Dis W	
	30	3.3	FI	FI	
	43	5.6	TLD		
ESE (6)	76(6S)	0.4			TLD
	31	1.1	GW	GW	
	32	1.2		GW	
	51	2.1	TLD		
	23	3.0		TLD, AP/AI, SO	
	34	3.5	SE	SE	
	8	4.4	TLD, AP/AI	TLD, AP/AI	
	91	4.3		GP	
	42	5.8	TLD		
	36[g]	7.2	MI	MI	

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

SECTOR[a]	STATION[b] NUMBER	DISTANCE[c]	ODCM[d]	STATE[e]	OTHER[f]
ESE (6)(cont.)	5	7.7	TLD	AP/AI	
	38	26.5	FI	FI	
SE (7)	77(7S)	0.5			TLD
	24	1.9	TLD	TLD	
	3	2.0		TLD	
	41	5.8	TLD		
	40	6.5	TLD, AP/AI		
SSE (8)	119-Control	0.2		TLD	
	120	0.3			TLD
	102B	0.5		SFW	
	102D	0.5			SFW, SE
	78(8S)	0.7			TLD
	25	1.6	TLD	TLD	
	55	6.2	TLD		
	64	9.7	MI	MI	
	4	9.9	TLD, AP/AI	TLD, AP/AI	
	29	11.0	DW	DW	
	37B	16.0	GP	GP	
	37A	17.0		GP	
S (9)	119B	0.2		TLD, SE	
	102A	0.6		SFW	
	79(9S)	0.7			TLD
	1	1.2	TLD	TLD, AP/AI, SO	
	6	7.7	TLD	AP/AI	
	65	8.8			TLD
SSW (10)	80(10S)	0.8			TLD
	50	1.2	TLD	TLD	
	56	7.0	TLD		
SW (11)	13	1.4	TLD	TLD	
	81(11S)	0.7			TLD
WSW (12)	82(12S)	0.5			TLD
	14	1.4	TLD	TLD	
	9A	28.3	TLD, AP/AI	TLD, AI/AP	
	9B, 9G	32.7	MI, VE[h]	MI, VE[h]	
	9C	32.3	GP	GP	
W (13)	83(13S)	0.5			TLD
	15	1.4	TLD	TLD	
WNW (14)	84(14S)	0.5			TLD

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

SECTOR[a]	STATION[b] NUMBER	DISTANCE[c]	ODCM[d]	STATE[e]	OTHER[f]
WNW (14) (cont.)	16	1.4	TLD	TLD	
	7	2.8	TLD	TLD, AP/AI, SO	
NW (15)	85 (15S)	0.5			TLD
	49	1.2	TLD	TLD	
NNW (16)	121	0.1		TLD	TLD
	122	0.3		TLD	TLD
	123	0.3		TLD	TLD
	124	0.3		TLD	TLD
	125	0.3		TLD	TLD
	126	0.3		TLD	TLD
	127	0.3		TLD	TLD
	128	0.3		TLD	TLD
	129	0.3		TLD	TLD
	136A	0.3		TLD	TLD
	137A	0.3		TLD	TLD
	138A	0.3		TLD	TLD
	86(16S)	0.4		TLD	TLD
	17	1.2	TLD	TLD	
	12	6.1		TLD	

SAMPLE TYPE KEY:

AI/AP - Air Iodine/Air Particulate
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 Columbia Generating Station 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 estimated from map positions for each location as a radial distance from Columbia Generating Station reactor building.

(d) ODCM - Offsite Dose Calculation Manual Table 6.3.1-1 requirement.

(e) State of Washington Site Certification Agreement requirements.

(f) OTHER –Special study stations. TLD Stations 121 through 138A 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 37.

(h) Broadleaf vegetation collected in lieu of milk from a control station.

Table 4-3
2003 FIVE MILE LAND USE CENSUS RESULTS

SECTOR[a]	NEAREST RESIDENT[b]	GARDEN (>50M^2)	DAIRY[c] ANIMALS	LIVESTOCK
NE	4.3	none	none	none
ENE	4.1	4.1	none	5.0
E	4.5	none	none	none
ESE	4.2	none	none	none
SE	4.5	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. The WNP-1 and WNP-4 sites are not part of the five-mile land use census due to the fact that the REMP sample stations were originally sited to incorporate all three sites.

(b) Estimated distances in miles from Columbia Generating Station Reactor Building.

(c) The closest dairy animal locations are at 8.3 miles SE and 7.2 miles ESE and 9.7 miles SSE. The dairy at 8.3 miles SE is not used for milk sample collection due to the owner's reluctance to participate in the sampling program. Samples were collected at the Station 64 (9.7 miles SSE) until June 2003. Sampling was terminated when the dairy owner limited the ability to sample. Station 36 is the dairy located 7.2 miles ESE.

Table 4-4

COMPARISON OF TELEDYNE NOMINAL LOWER LIMITS OF DETECTION WITH OFFSITE DOSE CALCULATION MANUAL[8] REQUIREMENTS

MEDIA (UNITS)	ANALYSIS	TELEDYNE LLDs[a]	ODCM REQUIRED LLDs
Air	Gross Beta	0.003	0.01
(pCi/m^3)	Gamma Spectrometry		
	Cs-134	0.001	0.05
	Cs-137	0.001	0.06
	I-131	0.01	0.07
Water:	Gross Beta	4	4
(pCi/l)	Tritium	300	2000[b]
	I-131	1	---
	Sr-90	1	---
	Gamma Spectrometry		
	Mn-54	10	15
	Fe-59	20	30
	Co-58	10	15
	Co-60	10	15
	Zn-65	20	30
	Zr-95[c]	15	15
	Nb-95	10	15
	Cs-134	10	15
	Cs-137	10	18
	Ba-140[c]	15	15
	La-140	10	15
Soil/Sediment:	Gamma Spectrometry		
(pCi/kg dry)	Co-57	120	---
	Co-60	30	---
	Zn-65	100	---
	Cs-134	30	150
	Cs-137	40	180
	Sr-90	10	---
Fish:	Gamma Spectrometry		
(pCi/kg wet)	Mn-54	20	130
	Fe-59	30	260
	Co-58	20	130
	Co-60	20	130
	Zn-65	30	260
	Cs-134	20	130
	Cs-137	20	150
Milk:	I-131	0.5	1
(pCi/l)	Gamma Spectrometry		
	Cs-134	10	15
	Cs-137	10	18
	Ba-140[c]	15	15
	La-140	10	15
	Sr-90	1	---
Garden Produce:	Gamma Spectrometry		
(pCi/kg wet)	Cs-134	20	60
	Cs-137	20	80
	I-131	30	60

[a] These are the contract LLDs. Actual LLDs may be lower for specific samples.

[b] If no drinking water pathway exists, a value of 3,000 pCi/l may be used.

[c] The LLDs for these nuclides were changed in 2002. The Teledyne contract did not reflect the change in 2003. Refer to section 5.10.

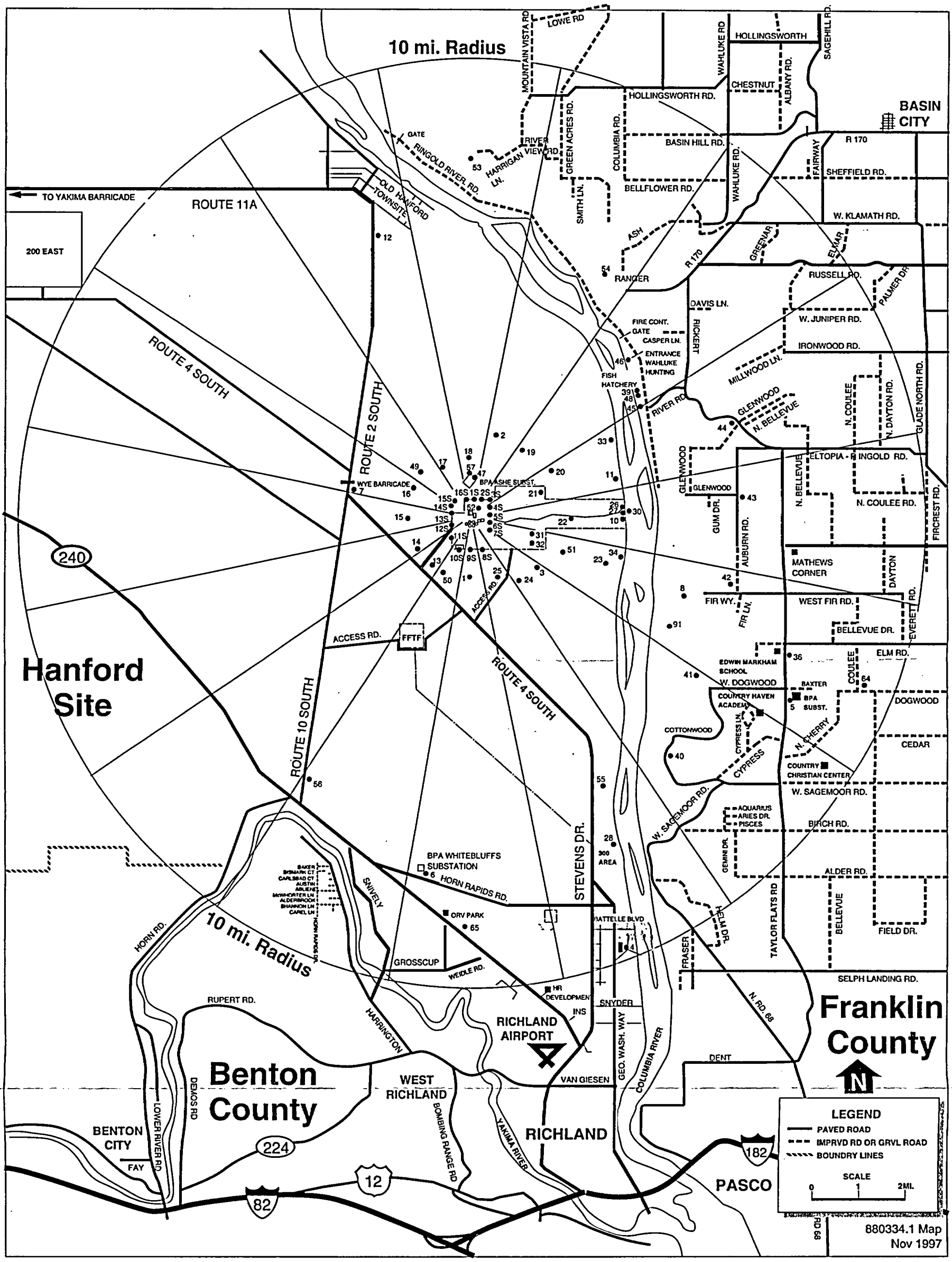


FIGURE 4-1 REMP SAMPLING LOCATIONS WITHIN THE 10-MILE RADIUS

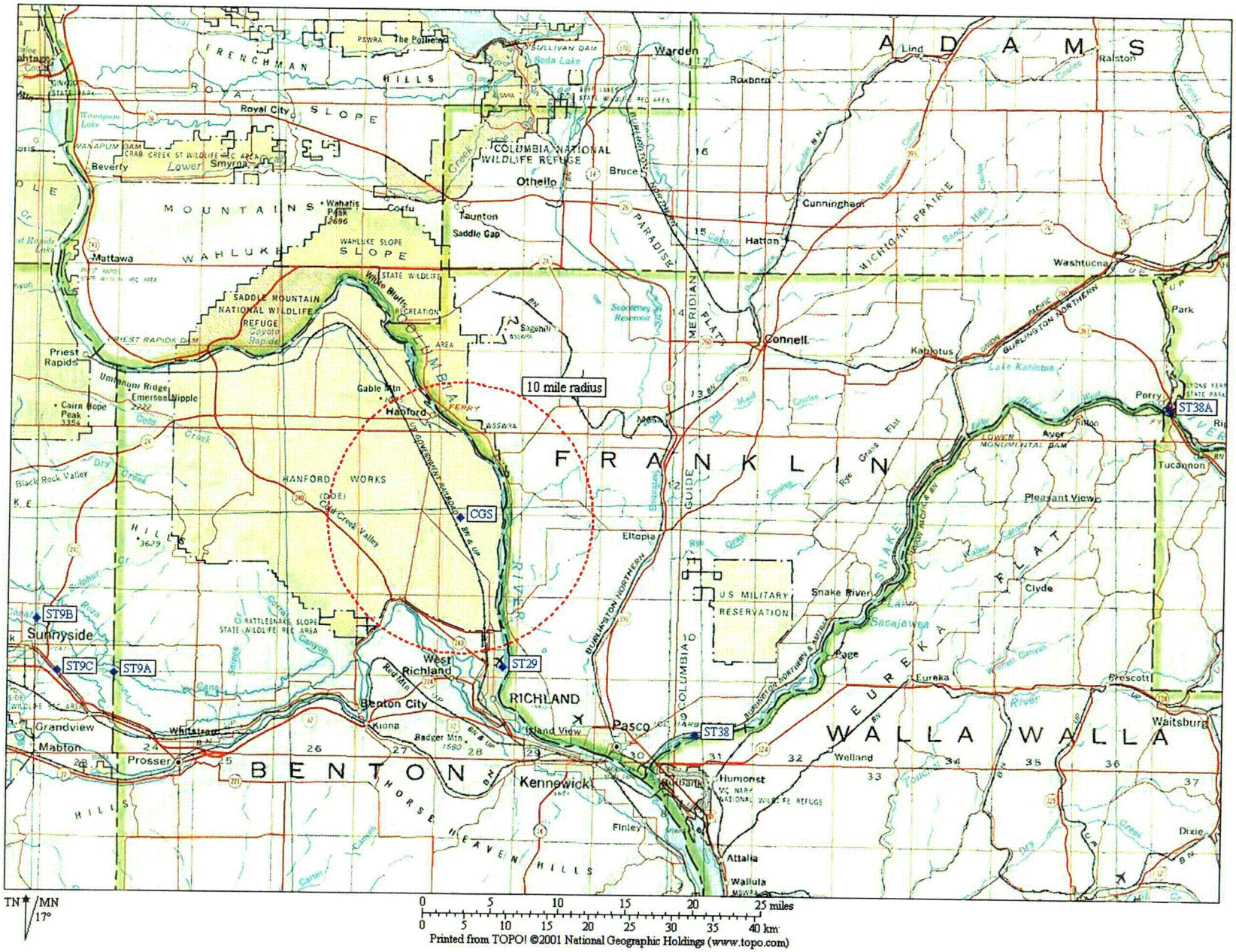


FIGURE 4-2 REMP SAMPLING LOCATIONS OUTSIDE THE 10-MILE RADIUS
(NOTE: Station38A is the Lyons Ferry Hatchery)

C01

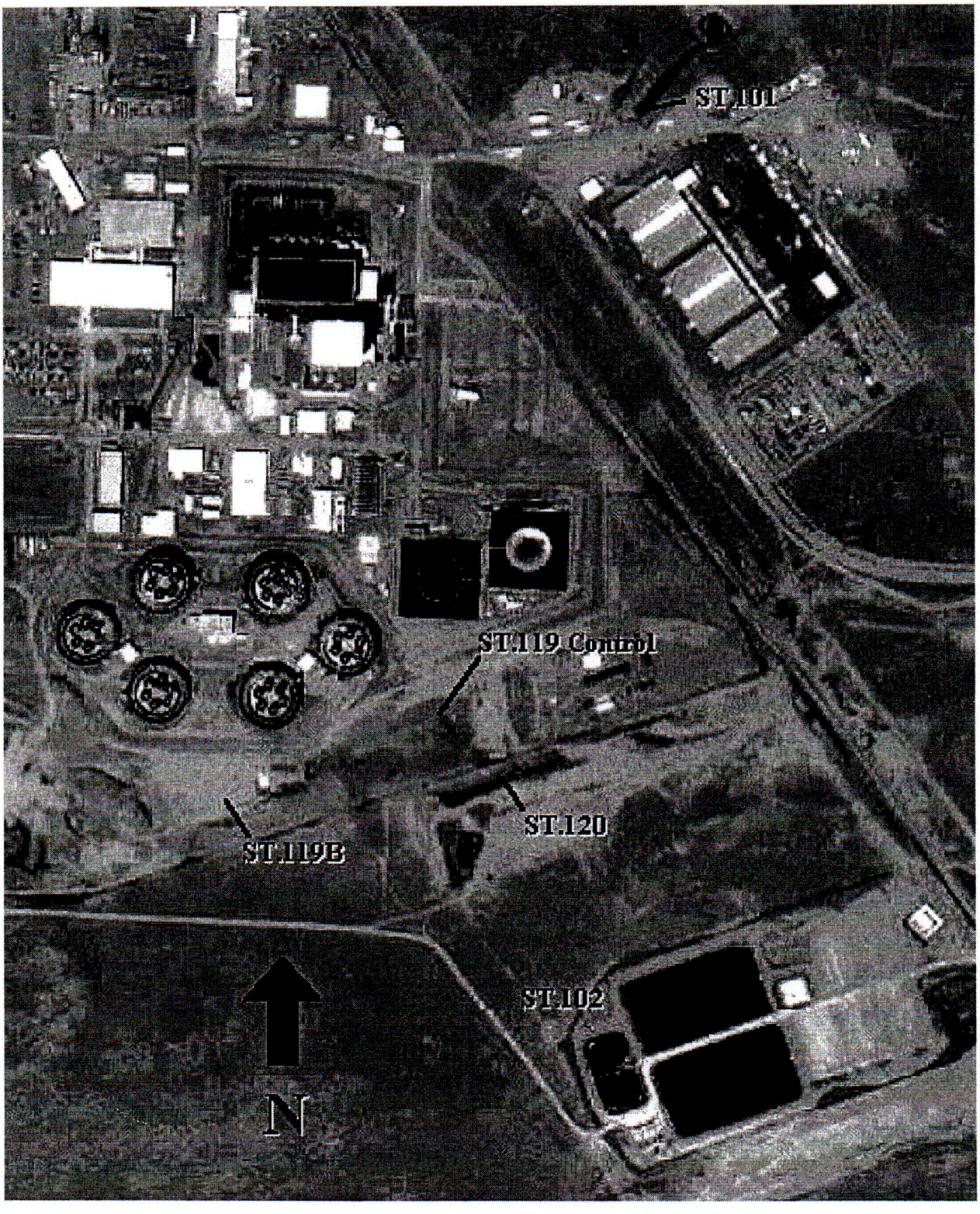


FIGURE 4-3 REMP NEAR PLANT SAMPLING LOCATIONS
ST102A (APPROXIMATELY 0.25 MI SOUTH). ST102 IN PICTURE IS BOTH 102B AND 102D.

C02

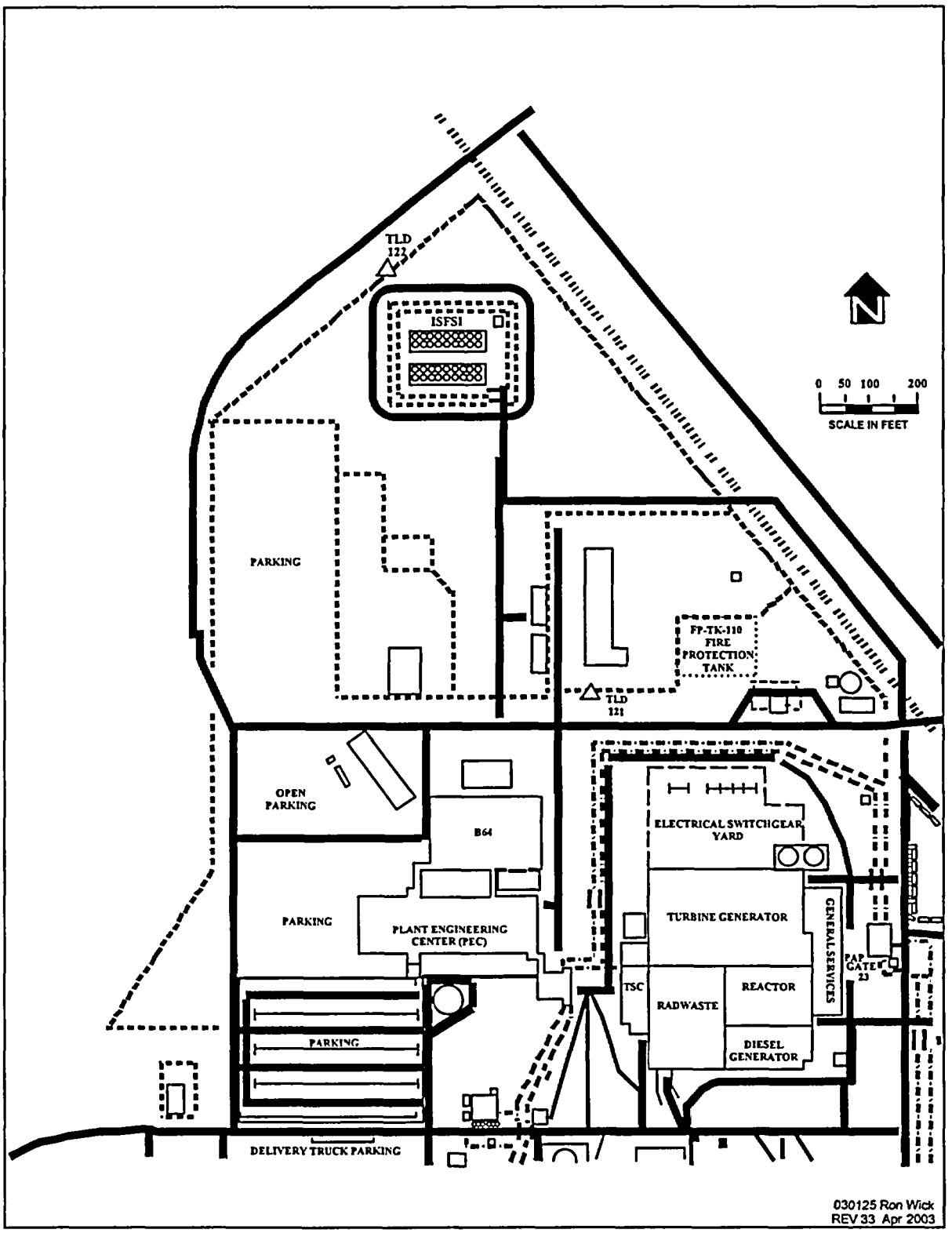


FIGURE 4-4 TLD STATIONS 121 AND 122 LOCATIONS

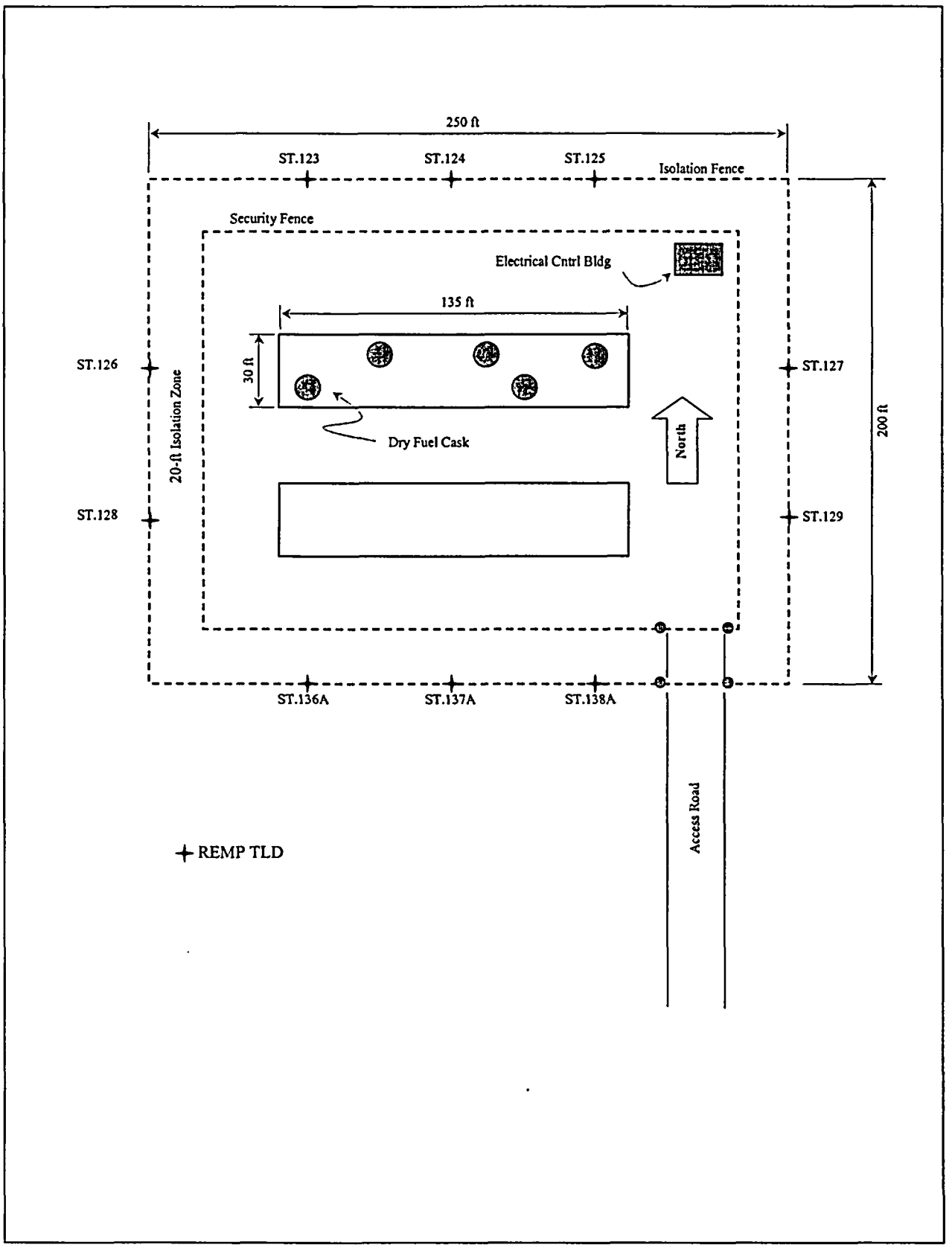


FIGURE 4-5 ISFSI TLD STATIONS LAYOUT

5.0 RESULTS AND DISCUSSION

5.0 RESULTS AND DISCUSSION

The analyses of REMP samples were performed by Teledyne Brown Engineering Environmental Services in Knoxville, Tennessee. Battelle Pacific Northwest National Laboratory in Richland, Washington processed the environmental TLDs. Table 5-2 provides a summary of detectable results. The table includes the mean of the detectable results at all indicator stations along with the location with the highest mean and the mean at the control location. The data tables of 2003 results comprise a separate volume that is available to interested parties upon request.

The analytical data for the preoperational period and the first six months of 1984 included "less than" (<) designations for results below the actual LLD, the contractual LLD, or the two-sigma error, depending upon the convention employed by the analytical contractor. Consequently, the data averages using "less than" values are biased high. Since mid-1984, REMP data have been reported as net results (i.e. the detector counting background is subtracted from the gross results).

The primary focus of the REMP is to determine whether Columbia Generating Station operations had an impact on the environment. The 2003 results are compared in this report to the results from the preoperational period and to results from previous years of Columbia Generating Station's operation. Results are also compared to state and federal regulatory limits. Because of the use of "less than" values, rather than net results, during the preoperational period and during the first year of operation, and because of the impact of the 1986 Chernobyl accident on environmental radiation levels, the interpretation of the 2003 measurements relative to previous measurements must bear this in mind. Some of the parameters considered in the evaluations discussed in this report are the means, ranges and standard deviations or standard errors of the results. Comparative plots and frequency distributions of the data are some of the tools that have been employed in the interpretation of the 2003 REMP data.

The analytical results for the REMP sampling locations during 2003 are very similar to the results reported for previous years. The 2003 annual and quarterly TLD results were also very much like those observed previously. No significant trends indicating an environmental impact or unexpected change in the environmental concentrations or exposure rates at REMP monitoring stations were observed.

5.1 Direct Radiation

Environmental radiation exposure rates at near plant and remote stations, as determined using thermoluminescent dosimeters (TLDs), remained consistent with data from previous years.

Figure 5-1 presents a plot of the 2003 mean quarterly TLD results for each of the sixteen meteorological sectors at the property boundary of the plant ("S" stations). The chart also includes the high, low and mean result in each sector for 1984 through 2002.

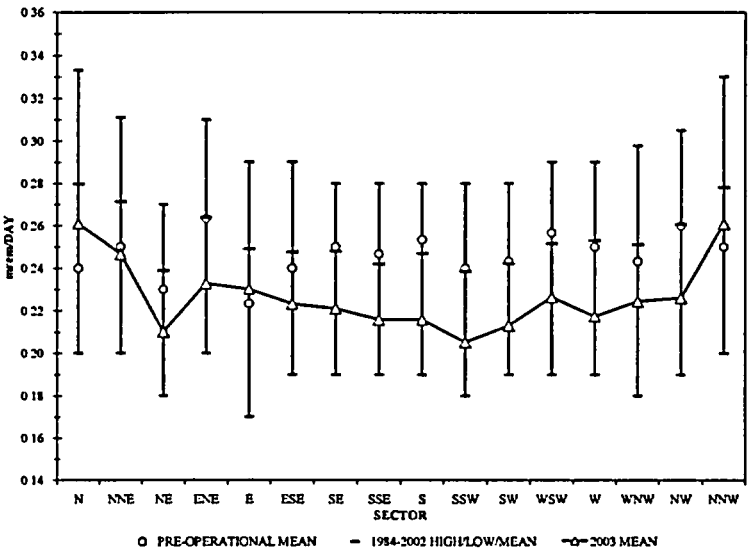


Figure 5-1 Site Boundary Quarterly TLDs 1984-2002 Hi/Low/Mean vs. 2003 Mean by Sector

The relationship of the mean 2003 results to the results for the previous operational periods is very similar for each sector. This indicates that there were no significant directional effects observed in the 2003 TLD results. The environmental radiation exposure rates, as determined by TLDs are summarized in Tables 5-3 and 5-4.

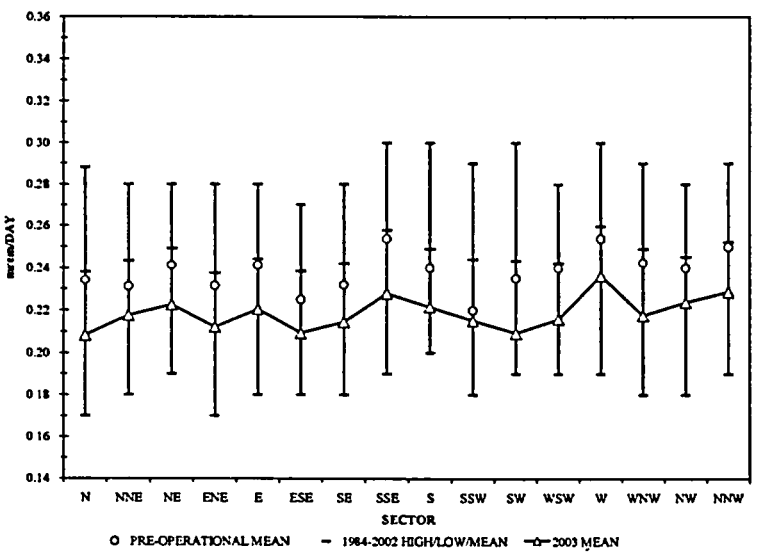


Figure 5-2 Inner Circle Quarterly TLDs 1984-2002 Hi/Low/Mean vs. 2003 Mean by Sector

"S" station TLDs in the N, NNE, and NNW sectors show higher exposures rates as a result of those stations being physically closer to the plant than the TLDs of the other "S" station.

Exposure rates from the inner circle of TLDs are presented in Figure 5-2. The exposure rates observed in the 2003 inner circle, which are located at distances between 0.9 and 2.1 miles from the plant, closely follows the preoperational mean in most sectors

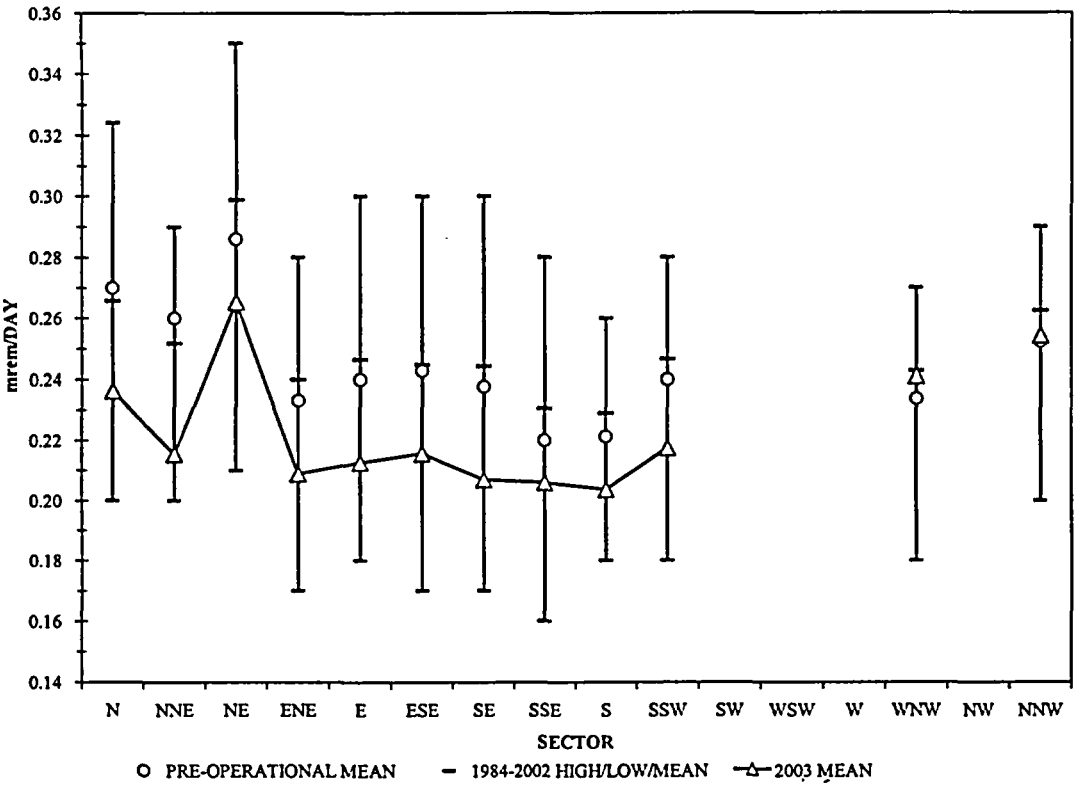


Figure 5-3 Remote Quarterly TLDs 1984-2002 Hi/Low/Mean vs. 2003 Mean By Sector

For the remote TLDs, Station 46 in the Wahluke Reserve (NE sector) remained the location with the highest mean exposure rate, as shown in Figure 5-3. Since the preoperational measurement phase, the results for this location have exceeded the results for all other locations except those located at the ISFSI. Variations in the soil and underlying rock composition most likely account for localized differences such as those shown in the TLD results for Station 46. The mean of the four quarterly results for Station 46 was 0.27 mrem/day, with a range of 0.24 mrem/day to 0.28 mrem/day.

Frequency distribution plots of the 2003 quarterly TLD results are presented in Figure 5-4. The plots varied slightly from quarter to quarter, with 0.22 mrem/day being the most frequent result, followed by 0.23 mrem/day and 0.21 mrem/day. The most frequent result for the period 1984 to 2002 was 0.25 mrem/day, followed by 0.26 mrem/day and 0.24 mrem/day. The frequency distributions for the previous operational TLD results are shown in Figure 5-5.

Presented in Table 5-5 is a comparison of the 2003 annual and mean quarterly TLD results. The 2003 annual TLD results are generally 5-10% lower than the mean quarterly results because of signal fade. This difference is not significant, in light of the variability commonly observed in TLD results. In most cases, the annual result is within the uncertainty associated with the quarterly TLD results. The quarterly 2003 TLD results are generally lower than the preceding year due to a recalculation of fade correction factor.

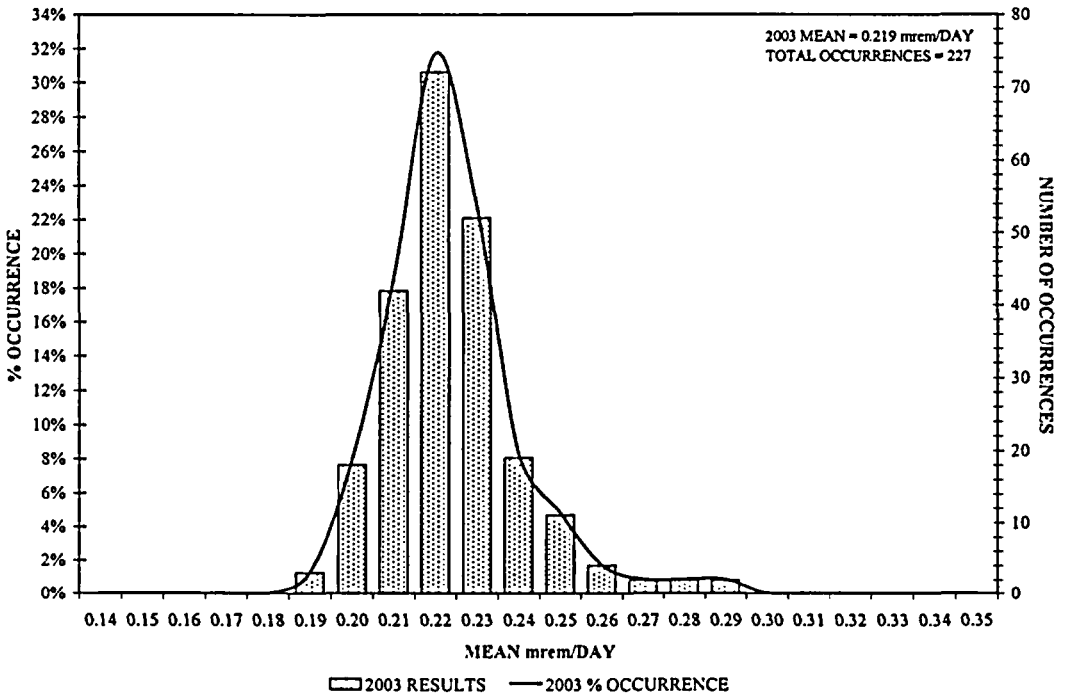


Figure 5-4 Frequency Distribution of 2003 Quarterly TLDs

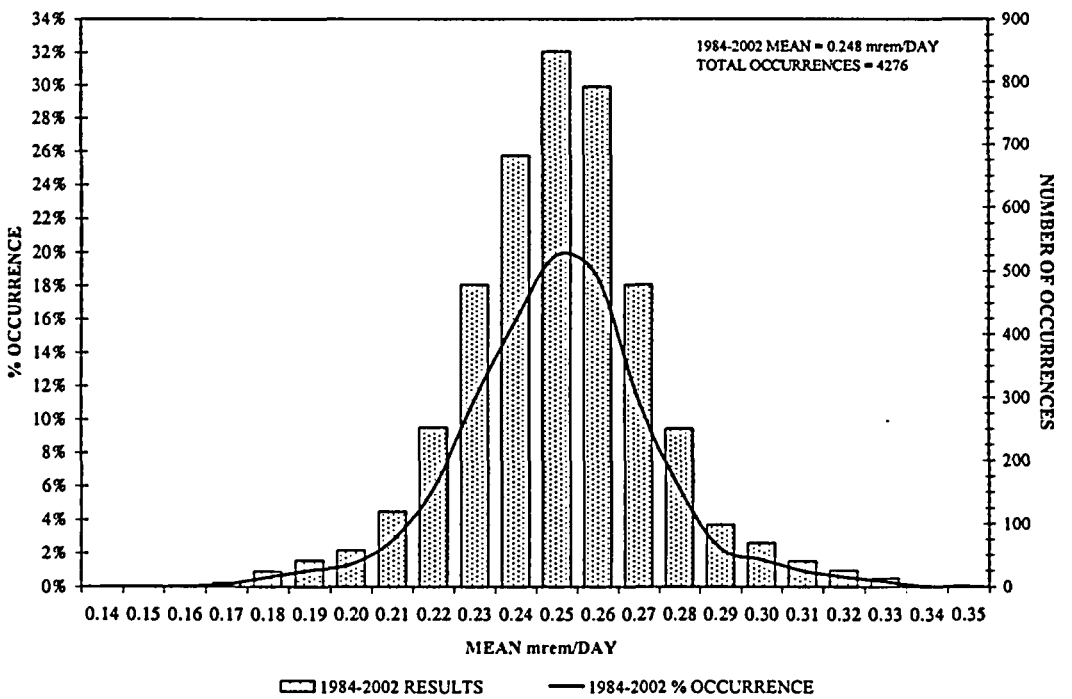


Figure 5-5 Frequency Distribution of 1984-2002 Quarterly TLDs

5.2 Airborne Particulate/Iodine

The 2003 mean weekly gross beta on particulate filter results for the inner ring indicator stations (within three miles) for Columbia Generating Station are plotted in Figure 5-6. The gross beta in air results for 2003 were within the ranges observed during the preoperational period and during previous operational periods. In Figure 5-7, the similarity between results from near-plant locations and those from remote locations can be seen. The control location (Station 9A) results follow a very similar pattern to the remote and near-plant indicator locations. As observed previously, gross beta levels increased during periods of inversion occurring in the fall and winter months. Gross beta results plotted over a period of several years show a cyclic pattern of fall and winter increases. The increase, which was evident in the results of all the air-sampling locations, is due to an increase in radon and radon daughter concentrations during the inversions.

The quarterly gamma analyses of the particulate filter composites indicated only the presence of two naturally-occurring radionuclides, beryllium-7 and potassium-40, at levels above detection limits at indicator locations and the control location. All iodine-131 in air results for 2003 were below the LLD.

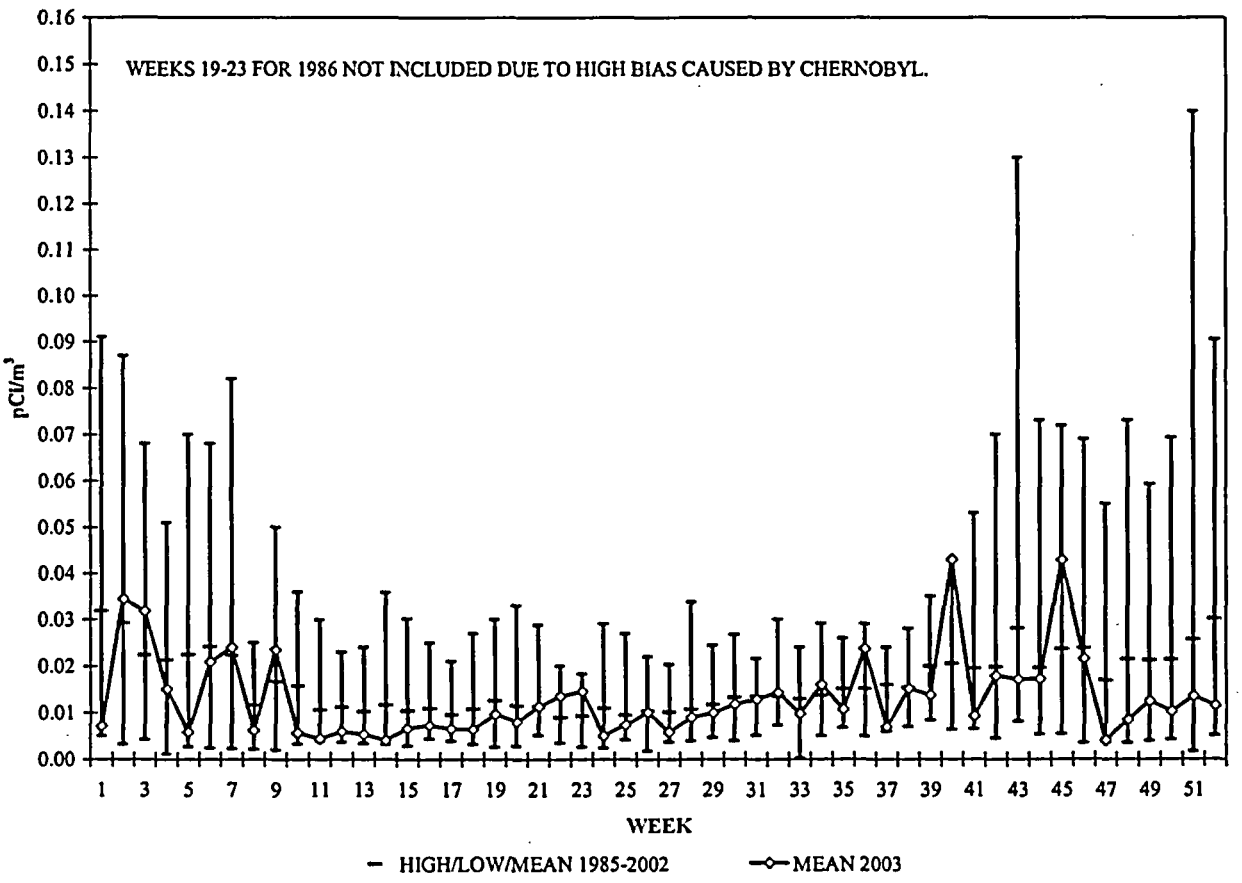


Figure 5-6 1985-2002 Weekly Hi/Low/Mean vs. 2003 Weekly Mean Gross Beta in Air - Near Plant Stations

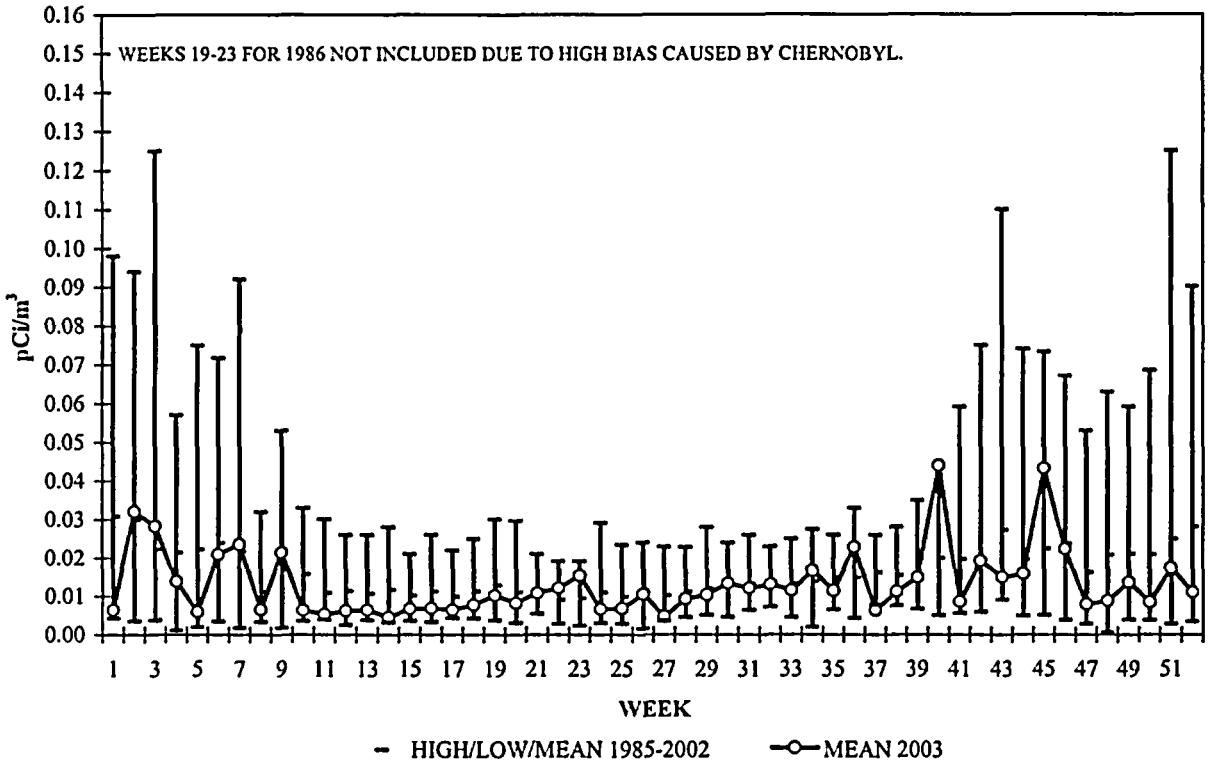


Figure 5-7 1985-2002 Weekly Hi/Low/Mean vs. 2003 Weekly Mean Gross Beta in Air - Remote Stations

No evidence of any impact of plant operations on the environment was apparent in the particulate filter and charcoal cartridge results for 2003.

5.3 Water

The gross beta results for river/drinking water were within the normally observed ranges. These results were less than the eight picocuries/liter (pCi/l) level at which a strontium analysis is performed to verify compliance with the Washington State drinking water standard for strontium-90. The 2003 gross beta concentrations in river/drinking water, relative to the state annual average concentration limit[11], compare well to the averages from previous periods. Gross beta levels for 2003 averaged 1.3 pCi/l at both Station 26, the control station, and at Station 29 approximately 11 miles downstream from the discharge.

The gross beta levels in the discharge sample reflect the concentrations of radionuclides that occur naturally in the environment, principally potassium-40, and any radionuclides from upstream sources of past Hanford activities present in the makeup water, in addition to radionuclides from Columbia Generating Station discharges. The cooling water discharged from Columbia Generating Station was typically concentrated 5 to 10 cycles. The discharge sample results are representative of the radioactivity present in plant discharges before any mixing with river water occurs.

The tritium levels in the river/drinking water and groundwater for 2003 were below the nominal LLD of 300 pCi/l and were comparable with results obtained for prior years. One detectable tritium result of 258 pCi/l occurred at Station 29 during the first quarter.

The mean tritium concentration in discharge effluent during 2003 continued to be in the same low ranges observed since 1989. Columbia Generating Station has reduced the volume of liquid radwaste discharges from a high of over three million gallons in 1993 to no liquid radwaste discharges since September 1998. This has resulted in a comparable decline in tritium levels from a high of 12,000 pCi/l in 1993 to less than the nominal LLD. In 2003, detectable tritium occurred during the first quarter, with a result of 331 pCi/l and in the fourth quarter at 233 pCi/l. The other two quarters results were below the nominal LLD of 300 pCi/l and all results were far below the 20,000 pCi/l drinking water standard.

Other than one detectable K-40 result of 67 pCi/l at the control station, there were no detectable nuclides in the river/drinking, plant discharge or ground water samples during 2003. K-40 is a natural occurring nuclide.

5.4 Soil

The results of the gamma spectrometry performed on soil samples in 2003 indicated detectable cesium-137. The cesium-137 results ranged from 9.6 picocuries/kilogram (pCi/kg) to 233 pCi/kg at the indicator stations. The result for cesium-137 at the control station was 7 pCi/kg. During 2003, cesium-137 levels in the soil samples were well within the range observed during preoperational and previous operational sampling. The gamma spectrometry results for the soil samples did not indicate any impact from Columbia Generating Station operations on the environment.

Strontium analysis was required for Stations 1, 7 and 23. The results for these stations were below the nominal LLD. Aside from cesium-137, the only radionuclides detected in the samples were beryllium-7, potassium-40, radium-226 and thorium-228. These are part of the natural radioactivity typically found in soils.

5.5 River Sediment

The results of gamma spectrometry of river sediment indicated that aside from the naturally occurring radionuclides (actinium-228, potassium-40, radium-226 and thorium-228), cesium-137 was detected both upstream (Station 33) and downstream (Station 34) of the plant. Cesium-137 was detected in the upstream spring sample and had a concentration of 69 pCi/kg dry weight. The concentrations of cesium-137 in the downstream samples were 172 pCi/kg dry weight in the spring sample and 179 pCi/kg dry weight in the fall sample. This radionuclide has been detected in similar quantities in preoperational samples and operational samples. Cesium-137 has also been previously identified as a component of the Columbia River sediment originating from operation of the old Hanford Site reactors.[14]

5.6 Fish

The gamma spectrometry results of fish samples collected in the vicinity of the Columbia Generating Station discharge and at the control location on the Snake River were below detection limits, except for potassium-40, a naturally-occurring radionuclide.

5.7 Milk

There were no detectable iodine-131 results for 2003. All gamma spectrometry milk sample results were less than the detection limits, except for potassium-40, which is a naturally occurring radionuclide.

Since August 1998, samples of feed grown by the owners of the dairy at Station 9 have been collected as a substitute for the control station. No dairy in the area of the control was located that did not use some feed grown downwind of the plant as supplemental feed. No radionuclides were detected in the feed samples collected during 2003 other than the naturally occurring actinium-228, beryllium-7, potassium-40, and thorium-228.

5.8 Garden Produce

The gamma isotopic analysis results for all root crops, fruit and leafy vegetables collected in 2003 were below detection limits other than potassium-40, which occurs naturally.

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. Thermoluminescent dosimeters were placed around the spray pond drainfield (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. Discussions of the results from each of the locations are given in the following sections.

Until incorporated into the REMP, sediment samples collected during previous years at the SWTF were analyzed at Energy Northwest. The SWTF sediment samples were analyzed wet so the results were expressed in terms of wet weight instead of the dry weight concentrations determined by Teledyne. Consequently, direct comparison of the wet sample results with the dried sample results is difficult since the percent solids can vary from sample to sample.

5.9.1 Storm Drain Pond (Station 101)

The storm drain pond is located approximately 1500 feet northeast of Columbia Generating Station. Water is conveyed to the pond by means of 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 composite samples. These composite samples are collected monthly.

Tritium was detected in many of the outfall water samples during 2003. The range for detectable tritium results at the outfall was from 228 pCi/l to 12300 pCi/l and averaged 3200 pCi/l. Detectable gross beta activity at the outfall averaged 4.4 pCi/l with a range of 2.3 to 10 pCi/l. Other than tritium, there were no detectable nuclides found in storm drain outfall samples in 2003.

5.9.2 Sanitary Waste Treatment Facility (Station 102)

The Sanitary Waste Treatment Facility (SWTF) is located approximately 0.5 miles south-southeast of Columbia Generating Station. The facility processes the sanitary waste from Columbia Generating Station, the WNP-1 and WNP-4 sites, the Kootenai Building, and the Department of Energy's 400 Area (since April 1997). Discharge standards and monitoring requirements for the SWTF are established in EFSEC Resolution No. 300[15]. Until April 1992, the SWTF sediment was sampled semiannually and analyzed in the Energy Northwest radiation laboratory and the radionuclide concentrations were given in terms of wet weight. Since that time, the samples have been sent to the analytical contractor where they are dried prior to analysis and the results reported in pCi/kg dry weight.

The monthly composite water samples of the 400 Area effluent had gross beta results ranging from 23 pCi/l to 44 pCi/l and averaged 32.3 pCi/l. Gross beta results at the SWTF headworks averaged 30.2 pCi/l and ranged from 25 pCi/l to 40 pCi/l.

The 400 Area effluent samples and SWTF headworks were also analyzed for gross alpha. There was one detectable gross alpha result in 2003. The result was 5.4±4.2 pCi/l for March. This result is just over the minimum detectable activity of 5.2 pCi/l.

Due to contributions from the 400 Area effluent, tritium concentrations in SWTF samples continued to be higher than might otherwise be expected. The 400 Area draws part of its water from the unconfined aquifer that is high in tritium due to historical chemical separations processes at the 200 East Area on the Hanford Site. In 2003 the mean for tritium in the 400 Area effluent (Station 102A) was 3538 pCi/l and ranged from 2830 pCi/l to 7450 pCi/l. The mean at the headworks (Station 102B) was 882 pCi/l and the results ranged from 486 pCi/l to 1790 pCi/l.

Gamma analysis was done on all water samples collected at the SWTF. There were no detectable nuclides gamma results other than the naturally occurring potassium-40 and radium-226 in the 2003 SWTF samples.

Gamma analysis of the sediment sample collected from the north stabilization pond revealed detectable cobalt-60 and cesium-137 in addition to naturally occurring nuclides. The activity for both cobalt-60 and cesium-137 activity was 136 pCi/kg dry. These are well within the range of results observed in the past.

5.9.3 Cooling Tower Sediment Disposal Area (Station 119)

On August 13, 2001, EFSEC approved Resolution No. 299[16] that authorized the onsite disposal of sediments from plant cooling systems containing low levels of radionuclides. The approval of this resolution closed out EFSEC Resolution No. 278 that authorized onsite disposal of cooling tower sediment only. The disposal area for these sediments is located just south of the cooling towers. According to Resolution No. 299, the REMP is to monitor the area's direct radiation dose using quarterly and annual TLDs and by collecting 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 in May 2003. An estimated 125 cubic yards of sediment was placed in the disposal area. This material had an estimated density of 1.6 grams/cubic centimeter (g/cm^3). Using the volume and the density of 1.6 g/cm^3, along with the activity, it was calculated that the following quantities of nuclides were placed in the disposal area:

Nuclide	Analytical Result (pCi/kg)	Limit (pCi/kg)	Total Curies
Cobalt-60	3.13E+01	5.0E+03	≤7.02E-06
Manganese-54	1.51E+00	3.0E+04	≤6.59E-06
Zinc-65	3.51E+01	5.0E+04	≤1.50E-05
Cesium-134	9.17E+00	1.0E+04	≤6.43E-06
Cesium-137	1.91E+02	2.0E+04	2.83E-05

Of the above nuclides, only the cesium-137 result was above the detection limit. The result for cesium-137 was 191 pCi/kg dry. This result is very similar to those found in the Columbia River sediment samples. Since the results for the other nuclides were lower than the LLD, the calculated quantities disposed of those nuclides are estimates taken from the maximum possible concentration.

Measurements of direct radiation were taken using TLDs. The TLDs were collected quarterly and annually. Two locations were used, one next to the collection area (Station 119B) and the other approximately 100 yards to the east as the control (Station 119-Control). The mean quarterly TLD results for both Station 119B and Station 119-Control were 0.23 mrem/day. The annual TLD results were also 0.22 mrem/day for both Station 119B and for Station.119-Control.

5.9.4 Spray Pond Drain Field (Station 120)

Sediment from spray pond cleanings had been discharged to a trench located approximately 500 feet south of the spray ponds. In 1995, soil samples taken in the trench indicated detectable amounts of cesium-137 and cobalt-60. In 1996, the deposited sediment was removed to a disposal cell south of the cooling towers. The trench has continued to be the discharge location for spray pond filter backwash water.

In 2003, the mean for the quarterly TLD inside the trench was 0.23 mrem/day. The quarterly mean for Station 119-Control, which acts as the control location, was also 0.23 mrem/day. The annual result for Station 120 was 0.22 mrem/day as did the control station. No incremental dose was noted.

5.9.5 Independent Spent Fuel Storage Installation

During 2002, Energy Northwest constructed the Independent Spent Fuel Storage Installation (ISFSI) in an area immediately north of Columbia Generating Station. In 1998, the REMP had placed two TLD stations consisting of one annual and one quarterly TLD at the planned site for baseline data. Co-located with the Energy Northwest TLDs are Washington Department of

Health TLDs. Station 121 is located approximately 0.1 mile north of the plant. Station 122 is on the fence line approximately 0.3 mile north of the plant. During the second quarter of 2002, ten more TLD stations were located on the security fence surrounding the ISFSI. These stations are Stations 123-129 and Stations 136A-138A. These TLDs are located approximately 0.25 mile north of the plant.

The mean of the quarterly TLDs at Station 121 was 0.86 mrem/day while the annual TLD result was 0.87 mrem/day. Station 122 had a mean of 0.26 mrem/day for the quarterly TLDs and an annual result of 0.27 mrem/day. The average of Stations 123-129 and 136A- 138A for the quarterly TLDs was 0.46 mrem/day. Of the TLDs located on the ISFSI fence, Station 124 had the highest result with 0.68 mrem/day in the first quarter and Station 138A had the low with a result of 0.31 mrem/day during the second quarter.

5.10 2003 Sample Deviations

The majority of deviations for sampling were connected with air sampling. Unit failures in the form of blown fuses account for the majority of the outages. No air samples were taken from Station 1 between March 3 and May 5 due to a break in the electrical cable providing power to the station. Two short power outages also occurred at Station 1 because of electrical work being done at electrical building near the cooling towers. Deviations are listed in Table 5-1.

In June, the automatic composite sampler, which samples the intake water, became inoperable. A temporary portable water sampler was used to replace this sampler while efforts to repair the old sampler were made. In December, it was decided that the old sampler was obsolete and replacement with a new unit was desirable. The temporary sampler remained in place through the end of 2003.

While preparing this report, it was found that ODCM table listing required LLDs had been rewritten. As a consequence of this, the LLDs that the analytical contractor had for barium-140 in milk and water, and zirconium-95 in water were not valid. During 2003, there was no impact because there were no detectable results for either nuclide, but the ODCM required LLD for Ba-140 was not met on many of the samples. Teledyne Brown Engineering was immediately notified and the LLDs changed. The contract LLD for both nuclides was changed from 20 pCi/L in their respective matrix, to 15 pCi/L. Subsequent investigation also revealed many samples from 2002 also did not meet the Ba-140 LLD and are listed in Section 8.

TABLE 5-1
2003 SAMPLE DEVIATIONS

SAMPLE MEDIA	DATE	LOCATION	PROBLEM
Air Particulate/Iodine	01/13-01/20	Station 21	Unit failure. Sample volume unacceptable.
	02/24-03/03	Station 1	Power out. Sample volume acceptable.
	03/03-05/05	Station 1	Power out due to break in electrical cable..
	04/07-04/14	Station 21	Unit failure. Sample volume unacceptable.
	04/07-04/14	Station 48	Unit failure. Sample volume acceptable.
	06/02-06/09	Station 1	Power out. Sample volume acceptable.
	06/09-06/16	Station 1	Unit failure. Sample volume unacceptable.
	06/16-06/23	Station 1	Unit replaced one day late. Volume acceptable.
	06/30-07/07	Station 8	Unit failure. No sample
	06/30-07/07	Station 48	Unit failure. Sample volume acceptable.
	07/07-07/14	Station 8	Unit failure. Sample volume acceptable.
	08/04-08/11	Station 5	Unit failure. Sample volume acceptable.
	08/04-08/11	Station 40	Unit failure. Sample volume acceptable.
	08/11-08/18	Station 5	Unit failure. Sample volume acceptable.
	08/11-08/18	Station 7	Unit failure. Sample volume unacceptable.
	09/15-09/22	Station 23	Unit failure. Sample volume unacceptable.
	09/22-09/29	Station 1	Unit failure. Sample volume unacceptable.
	10/06-10/13	Station 8	Unit failure. Sample volume acceptable
	10/27-11/03	Station 23	Unit failure. No sample
	11/10-11/17	Station 23	Unit failure. Sample volume acceptable.
	11/17-11/24	Station 1	Unit failure. Sample volume unacceptable.
	11/17-11/24	Station 23	Unit failure. Sample volume unacceptable.
	12/15-12/22	Station 1	Unit failure. Sample volume unacceptable.
Milk	06/10	Station 64	Sampling discontinued at this location due to access problems to dairy.
TLD	Fourth quarter	Station 72 (S2)	TLD was missing.
Water	06/30-01/06	Station 26	Intake automatic sampler out of service. Temporary sampler used while evaluation done on replacement of intake sampler.
	10/01	Station 101	Memory in sampler controller reset, causing loss of user setting. Sample volume adequate.
Missed LLDs	First Quarter	Stations 31, 32, and 52	ODCM Ba-140 in water LLD not met.
	Second Quarter	Station 31 and 32	ODCM Ba-140 in water LLD not met.
	Third Quarter	Station 52	ODCM Ba-140 in water LLD not met.
	Fourth Quarter	Stations 31, 32, and 52	ODCM Ba-140 in water LLD not met.
	01/02-02/04	Station 102A & B	ODCM Ba-140 in water LLD not met.
	01/21	Station 64	ODCM Ba-140 in water LLD not met.
	02/04-03/04	Stations 26, 27, 29	ODCM Ba-140 in water LLD not met.
	02/04-03/04	Station 102A & B	ODCM Ba-140 in water LLD not met.
	02/11	Station 36 & 64	ODCM Ba-140 in milk LLD not met.

TABLE 5-1
2003 SAMPLE DEVIATIONS (cont.)

SAMPLE MEDIA	DATE	LOCATION	PROBLEM
Missed LLDs	03/04-04/01	Stations 26 & 29	ODCM Ba-140 in milk LLD not met.
	03/04-04/01	Stations 102A and B	ODCM Ba-140 in water LLD not met.
	04/01-05/05	Stations 26 & 27	ODCM Ba-140 in water LLD not met.
	04/02-05/07	Station 101	ODCM Ba-140 in water LLD not met.
	04/05-05/05	Station 102B	ODCM Ba-140 in water LLD not met.
	04/08	Stations 9B, 36, and 64	ODCM Ba-140 in milk LLD not met.
	04/21	Stations 9B, 36	ODCM Ba-140 in milk LLD not met.
	05/06	Station 27	ODCM Ba-140 in water LLD not met.
	05/06	Station 102B	ODCM Ba-140 in water LLD not met.
	05/07	Station 101	ODCM Ba-140 in water LLD not met.
	05/20	Stations 9B, 36 and 64	ODCM Ba-140 in milk LLD not met.
	05/27	Stations 9B & 36	ODCM Ba-140 in milk LLD not met.
	06/03	Station 29	ODCM Ba-140 in water LLD not met.
	06/10	Stations 36 &64	ODCM Ba-140 in milk LLD not met.
	06/30	Stations 27 &29	ODCM Ba-140 in water LLD not met.
	07/08	Station 36	ODCM Ba-140 in milk LLD not met.
	08/05	Station 27	ODCM Ba-140 in water LLD not met.
	08/05	Station 101	ODCM Ba-140 in water LLD not met.
	08/05	Stations 102A and B	ODCM Ba-140 in water LLD not met.
	08/12	Station 9B	ODCM Ba-140 in milk LLD not met.
	08/11-08/18	Station 7	Gross beta in air due to low collection volume.
	09/03	Station 27	ODCM Ba-140 in water LLD not met.
	09/03	Stations 102A and B	ODCM Ba-140 in water LLD not met.
	09/03	Station 9B	ODCM Ba-140 in milk LLD not met.
	09/15-09/22	Station 23	Gross beta in air due to low collection volume.
	10/01	Station 101	ODCM Ba-140 in water LLD not met.
	10/14	Station 36	ODCM Ba-140 in milk LLD not met.
	11/04	Stations 26 &27	ODCM Ba-140 in water LLD not met.
	11/06-12/03	Station 101	ODCM Ba-140 in Water
	11/11	Station 36	ODCM Ba-140 in milk LLD not met.
	11/17-11/24	Station 1	Gross beta in air due to low collection volume.
	11/17-11/24	Station 23	Gross beta in air and I-131 in air due to low collection volume.
	12/02-01/06	Station 27	ODCM Ba-140 in water LLD not met.
	12/02-01/06	Station 102A	ODCM Ba-140 in water LLD not met.
	12/03-01/07	Station 101	ODCM Ba-140 in water LLD not met.

TABLE 5-2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

ENERGY NORTHWEST COLUMBIA GENERATING STATION — DOCKET NO. 50-397
BENTON WASHINGTON — JANUARY 1 TO DECEMBER 31, 2003

Medium or Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analyses Performed		Lower Limit of Detection[b] (LLD)	All Indicator Locations Mean (Ratio)[a] (Range)	Location with Highest Mean Name	Distance	Direction	Mean (Ratio)[a] (Range)	Control Location Mean (Ratio)[a] (Range)	Number of Nonroutine Reported Measurements
Air Particulate (pCi/m³)	Gross Beta	606	0.003	0.014(550/554) (0.003-0.054)	1	1.2 mi.	S	0.015(38/43) (0.005-0.043)	0.011(51/52) (0.003-0.037)	0
	Gamma (Quarterly)	48								
	Be-7		0.01	0.047(44/44) (0.024-0.075)	6	7.7 mi.	S	0.052(4/4) (0.038-0.069)	0.037(4/4) (0.023-0.052)	0
	K-40		0.01	0.005(1/44)	48	4.6 mi.	NE	0.005(1/44)	0.004(1/4)	0
Air Iodine (pCi/m³)	I-131	606	0.01	-(0/554)					-(0/52)	0
Soil (pCi/kg dry)	Gamma	5								
	K-40		700	16200(4/4) (15100-17200)	23	3.0 mi.	ESE	17200(1/1)	14800(1/1)	0
	Cs-137		40	142(3/4) (88.0-233)	1	1.2 mi.	S	233(1/1)	-(0/1)	0
	Ra-226		400	1420(4/4) (836-1850)	23	3.0 mi.	ESE	1850(1/1)	1350(1/1)	0
	Th-228		50	1850(4/4) (1500-2040)	23	3.0 mi.	ESE	2040(1/1)	1850(1/1)	0
Water (River/Drinking) (pCi/liter)	Gross Beta	24	4	2.27(5/12) (1.85-2.97)	26	3.2 mi.	E	2.40(3/12) (1.79-3.03)	2.40(3/12) (1.79-3.03)	0

(a) The mean of positive results above the LLD and ratio of those results to the number of samples analyzed for the parameter of interest.
(b) Contract LLDs. Actual LLDs may be lower for specific samples.

TABLE 5-2 (cont.)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

ENERGY NORTHWEST COLUMBIA GENERATING STATION — DOCKET NO. 50-397
BENTON WASHINGTON — JANUARY 1 TO DECEMBER 31, 2003

Medium or Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analyses Performed		Lower Limit of Detection[b] (LLD)	All Indicator Locations Mean (Ratio)[a] (Range)	Location with Highest Mean Name	Distance	Direction	Mean (Ratio)[a] (Range)	Control Location Mean (Ratio)[a] (Range)	Number of Nonroutine Reported Measurements
Water (River/Drinking)	Tritium	8	300	258(1/4)	29	11.0 mi.	SSE	258(1/4)	-(0/4)	0
(pCi/liter)	Gamma	24								
	K-40			-(0/12)	26	3.2 mi.	E	67.1(1/12)	67.1(1/12)	0
Water (Discharge) (pCi/liter)	Gross Beta	12	12	12.4(11/12) (3.58-20.6)	27	3.2 mi	E	12.4(11/12) (3.58-20.6)	-(0/0)	0
	Tritium	4	300	282(2/4) (233-331)	27	3.2 mi.	E	282(2/4) (233-331)	-(0/0)	0
	Gamma	12		-(0/12)					-(0/0)	0
Water (Ground)	Tritium	4	300	-(0/4)					-(0/0)	0
(pCi/liter)	Gamma	12		-(0/12)					-(0/0)	0
River Sediment	Gamma	4								
(pCi/kg dry)	K-40		700	19600(2/2) (18300-20800)	34	3.5 mi.	ESE	19600(2/2) (18300-20800)	18000(2/2) (17600-18300)	0
	Cs-137		40	176(2/2) (172-179)	34	3.5 mi.	ESE	176(2/2) (172-179)	69.3(1/2)	0
	Ra-226		400	1570(2/2) (995-2140)	34	3.5 mi.	ESE	1570(2/2) (995-2140)	-(0/2)	0
	Ac-228			1170(2/2) (786-1560)	33	3.6 mi.	ENE	1230(2/2) (930-1520)	1230(2/2) (930-1520)	0
	Th-228		50	2620(2/2) (2250-2990)	34	3.5 mi.	ESE	2620(2/2) (2250-2990)	2080(2/2) (1660-2500)	0
Fish	Gamma	6								
(pCi/kg wet)	K-40		1000	3460(3/3) (3340-3650)	30	3.3 mi.	E	3460(3/3) (3340-3650)	2700(3/3) (1190-3700)	0

(a) The mean of positive results above the LLD and ratio of those results to the number of samples analyzed for the parameter of interest.
(b) Contract LLDs. Actual LLDs may be lower for specific samples.

TABLE 5-2 (cont.)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

ENERGY NORTHWEST COLUMBIA GENERATING STATION — DOCKET NO. 50-397
BENTON WASHINGTON — JANUARY 1 TO DECEMBER 31, 2003

Medium or Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analyses Performed		Lower Limit of Detection[b] (LLD)	All Indicator Locations Mean (Ratio)[a] (Range)	Location with Highest Mean Name	Distance	Direction	Mean (Ratio)[a] (Range)	Control Location Mean (Ratio)[a] (Range)	Number of Nonroutine Reported Measurements
Milk (pCi/liter)	I-131	42	0.5	-(0/42)					-(0/0)	0
	Gamma	42								
	K-40		200	1390(42/42) (1230-1660)	64	9.7 mi.	SSE	1500(6/6) (1360-1660)	-(0/0)	0
Broadleaf In Lieu of Milk (pCi/kg wet)	Gamma	12								
	Be-7			254(6/12) (115-482)	9G	32.7 mi.	WSW	265(6/12) (115-482)	-(0/0)	0
	K-40		200	6130(12/12) (4000-15500)	9G	32.7 mi.	WSW	6150(12/12) (4000-15500)	-(0/0)	0
Roots (pCi/kg wet)	Gamma	8								
	K-40		200	2720(4/4) (1040-4720)	9C	32.3 mi.	WSW	3024(4/4) (987-4850)	3024(4/4) (987-4850)	0
Fruits (pCi/kg wet)	Gamma	9								
	K-40		200	1486(5/5) (1100-2060)	9C	32.3 mi.	WSW	1521(4/4) (962-2280)	1521(4/4) (962-2280)	0
Vegetables (pCi/kg wet)	Gamma	12								
	K-40		200	2407(6/6) (1770-4300)	37B	16 mi	SSE	2407(6/6) (1770-4300)	2342(6/6) (1770-2790)	0
Storm Drain Water Station 101 (pCi/liter)	Gross Beta	12	4	4.43(8/12) (2.30-10.1)	101	0.2 mi.	NE	4.43(8/12) (2.30-10.1)	-(0/0)	0
	Tritium	12	300	3204(12/12) (228-12300)	101	0.2 mi.	NE	3204(12/12) (228-12300)	-(0/0)	0
	Gamma	12		-(0/12)					-(0/0)	0

(a) The mean of positive results above the LLD and ratio of those results to the number of samples analyzed for the parameter of interest.
(b) Contract LLDs. Actual LLDs may be lower for specific samples.

TABLE 5-2 (cont.)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

ENERGY NORTHWEST COLUMBIA GENERATING STATION — DOCKET NO. 50-397
BENTON WASHINGTON — JANUARY 1 TO DECEMBER 31, 2003

Medium or Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analyses Performed		Lower Limit of Detection[b] (LLD)	All Indicator Locations Mean (Ratio)[a] (Range)	Location with Highest Mean Name	Distance	Direction	Mean (Ratio)[a] (Range)	Control Location Mean (Ratio)[a] (Range)	Number of Nonroutine Reported Measurements
Sanitary Waste Treatment Facility Water (pCi/liter)	Gross Alpha	24		5.41(1/24)	102B	0.5 mi.	SSE	5.41(1/24)	-(0/0)	0
	Gross Beta	24	1	31.1(24/24) (22.7-43.7)	102A	0.6 mi.	S	32.3(12/12) (22.7-43.7)	-(0/0)	0
	Tritium	24	2000	2218(24/24) (486-7450)	102A	0.6 mi.	S	3538(12/12) (2830-7450)	-(0/0)	0
	Gamma	24								
	K-40			64.7(5/24) (41.8-102)	102A	0.6 mi.	S	89.4(2/12) (76.8-102)	-(0/0)	0
	Ra-226	24		88.1(1/24)	102A	0.6 mi.	S	88.1(1/24)	-(0/0)	0
Sanitary Waste Treatment Facility Sediment (pCi/kg)	Gamma	1								
	K-40		700	6940(1/1)	102D	0.5 mi.	SSE	6940(1/1)	-(0/0)	0
	Co-60		40	136(1/1)	102D	0.5 mi.	SSE	136(1/1)	-(0/0)	0
	Cs-137		40	136(1/1)	102D	0.5 mi.	SSE	136(1/1)	-(0/0)	0
Cooling Tower Sediment (pCi/kg dry)	Gamma	1								
	Be-7			7170(1/1)	119B	0.2 mi.	S	7170(1/1)	-(0/0)	0
	K-40		700	12300(1/1)	119B	0.2 mi.	S	12300(1/1)	-(0/0)	0
	Cs-137		40	191(1/1)	119B	0.2 mi.	S	191(1/1)	-(0/0)	0
	Ra-226		400	4480(1/1)	119B	0.2 mi.	S	4480(1/1)	-(0/0)	0
	Th-228		50	3470(1/1)	119B	0.2 mi.	S	3470(1/1)	-(0/0)	0

(a) The mean of positive results above the LLD and ratio of those results to the number of samples analyzed for the parameter of interest.
(b) Contract LLDs. Actual LLDs may be lower for specific samples.

TABLE 5-2 (cont.)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

ENERGY NORTHWEST COLUMBIA GENERATING STATION — DOCKET NO. 50-397
BENTON WASHINGTON — JANUARY 1 TO DECEMBER 31, 2003

Medium or Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analyses Performed		Lower Limit of Detection[b] (LLD)	All Indicator Locations Mean (Ratio)[a] (Range)	Location with Highest Mean Name	Distance	Direction	Mean (Ratio)[a] (Range)	Control Location Mean (Ratio)[a] (Range)	Number of Nonroutine Reported Measurements
Direct Radiation Quarterly TLDs (mrem/day)	TLD	227		0.219(223/223) (0.185-0.284)	46	5.0 mi.	NE	0.265(4/4) (0.243-0.284)	0.193(4/4) (0.192-0.196)	0
Direct Radiation Annual TLDs (mrem/day)	TLD	57		0.217(56/56) (0.192-0.262)	46	5.0 mi.	NE	0.265(4/4) (0.243-0.284)	0.193(1/1)	0
St 119 Direct Radiation Quarterly TLDs (mrem/day)	TLD	8		0.228(4/4) (0.218-0.245)	119B	0.2 mi.	SSE	0.228(4/4) (0.218-0.245)	0.225(4/4) (0.214-0.231)	0
St 119 Direct Radiation Annual TLDs (mrem/day)	TLD	2		0.218(1/1)	119B	0.2 mi.	SSE	0.222(1/1)	0.222(1/1)	0
St 120 Direct Radiation Quarterly TLDs (mrem/day)	TLD	4		0.227(4/4) (0.217-0.245)	120	0.3 mi.	SSE	0.227(4/4) (0.217-0.245)	-(0/0)	0
St 120 Direct Radiation Annual TLDs (mrem/day)	TLD	1		0.220(1/1)	120	0.3 mi.	SSE	0.220(1/1)	-(0/0)	0

(a) The mean of positive results above the LLD and ratio of those results to the number of samples analyzed for the parameter of interest.
(b) Contract LLDs. Actual LLDs may be lower for specific samples.

TABLE 5-2 (cont.)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

ENERGY NORTHWEST COLUMBIA GENERATING STATION — DOCKET NO. 50-397
BENTON WASHINGTON — JANUARY 1 TO DECEMBER 31, 2003

Medium or Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analyses Performed		Lower Limit of Detection[b] (LLD)	All Indicator Locations Mean (Ratio)[a] (Range)	Location with Highest Mean Name	Distance	Direction	Mean (Ratio)[a] (Range)	Control Location Mean (Ratio)[a] (Range)	Number of Nonroutine Reported Measurements
ISFSI Direct Radiation Quarterly TLDs (mrem/day)	TLD	48		0.477(48/48) (0.257-0.980)	121	0.1 mi.	NNW	0.864(4/4) (0.558-0.980)	-(0/0)	0
ISFSI Direct Radiation Annual TLDs (mrem/day)	TLD	12		0.475(12/12) (0.265-0.869)	121	0.1 mi.	NNW	0.864(4/4) (0.558-0.980)	-(0/0)	0

(a) The mean of positive results above the LLD and ratio of those results to the number of samples analyzed for the parameter of interest.
(b) Contract LLDs. Actual LLDs may be lower for specific samples.

TABLE 5-3
MEAN QUARTERLY TLD DATA SUMMARY FOR THE PREOPERATIONAL AND OPERATIONAL PERIODS
Results in mrem/day

STATION	PREOPERATIONAL MEAN[a]	PREOPERATIONAL STANDARD ERROR[b]	1984 – 2002 OPERATIONAL MEAN	1984 – 2002 OPERATIONAL STANDARD ERROR[b]	2003 OPERATIONAL MEAN	2003 OPERATIONAL STANDARD ERROR[b]
1	0.24	0.02	0.25	0.00	0.22	0.01
2	0.23	0.02	0.24	0.00	0.22	0.01
3	0.22	0.01	0.24	0.00	0.21	0.00
4	0.22	0.02	0.22	0.00	0.20	0.01
5	0.23	0.01	0.23	0.00	0.20	0.00
6	0.22	0.01	0.23	0.00	0.20	0.00
7	0.23	0.01	0.24	0.00	0.21	0.00
8	0.26	0.01	0.26	0.01	0.23	0.01
9	0.22	0.02	0.22	0.00	0.19	0.00
10	0.23	0.01	0.24	0.00	0.21	0.01
11	0.24	0.01	0.24	0.00	0.22	0.01
12	0.25	0.01	0.26	0.00	0.23	0.01
13	0.24	0.01	0.24	0.00	0.21	0.01
14	0.24	0.02	0.24	0.00	0.22	0.00
15	0.25	0.01	0.26	0.00	0.24	0.01
16	0.24	0.01	0.25	0.00	0.22	0.01
17	0.25	0.01	0.25	0.00	0.23	0.01
18	0.24	0.01	0.25	0.00	0.22	0.01
19	0.24	0.01	0.25	0.00	0.22	0.01
20	0.24	0.01	0.25	0.00	0.22	0.01
21	0.23	0.01	0.23	0.00	0.20	0.01
22	0.24	0.01	0.24	0.00	0.22	0.01
23	0.24	0.01	0.24	0.00	0.21	0.00
24	0.24	0.01	0.25	0.01	0.22	0.01
25	0.25	0.01	0.26	0.00	0.23	0.01
40	0.22	0.01	0.23	0.00	0.20	0.01
41	0.26	0.02	0.26	0.00	0.22	0.01
42	0.25	0.01	0.25	0.00	0.22	0.00
43	0.25	0.01	0.26	0.01	0.22	0.00
44	0.23	0.01	0.24	0.00	0.20	0.01
45	0.23	0.01	0.24	0.00	0.21	0.01
46	0.29	0.02	0.30	0.01	0.27	0.02
47	0.22	0.02	0.23	0.00	0.20	0.01
49	0.24	0.00	0.25	0.00	0.22	0.01
50	0.22	0.00	0.25	0.00	0.22	0.01
51	0.23	0.01	0.24	0.00	0.21	0.01
53	0.27	0.00	0.27	0.00	0.24	0.01
54	0.26	0.00	0.25	0.00	0.22	0.01
55	0.23	0.00	0.24	0.00	0.21	0.01
56	0.24	0.00	0.25	0.00	0.22	0.01
61	(c)		0.27	0.01	-	-

TABLE 5-3 (cont.)
MEAN QUARTERLY TLD DATA SUMMARY FOR THE PREOPERATIONAL AND OPERATIONAL PERIODS
Results in mrem/day

	PREOPERATIONAL		1984 - 2002 OPERATIONAL		2003 OPERATIONAL	
STATION	MEAN[a]	STANDARD ERROR[b]	MEAN	STANDARD ERROR[b]	MEAN	STANDARD ERROR[b]
65	(d)	-	0.23	0.00	0.21	0.01
71(1S)	0.24	0.02	0.28	0.01	0.26	0.01
72(2S)	0.25	0.01	0.27	0.01	0.25	0.01
73(3S)	0.23	0.01	0.24	0.00	0.21	0.01
74(4S)	0.26	0.01	0.26	0.00	0.23	0.01
75(5S)	0.22	0.02	0.25	0.01	0.23	0.01
76(6S)	0.24	0.01	0.25	0.00	0.22	0.01
77(7S)	0.25	0.01	0.25	0.00	0.22	0.00
78(8S)	0.25	0.01	0.24	0.00	0.22	0.01
79(9S)	0.25	0.01	0.25	0.00	0.22	0.01
80(10S)	0.24	0.01	0.24	0.00	0.21	0.00
81(11S)	0.24	0.02	0.24	0.00	0.21	0.01
82(12S)	0.26	0.02	0.25	0.00	0.23	0.01
83(13S)	0.25	0.01	0.25	0.00	0.22	0.00
84(14S)	0.24	0.01	0.25	0.00	0.22	0.01
85(15S)	0.26	0.02	0.26	0.00	0.23	0.01
86(16S)	0.25	0.01	0.28	0.01	0.26	0.01
119B	(e)	-	0.25	0.01	0.23	0.01
119Ctrl	(e)	-	0.25	0.01	0.22	0.01
120East	(e)	-	0.25	0.01	0.23	0.01
120West	(e)	-	0.28	0.04	-	-
120Ctrl	(e)	-	0.25	0.01	-	-
121 (ISFSI)	(f)	-	0.76	0.13	0.86	0.20
122 (ISFSI)	(f)	-	0.25	0.01	0.26	0.01
123 (ISFSI)	(g)	-	0.35	0.14	0.51	0.02
124 (ISFSI)	(g)	-	0.39	0.18	0.66	0.02
125 (ISFSI)	(g)	-	0.36	0.12	0.57	0.02
126 (ISFSI)	(g)	-	0.36	0.14	0.49	0.02
127 (ISFSI)	(g)	-	0.36	0.08	0.45	0.02
128 (ISFSI)	(g)	-	0.33	0.08	0.41	0.02
129 (ISFSI)	(g)	-	0.36	0.06	0.41	0.03
136A (ISFSI)	(g)	-	0.35	0.04	0.36	0.03
137A (ISFSI)	(g)	-	0.36	0.05	0.37	0.03
138A (ISFSI)	(g)	-	0.36	0.04	0.36	0.04
All	0.25	0.00	0.25	0.00	0.26	0.01

(a) This preoperational mean is for 1982-1983 data only.
(b) Standard Error is calculated from the raw results, which are reported to three decimal places.
(c) Station 61 was added in 1989 and discontinued in 1992.
(d) Station 65 added in 1997.
(e) Stations 119B, 119Ctrl, 120East, 120West and 120Ctrl added in 1995. Stations 120West and 120Ctrl discontinued in 1997.
(f) Stations 121 and 122 were added in 1998 to gather baseline data for the ISFSI.
(g) Stations 123-129 and 136A-138A were added in the 2nd quarter of 2002.

TABLE 5-4
ANNUAL TLD DATA SUMMARY FOR THE PREOPERATIONAL AND OPERATIONAL PERIOD

Results in mrem/day

	PREOPERATIONAL		1984 - 2002 OPERATIONAL		2003 OPERATIONAL
STATION	MEAN[a]	STANDARD ERROR[b]	MEAN	STANDARD ERROR[b]	RESULT
1	0.25	0.04	0.24	0.01	0.21
2	0.23	0.00	0.23	0.01	0.21
3	0.23	0.01	0.22	0.01	0.20
4	0.24	0.07	0.21	0.01	0.20
5	0.24	0.03	0.21	0.01	0.20
6	0.22	0.01	0.21	0.01	0.20
7	0.23	0.01	0.23	0.01	0.20
8	0.26	0.01	0.25	0.01	0.22
9	0.22	0.01	0.21	0.01	0.19
10	0.23	0.01	0.22	0.01	0.21
11	0.24	0.01	0.23	0.01	0.21
12	0.26	0.00	0.24	0.01	0.23
13	0.24	0.01	0.23	0.01	0.21
14	0.23	0.00	0.23	0.01	0.21
15	0.25	0.03	0.25	0.01	0.23
16	0.25	0.01	0.24	0.01	0.22
17	0.24	0.02	0.24	0.01	0.22
18	0.25	0.03	0.24	0.01	0.22
19	0.24[c]	-	0.24	0.01	0.22
20	0.24	0.01	0.23	0.01	0.22
21	0.22	0.01	0.21	0.01	0.20
22	0.24	0.01	0.23	0.01	0.21
23	0.23	0.01	0.23	0.01	0.20
24	0.24	0.01	0.23	0.01	0.21
25	0.25	0.01	0.24	0.01	0.23
40	0.21[c]	-	0.21	0.01	0.19
41	0.26	0.01	0.24	0.01	0.22
42	0.24[c]	-	0.23	0.01	0.21
43	0.24[c]	-	0.24	0.01	0.21
44	0.24	0.02	0.22	0.01	0.20
45	0.23	0.01	0.23	0.01	0.21
46	0.29	0.01	0.29	0.01	0.26
47	0.22[c]	-	0.22	0.01	0.20
49	(d)	-	0.23	0.01	0.22
50	(d)	-	0.23	0.01	0.21
51	(d)	-	0.22	0.01	0.21
53	(d)	-	0.25	0.01	0.24
54	(d)	-	0.24	0.01	0.21
55	(d)	-	0.22	0.01	0.21
56	(d)	-	0.23	0.01	0.21
61	(e)	-	0.26[d]	0.01	(d)

TABLE 5-4 (cont.)
ANNUAL TLD DATA SUMMARY FOR THE PREOPERATIONAL AND OPERATIONAL PERIODS

Results in mrem/day

	PREOPERATIONAL		1984 - 2002 OPERATIONAL		2003 OPERATIONAL
STATION	MEAN[a]	STANDARD ERROR[b]	MEAN	STANDARD ERROR[b]	RESULT
65	(f)	-	0.22	0.01	0.20
71 (1S)	0.24[c]	-	0.26	0.01	0.26
72 (2S)	0.25[c]	-	0.26	0.01	0.24
73 (3S)	0.23[c]	-	0.22	0.01	0.21
74 (4S)	0.24[c]	-	0.25	0.01	0.24
75(5S)	0.24[c]	-	0.23	0.01	0.22
76(6S)	0.24[c]	-	0.23	0.01	0.23
77 (7S)	0.25[c]	-	0.23	0.01	0.22
78 (8S)	0.25[c]	-	0.23	0.01	0.22
79 (9S)	0.25[c]	-	0.23	0.01	0.22
80 (10S)	0.23[c]	-	0.23	0.01	0.21
81 (11S)	0.23[c]	-	0.23	0.01	0.21
82 (12S)	0.25[c]	-	0.24	0.01	0.22
83 (13S)	0.25[c]	-	0.24	0.01	0.22
84 (14S)	0.23[c]	-	0.24	0.01	0.22
85 (15S)	0.25[c]	-	0.25	0.01	0.24
86 (16S)	0.24[c]	-	0.27	0.01	0.25
119B	(g)	-	0.24	0.03	0.22
119Ctrl	(g)	-	0.24	0.02	0.22
120East	(g)	-	0.25	0.03	0.22
120West	(g)	-	0.33	-	
120Ctrl	(g)	-	0.29	-	
121 (ISFSI)	(g)	-	0.67	0.23	0.87
122 (ISFSI)	(g)	-	0.22	0.01	0.27
123 (ISFSI)	(i)	-	0.35	-	0.52
124 (ISFSI)	(i)	-	0.35	-	0.64
125 (ISFSI)	(i)	-	0.33	-	0.58
126 (ISFSI)	(i)	-	0.34	-	0.49
127 (ISFSI)	(i)	-	0.33	-	0.45
128 (ISFSI)	(i)	-	0.31	-	0.40
129 (ISFSI)	(i)	-	0.33	-	0.40
136A (ISFSI)	(i)	-	0.33	-	0.36
137A (ISFSI)	(i)	-	0.34	-	0.37
138A (ISFSI)	(i)	-	0.34	-	0.36
All	0.24	0.00	0.24	0.00	0.26

(a) This preoperational mean is for 1982 - 1983 data only.
(b) Standard Error is calculated from the raw results, which are reported to three decimal places.
(c) There was only one annual exchange during the preoperational period.
(d) Stations 49-56 were first monitored during Fourth Quarter 1983.
(e) Station 61 was added in 1989 and discontinued on June 29, 1992.
(f) Station 65 added in 1997.
(g) Stations 119B, 119Ctrl, 120East, 120West and 120Ctrl added in 1995. Stations 120West and 120Ctrl discontinued in 1997.
(h) Station 121 and 122 were added in 1998 to gather baseline data for the ISFSI.
(i) Stations 123-129 and 136A-138A were added in the 2nd quarter of 2002.

TABLE 5-5
2003 MEAN QUARTERLY VERSUS ANNUAL TLD DATA
Results in mrem/day

	1984-2002 TLDs			2003 TLDs		
STATION	QUARTERLY MEAN[a]	ANNUAL MEAN	RATIO[b]	QUARTERLY MEAN[a]	ANNUAL RESULTS	RATIO[b]
1	0.25	0.24	1.06	0.22	0.21	1.03
2	0.24	0.23	1.06	0.22	0.21	1.02
3	0.24	0.22	1.08	0.21	0.20	1.04
4	0.22	0.21	1.06	0.20	0.20	1.00
5	0.23	0.21	1.07	0.20	0.20	0.99
6	0.23	0.21	1.07	0.20	0.20	1.03
7	0.24	0.23	1.06	0.21	0.20	1.05
8	0.26	0.25	1.04	0.23	0.22	1.06
9	0.22	0.21	1.06	0.19	0.19	1.00
10	0.24	0.22	1.07	0.21	0.21	1.00
11	0.24	0.23	1.06	0.22	0.21	1.05
12	0.26	0.24	1.07	0.23	0.23	1.01
13	0.24	0.23	1.06	0.21	0.21	0.98
14	0.24	0.23	1.07	0.22	0.21	1.01
15	0.26	0.25	1.06	0.24	0.23	1.03
16	0.25	0.24	1.06	0.22	0.22	0.98
17	0.25	0.24	1.06	0.23	0.22	1.05
18	0.25	0.24	1.05	0.22	0.22	0.98
19	0.25	0.24	1.06	0.22	0.22	1.01
20	0.25	0.23	1.05	0.22	0.22	0.98
21	0.23	0.21	1.08	0.20	0.20	1.01
22	0.24	0.23	1.06	0.22	0.21	1.06
23	0.24	0.23	1.07	0.21	0.20	1.06
24	0.25	0.23	1.09	0.22	0.21	1.04
25	0.26	0.24	1.06	0.23	0.23	0.98
40	0.23	0.21	1.08	0.20	0.19	1.03
41	0.26	0.24	1.06	0.22	0.22	1.01
42	0.25	0.23	1.07	0.22	0.21	1.04
43	0.26	0.24	1.08	0.22	0.21	1.06
44	0.24	0.22	1.07	0.20	0.20	1.00
45	0.24	0.23	1.07	0.21	0.21	0.98
46	0.30	0.29	1.04	0.27	0.26	1.01
47	0.23	0.22	1.05	0.20	0.20	1.00
49	0.25	0.23	1.07	0.22	0.22	1.03
50	0.24	0.23	1.07	0.22	0.21	1.04
51	0.24	0.22	1.06	0.21	0.21	0.99
53	0.27	0.25	1.06	0.24	0.24	0.98
54	0.25	0.24	1.05	0.22	0.21	1.02
55	0.24	0.22	1.07	0.21	0.21	1.02
56	0.25	0.23	1.07	0.22	0.21	1.01
61[c]	0.27	0.26	1.05	-	-	-
65[d]	0.23	0.22	1.07	0.21	0.20	1.04

TABLE 5-5 (cont.)
2003 MEAN QUARTERLY VERSUS ANNUAL TLD DATA
Results in mrem/day

	1984-2002 TLDs			2003 TLDs		
STATION	QUARTERLY MEAN[a]	ANNUAL MEAN	RATIO[b]	QUARTERLY MEAN[a]	ANNUAL RESULTS	RATIO[b]
71 (1S)	0.28	0.26	1.06	0.26	0.26	1.00
72 (2S)	0.27	0.26	1.05	0.25	0.24	1.01
73 (3S)	0.24	0.22	1.07	0.21	0.21	1.01
74 (4S)	0.26	0.25	1.06	0.23	0.24	0.98
75 (5S)	0.25	0.23	1.06	0.23	0.22	1.05
76 (6S)	0.25	0.23	1.06	0.22	0.23	0.98
77 (7S)	0.25	0.23	1.06	0.22	0.22	1.02
78 (8S)	0.24	0.23	1.05	0.22	0.22	0.99
79 (9S)	0.25	0.23	1.07	0.22	0.22	0.98
80 (10S)	0.24	0.23	1.06	0.21	0.21	0.99
81 (11S)	0.24	0.23	1.07	0.21	0.21	1.04
82 (12S)	0.25	0.24	1.06	0.23	0.22	1.04
83 (13S)	0.25	0.24	1.05	0.22	0.22	0.99
84 (14S)	0.25	0.24	1.07	0.22	0.22	1.03
85 (15S)	0.26	0.25	1.05	0.23	0.24	0.96
86 (16S)	0.28	0.27	1.04	0.26	0.25	1.03
119B	0.25	0.24	1.06	0.23	0.22	1.05
119Ctrl	0.25	0.24	1.03	0.22	0.22	1.01
120East	0.26	0.25	1.03	0.23	0.22	1.03
120West	0.28	0.33	0.86	-	-	-
120Ctrl	0.25	0.29	0.86	-	-	-
121 (ISFSI)[f]	0.92	0.67	1.37	0.86	0.87	0.99
122 (ISFSI)[f]	0.25	0.22	1.14	0.26	0.27	1.00
123 (ISFSI)[g]	0.35	0.35	1.02	0.51	0.52	0.98
124 (ISFSI)[g]	0.39	0.35	1.10	0.66	0.64	1.04
125 (ISFSI)[g]	0.36	0.33	1.09	0.57	0.58	0.99
126 (ISFSI)[g]	0.36	0.34	1.08	0.49	0.49	0.99
127 (ISFSI)[g]	0.36	0.33	1.09	0.45	0.45	1.00
128 (ISFSI)[g]	0.33	0.31	1.08	0.41	0.40	1.02
129 (ISFSI)[g]	0.36	0.33	1.09	0.41	0.40	1.02
136A (ISFSI)[g]	0.35	0.33	1.06	0.36	0.36	0.99
137A (ISFSI)[g]	0.36	0.34	1.05	0.37	0.37	1.00
138A (ISFSI)[g]	0.36	0.34	1.07	0.36	0.36	1.02
ALL	0.27	0.26	1.07	0.26	0.26	1.01

(a) Mean of the quarterly results.
(b) Quarterly result/Annual result.
(c) Station 61 was added in 1989 and discontinued in 1992.
(d) Station 65 added in 1997.
(e) Stations discontinued in 1997.
(f) Station 121 and 122 were added in 1998 to gather baseline data for the ISFSI.
(g) Stations 123-129 and 136A-138A were added in the 2nd quarter of 2002.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL

6.0 QUALITY ASSURANCE AND QUALITY CONTROL

The REMP is designed to meet the quality assurance and quality control criteria of Regulatory Guide 4.15[4]. To accomplish this, the REMP requires that its analytical contractors also meet these criteria. The Energy Northwest Quality group performs in-depth audits of the REMP records and activities and the records and activities of its support organizations at least annually.

Quality assurance and technical audits of the analytical contractor (Teledyne Brown Engineering) are also conducted periodically to verify their compliance to regulatory and contractual requirements. The adequacy of their quality assurance program is also assessed during the audits.

Intercomparison programs, which involve the comparison of Energy Northwest analytical results of samples containing known concentrations of various radionuclides, to the known values and also with the results reported by other monitoring programs, are a major component of the quality assurance activities of the REMP. The analytical contractor participates in Environmental Measurements Laboratory (EML) intercomparison program. The REMP also participates in local and regional intercomparison studies. The following sections summarize the quality assurance and quality control aspects of the TLD and analytical components of the REMP.

6.1 Quality Control For the Energy Northwest Environmental TLD Program

The Quality Control Program includes the preparation, processing and evaluation of environmental TLDs. To begin with, all environmental TLDs, including controls, which are to be used in the same quarter (or year for annuals), are annealed at the same time. This allows for uniform accumulation of and correction for background radiation. From the time the TLDs are annealed to the time they are placed in the field, they are stored and transported with a set of control TLDs. Once the field TLDs are collected, they are again stored together with the controls until processed.

Reader QC dosimeters are prepared by Battelle 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 just prior to being given a known exposure (typically 100 mR) to cesium-137 and processed among the field dosimeters. The number of QA dosimeters used during each processing is generally 10% of the number of field dosimeters.

If the mean reader QC dosimeter results vary by more than ± 5% from the given exposure, the processor is contacted and an investigation into the source of the discrepancy is initiated. Evaluation of the 2003 reader QC dosimeter results indicated satisfactory agreement for all four quarters and the annual processing results.

Control dosimeters (trip controls) are used with each set of field dosimeters to monitor the contribution of the exposure received by the field TLDs while in transit. The radiation background in the storage area is also monitored by a separate set of control dosimeters (building controls). 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.

Spiked dosimeters are exposed by Energy Northwest. Quarterly spikes receive a target exposure of 25 mR and annual spikes receive a target exposure of 100 mR. These spiked dosimeters are

processed with the field dosimeters during each run to verify the accuracy and consistency of the environmental TLD evaluations. All results were within ±10% of the known exposure and are provided in Table 6-1.

Extra sets of control dosimeters, known as zero dose dosimeters, are also included with the field dosimeters for processing. These zero dose TLDs are stored in a shielded container throughout the quarter (or year for annuals) and are used as an additional indication of reader performance. These TLDs may also be used as replacements if a field TLD is lost.

6.2 Quality Control For the Analytical Program

Quality control for the analytical program involves two components: the quality control activities performed by Energy Northwest and the quality control program of the analytical contractor, Teledyne Brown Engineering. Both of these components are described in the following sections.

6.2.1 Energy Northwest Quality Control Activities

A duplicate milk sample was submitted to Teledyne Brown for analysis during 2003. The milk duplicate was labeled Station 37 and was submitted for analysis at the same time as the milk samples from Station 36. The potassium-40 result for the Station 36 result was 1.56E±0.12E+03 pCi/l and for Station 37, the result was 1.60±0.10E+03 pCi/l. Potassium-40 was the only detectable nuclide in both samples.

6.2.2 Teledyne Brown Engineering Quality Control Program

The goal of the quality control program at Teledyne Brown Engineering – Environmental Services is to produce analytical results that are accurate, precise and supported by adequate documentation. The program is based on the requirements of 10CFR50, Appendix B, Nuclear Regulatory Guide 4.15 and the program as described in Teledyne's Quality Assurance Manual (IWL-0032-395) and Quality Control Manual (IWL-0032-365).

All measuring equipment is calibrated for efficiency at least annually using standard reference material traceable to the National Institute of Standards and Technology (NIST). For alpha and beta counting, check sources are prepared and counted each weekday the counter is in use. Control charts are maintained with three-sigma limits specified. Backgrounds are usually measured at least once per week.[17]

The gamma spectrometers are calibrated annually with a NIST-traceable standard reference material selected to cover the energy range of the nuclides to be monitored for all of the geometries measured. Backgrounds are determined every other week and check sources are counted weekly. The energy resolution and efficiency are plotted at two energy levels (59.5 and 1332 KeV) and held within three-sigma control limits.[18]

The efficiency of the liquid scintillation counters is determined at least annually by counting NIST traceable standards which have been diluted in a known amount of distilled water and various

amounts of quenching agent.[19] The background of each counter is measured with each batch of samples. A control chart is maintained for the background and check source measurements as a stability check.

Results are reviewed before being entered into the data system by the Quality Assurance and/or the Department Manager for reasonableness of the parameters (background, efficiency, decay, etc.). Any results that are suspect, being higher or lower than results in the past, are returned to the laboratory for recount. If a longer count, decay check, recount on another system or recalculation does not give acceptable results based on experience, a new aliquot is analyzed. The complete information about the sample is contained on the worksheets accompanying the sample results.

The U.S. Environmental Protection Agency (EPA) discontinued its Interlaboratory Comparison Program in December 1998. However, on May 1, 2001, accreditation was granted to Environmental Resource Associates' (ERA) RadCheM Proficiency Testing Program to complete the process of replacing the USEPA-LV Nuclear Radiation Assessment Division Program. Teledyne participates in the Analytics, Inc., ERA, the Department of Energy's Environmental Measurements Laboratory (DOE/EML) and the Mixed Analyte Performance Evaluation Program (MAPEP) intercomparison programs. Teledyne's participation in the programs is for all matrices and radioactive isotopes required for Radiological Environmental Monitoring Program (REMP) clients at the maximum frequency of availability. Results from these programs are presented in Tables 6-2 through 6-5.

NIST is the approval authority for laboratory providers participating in Intercomparison Study programs.

Tables 6-6 and 6-7 present the Teledyne Brown quality control data results for the in-house water blank and spike program. Samples are spiked with gross alpha, gross beta, and tritium. The range for acceptable spikes is from 80% to 120% and the warning limits are from 70% to 80% and from 120% to 130%.

No deviations from written procedures occurred during 2003. A summary of the quality control blank and spiked sample results follow.

Iodine-131 Cartridges

A blank charcoal filter was analyzed with each group of samples assayed. Fifty-two blanks were analyzed in 2003. The blanks were below the detection level.

Gross-Beta - Filters

One blank filter was measured with each set of filters assayed. Fifty-two blanks were counted for 2003. The blanks were below or slightly above the detection limit, but indistinguishable from natural background, which indicated a relatively stable background for the filter and the gross beta proportional counters. The average activity for fifty-two blank samples in 2003 was 9.21E-01 pCi/l without considering detection limits.

I-131 - Milk

Eighteen blank water samples were analyzed. The results showed that there was no contamination in the laboratory or counting area. The measurements of the blank samples indicated that there was no bias on the low background counters. The average activity for eighteen blank samples in 2003 was 2.74E-01 pCi/liter without considering detection limits.

Gross Beta - Water

Eighty-six blank samples were prepared from distilled water. The average result without considering detection limits for 2003 was 8.24E-01 pCi/l. Eighty-six gross beta spike samples were analyzed during 2003. The average result was 2.37+01 pCi/l. The results were well within the guidelines outlined in Table 2 of the document, "Environmental Radioactivity Laboratory Intercomparison Studies Program," EPA-600/4-81-004.

Tritium in Water

Eighty-two blank samples were analyzed by liquid scintillation counting during 2003. The average result without considering detection limits was 3.12E+00 pCi/liter. Eighty-two tritium spike samples were analyzed by liquid scintillation counting during 2003. The average result was 9.30E+02 pCi/liter.

Gamma Spectroscopy

A blank water sample was analyzed weekly in the gamma spectroscopy laboratory. All nuclides were less than the normal level of detection indicating no contamination. Spike samples were measured using the Cs-137 peak at 662 KeV. The Cs-137 results were within the ± 3 sigma limits.

TABLE 6-1
2003 ENVIRONMENTAL SPIKED DOSIMETER RESULTS

DISTRIBUTION PERIOD	GIVEN EXPOSURE (mR)	REPORTED EXPOSURE (mR)	BIAS (%)
First Quarter	22	21.4	-2.6
		21.4	-2.8
		21.8	-1
Second Quarter	25	24.7	-1
		24.7	-1.1
		24.2	-3
Third Quarter	23	24.6	-1.8
		24.3	-2.9
		24.8	-0.8
Fourth Quarter	26	23.6	-5.4
		24.4	-2.2
		23.5	-6
Annual	100	91	-4.2
		90.3	-4.9
		88.1	-7.3

TABLE 6-2
2003 ENVIRONMENTAL MEASUREMENTS LABORATORY (EML)
QUALITY ASSESSMENT PROGRAM RESULTS

QAP No.	Sample Type[a]	Nuclide	Reported Result[b]	Reported Error	EML Value[c]	EML Error	Reported EML[d]	Evaluation[e]
58	Air	Co-60	35.900	1.100	33.500	0.870	1.072	A
	(Bq/filter)	Cs-137	113.700	2.100	99.700	2.300	1.140	A
		Gr-β	1.600	0.100	1.500	0.150	1.067	A
		Mn-54	49.400	1.500	43.800	1.130	1.128	A
		Sr-90	2.400	0.100	2.800	0.140	0.857	A
58	Soil	Cs-137	1883.000	8.800	1450.000	73.000	1.299	N
	(Bq/kg)	K-40	805.700	25.800	636.000	33.000	1.267	W
		Sr-90	53.500	1.900	64.400	3.100	0.831	A
58	Vegetation	Co-60	11.700	0.730	11.230	0.677	1.042	A
	(Bq/kg)	Cs-137	346.000	8.600	313.667	15.910	1.103	A
		K-40	952.000	38.400	864.330	47.220	1.101	A
		Sr-90	477.000	22.000	586.280	11.140	0.814	A
58	Water	Co-60	252.300	5.400	234.000	8.400	1.078	A
		Cs-134	31.100	2.100	30.500	1.090	1.020	A
		Cs-137	71.500	4.200	63.800	3.400	1.121	W
		Gr-α	483.700	76.400	377.000	10.000	1.281	W
		Gr-β	821.300	39.600	627.500	10.000	1.309	W
		H-3	418.300	22.700	390.000	3.400	1.073	A
		Sr-90	3.630	0.140	4.340	0.200	0.836	W
59	Air	Co-60	53.300	1.600	55.100	1.100	0.967	A
	(Bq/filter)	Cs-137	51.200	1.900	54.800	1.100	0.934	A
		Gr-β	3.400	0.100	3.890	0.390	0.874	W
		Mn-54	54.000	2.000	58.000	1.300	0.931	A
		Sr-90	1.700	0.070	2.058	0.073	0.826	A
59	Soil	Cs-137	2127.000	10.700	1973.000	99.000	1.078	A
	(Bq/kg)	K-40	517.000	26.200	488.000	26.000	1.059	A
		Sr-90	70.000	2.100	80.300	2.900	0.872	A
59	Water	Co-60	491.000	9.600	513.000	18.000	0.957	A
	(Bq/l)	Cs-134	62.400	4.400	63.000	2.000	0.990	A
		Cs-137	74.900	7.000	80.300	4.100	0.933	A
		Gr-α	612.000	47.000	622.000	62.000	0.984	A
		Gr-β	1663.000	76.000	1948.000	195.000	0.854	A
		H-3	511.000	25.600	446.300	2.200	1.145	A
		Sr-90	5.900	0.200	7.040	0.330	0.838	W

Footnotes:

(a) Bq = Becquerel. One picocurie equals 0.027 Becquerel
(b) Teledyne Brown Engineering reported result.
(c) The DOE/EML known value is equal to 100% of the parameter present in the standard as gravimetric and/or volumetric measurements made during standard preparation.
(d) Ratio of Teledyne Brown Engineering to DOE/EML results
(e) A=Acceptable, W=Acceptable with Warning, N=Not Acceptable

TABLE 6-3
2003 ANALYTICS, INC. CROSS CHECK COMPARISON PROGRAM

Month/Year	Identification Number	Matrix	Nuclide[a]	Units	Reported Value[b]	Analytics Value[c]	Ratio[d] TBE/Analytics	Evaluation[e]
Mar/2003	E3585-396	Milk	Sr-89	pCi/l	80	133	0.60	N[1]
			Sr-90		11.2	27	0.95	A
Mar/2003	E3586-396	Milk	I-131	pCi/l	75	74	1.01	A
			Ce-141		168	173	0.97	A
			Cs-134		83	90	0.92	A
			Cs-137		207	200	1.04	A
			Co-58		49	47	1.04	A
			Mn-54		65	64	1.02	A
			Fe-59		53	47	1.13	A
			Zn-65		114	93	1.23	W
			Co-60		169	162	1.04	A
Mar/2003	E3588-396	AP	Ce-141	pCi	239	224	1.07	A
			Cs-134		101	117	0.86	A
			Cs-137		277	259	1.07	A
			Co-58		66	60	1.10	A
			Mn-54		97	83	1.17	A
			Fe-59		80	61	1.31	N[2]
			Zn-65		152	120	1.23	W
			Co-60		223	209	1.07	A
Mar/2003	E3587-396	Charcoal	I-131	pCi	68	74	0.92	A
Jun/2003	E3748-396	Milk	I-131	pCi/l	115	103	1.12	A
			Ce-141		285	283	1.01	A
			Cs-134		99	103	0.96	A
			Cs-137		236	230	1.03	A
			Co-58		106	93	1.14	A
			Mn-54		190	186	1.02	A
			Fe-59		108	99	1.09	A
			Zn-65		155	159	0.97	A
			Co-60		160	116	0.94	A
Jun/2003	E3747-396	Milk	Sr-89	pCi/l	89	85	1.05	A
			Sr-90		20	23	0.87	A
Jun/2003	E3750-396	AP	Ce-141	pCi	238	248	0.96	A
			Cs-134		79	91	0.87	A
			Cs-137		189	202	0.94	A
			Co-58		71	81	0.88	A
			Mn-54		164	163	1.01	A
			Fe-59	pCi	91	87	1.05	A
			Zn-65		155	159	0.97	A
			Co-60		109	116	0.94	A
Jun/2003	E3749-396	Charcoal	I-131	pCi	78	62	1.26	W
Sep/2003	E3898-396	Milk	Sr-89	pCi/l	45	100	0.45	N[1]
			Sr-90		13	14	0.93	A
Sep/2003	E3899-396	Milk	I-131	pCi/l	73	74	0.99	A
			Ce-141		85	86	0.99	A
			Cs-134		106	119	0.89	A
			Cs-137		90	88	1.02	A

TABLE 6-3 (cont.)
2003 ANALYTICS, INC. CROSS CHECK COMPARISON PROGRAM

Month/Year	Identification Number	Matrix	Nuclide[a]	Units	Reported Value[b]	Analytics Value[c]	Ratio[d] TBE/Analytics	Evaluation[e]
Sep/2003	E3899-396	Milk	Co-58		96	99	0.97	A
			Mn-54		95	93	1.02	A
			Fe-59		84	79	1.06	A
			Zn-65		187	176	1.06	A
			Co-60		132	123	1.07	A
Sep/2003	E3901-396	AP	Ce-141	pCi	79	77	1.03	A
			Cs-134		93	108	0.86	A
			Cs-137		70	79	0.89	A
			Co-58		80	89	0.90	A
			Mn-54		73	84	0.87	A
			Fe-59		74	71	1.04	A
			Zn-65		143	158	0.91	A
			Co-60		93	111	0.84	A
Sep/2003	E3900-396	Charcoal	I-131	pCi	74	86	0.86	A
Nov/2003	E3970-396	Milk	Sr-89	pCi/l	185	168	1.10	A
			Sr-90		19	17	1.12	A
Nov/2003	E3971-396	Milk	I-131	pCi/l	87	90	0.97	A
			Ce-141		186	202	0.92	A
			Cs-134		119	135	0.88	A
			Cs-137		116	129	0.90	A
			Co-58		111	111	1.00	A
			Mn-54		176	173	1.02	A
			Fe-59		94	102	0.92	A
			Zn-65		190	197	0.96	A
			Co-60		140	155	0.90	A
Nov/2003	E3973-396	AP	Ce-141	pCi	144	142	1.01	A
			Cs-134		90	96	0.94	A
			Cs-137		85	91	0.93	A
			Co-58		80	78	1.03	A
			Mn-54		115	122	0.94	A
			Fe-59		72	72	1.00	A
			Zn-65		121	139	0.87	A
			Co-60		102	109	0.94	A
Nov/2003	E3972-396	Charcoal	I-131	pCi	67	77	0.87	A

Footnotes:

(a) Only analyses performed routinely for the REMP are included on this table.
(b) Teledyne Brown Engineering reported result.
(c) The Analytics known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.
(d) Ratio of Teledyne Brown Engineering to Analytics results.
(e) Analytics evaluation based on TBE internal QA limits: A=Acceptable. Reported result falls within ratio limits of 0.80-1.20. W=Acceptable with warning. Reported results within 0.70-0.80 or 1.20-1.30. N=Not Acceptable. Reported result falls outside the ratio limits of <0.70 and >1.30.
(1) Incorrectly calculated. The recalculated March and September Sr-89 results of 138 and 95.8 pCi/l, respectively, are acceptable. Teledyne initiated NCR 04-02
(2) Using only the results from the 1099.2 keV photon, the Fe-59 would be 71 pCi, which is acceptable. Coincidental summing may be occurring. Geometry calibrations above the detector will help reduce coincidental summing. These samples containing significant quantities of Fe-59 will be counted above the detector. Teledyne initiated NCR 04-03

TABLE 6-4
2003 ERA ENVIRONMENTAL RADIOACTIVITY CROSS CHECK COMPARISON PROGRAM

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value[a]	Known Value[b]	Control Limits	Evaluation[c]
May/2003	Rad 53	Water	H-3	pCi/l	1200	1250	678-1820	A
			Co-60	pCi/l	69.9	63.8	55.1-72.5	A
			Cs-134	pCi/l	73.5	75.7	67.0-84.4	A
			Cs-137	pCi/l	165	150	141-159	N[1]
			Sr-89	pCi/l	37.0	31.3	22.6-40.0	A
			Sr-90	pCi/l	23.5	27.4	18.7-36.1	A
Nov/2003	Rad 55	Water	H-3	pCi/l	1630	14300	11800-16800	N[2]
			Ra-226	pCi/l	6.09	16.1	11.9-20.3	N[2]
			Gr-α	pCi/l	60.3	54.2	30.7-77.7	A
			Co-60	pCi/l	28.4	27.7	19.0-36.4	A
			Cs-134	pCi/l	21.7	23.4	14.7-32.1	A
			Cs-137	pCi/l	63.6	64.2	55.5-72.9	A
			Sr-89	pCi/l	47.9	50.4	41.7-59.1	A
			Sr-90	pCi/l	9.23	10.2	1.54-18.9	A
			Gr-β	pCi/l	161	168	124-212	A

Footnotes:

(a) Teledyne Brown Engineering reported result.
(b) The ERA known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.
(c) ERA Evaluation: A=Acceptable. Reported result falls within the Warning Limits. N=Not Acceptable. Reported result falls outside of the Control Limits.
(1) Although Cs-137 is evaluated as N, the TBE/ERA ratio of 1.10 falls within limits of 0.80-1.20 and is considered by TBE as acceptable.
(2) Teledyne has initiated NCR 04-06. H-3 was reported as total pCi. When recalculated using the aliquot of 10mL and correcting to pCi/l, the result of 16,333 pCi/l was within control limits. The low Ra-226 result is under investigation.

TABLE 6-5
MAPEP ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM

Month/Year	Identification Number	Media	Nuclide[a]	Units	Reported Value[b]	Known Value[c]	Control Limits	Evaluation[d]
Feb/2003	02-W10	Water	Cs-134	Bq/L	382.7	421	294.70-547.30	A
			Cs-137	Bq/L	329.3	329	230.30-427.70	A
			Co-57	Bq/L	58.17	57	39.90-74.10	A
			Co-60	Bq/L	41.2	38.2	26.74-49.66	A
			Mn-54	Bq/L	35.07	32.9	23.03-42.77	A
			Zn-65	Bq/L	566	516	361.20-670.80	A
Jul/2003	03-S10	Soil	Cs-134	Bq/Kg	204	238	166.60-309.40	A
			Cs-137	Bq/Kg	803	832	582.40-1081.60	A
			Co-57	Bq/Kg	499	530	371.00-689.00	A
			Co-60	Bq/Kg	427	420	294.00-546.00	A
			Mn-54	Bq/Kg	136	137	95.90-178.10	A
			K-40	Bq/Kg	686	652	456.40-847.60	A
			Zn-65	Bq/Kg	528	490	343.00-637.00	A

Footnotes:

(a) Only analyses performed routinely for the REMP are included on this table.
(b) Teledyne Brown Engineering reported result.
(c) The MAPEP known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.
(d) A=Acceptable; W=Acceptable with warning.

TABLE 6-6
2003 TELEDYNE BROWN IN-HOUSE WATER BLANK AND SPIKE PROGRAM
GROSS ALPHA AND GROSS BETA

Count Date	Gross Alpha, Total pCi Blank	Spike Found	Spike In	% Recovery	Gross Beta, Total pCi Blank	Spike Found	Spike In	% Recovery
01/05/03	< 0.589	27.0	24.17	111.7	< 0.726	28.2	26.82	105.1
01/22/03	< 1.94	18.1	21.10	85.8	< 1.20	27.9	26.82	104.0
01/22/03	< 1.94	17.2	21.10	81.5	< 1.20	26.1	26.82	97.3
01/22/03	< 1.94	18.1	21.10	85.8	< 1.20	26.1	26.82	97.3
01/22/03	< 1.95	16.0	21.10	75.8	< 1.20	26.5	26.82	98.8
01/22.03	< 2.00	18.1	21.10	85.8	< 1.21	26.6	26.82	99.2
01/29/03	< 0.479	20.7	21.10	98.1	< 0.799	27.2	26.82	101.4
02/04/03	< 0.543	22.8	21.10	108.1	< 0.779	26.7	26.82	99.6
02/06/03	< 0.692	19.4	21.10	91.9	< 0.867	26.0	26.82	96.9
02/13/03	< 0.711	18.3	21.10	86.7	< 0.933	27.1	26.82	101.0
02/19/03	< 0.237	18.7	21.10	88.6	< 0.856	24.4	26.82	91.0
02/24/03	< 0.592	19.7	21.10	93.4	< 0.774	28.0	26.82	104.4
03/07/03	< 0.619	18.9	21.10	89.6	< 0.891	27.3	26.82	101.8
03/07/03	< 0.657	20.0	21.10	94.8	< 0.905	28.6	26.82	106.6
03/07/03	< 1.040	19.1	21.10	90.5	< 1.040	28.5	26.82	106.3
03/07/03	< 1.040	18.6	21.10	88.2	< 1.040	28.2	26.82	105.1
03/07/03	< 0.910	18.7	21.10	88.6	< 0.993	27.7	26.82	103.3
03/07/03	< 0.856	18.7	21.10	88.6	< 0.975	28.7	26.82	107.0
03/18/03	< 0.418	22.9	21.10	108.5	< 0.840	27.0	26.82	100.7
03/18/03	< 0.751	24.3	21.10	115.2	< 0.725	27.5	26.82	102.5
03/19/03	< 0.667	23.7	21.10	112.3	< 0.829	25.8	26.82	96.2
03/21/03	< 0.229	17.0	21.10	80.6	< 0.580	26.8	26.82	99.9
03/21/03	< 0.255	19.1	21.10	90.5	< 0.312	25.0	26.82	93.2
03/26/03	< 0.337	18.2	21.10	86.3	< 0.493	25.7	26.82	95.8
03/26/03	< 0.0765	17.3	21.10	82.0	< 0.202	26.6	26.82	99.2
03/26/03	< 0.333	17.4	21.10	82.5	< 0.336	26.1	26.82	97.3
03/27/03	< 0.781	22.0	21.10	104.3	< 0.900	26.9	26.82	100.3
04/02/03	< 0.847	25.0	21.10	118.5	< 0.753	25.6	26.82	95.5
04/02/03	< 1.03	23.2	21.10	110.0	< 0.874	27.7	26.82	103.3
04/08/03	< 0.923	20.6	21.10	97.6				
04/13/03	< 0.935	24.2	21.10	114.7				
04/16/03	< 1.28	22.1	21.10	104.7				
04/20/03	< 0.562	20.5	21.10	97.2				
04/21/03	< 0.553	20.7	21.10	98.1	< 0.790	25.9	26.82	96.6
04/22/03	< 0.878	19.0	21.10	90.0	< 0.913	30.0	26.82	111.9
04/25/03	< 0.712	19.1	21.10	90.5	< 0.831	29.7	26.82	110.7
04/30/03	< 0.545	23.2	21.10	110.0	< 0.733	27.7	26.82	103.3
04/30/03	< 0.458	22.8	21.10	108.1	< 0.641	29.0	26.82	108.1
05/04/03	< 0.612	22.9	21.10	108.5				
05/12/03	< 0.604	25.4	21.10	120.4				

TABLE 6-6 (cont.)
2003 TELEDYNE BROWN IN-HOUSE WATER BLANK AND SPIKE PROGRAM
GROSS ALPHA AND GROSS BETA

Count Date	Gross Alpha, Total pCi Blank	Spike Found	Spike In	% Recovery	Gross Beta, Total pCi Blank	Spike Found	Spike In	% Recovery
05/19/03	< 0.933	19.2	21.10	91.0	< 0.872	27.9	26.82	104.0
05/19/03	< 0.486	24.4	21.10	115.6	< 0.714	29.5	26.82	110.0
05/27/03	< 0.736	25.8	21.10	122.3				
05/27/03	< 0.382	19.3	21.10	91.5	< 0.960	27.2	26.82	101.4
05/29/03	< 0.814	26.3	21.10	124.5				
06/02/03	< 0.571	20.1	21.10	95.3	< 0.983	27.5	26.82	102.5
06/03/03	< 0.297	24.6	21.10	116.6	< 0.876	28.2	26.82	105.1
06/03/03	< 0.620	22.1	21.10	104.7	< 0.784	25.4	26.82	94.7
06/03/03	< 0.845	22.2	21.10	105.2	< 0.885	28.9	26.82	107.8
06/13/03	< 0.559	21.8	21.10	103.3				
06/17/03	< 3.04	21.0	21.10	99.5				
06/20/03	< 0.579	22.1	21.10	104.7				
07/08/03	< 0.880	22.5	21.10	106.6				
07/22/03	< 0.492	20.5	21.10	97.2	< 0.858	25.6	25.1	102.0
07/22/03	< 0.374	20.7	21.10	98.1	< 0.854	24.2	25.1	96.4
07/25/03	< 0.634	20.8	21.10	98.6	< 0.730	28.3	25.1	112.7
07/28/03	< 0.557	17.1	21.10	81.0	< 0.712	27.6	25.1	110.0
08/06/03	< 0.468	16.1	21.10	76.3	< 0.663	26.7	25.1	106.4
08/16/03	< 0.290	17.5	21.10	82.9	< 0.756	25.7	25.1	102.4
08/20/03	< 0.624	16.2	21.10	76.8	< 0.839	24.6	25.1	98.0
08/26/03	< 0.436	15.5	21.10	73.5	< 0.732	25.7	25.1	102.4
08/27/03	< 0.530	18.6	21.10	88.2	< 0.981	26.3	25.1	104.3
09/04/03	< 0.502	20.1	21.10	95.3	< 0.816	26.0	25.1	103.6
09/05/03	< 0.424	18.3	21.10	86.7	< 0.977	26.3	25.1	104.8
09/09/03	< 0.592	19.7	21.10	93.4	< 0.834	25.9	25.1	103.2
09/10/03	< 0.293	17.2	21.10	81.5	< 0.819	26.0	25.1	103.6
09/10/03	< 0.486	18.0	21.10	85.3				
09/11/03	< 0.520	24.7	21.10	117.1				
09/11/03	< 0.488	22.0	21.10	104.3				
09/11/03	< 0.704	19.8	21.10	93.8	< 0.805	27.4	25.1	109.2
09/12/03	< 0.787	16.1	21.10	76.3	< 0.775	22.9	25.1	91.2
09/19/03	< 0.521	15.5	21.10	73.5	< 0.804	23.9	25.1	95.2
09/19/03	< 0.585	17.7	21.10	83.9	< 0.831	23.3	25.1	92.8
09/20/03	< 0.744	18.3	21.10	86.7	< 0.867	26.9	25.1	107.2
09/25/03	< 0.865	26.9	21.10	127.5				
09/26/03	< 0.582	18.1	21.10	85.8	< 0.830	26.7	25.1	106.5
10/02/03	< 0.356	18.4	21.10	87.2	< 0.742	23.5	25.1	93.6
10/14/03	< 0.510	18.7	21.10	88.6	< 0.759	26.5	25.1	105.6
10/16/03	< 0.350	17.5	21.10	82.9	< 0.893	24.2	25.1	96.4
10/21/03	< 0.507	17.1	21.10	81.0	< 0.850	23.9	25.1	95.2

TABLE 6-6 (cont.)
2003 TELEDYNE BROWN IN-HOUSE WATER BLANK AND SPIKE PROGRAM
GROSS ALPHA AND GROSS BETA

Count Date	Gross Alpha, Total pCi Blank	Spike Found	Spike In	% Recovery	Gross Beta, Total pCi Blank	Spike Found	Spike In	% Recovery
10/24/03	< 0.700	22.9	21.10	108.5	< 0.924	26.5	25.1	105.6
10/28/03	< 0.839	23.7	21.10	112.3				
10/30/03	< 0.542	17.4	21.10	82.5	< 0.749	23.0	25.1	91.6
10/30/03	< 0.583	18.4	21.10	87.2	< 0.791	22.5	25.1	89.6
10/31/03	< 0.431	19.4	21.10	91.9	< 0.731	24.0	25.1	95.6
11/06/03	< 0.480	23.5	21.10	111.4				
11/07/03	< 0.490	17.8	21.10	84.4	< 0.801	25.4	25.1	101.2
11/14/03	< 0.429	21.4	21.10	101.4	< 0.759	28.0	25.1	111.6
11/17/03	< 0.490	19.8	21.10	93.8				
11/17/03	< 0.288	17.0	21.10	80.6	< 0.745	26.2	25.1	104.4
11/19/03	< 0.627	20.6	21.10	97.6				
11/20/03	< 0.810	18.0	21.10	85.3	< 0.755	26.4	25.1	105.2
12/02/03	< 0.775	19.4	21.10	91.9	< 0.768	27.2	25.1	108.4
12/03/03	< 0.547	20.3	21.10	96.2	< 0.841	26.4	25.1	105.2
12/03/03	< 0.761	19.1	21.10	90.5	< 0.893	24.0	25.1	95.6
12/13/03	< 0.665	19.1	21.10	90.5	< 0.777	25.9	25.1	103.2
12/13/03	< 0.356	18.5	21.10	87.7	< 0.742	23.9	25.1	95.2
12/16/03	< 0.524	27.0	21.10	128.0	< 0.740	27.1	25.1	108.0
12/16/03	< 0.385	22.0	21.10	104.3	< 0.847	25.3	25.1	100.8
12/17/03	< 0.915	18.3	21.10	86.7				
12/17/03	< 0.899	24.2	21.10	114.7				
12/18/03	< 0.540	19.6	21.10	92.9	< 0.931	26.2	25.1	104.4
12/23/03	< 0.632	20.0	21.10	94.8	< 0.866	25.7	25.1	102.4
12/23/03	< 0.838	20.5	21.10	97.2	< 0.742	26.0	25.1	103.6
12/24/03	< 0.393	19.6	21.10	92.9	< 0.791	24.7	25.1	98.4
12/24/03	< 0.624	20.2	21.10	95.7	< 0.678	25.7	25.1	102.4
12/29/03	< 1.040	23.0	21.10	109.0	< 0.985	27.0	25.1	107.6
12/31/03	< 0.736	20.8	21.10	98.6	< 0.830	26.7	25.1	106.4

TABLE 6-7
2003 TELEDYNE BROWN IN-HOUSE WATER BLANK AND SPIKE PROGRAM
TRITIUM

Count Date		Blank (pCi)	Spike Found ([pCi)	Spike In (pCi)	% Recovery
01/09/03		7.840	906	939.65	96.4
01/09/03	<	3.360	989	939.65	105.3
01/10/03	<	2.720	973	939.98	103.5
01/10/03	<	0.649	897	939.51	95.5
01/13/03	<	0.174	934	939.93	99.4
01/19/03	<	0.191	921	938.69	98.1
01/21/03	<	0.202	975	938.41	103.9
01/23/03	<	0.211	953	987.8	96.5
01/26/03	<	0.720	988	987.8	100.0
01/26/03	<	0.614	959	987.8	97.1
01/30/03	<	0.62	885	939.39	94.2
02/01/03	<	0.53	885	939.39	94.2
02/02/03	<	0.22	982	987.83	99.4
02/14/03	<	6.12	845	987.8	85.5
02/14/03	<	1.31	852	987.8	86.3
02/21/03	<	1.21	905	987.8	91.6
02/25/03	<	1.31	965	987.8	97.7
03/03/03	<	1.14	956	987.8	96.8
03/07/03	<	5.90	850	987.8	86.0
03/08/03	<	1.17	738	987.8	74.7
03/09/03	<	2.76	952	987.8	96.4
03/14/03	<	1.23	875	987.8	88.6
03/21/03	<	0.184	966	987.8	97.8
03/22/03	<	2.35	955	987.8	96.7
03/23/03	<	0.132	979	987.8	99.1
04/05/03	<	0.177	960	987.8	97.2
04/08/03	<	2.18	953	987.8	96.5
04/09/03	<	1.22	789	987.8	79.9
04/24/03	<	0.170	957	987.8	96.9
04/25/03	<	2.66	809	987.8	81.9
04/25/03	<	2.66	838	987.8	84.8
04/25/03	<	2.68	764	987.8	77.3
04/25/03	<	0.171	963	987.8	97.5
05/14/03	<	2.43	946	987.8	95.8
05/15/03	<	0.156	971	987.8	98.3
05/17/03	<	0.178	975	987.8	98.7
05/27/03	<	0.584	786	988	79.6
05/30/03	<	0.234	956	988	96.8
06/13/03	<	0.176	965	988	97.6
06/14/03	<	2.38	940	988	95.1

TABLE 6-7 (cont.)
2003 TELEDYNE BROWN IN-HOUSE WATER BLANK AND SPIKE PROGRAM
TRITIUM

Count Date		Blank (pCi)	Spike Found ([pCi)	Spike In (pCi)	% Recovery
06/14/03	<	2.37	940	988	95.1
06/24/03	<	1.88	978	988	99.0
06/29/03	<	1.79	961	988	97.3
07/16/03	<	2.2	897	988	90.8
08/09/03	<	0.19	949	988	96.1
08/11/03	<	0.148	855	988	86.5
08/14/03	<	1.11	808	988	81.8
08/25/03	<	1.27	153	198	77.3
08/27/03	<	2.38	980	988	99.2
09/09/03	<	0.182	1050	988	106.3
09/12/03	<	6.42	946	988	95.7
09/12/03	<	15.9	1050	988	106.3
09/12/03	<	15.9	1060	988	107.3
09/12/03	<	15.9	985	988	99.7
09/12/03	<	15.8	1010	988	102.2
09/16/03	<	4.23	768	988	77.7
09/16/03	<	15.0	1050	988	106.3
09/16/03	<	15.2	1000	988	101.2
09/16/03	<	15.5	1010	988	102.2
09/16/03	<	13.7	898	988	90.9
09/16/03	<	15.2	955	988	96.7
09/18/03	<	0.123	1020	988	103.2
09/25/03	<	1.26	938	988	94.9
10/01/03	<	1.2	1030	988	104.3
10/05/03	<	2.4	995	988	100.7
10/07/03	<	1.9	1020	988	103.2
10/07/03	<	1.9	1020	988	103.2
10/13/03	<	1.3	833	988	84.3
10/18/03	<	1.30	992	988	100.4
10/21/03	<	1.22	984	988	99.6
10/22/03	<	1.46	1020	988	103.2
11/04/03	<	1.14	991	988	100.3
11/05/03	<	1.40	718	988	72.7
11/29/03	<	1.33	911	988	92.2
12/08/03	<	1.26	988	988	100.0
12/09/03	<	2.70	1070	988	108.3
12/12/03	<	1.95	1090	988	110.3
12/16/03	<	1.29	1030	988	104.3

TABLE 6-7 (cont.)
2003 TELEDYNE BROWN IN-HOUSE WATER BLANK AND SPIKE PROGRAM
TRITIUM

Count Date		Blank (pCi)	Spike Found ([pCi)	Spike In (pCi)	% Recovery
12/20/03	<	1.85	1080	988	109.3
12/20/03	<	1.77	1030	988	104.3
12/21/03	<	1.66	1080	988	109.3
12/31/03	<	2.43	519	494	105.1

7.0 REFERENCES

7.0 REFERENCES

1. U.S. Nuclear Regulatory Commission, "Programs For Monitoring Radioactivity in the Environs of Nuclear Power Plants," Regulatory Guide 4.1, Revision 1, April 1975.

2. U.S. Nuclear Regulatory Commission, "Environmental Technical Specifications For Nuclear Power Plants," Regulatory Guide 4.8, December 1975.

3. U.S. Nuclear Regulatory Commission, "An Acceptable Radiological Environmental Monitoring Program," Assessment Branch Technical Position Revision 1, November 1979.

4. U.S. Nuclear Regulatory Commission, "Quality Assurance For Radiological Environmental Monitoring Program (Normal Operations), Effluent Streams and the Environment," Regulatory Guide 4.15, Revision 1, February 1979.

5. U.S. Nuclear Regulatory Commission, "Performance, Testing and Procedural Specifications For Thermoluminescence Dosimetry-Environmental Applications," Regulatory Guide 4.13, Revision 1, July 1977.

6. Energy Facility Site Evaluation Council, Resolution No. 260, January 1992.

7. Energy Northwest Nuclear Columbia Generating Station, Operating License NPF-21, "Technical Specifications" Sections 5.5.1, 5.5.4, and 5.6.2

8. Columbia Generating Station Offsite Dose Calculation Manual (ODCM).

9. Code of Federal Regulations, Title 10 Part 20, "Standards for Protection against Radiation."

10. Code of Federal Regulations, Title 10 Part 50, "Domestic Licensing of Production and Utilization Facilities."

11. Washington Administrative Code 246-290, "Group A Public Water Systems."

12. Washington Administrative Code 173-200, "Water Quality Standards for Ground Water of the State of Washington."

13. Washington Administrative Code 173-201A, "Water Quality Standards for Surface Waters of the State of Washington."

14. Robertson, D. E., and J. J. Fix, "Association of Hanford Origin Radionuclides With Columbia River Sediment," BNWL-2305, August 1977.

15. Energy Facility Site Evaluation Council, Resolution No. 300, approved September 10, 2001.

16. Energy Facility Site Evaluation Council, Resolution No. 299, approved August 13, 2001.

17. Teledyne Brown Engineering - Environmental Services PRO-032-27, "Calibration and Control of Alpha/Beta Counters."

18. Teledyne Brown Engineering - Environmental Services PRO-042-44, "Calibration and Control of Gamma Ray Spectrometers."

19. Teledyne Brown Engineering - Environmental Services PRO-052-35, "Determination of Tritium by Liquid Scintillation."

20. Energy Northwest, "Columbia Generating Station Final Safety Analysis Report," Section 2.3.1.1.

8.0 2002 REMP REPORT ERRATA

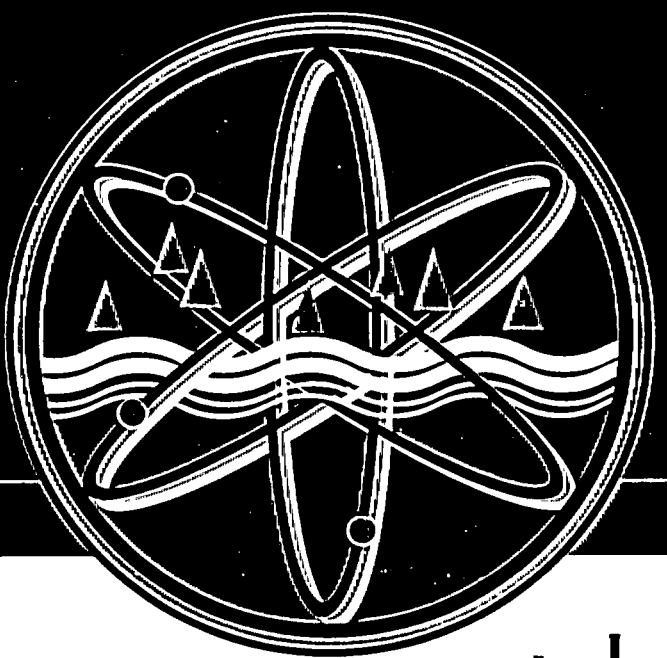
8.0 2002 REMP REPORT ERRATA

Due to the change in the Offsite Dose Calculation Manual (ODCM) required lower limits of detection (LLD) that became into effect in March 2002, water and milk samples analyzed for Ba-140 may have exceeded the new LLD requirement. This is because Teledyne Brown Engineering was not notified of the new LLD listed in the ODCM of 15 pCi/l and continued to use the contract LLD of 20 pCi/l. Listed below are those samples that did not meet the ODCM required LLD. These samples should have been listed in the deviations section of the 2002 report. In none of these samples was Ba-140 detectable.

SAMPLE MEDIA	DATE	LOCATION	PROBLEM
Missed LLDs	First Quarter	Station 31	ODCM Ba-140 in water LLD not met.
	03/05-04/02/02	Station 29	ODCM Ba-140 in water LLD not met.
	03/05-04/02/02	Station 102A	ODCM Ba-140 in water LLD not met.
	03/12-21/02	Station 101	ODCM Ba-140 in water LLD not met.
	03/22-04/02/02	Station 101	ODCM Ba-140 in water LLD not met.
	04/02-05/07/02	Stations 27 &29	ODCM Ba-140 in water LLD not met.
	04/03-04/14/02	Station 101	ODCM Ba-140 in water LLD not met.
	04/09/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met.
	04/15-17/02	Station 101	ODCM Ba-140 in water LLD not met.
	04/17/02	Station 102B	ODCM Ba-140 in water LLD not met.
	04/23/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met.
	04/25-05/01/02	Station 101	ODCM Ba-140 in water LLD not met.
	05/07/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met.
	05/07-06/04/02	Stations 26 & 29	ODCM Ba-140 in water LLD not met.
	05/07-06/04/02	Station 102A	ODCM Ba-140 in water LLD not met.
	05/08-17/02	Station 101	ODCM Ba-140 in water LLD not met.
	05/2/1/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met.
	Second Quarter	Stations 31, 32 & 52	ODCM Ba-140 in water LLD not met.
	06/04-07/02/02	Stations 26 & 29	ODCM Ba-140 in water LLD not met.
	06/04-07/02/02	Stations 102A	ODCM Ba-140 in water LLD not met
	06/11/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met
	06/20-28/02	Station 101	ODCM Ba-140 in water LLD not met
	06/28-07/06/02	Station 101	ODCM Ba-140 in water LLD not met
	07/02-08/06/02	Station 102A	ODCM Ba-140 in water LLD not met
	07/08-16/02	Station 101	ODCM Ba-140 in water LLD not met
	07/09/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met
	07/16-22/02	Station 101	ODCM Ba-140 in water LLD not met
	07/17/02	Station 102B	ODCM Ba-140 in water LLD not met
	07/23/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met
	07/27/02	09/02/02	ODCM Ba-140 in water LLD not met
	08/06-09/04/02	Station 26, 27 & 29	ODCM Ba-140 in water LLD not met

SAMPLE MEDIA	DATE	LOCATION	PROBLEM
Missed LLDs	08/13/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met
	08/27/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met
	08/28/02	Station 102B	ODCM Ba-140 in water LLD not met
	09/04/02	Stations 31 & 32	ODCM Ba-140 in water LLD not met
	09/04-10/02/02	Station 101	ODCM Ba-140 in water LLD not met
	09/10/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met
	09/24/02	Stations 9B, 36 & 64	ODCM Ba-140 in water LLD not met
	10/01-11/05/02	Stations 102A & 102B	ODCM Ba-140 in water LLD not met
	10/02-11/05/02	Station 101	ODCM Ba-140 in water LLD not met
	10/15/02	Stations 102A & 102B	ODCM Ba-140 in water LLD not met
	11/05-12/03/02	Stations 26 & 27	ODCM Ba-140 in water LLD not met
	11/05-12/03/02	Station 101	ODCM Ba-140 in water LLD not met
	11/12/02	Station 36 & 64	ODCM Ba-140 in water LLD not met
	Fourth Quarter	Station 52	ODCM Ba-140 in water LLD not met
	12/10/02	Station 64	ODCM Ba-140 in water LLD not met

2003
Annual Radiological Environmental Operating Report



environmental
services

ENERGY NORTHWEST
People · Vision · Solutions

10171

ENERGY NORTHWEST

People · Vision · Solutions

COLUMBIA GENERATING STATION

2003 DATA TABLES
TABLES A and B

JANUARY 1 to DECEMBER 31, 2003

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Prepared by

J.E. McDonald and L.S. Schleder
Environmental Services
Energy Northwest
Richland, WA

and

Teledyne Brown Engineering Environmental Services
Knoxville, TN

2003 DATA TABLES

TABLE A: ROUTINE RESULTS
TABLE B: SPECIAL INTEREST SAMPLE RESULTS

TABLE A: ROUTINE RESULTS

2003 DATA TABLES

2003 DATA TABLES

TABLE B: SPECIAL INTEREST SAMPLE RESULTS

2003 REMP
COLUMBIA GENERATING STATION
DATA TABLES

TABLE A-1.1
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
1	12/26/02 to 03/28/03	0.217
	03/28/03 to 06/26/03	0.226
	06/26/03 to 09/25/03	0.213
	09/25/03 to 12/30/03	0.230
2	12/26/02 to 03/28/03	0.227
	03/28/03 to 06/26/03	0.210
	06/26/03 to 09/25/03	0.219
	09/25/03 to 12/30/03	0.214
3	12/26/02 to 03/28/03	0.205
	03/28/03 to 06/26/03	0.205
	06/26/03 to 09/25/03	0.205
	09/25/03 to 12/30/03	0.213
4	12/26/02 to 03/28/03	0.191
	03/28/03 to 06/26/03	0.204
	06/26/03 to 09/25/03	0.185
	09/25/03 to 12/30/03	0.211
5	12/26/02 to 03/28/03	0.200
	03/28/03 to 06/26/03	0.202
	06/26/03 to 09/25/03	0.198
	09/25/03 to 12/30/03	0.200
6	12/26/02 to 03/28/03	0.203
	03/28/03 to 06/26/03	0.198
	06/26/03 to 09/25/03	0.199
	09/25/03 to 12/30/03	0.207
7	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.207
	06/26/03 to 09/25/03	0.207
	09/25/03 to 12/30/03	0.212
8	12/26/02 to 03/28/03	0.223
	03/28/03 to 06/26/03	0.236
	06/26/03 to 09/25/03	0.230
	09/25/03 to 12/30/03	0.240
9	12/26/02 to 03/28/03	0.192
	03/28/03 to 06/26/03	0.192
	06/26/03 to 09/25/03	0.192
	09/25/03 to 12/30/03	0.196
10	12/26/02 to 03/28/03	0.202
	03/28/03 to 06/26/03	0.210
	06/26/03 to 09/25/03	0.201
	09/25/03 to 12/30/03	0.219

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
11	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.216
	06/26/03 to 09/25/03	0.216
	09/25/03 to 12/30/03	0.227
12	12/26/02 to 03/28/03	0.223
	03/28/03 to 06/26/03	0.233
	06/26/03 to 09/25/03	0.227
	09/25/03 to 12/30/03	0.249
13	12/26/02 to 03/28/03	0.206
	03/28/03 to 06/26/03	0.208
	06/26/03 to 09/25/03	0.205
	09/25/03 to 12/30/03	0.219
14	12/26/02 to 03/28/03	0.215
	03/28/03 to 06/26/03	0.212
	06/26/03 to 09/25/03	0.214
	09/25/03 to 12/30/03	0.222
15	12/26/02 to 03/28/03	0.230
	03/28/03 to 06/26/03	0.236
	06/26/03 to 09/25/03	0.232
	09/25/03 to 12/30/03	0.247
16	12/26/02 to 03/28/03	0.218
	03/28/03 to 06/26/03	0.212
	06/26/03 to 09/25/03	0.213
	09/25/03 to 12/30/03	0.227
17	12/26/02 to 03/28/03	0.223
	03/28/03 to 06/26/03	0.224
	06/26/03 to 09/25/03	0.225
	09/25/03 to 12/30/03	0.244
18	12/26/02 to 03/28/03	0.212
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.212
	09/25/03 to 12/30/03	0.232
19	12/26/02 to 03/28/03	0.216
	03/28/03 to 06/26/03	0.218
	06/26/03 to 09/25/03	0.220
	09/25/03 to 12/30/03	0.236
20	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.221
	09/25/03 to 12/30/03	0.231

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
21	12/26/02 to 03/28/03	0.202
	03/28/03 to 06/26/03	0.204
	06/26/03 to 09/25/03	0.197
	09/25/03 to 12/30/03	0.215
22	12/26/02 to 03/28/03	0.215
	03/28/03 to 06/26/03	0.221
	06/26/03 to 09/25/03	0.217
	09/25/03 to 12/30/03	0.230
23	12/26/02 to 03/28/03	0.214
	03/28/03 to 06/26/03	0.208
	06/26/03 to 09/25/03	0.211
	09/25/03 to 12/30/03	0.219
24	12/26/02 to 03/28/03	0.212
	03/28/03 to 06/26/03	0.229
	06/26/03 to 09/25/03	0.208
	09/25/03 to 12/30/03	0.239
25	12/26/02 to 03/28/03	0.222
	03/28/03 to 06/26/03	0.228
	06/26/03 to 09/25/03	0.220
	09/25/03 to 12/30/03	0.240
40	12/26/02 to 03/28/03	0.195
	03/28/03 to 06/26/03	0.202
	06/26/03 to 09/25/03	0.188
	09/25/03 to 12/30/03	0.204
41	12/26/02 to 03/28/03	0.212
	03/28/03 to 06/26/03	0.221
	06/26/03 to 09/25/03	0.209
	09/25/03 to 12/30/03	0.225
42	12/26/02 to 03/28/03	0.215
	03/28/03 to 06/26/03	0.220
	06/26/03 to 09/25/03	0.222
	09/25/03 to 12/30/03	0.214
43	12/26/02 to 03/28/03	0.215
	03/28/03 to 06/26/03	0.219
	06/26/03 to 09/25/03	0.212
	09/25/03 to 12/30/03	0.224
44	12/26/02 to 03/28/03	0.192
	03/28/03 to 06/26/03	0.209
	06/26/03 to 09/25/03	0.189
	09/25/03 to 12/30/03	0.216

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
45	12/26/02 to 03/28/03	0.200
	03/28/03 to 06/26/03	0.209
	06/26/03 to 09/25/03	0.206
	09/25/03 to 12/30/03	0.214
46	12/26/02 to 03/28/03	0.243
	03/28/03 to 06/26/03	0.273
	06/26/03 to 09/25/03	0.262
	09/25/03 to 12/30/03	0.284
47	12/26/02 to 03/28/03	0.195
	03/28/03 to 06/26/03	0.196
	06/26/03 to 09/25/03	0.194
	09/25/03 to 12/30/03	0.209
49	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.226
	06/26/03 to 09/25/03	0.216
	09/25/03 to 12/30/03	0.240
50	12/26/02 to 03/28/03	0.214
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.216
	09/25/03 to 12/30/03	0.226
51	12/26/02 to 03/28/03	0.204
	03/28/03 to 06/26/03	0.210
	06/26/03 to 09/25/03	0.204
	09/25/03 to 12/30/03	0.218
53	12/26/02 to 03/28/03	0.235
	03/28/03 to 06/26/03	0.233
	06/26/03 to 09/25/03	0.229
	09/25/03 to 12/30/03	0.248
54	12/26/02 to 03/28/03	0.205
	03/28/03 to 06/26/03	0.223
	06/26/03 to 09/25/03	0.209
	09/25/03 to 12/30/03	0.225
55	12/26/02 to 03/28/03	0.212
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.206
	09/25/03 to 12/30/03	0.223
56	12/26/02 to 03/28/03	0.217
	03/28/03 to 06/26/03	0.220
	06/26/03 to 09/25/03	0.208
	09/25/03 to 12/30/03	0.225

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
65	12/26/02 to 03/28/03	0.201
	03/28/03 to 06/26/03	0.211
	06/26/03 to 09/25/03	0.203
	09/25/03 to 12/30/03	0.215
71	12/26/02 to 03/28/03	0.259
	03/28/03 to 06/26/03	0.247
	06/26/03 to 09/25/03	0.259
	09/25/03 to 12/30/03	0.280
72	12/26/02 to 03/28/03	0.244
	03/28/03 to 06/26/03	0.241
	06/26/03 to 09/25/03	0.254
	09/25/03 to 12/30/03	*
73	12/26/02 to 03/28/03	0.207
	03/28/03 to 06/26/03	0.198
	06/26/03 to 09/25/03	0.216
	09/25/03 to 12/30/03	0.219
74	12/26/02 to 03/28/03	0.233
	03/28/03 to 06/26/03	0.226
	06/26/03 to 09/25/03	0.233
	09/25/03 to 12/30/03	0.240
75	12/26/02 to 03/28/03	0.219
	03/28/03 to 06/26/03	0.227
	06/26/03 to 09/25/03	0.228
	09/25/03 to 12/30/03	0.247
76	12/26/02 to 03/28/03	0.224
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.224
	09/25/03 to 12/30/03	0.230
77	12/26/02 to 03/28/03	0.216
	03/28/03 to 06/26/03	0.222
	06/26/03 to 09/25/03	0.219
	09/25/03 to 12/30/03	0.227
78	12/26/02 to 03/28/03	0.209
	03/28/03 to 06/26/03	0.222
	06/26/03 to 09/25/03	0.209
	09/25/03 to 12/30/03	0.224
79	12/26/02 to 03/28/03	0.211
	03/28/03 to 06/26/03	0.216
	06/26/03 to 09/25/03	0.213
	09/25/03 to 12/30/03	0.224

*-TLD lost in field

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
80	12/26/02 to 03/28/03	0.202
	03/28/03 to 06/26/03	0.207
	06/26/03 to 09/25/03	0.202
	09/25/03 to 12/30/03	0.212
81	12/26/02 to 03/28/03	0.207
	03/28/03 to 06/26/03	0.216
	06/26/03 to 09/25/03	0.206
	09/25/03 to 12/30/03	0.224
82	12/26/02 to 03/28/03	0.220
	03/28/03 to 06/26/03	0.227
	06/26/03 to 09/25/03	0.225
	09/25/03 to 12/30/03	0.235
83	12/26/02 to 03/28/03	0.218
	03/28/03 to 06/26/03	0.212
	06/26/03 to 09/25/03	0.219
	09/25/03 to 12/30/03	0.222
84	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.222
	06/26/03 to 09/25/03	0.224
	09/25/03 to 12/30/03	0.239
85	12/26/02 to 03/28/03	0.216
	03/28/03 to 06/26/03	0.221
	06/26/03 to 09/25/03	0.228
	09/25/03 to 12/30/03	0.240
86	12/26/02 to 03/28/03	0.253
	03/28/03 to 06/26/03	0.249
	06/26/03 to 09/25/03	0.264
	09/25/03 to 12/30/03	0.277
119	12/26/02 to 03/28/03	0.218
	03/28/03 to 06/26/03	0.227
	06/26/03 to 09/25/03	0.222
	09/25/03 to 12/30/03	0.245
119-Control	12/26/02 to 03/28/03	0.225
	03/28/03 to 06/26/03	0.214
	06/26/03 to 09/25/03	0.228
	09/25/03 to 12/30/03	0.231
120	12/26/02 to 03/28/03	0.223
	03/28/03 to 06/26/03	0.223
	06/26/03 to 09/25/03	0.217
	09/25/03 to 12/30/03	0.245

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
121	12/26/02 to 03/28/03	0.980
	03/28/03 to 06/26/03	0.558
	06/26/03 to 09/25/03	0.947
	09/25/03 to 12/30/03	0.973
122	12/26/02 to 03/28/03	0.260
	03/28/03 to 06/26/03	0.257
	06/26/03 to 09/25/03	0.260
	09/25/03 to 12/30/03	0.280
123	12/26/02 to 03/28/03	0.533
	03/28/03 to 06/26/03	0.485
	06/26/03 to 09/25/03	0.524
	09/25/03 to 12/30/03	0.501
124	12/26/02 to 03/28/03	0.676
	03/28/03 to 06/26/03	0.642
	06/26/03 to 09/25/03	0.663
	09/25/03 to 12/30/03	0.669
125	12/26/02 to 03/28/03	0.595
	03/28/03 to 06/26/03	0.542
	06/26/03 to 09/25/03	0.589
	09/25/03 to 12/30/03	0.570
126	12/26/02 to 03/28/03	0.513
	03/28/03 to 06/26/03	0.455
	06/26/03 to 09/25/03	0.495
	09/25/03 to 12/30/03	0.482
127	12/26/02 to 03/28/03	0.470
	03/28/03 to 06/26/03	0.419
	06/26/03 to 09/25/03	0.461
	09/25/03 to 12/30/03	0.465
128	12/26/02 to 03/28/03	0.435
	03/28/03 to 06/26/03	0.377
	06/26/03 to 09/25/03	0.420
	09/25/03 to 12/30/03	0.407
129	12/26/02 to 03/28/03	0.427
	03/28/03 to 06/26/03	0.366
	06/26/03 to 09/25/03	0.411
	09/25/03 to 12/30/03	0.420
136A	12/26/02 to 03/28/03	0.374
	03/28/03 to 06/26/03	0.318
	06/26/03 to 09/25/03	0.374
	09/25/03 to 12/30/03	0.369

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
137A	12/26/02 to 03/28/03	0.386
	03/28/03 to 06/26/03	0.327
	06/26/03 to 09/25/03	0.380
	09/25/03 to 12/30/03	0.376
138A	12/26/02 to 03/28/03	0.387
	03/28/03 to 06/26/03	0.310
	06/26/03 to 09/25/03	0.387
	09/25/03 to 12/30/03	0.374

* - ISFSI TLD stations added in Second Quarter

TABLE A-1.1
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
1	12/26/02 to 03/28/03	0.217
	03/28/03 to 06/26/03	0.226
	06/26/03 to 09/25/03	0.213
	09/25/03 to 12/30/03	0.230
2	12/26/02 to 03/28/03	0.227
	03/28/03 to 06/26/03	0.210
	06/26/03 to 09/25/03	0.219
	09/25/03 to 12/30/03	0.214
3	12/26/02 to 03/28/03	0.205
	03/28/03 to 06/26/03	0.205
	06/26/03 to 09/25/03	0.205
	09/25/03 to 12/30/03	0.213
4	12/26/02 to 03/28/03	0.191
	03/28/03 to 06/26/03	0.204
	06/26/03 to 09/25/03	0.185
	09/25/03 to 12/30/03	0.211
5	12/26/02 to 03/28/03	0.200
	03/28/03 to 06/26/03	0.202
	06/26/03 to 09/25/03	0.198
	09/25/03 to 12/30/03	0.200
6	12/26/02 to 03/28/03	0.203
	03/28/03 to 06/26/03	0.198
	06/26/03 to 09/25/03	0.199
	09/25/03 to 12/30/03	0.207
7	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.207
	06/26/03 to 09/25/03	0.207
	09/25/03 to 12/30/03	0.212
8	12/26/02 to 03/28/03	0.223
	03/28/03 to 06/26/03	0.236
	06/26/03 to 09/25/03	0.230
	09/25/03 to 12/30/03	0.240
9	12/26/02 to 03/28/03	0.192
	03/28/03 to 06/26/03	0.192
	06/26/03 to 09/25/03	0.192
	09/25/03 to 12/30/03	0.196
10	12/26/02 to 03/28/03	0.202
	03/28/03 to 06/26/03	0.210
	06/26/03 to 09/25/03	0.201
	09/25/03 to 12/30/03	0.219

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
11	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.216
	06/26/03 to 09/25/03	0.216
	09/25/03 to 12/30/03	0.227
12	12/26/02 to 03/28/03	0.223
	03/28/03 to 06/26/03	0.233
	06/26/03 to 09/25/03	0.227
	09/25/03 to 12/30/03	0.249
13	12/26/02 to 03/28/03	0.206
	03/28/03 to 06/26/03	0.208
	06/26/03 to 09/25/03	0.205
	09/25/03 to 12/30/03	0.219
14	12/26/02 to 03/28/03	0.215
	03/28/03 to 06/26/03	0.212
	06/26/03 to 09/25/03	0.214
	09/25/03 to 12/30/03	0.222
15	12/26/02 to 03/28/03	0.230
	03/28/03 to 06/26/03	0.236
	06/26/03 to 09/25/03	0.232
	09/25/03 to 12/30/03	0.247
16	12/26/02 to 03/28/03	0.218
	03/28/03 to 06/26/03	0.212
	06/26/03 to 09/25/03	0.213
	09/25/03 to 12/30/03	0.227
17	12/26/02 to 03/28/03	0.223
	03/28/03 to 06/26/03	0.224
	06/26/03 to 09/25/03	0.225
	09/25/03 to 12/30/03	0.244
18	12/26/02 to 03/28/03	0.212
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.212
	09/25/03 to 12/30/03	0.232
19	12/26/02 to 03/28/03	0.216
	03/28/03 to 06/26/03	0.218
	06/26/03 to 09/25/03	0.220
	09/25/03 to 12/30/03	0.236
20	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.221
	09/25/03 to 12/30/03	0.231

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
21	12/26/02 to 03/28/03	0.202
	03/28/03 to 06/26/03	0.204
	06/26/03 to 09/25/03	0.197
	09/25/03 to 12/30/03	0.215
22	12/26/02 to 03/28/03	0.215
	03/28/03 to 06/26/03	0.221
	06/26/03 to 09/25/03	0.217
	09/25/03 to 12/30/03	0.230
23	12/26/02 to 03/28/03	0.214
	03/28/03 to 06/26/03	0.208
	06/26/03 to 09/25/03	0.211
	09/25/03 to 12/30/03	0.219
24	12/26/02 to 03/28/03	0.212
	03/28/03 to 06/26/03	0.229
	06/26/03 to 09/25/03	0.208
	09/25/03 to 12/30/03	0.239
25	12/26/02 to 03/28/03	0.222
	03/28/03 to 06/26/03	0.228
	06/26/03 to 09/25/03	0.220
	09/25/03 to 12/30/03	0.240
40	12/26/02 to 03/28/03	0.195
	03/28/03 to 06/26/03	0.202
	06/26/03 to 09/25/03	0.188
	09/25/03 to 12/30/03	0.204
41	12/26/02 to 03/28/03	0.212
	03/28/03 to 06/26/03	0.221
	06/26/03 to 09/25/03	0.209
	09/25/03 to 12/30/03	0.225
42	12/26/02 to 03/28/03	0.215
	03/28/03 to 06/26/03	0.220
	06/26/03 to 09/25/03	0.222
	09/25/03 to 12/30/03	0.214
43	12/26/02 to 03/28/03	0.215
	03/28/03 to 06/26/03	0.219
	06/26/03 to 09/25/03	0.212
	09/25/03 to 12/30/03	0.224
44	12/26/02 to 03/28/03	0.192
	03/28/03 to 06/26/03	0.209
	06/26/03 to 09/25/03	0.189
	09/25/03 to 12/30/03	0.216

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
45	12/26/02 to 03/28/03	0.200
	03/28/03 to 06/26/03	0.209
	06/26/03 to 09/25/03	0.206
	09/25/03 to 12/30/03	0.214
46	12/26/02 to 03/28/03	0.243
	03/28/03 to 06/26/03	0.273
	06/26/03 to 09/25/03	0.262
	09/25/03 to 12/30/03	0.284
47	12/26/02 to 03/28/03	0.195
	03/28/03 to 06/26/03	0.196
	06/26/03 to 09/25/03	0.194
	09/25/03 to 12/30/03	0.209
49	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.226
	06/26/03 to 09/25/03	0.216
	09/25/03 to 12/30/03	0.240
50	12/26/02 to 03/28/03	0.214
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.216
	09/25/03 to 12/30/03	0.226
51	12/26/02 to 03/28/03	0.204
	03/28/03 to 06/26/03	0.210
	06/26/03 to 09/25/03	0.204
	09/25/03 to 12/30/03	0.218
53	12/26/02 to 03/28/03	0.235
	03/28/03 to 06/26/03	0.233
	06/26/03 to 09/25/03	0.229
	09/25/03 to 12/30/03	0.248
54	12/26/02 to 03/28/03	0.205
	03/28/03 to 06/26/03	0.223
	06/26/03 to 09/25/03	0.209
	09/25/03 to 12/30/03	0.225
55	12/26/02 to 03/28/03	0.212
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.206
	09/25/03 to 12/30/03	0.223
56	12/26/02 to 03/28/03	0.217
	03/28/03 to 06/26/03	0.220
	06/26/03 to 09/25/03	0.208
	09/25/03 to 12/30/03	0.225

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
65	12/26/02 to 03/28/03	0.201
	03/28/03 to 06/26/03	0.211
	06/26/03 to 09/25/03	0.203
	09/25/03 to 12/30/03	0.215
71	12/26/02 to 03/28/03	0.259
	03/28/03 to 06/26/03	0.247
	06/26/03 to 09/25/03	0.259
	09/25/03 to 12/30/03	0.280
72	12/26/02 to 03/28/03	0.244
	03/28/03 to 06/26/03	0.241
	06/26/03 to 09/25/03	0.254
	09/25/03 to 12/30/03	*
73	12/26/02 to 03/28/03	0.207
	03/28/03 to 06/26/03	0.198
	06/26/03 to 09/25/03	0.216
	09/25/03 to 12/30/03	0.219
74	12/26/02 to 03/28/03	0.233
	03/28/03 to 06/26/03	0.226
	06/26/03 to 09/25/03	0.233
	09/25/03 to 12/30/03	0.240
75	12/26/02 to 03/28/03	0.219
	03/28/03 to 06/26/03	0.227
	06/26/03 to 09/25/03	0.228
	09/25/03 to 12/30/03	0.247
76	12/26/02 to 03/28/03	0.224
	03/28/03 to 06/26/03	0.215
	06/26/03 to 09/25/03	0.224
	09/25/03 to 12/30/03	0.230
77	12/26/02 to 03/28/03	0.216
	03/28/03 to 06/26/03	0.222
	06/26/03 to 09/25/03	0.219
	09/25/03 to 12/30/03	0.227
78	12/26/02 to 03/28/03	0.209
	03/28/03 to 06/26/03	0.222
	06/26/03 to 09/25/03	0.209
	09/25/03 to 12/30/03	0.224
79	12/26/02 to 03/28/03	0.211
	03/28/03 to 06/26/03	0.216
	06/26/03 to 09/25/03	0.213
	09/25/03 to 12/30/03	0.224

*-TLD lost in field

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
80	12/26/02 to 03/28/03	0.202
	03/28/03 to 06/26/03	0.207
	06/26/03 to 09/25/03	0.202
	09/25/03 to 12/30/03	0.212
81	12/26/02 to 03/28/03	0.207
	03/28/03 to 06/26/03	0.216
	06/26/03 to 09/25/03	0.206
	09/25/03 to 12/30/03	0.224
82	12/26/02 to 03/28/03	0.220
	03/28/03 to 06/26/03	0.227
	06/26/03 to 09/25/03	0.225
	09/25/03 to 12/30/03	0.235
83	12/26/02 to 03/28/03	0.218
	03/28/03 to 06/26/03	0.212
	06/26/03 to 09/25/03	0.219
	09/25/03 to 12/30/03	0.222
84	12/26/02 to 03/28/03	0.213
	03/28/03 to 06/26/03	0.222
	06/26/03 to 09/25/03	0.224
	09/25/03 to 12/30/03	0.239
85	12/26/02 to 03/28/03	0.216
	03/28/03 to 06/26/03	0.221
	06/26/03 to 09/25/03	0.228
	09/25/03 to 12/30/03	0.240
86	12/26/02 to 03/28/03	0.253
	03/28/03 to 06/26/03	0.249
	06/26/03 to 09/25/03	0.264
	09/25/03 to 12/30/03	0.277
119	12/26/02 to 03/28/03	0.218
	03/28/03 to 06/26/03	0.227
	06/26/03 to 09/25/03	0.222
	09/25/03 to 12/30/03	0.245
119-Control	12/26/02 to 03/28/03	0.225
	03/28/03 to 06/26/03	0.214
	06/26/03 to 09/25/03	0.228
	09/25/03 to 12/30/03	0.231
120	12/26/02 to 03/28/03	0.223
	03/28/03 to 06/26/03	0.223
	06/26/03 to 09/25/03	0.217
	09/25/03 to 12/30/03	0.245

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
121	12/26/02 to 03/28/03	0.980
	03/28/03 to 06/26/03	0.558
	06/26/03 to 09/25/03	0.947
	09/25/03 to 12/30/03	0.973
122	12/26/02 to 03/28/03	0.260
	03/28/03 to 06/26/03	0.257
	06/26/03 to 09/25/03	0.260
	09/25/03 to 12/30/03	0.280
123	12/26/02 to 03/28/03	0.533
	03/28/03 to 06/26/03	0.485
	06/26/03 to 09/25/03	0.524
	09/25/03 to 12/30/03	0.501
124	12/26/02 to 03/28/03	0.676
	03/28/03 to 06/26/03	0.642
	06/26/03 to 09/25/03	0.663
	09/25/03 to 12/30/03	0.669
125	12/26/02 to 03/28/03	0.595
	03/28/03 to 06/26/03	0.542
	06/26/03 to 09/25/03	0.589
	09/25/03 to 12/30/03	0.570
126	12/26/02 to 03/28/03	0.513
	03/28/03 to 06/26/03	0.455
	06/26/03 to 09/25/03	0.495
	09/25/03 to 12/30/03	0.482
127	12/26/02 to 03/28/03	0.470
	03/28/03 to 06/26/03	0.419
	06/26/03 to 09/25/03	0.461
	09/25/03 to 12/30/03	0.465
128	12/26/02 to 03/28/03	0.435
	03/28/03 to 06/26/03	0.377
	06/26/03 to 09/25/03	0.420
	09/25/03 to 12/30/03	0.407
129	12/26/02 to 03/28/03	0.427
	03/28/03 to 06/26/03	0.366
	06/26/03 to 09/25/03	0.411
	09/25/03 to 12/30/03	0.420
136A	12/26/02 to 03/28/03	0.374
	03/28/03 to 06/26/03	0.318
	06/26/03 to 09/25/03	0.374
	09/25/03 to 12/30/03	0.369

TABLE A-1.1 (Cont.)
2003 QUARTERLY TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
137A	12/26/02 to 03/28/03	0.386
	03/28/03 to 06/26/03	0.327
	06/26/03 to 09/25/03	0.380
	09/25/03 to 12/30/03	0.376
138A	12/26/02 to 03/28/03	0.387
	03/28/03 to 06/26/03	0.310
	06/26/03 to 09/25/03	0.387
	09/25/03 to 12/30/03	0.374

* - ISFSI TLD stations added in Second Quarter

TABLE A-1.2
2003 ANNUAL TLD RESULTS
Results in mrem/Day

LOCATION	COLLECTION PERIOD	RESULT
1	12/27/02 to 12/30/03	0.215
2	12/27/02 to 12/30/03	0.213
3	12/27/02 to 12/30/03	0.198
4	12/27/02 to 12/30/03	0.197
5	12/27/02 to 12/30/03	0.202
6	12/27/02 to 12/30/03	0.197
7	12/27/02 to 12/30/03	0.200
8	12/27/02 to 12/30/03	0.220
9	12/27/02 to 12/30/03	0.193
10	12/27/02 to 12/30/03	0.208
11	12/27/02 to 12/30/03	0.207
12	12/27/02 to 12/30/03	0.230
13	12/27/02 to 12/30/03	0.213
14	12/27/02 to 12/30/03	0.214
15	12/27/02 to 12/30/03	0.230
16	12/27/02 to 12/30/03	0.222
17	12/27/02 to 12/30/03	0.219
18	12/27/02 to 12/30/03	0.221
19	12/27/02 to 12/30/03	0.219
20	12/27/02 to 12/30/03	0.224
21	12/27/02 to 12/30/03	0.203
22	12/27/02 to 12/30/03	0.208
23	12/27/02 to 12/30/03	0.200
24	12/27/02 to 12/30/03	0.213
25	12/27/02 to 12/30/03	0.234
40	12/27/02 to 12/30/03	0.192
41	12/27/02 to 12/30/03	0.215

TABLE A-1.3
2003 TLD RESULTS-SUMMARY
Results in mrem/Day

NUCLIDE	AVERAGE	LOW	HIGH	NUMBER SAMPLE	NUMBER POSITIVE
		QUARTERLY TLD RESULTS			
TLD (I)	0.219	0.185	0.284	223	223
TLD (C)	0.193	0.192	0.196	4	4
		ST119 QUARTERLY TLD RESULTS			
TLD (I)	0.228	0.218	0.245	4	4
TLD (C)	0.225	0.214	0.231	4	4
		ST120 QUARTERLY TLD RESULTS			
TLD (I)	0.227	0.217	0.245	4	4
		ISFSI QUARTERLY TLD RESULTS			
TLD (I)	0.477	0.257	0.980	48	48
		ANNUAL TLD RESULTS			
TLD (I)	0.216	0.192	0.262	56	56
TLD (C)	0.193	0.193	0.193	1	1
		ST119 ANNUAL TLD RESULTS			
TLD (I)	0.218	0.218	0.218	1	1
TLD (C)	0.228	0.228	0.228	1	1
		ST120 ANNUAL TLD RESULTS			
TLD (I)	0.237	0.237	0.237	1	1
		ISFSI ANNUAL TLD RESULTS			
TLD (I)	0.475	0.265	0.869	12	12

TABLE A-2.1

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD		RESULT	OVERALL UNCERTAINTY
1	12/30/02 - 01/06/03		5.65E-03	1.73E-03
	01/06/03 - 01/13/03		3.41E-02	2.89E-03
	01/13/03 - 01/20/03		3.04E-02	2.80E-03
	01/20/03 - 01/27/03		1.50E-02	2.14E-03
	01/27/03 - 02/03/03		5.25E-03	1.69E-03
	02/03/03 - 02/10/03		2.29E-02	2.48E-03
	02/10/03 - 02/18/03		2.33E-02	2.30E-03
	02/18/03 - 02/24/03		6.70E-03	1.87E-03
	02/24/03 - 03/03/03		2.63E-02	4.59E-03
	03/03/03 - 03/10/03		(a)	
	03/10/03 - 03/17/03		(a)	
	03/17/03 - 03/24/03		(a)	
	03/24/03 - 03/31/03		(a)	
	03/31/03 - 04/07/03		(a)	
	04/07/03 - 04/14/03		(a)	
	04/14/03 - 04/21/03		(a)	
	04/21/03 - 04/28/03		(a)	
	04/28/03 - 05/05/03		(a)	
	05/05/03 - 05/12/03		1.06E-02	2.01E-03
	05/12/03 - 05/19/03		8.35E-03	1.81E-03
	05/19/03 - 05/26/03		1.12E-02	1.99E-03
	05/26/03 - 06/02/03		1.44E-02	2.11E-03
	06/02/03 - 06/09/03		1.03E-02	2.01E-03
	06/09/03 - 06/16/03	*	1.59E-03	1.92E-03
	06/17/03 - 06/23/03		5.96E-03	2.01E-03
	06/23/03 - 06/30/03		1.09E-02	2.03E-03
	06/30/03 - 07/07/03		5.60E-03	1.88E-03
	07/07/03 - 07/14/03		8.57E-03	1.83E-03
	07/14/03 - 07/21/03		1.07E-02	1.88E-03
	07/21/03 - 07/28/03		1.10E-02	1.99E-03
	07/28/03 - 08/04/03		1.45E-02	2.24E-03
	08/04/03 - 08/11/03		1.24E-02	2.07E-03
	08/11/03 - 08/18/03		1.04E-02	2.01E-03
	08/18/03 - 08/25/03		1.55E-02	2.15E-03
	08/25/03 - 09/02/03		1.00E-02	1.95E-03
	09/02/03 - 09/09/03		2.31E-02	2.73E-03
	09/08/03 - 09/15/03		6.67E-03	1.86E-03
	09/15/03 - 09/22/03		9.10E-03	1.93E-03
	09/22/03 - 09/29/03		1.51E-02	6.67E-03

* Denotes a result less than the detection limit.

(a) Sample not available due to power outage.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD		RESULT	OVERALL UNCERTAINTY
1	09/29/03 - 10/06/03		4.27E-02	3.36E-03
	10/06/03 - 10/13/03		9.20E-03	1.94E-03
	10/13/03 - 10/20/03		1.83E-02	2.41E-03
	10/20/03 - 10/27/03		1.81E-02	2.39E-03
	10/27/03 - 11/03/03		1.61E-02	2.20E-03
	11/03/03 - 11/10/03		4.34E-02	3.27E-03
	11/10/03 - 11/17/03		2.22E-02	2.52E-03
	11/17/03 - 11/24/03	*	7.32E-03 (b)	5.59E-03
	11/24/03 - 12/01/03		8.70E-03	1.76E-03
	12/01/03 - 12/08/03		1.36E-02	2.19E-03
	12/08/03 - 12/15/03		1.18E-02	2.31E-03
	12/15/03 - 12/22/03	*	6.33E-03 (b)	4.69E-03
	12/22/03 - 12/29/03		1.19E-02	2.01E-03
4	12/30/02 - 01/06/03		6.87E-03	1.79E-03
	01/06/03 - 01/13/03		3.63E-02	2.97E-03
	01/13/03 - 01/20/03		2.87E-02	2.73E-03
	01/20/03 - 01/27/03		1.42E-02	2.11E-03
	01/27/03 - 02/03/03		4.09E-03	1.62E-03
	02/03/03 - 02/10/03		2.33E-02	2.50E-03
	02/10/03 - 02/18/03		2.43E-02	2.34E-03
	02/18/03 - 02/24/03		6.87E-03	1.88E-03
	02/24/03 - 03/03/03		2.17E-02	2.52E-03
	03/03/03 - 03/10/03		9.06E-03	1.82E-03
	03/10/03 - 03/17/03		5.47E-03	1.59E-03
	03/17/03 - 03/24/03		6.87E-03	1.64E-03
	03/24/03 - 03/31/03		6.19E-03	1.71E-03
	03/31/03 - 04/07/03		4.58E-03	1.60E-03
	04/07/03 - 04/14/03		8.47E-03	1.83E-03
	04/14/03 - 04/21/03		8.63E-03	1.85E-03
	04/21/03 - 04/28/03		7.65E-03	1.81E-03
	04/28/03 - 05/05/03		1.26E-02	2.04E-03
	05/05/03 - 05/12/03		9.93E-03	1.90E-03
	05/12/03 - 05/19/03		9.35E-03	1.86E-03
	05/19/03 - 05/26/03		1.25E-02	2.06E-03
	05/26/03 - 06/02/03		1.18E-02	1.98E-03
	06/02/03 - 06/09/03		1.84E-02	2.28E-03
	06/09/03 - 06/16/03		8.11E-03	1.93E-03
	06/17/03 - 06/23/03		7.60E-03	1.87E-03
	06/23/03 - 06/30/03		1.23E-02	2.10E-03

* Denotes a result less than the detection limit.

(b) Data not included in the summary average.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
4	06/30/03 - 07/07/03	6.11E-03	1.91E-03
	07/07/03 - 07/14/03	9.56E-03	1.89E-03
	07/14/03 - 07/21/03	1.32E-02	2.01E-03
	07/21/03 - 07/28/03	1.53E-02	2.20E-03
	07/28/03 - 08/04/03	1.41E-02	2.22E-03
	08/04/03 - 08/11/03	1.33E-02	2.11E-03
	08/11/03 - 08/18/03	1.24E-02	2.11E-03
	08/18/03 - 08/25/03	1.70E-02	2.22E-03
	08/25/03 - 09/02/03	1.22E-02	2.04E-03
	09/02/03 - 09/09/03	2.29E-02	2.73E-03
	09/08/03 - 09/15/03	7.08E-03	1.87E-03
	09/15/03 - 09/22/03	1.10E-02	2.03E-03
	09/22/03 - 09/29/03	1.92E-02	2.53E-03
	09/29/03 - 10/06/03	4.55E-02	3.43E-03
	10/06/03 - 10/13/03	7.72E-03	1.87E-03
	10/13/03 - 10/20/03	2.01E-02	2.48E-03
	10/20/03 - 10/27/03	1.10E-02	2.05E-03
	10/27/03 - 11/03/03	1.87E-02	2.31E-03
	11/03/03 - 11/10/03	5.39E-02	3.57E-03
	11/10/03 - 11/17/03	2.29E-02	2.55E-03
	11/17/03 - 11/24/03	1.22E-02	2.14E-03
	11/24/03 - 12/01/03	1.08E-02	1.87E-03
	12/01/03 - 12/08/03	1.56E-02	2.28E-03
	12/08/03 - 12/15/03	1.16E-02	2.30E-03
	12/15/03 - 12/22/03	1.88E-02	2.31E-03
	12/22/03 - 12/29/03	1.16E-02	2.00E-03
5	12/30/02 - 01/06/03	5.53E-03	1.72E-03
	01/06/03 - 01/13/03	3.18E-02	2.81E-03
	01/13/03 - 01/20/03	3.12E-02	2.82E-03
	01/20/03 - 01/27/03	1.27E-02	2.03E-03
	01/27/03 - 02/03/03	9.13E-03	1.91E-03
	02/03/03 - 02/10/03	1.85E-02	2.30E-03
	02/10/03 - 02/18/03	2.26E-02	2.27E-03
	02/18/03 - 02/24/03	4.96E-03	1.76E-03
	02/24/03 - 03/03/03	2.04E-02	2.47E-03
	03/03/03 - 03/10/03	5.99E-03	1.65E-03
	03/10/03 - 03/17/03	5.39E-03	1.59E-03
	03/17/03 - 03/24/03	6.40E-03	1.60E-03
	03/24/03 - 03/31/03	5.99E-03	1.70E-03

* Denotes a result less than the detection limit.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
5	03/31/03 - 04/07/03	4.53E-03	1.60E-03
	04/07/03 - 04/14/03	7.33E-03	1.77E-03
	04/14/03 - 04/21/03	7.10E-03	1.76E-03
	04/21/03 - 04/28/03	6.09E-03	1.72E-03
	04/28/03 - 05/05/03	6.41E-03	1.71E-03
	05/05/03 - 05/12/03	1.00E-02	1.91E-03
	05/12/03 - 05/19/03	7.35E-03	1.75E-03
	05/19/03 - 05/26/03	1.11E-02	1.99E-03
	05/26/03 - 06/02/03	1.10E-02	1.94E-03
	06/02/03 - 06/09/03	1.37E-02	2.06E-03
	06/09/03 - 06/16/03	5.87E-03	1.82E-03
	06/17/03 - 06/23/03	7.50E-03	1.86E-03
	06/23/03 - 06/30/03	9.68E-03	1.96E-03
	06/30/03 - 07/07/03	4.71E-03	1.83E-03
	07/07/03 - 07/14/03	7.97E-03	1.80E-03
	07/14/03 - 07/21/03	9.56E-03	1.82E-03
	07/21/03 - 07/28/03	1.31E-02	2.10E-03
	07/28/03 - 08/04/03	1.08E-02	2.07E-03
	08/04/03 - 08/11/03	1.34E-02	3.27E-03
	08/11/03 - 08/18/03	1.21E-02	2.28E-03
	08/18/03 - 08/25/03	1.69E-02	2.21E-03
	08/25/03 - 09/02/03	1.17E-02	2.02E-03
	09/02/03 - 09/09/03	2.17E-02	2.67E-03
	09/08/03 - 09/15/03	6.54E-03	1.84E-03
	09/15/03 - 09/22/03	1.53E-02	2.23E-03
	09/22/03 - 09/29/03	1.46E-02	2.34E-03
	09/29/03 - 10/06/03	4.72E-02	3.48E-03
	10/06/03 - 10/13/03	1.09E-02	2.04E-03
	10/13/03 - 10/20/03	1.82E-02	2.40E-03
	10/20/03 - 10/27/03	2.18E-02	2.54E-03
	10/27/03 - 11/03/03	1.20E-02	2.00E-03
	11/03/03 - 11/10/03	4.53E-02	3.32E-03
	11/10/03 - 11/17/03	2.43E-02	2.60E-03
	11/17/03 - 11/24/03	8.18E-03	1.95E-03
	11/24/03 - 12/01/03	8.82E-03	1.76E-03
	12/01/03 - 12/08/03	1.32E-02	2.17E-03
	12/08/03 - 12/15/03	1.00E-02	2.23E-03
	12/15/03 - 12/22/03	1.73E-02	2.25E-03
	12/22/03 - 12/29/03	1.03E-02	1.93E-03

* Denotes a result less than the detection limit.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
6	12/30/02 - 01/06/03	6.62E-03	1.78E-03
	01/06/03 - 01/13/03	3.50E-02	2.92E-03
	01/13/03 - 01/20/03	2.87E-02	2.74E-03
	01/20/03 - 01/27/03	1.51E-02	2.15E-03
	01/27/03 - 02/03/03	6.98E-03	1.79E-03
	02/03/03 - 02/10/03	2.28E-02	2.48E-03
	02/10/03 - 02/18/03	2.64E-02	2.42E-03
	02/18/03 - 02/24/03	6.58E-03	1.86E-03
	02/24/03 - 03/03/03	2.20E-02	2.54E-03
	03/03/03 - 03/10/03	5.61E-03	1.63E-03
	03/10/03 - 03/17/03	5.70E-03	1.61E-03
	03/17/03 - 03/24/03	7.58E-03	1.67E-03
	03/24/03 - 03/31/03	6.34E-03	1.72E-03
	03/31/03 - 04/07/03	5.47E-03	1.65E-03
	04/07/03 - 04/14/03	4.95E-03	1.63E-03
	04/14/03 - 04/21/03	7.10E-03	1.76E-03
	04/21/03 - 04/28/03	6.90E-03	1.77E-03
	04/28/03 - 05/05/03	6.75E-03	1.73E-03
	05/05/03 - 05/12/03	9.78E-03	1.90E-03
	05/12/03 - 05/19/03	8.80E-03	1.83E-03
	05/19/03 - 05/26/03	1.05E-02	1.96E-03
	05/26/03 - 06/02/03	1.28E-02	2.73E-03
	06/02/03 - 06/09/03	1.52E-02	2.13E-03
	06/09/03 - 06/16/03	6.87E-03	1.87E-03
	06/17/03 - 06/23/03	6.64E-03	1.81E-03
	06/23/03 - 06/30/03	1.22E-02	2.09E-03
	06/30/03 - 07/07/03	5.25E-03	1.86E-03
	07/07/03 - 07/14/03	1.03E-02	1.93E-03
	07/14/03 - 07/21/03	1.10E-02	1.90E-03
	07/21/03 - 07/28/03	1.39E-02	2.13E-03
	07/28/03 - 08/04/03	1.43E-02	2.23E-03
	08/04/03 - 08/11/03	1.35E-02	2.12E-03
	08/11/03 - 08/18/03	9.91E-03	1.99E-03
	08/18/03 - 08/25/03	1.63E-02	2.19E-03
	08/25/03 - 09/02/03	1.20E-02	2.03E-03
	09/02/03 - 09/09/03	2.54E-02	2.83E-03
	09/08/03 - 09/15/03	5.86E-03	1.81E-03
	09/15/03 - 09/22/03	1.15E-02	2.05E-03
	09/22/03 - 09/29/03	1.39E-02	2.31E-03

* Denotes a result less than the detection limit.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
6	09/29/03 - 10/06/03	4.52E-02	3.43E-03
	10/06/03 - 10/13/03	8.75E-03	1.92E-03
	10/13/03 - 10/20/03	1.80E-02	2.40E-03
	10/20/03 - 10/27/03	1.78E-02	2.38E-03
	10/27/03 - 11/03/03	1.82E-02	2.29E-03
	11/03/03 - 11/10/03	4.06E-02	3.18E-03
	11/10/03 - 11/17/03	1.97E-02	2.41E-03
	11/17/03 - 11/24/03	1.18E-02	2.13E-03
	11/24/03 - 12/01/03	8.70E-03	1.76E-03
	12/01/03 - 12/08/03	1.42E-02	2.22E-03
	12/08/03 - 12/15/03	8.55E-03	2.17E-03
	12/15/03 - 12/22/03	1.80E-02	2.28E-03
	12/22/03 - 12/29/03	1.28E-02	2.05E-03
7	12/30/02 - 01/06/03	7.38E-03	1.82E-03
	01/06/03 - 01/13/03	3.39E-02	2.89E-03
	01/13/03 - 01/20/03	2.84E-02	2.73E-03
	01/20/03 - 01/27/03	1.53E-02	2.16E-03
	01/27/03 - 02/03/03	6.43E-03	1.76E-03
	02/03/03 - 02/10/03	1.90E-02	2.32E-03
	02/10/03 - 02/18/03	2.39E-02	2.32E-03
	02/18/03 - 02/24/03	6.35E-03	1.85E-03
	02/24/03 - 03/03/03	2.17E-02	2.52E-03
	03/03/03 - 03/10/03	4.71E-03	1.57E-03
	03/10/03 - 03/17/03	4.84E-03	1.56E-03
	03/17/03 - 03/24/03	5.80E-03	1.56E-03
	03/24/03 - 03/31/03	6.44E-03	1.73E-03
	03/31/03 - 04/07/03	4.63E-03	1.60E-03
	04/07/03 - 04/14/03	6.44E-03	1.72E-03
	04/14/03 - 04/21/03	6.80E-03	1.75E-03
	04/21/03 - 04/28/03	5.26E-03	1.68E-03
	04/28/03 - 05/05/03	5.27E-03	1.65E-03
	05/05/03 - 05/12/03	8.99E-03	1.85E-03
	05/12/03 - 05/19/03	7.65E-03	1.77E-03
	05/19/03 - 05/26/03	1.22E-02	2.04E-03
	05/26/03 - 06/02/03	1.35E-02	2.06E-03
	06/02/03 - 06/09/03	1.53E-02	2.13E-03
	06/09/03 - 06/16/03	5.14E-03	1.78E-03
	06/17/03 - 06/23/03	6.88E-03	1.82E-03
	06/23/03 - 06/30/03	8.95E-03	1.93E-03

* Denotes a result less than the detection limit.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD		RESULT	OVERALL UNCERTAINTY
7	06/30/03 - 07/07/03		5.80E-03	1.89E-03
	07/07/03 - 07/14/03		8.47E-03	1.83E-03
	07/14/03 - 07/21/03		1.06E-02	1.88E-03
	07/21/03 - 07/28/03		1.42E-02	2.15E-03
	07/28/03 - 08/04/03		1.21E-02	2.13E-03
	08/04/03 - 08/11/03		1.56E-02	2.21E-03
	08/11/03 - 08/18/03	*	5.28E-03 (b)	4.79E-03
	08/18/03 - 08/25/03		1.70E-02	2.22E-03
	08/25/03 - 09/02/03		1.08E-02	1.98E-03
	09/02/03 - 09/09/03		2.57E-02	2.84E-03
	09/08/03 - 09/15/03		7.50E-03	1.90E-03
	09/15/03 - 09/22/03		1.20E-02	2.08E-03
	09/22/03 - 09/29/03		1.25E-02	2.25E-03
	09/29/03 - 10/06/03		4.25E-02	3.35E-03
	10/06/03 - 10/13/03		9.70E-03	1.96E-03
	10/13/03 - 10/20/03		2.12E-02	2.53E-03
	10/20/03 - 10/27/03		2.12E-02	2.52E-03
	10/27/03 - 11/03/03		1.92E-02	2.33E-03
	11/03/03 - 11/10/03		4.30E-02	3.25E-03
	11/10/03 - 11/17/03		2.03E-02	2.44E-03
	11/17/03 - 11/24/03		1.05E-02	2.06E-03
	11/24/03 - 12/01/03		8.80E-03	1.76E-03
	12/01/03 - 12/08/03		1.11E-02	2.07E-03
	12/08/03 - 12/15/03		1.17E-02	2.31E-03
	12/15/03 - 12/22/03		1.69E-02	2.23E-03
	12/22/03 - 12/29/03		1.18E-02	2.01E-03
8	12/30/02 - 01/06/03		6.82E-03	1.79E-03
	01/06/03 - 01/13/03		3.15E-02	2.80E-03
	01/13/03 - 01/20/03		2.87E-02	2.73E-03
	01/20/03 - 01/27/03		1.52E-02	2.15E-03
	01/27/03 - 02/03/03		5.14E-03	1.68E-03
	02/03/03 - 02/10/03		2.32E-02	2.49E-03
	02/10/03 - 02/18/03		2.33E-02	2.30E-03
	02/18/03 - 02/24/03		6.52E-03	1.86E-03
	02/24/03 - 03/03/03		2.30E-02	2.57E-03
	03/03/03 - 03/10/03		4.71E-03	1.57E-03
	03/10/03 - 03/17/03		5.18E-03	1.57E-03
	03/17/03 - 03/24/03		6.97E-03	1.64E-03
	03/24/03 - 03/31/03		7.53E-03	1.79E-03

* Denotes a result less than the detection limit.

(b) Data not included in the summary average.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
8	03/31/03 - 04/07/03	4.58E-03	1.60E-03
	04/07/03 - 04/14/03	5.65E-03	1.67E-03
	04/14/03 - 04/21/03	6.80E-03	1.75E-03
	04/21/03 - 04/28/03	6.44E-03	1.74E-03
	04/28/03 - 05/05/03	7.79E-03	1.79E-03
	05/05/03 - 05/12/03	1.03E-02	1.93E-03
	05/12/03 - 05/19/03	7.80E-03	1.78E-03
	05/19/03 - 05/26/03	1.03E-02	1.95E-03
	05/26/03 - 06/02/03	1.37E-02	2.08E-03
	06/02/03 - 06/09/03	1.54E-02	2.14E-03
	06/09/03 - 06/16/03	6.41E-03	1.84E-03
	06/17/03 - 06/23/03	5.94E-03	1.77E-03
	06/23/03 - 06/30/03	9.63E-03	1.96E-03
	06/30/03 - 07/07/03	(c)	
	07/07/03 - 07/14/03	1.18E-02	2.61E-03
	07/14/03 - 07/21/03	1.04E-02	1.87E-03
	07/21/03 - 07/28/03	1.25E-02	2.07E-03
	07/28/03 - 08/04/03	1.15E-02	2.10E-03
	08/04/03 - 08/11/03	1.43E-02	2.15E-03
	08/11/03 - 08/18/03	1.26E-02	2.12E-03
	08/18/03 - 08/25/03	1.59E-02	2.17E-03
	08/25/03 - 09/02/03	1.11E-02	1.99E-03
	09/02/03 - 09/09/03	2.18E-02	2.67E-03
	09/08/03 - 09/15/03	4.80E-03	1.75E-03
	09/15/03 - 09/22/03	9.07E-03	1.93E-03
	09/22/03 - 09/29/03	1.52E-02	2.37E-03
	09/29/03 - 10/06/03	4.56E-02	3.43E-03
	10/06/03 - 10/13/03	8.42E-03	3.14E-03
	10/13/03 - 10/20/03	2.17E-02	2.54E-03
	10/20/03 - 10/27/03	2.11E-02	2.51E-03
	10/27/03 - 11/03/03	1.86E-02	2.31E-03
	11/03/03 - 11/10/03	4.51E-02	3.32E-03
	11/10/03 - 11/17/03	2.32E-02	2.56E-03
	11/17/03 - 11/24/03	1.01E-02	2.05E-03
	11/24/03 - 12/01/03	8.80E-03	1.76E-03
	12/01/03 - 12/08/03	1.47E-02	2.24E-03
	12/08/03 - 12/15/03	7.65E-03	2.12E-03
	12/15/03 - 12/22/03	1.55E-02	2.17E-03
	12/22/03 - 12/29/03	1.14E-02	1.99E-03

* Denotes a result less than the detection limit.

(c) No sample due to unit failure.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD		RESULT	OVERALL UNCERTAINTY
9A Control	12/30/02 - 01/06/03		4.35E-03	1.65E-03
	01/06/03 - 01/13/03		2.71E-02	2.64E-03
	01/13/03 - 01/20/03		2.22E-02	2.49E-03
	01/20/03 - 01/27/03		1.43E-02	2.11E-03
	01/27/03 - 02/03/03		4.09E-03	1.62E-03
	02/03/03 - 02/10/03		1.58E-02	2.18E-03
	02/10/03 - 02/18/03		1.91E-02	2.13E-03
	02/18/03 - 02/24/03		7.56E-03	1.92E-03
	02/24/03 - 03/03/03		1.89E-02	2.41E-03
	03/03/03 - 03/10/03		2.97E-03	1.46E-03
	03/10/03 - 03/17/03		3.20E-03	1.45E-03
	03/17/03 - 03/24/03		5.41E-03	1.54E-03
	03/24/03 - 03/31/03	*	1.78E-03	1.44E-03
	03/31/03 - 04/07/03		3.93E-03	1.56E-03
	04/07/03 - 04/14/03		4.31E-03	1.59E-03
	04/14/03 - 04/21/03		6.11E-03	1.71E-03
	04/21/03 - 04/28/03		5.51E-03	1.69E-03
	04/28/03 - 05/05/03		5.08E-03	1.63E-03
	05/05/03 - 05/12/03		9.14E-03	1.86E-03
	05/12/03 - 05/19/03		7.90E-03	1.78E-03
	05/19/03 - 05/26/03		8.10E-03	1.83E-03
	05/26/03 - 06/02/03		1.25E-02	2.02E-03
	06/02/03 - 06/09/03		1.32E-02	2.04E-03
	06/09/03 - 06/16/03		6.16E-03	1.83E-03
	06/17/03 - 06/23/03		5.84E-03	1.77E-03
	06/23/03 - 06/30/03		8.60E-03	1.91E-03
	06/30/03 - 07/07/03		3.15E-03	1.74E-03
	07/07/03 - 07/14/03		7.78E-03	1.79E-03
	07/14/03 - 07/21/03		8.37E-03	1.76E-03
	07/21/03 - 07/28/03		8.45E-03	1.86E-03
	07/28/03 - 08/04/03		1.11E-02	2.08E-03
	08/04/03 - 08/11/03		1.17E-02	2.03E-03
	08/11/03 - 08/18/03		8.12E-03	1.90E-03
	08/18/03 - 08/25/03		1.40E-02	2.08E-03
	08/25/03 - 09/02/03		9.64E-03	1.93E-03
	09/02/03 - 09/09/03		1.95E-02	2.57E-03
	09/08/03 - 09/15/03		5.24E-03	1.77E-03
	09/15/03 - 09/22/03		7.89E-03	1.87E-03
	09/22/03 - 09/29/03		9.57E-03	2.11E-03

* Denotes a result less than the detection limit.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
9A Control	09/29/03 - 10/06/03	3.48E-02	3.10E-03
	10/06/03 - 10/13/03	6.97E-03	1.83E-03
	10/13/03 - 10/20/03	1.28E-02	2.16E-03
	10/20/03 - 10/27/03	1.42E-02	2.22E-03
	10/27/03 - 11/03/03	1.36E-02	2.08E-03
	11/03/03 - 11/10/03	3.72E-02	3.07E-03
	11/10/03 - 11/17/03	1.71E-02	2.31E-03
	11/17/03 - 11/24/03	4.98E-03	1.78E-03
	11/24/03 - 12/01/03	6.52E-03	1.63E-03
	12/01/03 - 12/08/03	1.03E-02	2.03E-03
	12/08/03 - 12/15/03	4.10E-03	1.95E-03
	12/15/03 - 12/22/03	1.42E-02	2.11E-03
	12/22/03 - 12/30/03	7.36E-03	1.61E-03
21	12/30/02 - 01/06/03	7.78E-03	1.85E-03
	01/06/03 - 01/13/03	3.46E-02	2.91E-03
	01/13/03 - 01/20/03	4.03E-02 (b)	1.13E-02
	01/20/03 - 01/27/03	1.54E-02	2.16E-03
	01/27/03 - 02/03/03	5.09E-03	1.68E-03
	02/03/03 - 02/10/03	1.91E-02	2.32E-03
	02/10/03 - 02/18/03	2.43E-02	2.34E-03
	02/18/03 - 02/24/03	4.91E-03	1.75E-03
	02/24/03 - 03/03/03	2.22E-02	2.55E-03
	03/03/03 - 03/10/03	4.85E-03	1.58E-03
	03/10/03 - 03/17/03	4.69E-03	1.55E-03
	03/17/03 - 03/24/03	5.40E-03	1.54E-03
	03/24/03 - 03/31/03	5.15E-03	1.65E-03
	03/31/03 - 04/07/03	3.88E-03	1.55E-03
	04/07/03 - 04/14/03	7.49E-03 (b)	4.53E-03
	04/14/03 - 04/21/03	9.34E-03	2.13E-03
	04/21/03 - 04/28/03	7.97E-03	1.83E-03
	04/28/03 - 05/05/03	7.51E-03	1.78E-03
	05/05/03 - 05/12/03	9.83E-03	1.90E-03
	05/12/03 - 05/19/03	8.93E-03	1.84E-03
	05/19/03 - 05/26/03	1.25E-02	2.05E-03
	05/26/03 - 06/02/03	1.42E-02	2.10E-03
	06/02/03 - 06/09/03	1.70E-02	2.21E-03
	06/09/03 - 06/16/03	6.09E-03	1.83E-03
	06/17/03 - 06/23/03	7.61E-03	1.86E-03
	06/23/03 - 06/30/03	1.12E-02	2.04E-03

* Denotes a result less than the detection limit.

(b) Data not included in the summary average.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
21	06/30/03 - 07/07/03	6.45E-03	1.92E-03
	07/07/03 - 07/14/03	9.86E-03	1.90E-03
	07/14/03 - 07/21/03	1.01E-02	1.85E-03
	07/21/03 - 07/28/03	1.09E-02	1.98E-03
	07/28/03 - 08/04/03	1.29E-02	2.16E-03
	08/04/03 - 08/11/03	1.53E-02	2.20E-03
	08/11/03 - 08/18/03	1.24E-02	2.11E-03
	08/18/03 - 08/25/03	1.60E-02	2.17E-03
	08/25/03 - 09/02/03	1.07E-02	1.98E-03
	09/02/03 - 09/09/03	2.11E-02	2.64E-03
	09/08/03 - 09/15/03	7.58E-03	1.91E-03
	09/15/03 - 09/22/03	1.00E-02	1.97E-03
	09/22/03 - 09/29/03	1.52E-02	2.36E-03
	09/29/03 - 10/06/03	4.69E-02	3.48E-03
	10/06/03 - 10/13/03	9.50E-03	1.95E-03
	10/13/03 - 10/20/03	2.01E-02	2.48E-03
	10/20/03 - 10/27/03	1.77E-02	2.37E-03
	10/27/03 - 11/03/03	1.89E-02	2.32E-03
	11/03/03 - 11/10/03	4.27E-02	3.24E-03
	11/10/03 - 11/17/03	2.03E-02	2.44E-03
	11/17/03 - 11/24/03	1.26E-02	2.17E-03
	11/24/03 - 12/01/03	9.37E-03	1.79E-03
	12/01/03 - 12/08/03	1.21E-02	2.12E-03
	12/08/03 - 12/15/03	1.17E-02	2.31E-03
	12/15/03 - 12/22/03	1.47E-02	2.13E-03
	12/22/03 - 12/29/03	1.10E-02	1.97E-03
23	12/30/02 - 01/06/03	6.93E-03	1.80E-03
	01/06/03 - 01/13/03	3.33E-02	2.86E-03
	01/13/03 - 01/20/03	2.56E-02	2.62E-03
	01/20/03 - 01/27/03	1.54E-02	2.17E-03
	01/27/03 - 02/03/03	5.24E-03	1.69E-03
	02/03/03 - 02/10/03	1.77E-02	2.26E-03
	02/10/03 - 02/18/03	2.23E-02	2.26E-03
	02/18/03 - 02/24/03	6.29E-03	1.84E-03
	02/24/03 - 03/03/03	2.16E-02	2.52E-03
	03/03/03 - 03/10/03	5.75E-03	1.63E-03
	03/10/03 - 03/17/03	4.20E-03	1.51E-03
	03/17/03 - 03/24/03	6.34E-03	1.60E-03
	03/24/03 - 03/31/03	4.11E-03	1.59E-03

* Denotes a result less than the detection limit.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
23	03/31/03 - 04/07/03	3.43E-03	1.53E-03
	04/07/03 - 04/14/03	5.05E-03	1.63E-03
	04/14/03 - 04/21/03	5.48E-03	1.67E-03
	04/21/03 - 04/28/03	5.89E-03	1.71E-03
	04/28/03 - 05/05/03	6.37E-03	1.71E-03
	05/05/03 - 05/12/03	8.69E-03	1.84E-03
	05/12/03 - 05/19/03	7.20E-03	1.74E-03
	05/19/03 - 05/26/03	9.73E-03	1.92E-03
	05/26/03 - 06/02/03	1.15E-02	1.97E-03
	06/02/03 - 06/09/03	1.31E-02	2.03E-03
	06/09/03 - 06/16/03	5.50E-03	1.80E-03
	06/17/03 - 06/23/03	8.50E-03	1.91E-03
	06/23/03 - 06/30/03	7.78E-03	1.87E-03
	06/30/03 - 07/07/03	6.35E-03	1.92E-03
	07/07/03 - 07/14/03	8.37E-03	1.82E-03
	07/14/03 - 07/21/03	1.05E-02	1.88E-03
	07/21/03 - 07/28/03	1.05E-02	1.97E-03
	07/28/03 - 08/04/03	1.27E-02	2.16E-03
	08/04/03 - 08/11/03	1.44E-02	2.16E-03
	08/11/03 - 08/18/03	1.01E-02	2.00E-03
	08/18/03 - 08/25/03	1.50E-02	2.13E-03
	08/25/03 - 09/02/03	1.15E-02	2.02E-03
	09/02/03 - 09/09/03	2.33E-02	2.74E-03
	09/08/03 - 09/15/03	5.64E-03	1.80E-03
	09/15/03 - 09/22/03	* 1.28E-02 (b)	1.07E-02
	09/22/03 - 09/29/03	1.38E-02	2.30E-03
	09/29/03 - 10/06/03	4.23E-02	3.35E-03
	10/06/03 - 10/13/03	9.10E-03	1.93E-03
	10/13/03 - 10/20/03	1.35E-02	2.20E-03
	10/20/03 - 10/27/03	1.27E-02	2.15E-03
	10/27/03 - 11/03/03	(c)	
	11/03/03 - 11/10/03	4.22E-02	3.23E-03
	11/10/03 - 11/17/03	2.01E-02	3.53E-03
	11/17/03 - 11/24/03	* - 1.95E-02 (b)	4.37E-02
	11/24/03 - 12/01/03	8.82E-03	1.76E-03
	12/01/03 - 12/08/03	1.41E-02	2.21E-03
	12/08/03 - 12/15/03	9.90E-03	2.23E-03
	12/15/03 - 12/22/03	1.60E-02	2.19E-03
	12/22/03 - 12/29/03	1.08E-02	1.96E-03

* Denotes a result less than the detection limit.

(b) Data not included in the summary average.

(c) Sample not available due to unit failure.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
40	12/30/02 - 01/06/03	5.93E-03	1.74E-03
	01/06/03 - 01/13/03	2.60E-02	2.60E-03
	01/13/03 - 01/20/03	2.66E-02	2.66E-03
	01/20/03 - 01/27/03	1.27E-02	2.03E-03
	01/27/03 - 02/03/03	5.29E-03	1.69E-03
	02/03/03 - 02/10/03	1.48E-02	2.13E-03
	02/10/03 - 02/18/03	2.04E-02	2.19E-03
	02/18/03 - 02/24/03	7.33E-03	1.91E-03
	02/24/03 - 03/03/03	1.82E-02	2.38E-03
	03/03/03 - 03/10/03	6.59E-03	1.68E-03
	03/10/03 - 03/17/03	4.45E-03	1.53E-03
	03/17/03 - 03/24/03	4.57E-03	1.49E-03
	03/24/03 - 03/31/03	7.03E-03	1.76E-03
	03/31/03 - 04/07/03	3.68E-03	1.54E-03
	04/07/03 - 04/14/03	5.94E-03	1.69E-03
	04/14/03 - 04/21/03	6.51E-03	1.73E-03
	04/21/03 - 04/28/03	5.89E-03	1.71E-03
	04/28/03 - 05/05/03	6.51E-03	1.72E-03
	05/05/03 - 05/12/03	9.43E-03	1.88E-03
	05/12/03 - 05/19/03	7.60E-03	1.77E-03
	05/19/03 - 05/26/03	1.06E-02	1.96E-03
	05/26/03 - 06/02/03	1.20E-02	1.99E-03
	06/02/03 - 06/09/03	1.48E-02	2.11E-03
	06/09/03 - 06/16/03	6.95E-03	1.87E-03
	06/17/03 - 06/23/03	7.25E-03	1.85E-03
	06/23/03 - 06/30/03	1.03E-02	2.00E-03
	06/30/03 - 07/07/03	4.05E-03	1.79E-03
	07/07/03 - 07/14/03	8.32E-03	1.82E-03
	07/14/03 - 07/21/03	8.82E-03	1.78E-03
	07/21/03 - 07/28/03	1.21E-02	2.04E-03
	07/28/03 - 08/04/03	1.06E-02	2.06E-03
	08/04/03 - 08/11/03	1.12E-02	2.39E-03
	08/11/03 - 08/18/03	1.11E-02	2.05E-03
	08/18/03 - 08/25/03	1.83E-02	2.28E-03
	08/25/03 - 09/02/03	1.02E-02	1.96E-03
	09/02/03 - 09/09/03	2.28E-02	2.72E-03
	09/08/03 - 09/15/03	6.59E-03	1.85E-03
	09/15/03 - 09/22/03	1.05E-02	2.00E-03
	09/22/03 - 09/29/03	1.36E-02	2.29E-03

* Denotes a result less than the detection limit.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
40	09/29/03 - 10/06/03	4.15E-02	3.31E-03
	10/06/03 - 10/13/03	8.43E-03	1.91E-03
	10/13/03 - 10/20/03	2.04E-02	2.49E-03
	10/20/03 - 10/27/03	1.36E-02	2.20E-03
	10/27/03 - 11/03/03	1.27E-02	2.04E-03
	11/03/03 - 11/10/03	3.95E-02	3.15E-03
	11/10/03 - 11/17/03	2.32E-02	2.56E-03
	11/17/03 - 11/24/03	4.54E-03	1.76E-03
	11/24/03 - 12/01/03	8.23E-03	1.73E-03
	12/01/03 - 12/08/03	1.19E-02	2.11E-03
	12/08/03 - 12/15/03	5.35E-03	2.01E-03
	12/15/03 - 12/22/03	1.57E-02	2.18E-03
	12/22/03 - 12/29/03	9.41E-03	1.89E-03
48	12/30/02 - 01/06/03	7.02E-03	1.80E-03
	01/06/03 - 01/13/03	3.21E-02	2.82E-03
	01/13/03 - 01/20/03	2.59E-02	2.63E-03
	01/20/03 - 01/27/03	1.34E-02	2.07E-03
	01/27/03 - 02/03/03	5.04E-03	1.68E-03
	02/03/03 - 02/10/03	2.28E-02	2.48E-03
	02/10/03 - 02/18/03	2.44E-02	2.34E-03
	02/18/03 - 02/24/03	6.75E-03	1.87E-03
	02/24/03 - 03/03/03	2.32E-02	2.58E-03
	03/03/03 - 03/10/03	6.34E-03	1.67E-03
	03/10/03 - 03/17/03	5.62E-03	1.60E-03
	03/17/03 - 03/24/03	4.98E-03	1.52E-03
	03/24/03 - 03/31/03	5.55E-03	1.68E-03
	03/31/03 - 04/07/03	4.23E-03	1.58E-03
	04/07/03 - 04/14/03	7.58E-03	1.78E-03
	04/14/03 - 04/21/03	5.26E-03	1.67E-03
	04/21/03 - 04/28/03	5.70E-03	1.70E-03
	04/28/03 - 05/05/03	6.44E-03	1.71E-03
	05/05/03 - 05/12/03	1.18E-02	2.00E-03
	05/12/03 - 05/19/03	8.30E-03	1.81E-03
	05/19/03 - 05/26/03	9.65E-03	1.92E-03
	05/26/03 - 06/02/03	1.16E-02	1.97E-03
	06/02/03 - 06/09/03	1.47E-02	2.11E-03
	06/09/03 - 06/16/03	5.42E-03	1.79E-03
	06/17/03 - 06/23/03	6.04E-03	1.78E-03
	06/23/03 - 06/30/03	9.38E-03	1.95E-03

* Denotes a result less than the detection limit.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD		RESULT	OVERALL UNCERTAINTY
48	06/30/03 - 07/07/03		3.11E-03	1.85E-03
	07/07/03 - 07/14/03		7.92E-03	1.80E-03
	07/14/03 - 07/21/03		9.21E-03	1.80E-03
	07/21/03 - 07/28/03		1.32E-02	2.10E-03
	07/28/03 - 08/04/03		1.16E-02	2.11E-03
	08/04/03 - 08/11/03		1.31E-02	2.09E-03
	08/11/03 - 08/18/03		1.11E-02	2.05E-03
	08/18/03 - 08/25/03		1.56E-02	2.16E-03
	08/25/03 - 09/02/03		1.15E-02	2.01E-03
	09/02/03 - 09/09/03		2.23E-02	2.69E-03
	09/08/03 - 09/15/03		7.18E-03	1.88E-03
	09/15/03 - 09/22/03		1.00E-02	1.98E-03
	09/22/03 - 09/29/03		1.32E-02	2.28E-03
	09/29/03 - 10/06/03		3.91E-02	3.24E-03
	10/06/03 - 10/13/03		7.17E-03	1.84E-03
	10/13/03 - 10/20/03		1.69E-02	2.34E-03
	10/20/03 - 10/27/03		4.92E-03	1.79E-03
	10/27/03 - 11/03/03		1.52E-02	2.15E-03
	11/03/03 - 11/10/03		3.53E-02	3.01E-03
	11/10/03 - 11/17/03		2.06E-02	2.45E-03
	11/17/03 - 11/24/03	*	7.63E-04	1.58E-03
	11/24/03 - 12/01/03		8.08E-03	1.72E-03
	12/01/03 - 12/08/03		1.29E-02	2.16E-03
	12/08/03 - 12/15/03		7.65E-03	2.12E-03
	12/15/03 - 12/22/03		1.87E-02	2.31E-03
	12/22/03 - 12/29/03		1.12E-02	1.98E-03
57	12/30/02 - 01/06/03		7.88E-03	1.85E-03
	01/06/03 - 01/13/03		3.62E-02	2.96E-03
	01/13/03 - 01/20/03		3.46E-02	2.94E-03
	01/20/03 - 01/27/03		1.41E-02	2.10E-03
	01/27/03 - 02/03/03		6.93E-03	1.79E-03
	02/03/03 - 02/10/03		2.56E-02	2.59E-03
	02/10/03 - 02/18/03		2.60E-02	2.40E-03
	02/18/03 - 02/24/03		6.52E-03	1.86E-03
	02/24/03 - 03/03/03		2.58E-02	2.68E-03
	03/03/03 - 03/10/03		7.16E-03	1.71E-03
	03/10/03 - 03/17/03		4.06E-03	1.51E-03
	03/17/03 - 03/24/03		6.14E-03	1.58E-03
	03/24/03 - 03/31/03		5.45E-03	1.67E-03

* Denotes a result less than the detection limit.

TABLE A-2.1 (cont.)

GROSS BETA ON AIR PARTICULATES

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
57	03/31/03 - 04/07/03	4.38E-03	1.59E-03
	04/07/03 - 04/14/03	7.63E-03	1.78E-03
	04/14/03 - 04/21/03	7.56E-03	1.79E-03
	04/21/03 - 04/28/03	7.03E-03	1.78E-03
	04/28/03 - 05/05/03	6.37E-03	1.71E-03
	05/05/03 - 05/12/03	1.05E-02	1.93E-03
	05/12/03 - 05/19/03	8.18E-03	1.80E-03
	05/19/03 - 05/26/03	1.11E-02	1.99E-03
	05/26/03 - 06/02/03	1.41E-02	2.09E-03
	06/02/03 - 06/09/03	1.70E-02	2.22E-03
	06/09/03 - 06/16/03	6.79E-03	1.87E-03
	06/17/03 - 06/23/03	7.97E-03	1.88E-03
	06/23/03 - 06/30/03	1.19E-02	2.07E-03
	06/30/03 - 07/07/03	4.80E-03	1.83E-03
	07/07/03 - 07/14/03	9.71E-03	1.90E-03
	07/14/03 - 07/21/03	7.97E-03	1.74E-03
	07/21/03 - 07/28/03	1.23E-02	2.06E-03
	07/28/03 - 08/04/03	1.19E-02	2.12E-03
	08/04/03 - 08/11/03	1.41E-02	2.15E-03
	08/11/03 - 08/18/03	1.09E-02	2.04E-03
	08/18/03 - 08/25/03	1.66E-02	2.20E-03
	08/25/03 - 09/02/03	1.05E-02	1.97E-03
	09/02/03 - 09/09/03	2.52E-02	2.82E-03
	09/08/03 - 09/15/03	7.28E-03	1.89E-03
	09/15/03 - 09/22/03	3.18E-02	2.88E-03
	09/22/03 - 09/29/03	1.23E-02	2.23E-03
	09/29/03 - 10/06/03	4.02E-02	3.28E-03
	10/06/03 - 10/13/03	8.95E-03	1.93E-03
	10/13/03 - 10/20/03	1.65E-02	2.33E-03
	10/20/03 - 10/27/03	1.62E-02	2.31E-03
	10/27/03 - 11/03/03	1.46E-02	2.13E-03
	11/03/03 - 11/10/03	4.32E-02	3.26E-03
	11/10/03 - 11/17/03	2.46E-02	2.62E-03
	11/17/03 - 11/24/03	9.21E-03	2.01E-03
	11/24/03 - 12/01/03	6.90E-03	1.65E-03
	12/01/03 - 12/08/03	1.16E-02	2.10E-03
	12/08/03 - 12/15/03	6.55E-03	2.07E-03
	12/15/03 - 12/22/03	1.39E-02	2.10E-03
	12/22/03 - 12/29/03	1.21E-02	2.02E-03

* Denotes a result less than the detection limit.

TABLE A-2.2

GROSS BETA ON AIR PARTICULATES - SUMMARY

Results in pCi/cubic meter

NUCLIDE	AVERAGE	LOW *	HIGH *	NUMBER SAMPLES	NUMBER POSITIVE
Gross Beta (I)	1.35E-02	3.11E-03	5.39E-02	552	551
Gross Beta (C)	1.06E-02	1.78E-03	3.72E-02	52	51

* Does not include unacceptable data.

(I) Indicator Stations

(C) Control Stations

TABLE A-3.1

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
1	12/30/02 - 03/31/03	Be-7	3.28E-02	2.89E-03
		K-40	* - 5.20E-04	4.09E-03
		Ru-103	* 1.06E-04	1.87E-04
		Ru-106	* - 3.46E-04	1.37E-03
		Cs-134	* - 4.83E-04	1.67E-04
		Cs-137	* - 1.20E-04	1.62E-04
		Ra-226	* - 4.66E-03	3.63E-03
		Th-228	* - 1.23E-02	3.32E-03
	03/31/03 - 06/30/03	Be-7	6.37E-02	5.34E-03
		K-40	* 2.70E-02	3.80E-03
		Ru-103	* 4.37E-05	3.33E-04
		Ru-106	* 2.14E-04	1.79E-03
		Cs-134	* - 1.36E-03	2.43E-04
		Cs-137	* 8.10E-05	2.01E-04
		Ra-226	* 1.11E-04	4.05E-03
		Th-228	* - 1.02E-02	3.81E-03
	06/30/03 - 09/29/03	Be-7	6.35E-02	9.14E-03
		K-40	* 4.97E-04	9.05E-03
		Ru-103	* - 2.06E-04	4.33E-04
		Ru-106	* 1.31E-03	2.79E-03
		Cs-134	* 1.38E-04	3.17E-04
		Cs-137	* - 3.95E-05	2.91E-04
		Ra-226	* - 2.66E-03	5.98E-03
		Th-228	* 3.45E-03	5.98E-03
	09/29/03 - 12/29/03	Be-7	3.42E-02	9.85E-03
		K-40	* 4.66E-03	8.11E-03
		Ru-103	* 8.54E-05	4.98E-04
		Ru-106	* 4.13E-04	3.69E-03
		Cs-134	* - 1.07E-04	4.47E-04
		Cs-137	* - 1.53E-04	4.70E-04
		Ra-226	* - 4.67E-03	9.39E-03
		Th-228	* - 5.86E-04	8.48E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
4	12/30/02 - 03/31/03	Be-7	3.50E-02	2.08E-03
		K-40	* 2.08E-03	2.97E-03
		Ru-103	* - 1.36E-05	8.74E-05
		Ru-106	* - 4.26E-04	5.97E-04
		Cs-134	* - 8.75E-05	6.46E-05
		Cs-137	* 1.46E-05	1.64E-04
		Ra-226	* 6.49E-04	2.48E-03
		Th-228	* - 5.09E-03	1.48E-03
	03/31/03 - 06/30/03	Be-7	5.62E-02	3.42E-03
		K-40	* 1.18E-03	2.85E-03
		Ru-103	* 2.86E-05	1.20E-04
		Ru-106	* 3.56E-04	7.24E-04
		Cs-134	* - 3.58E-05	7.93E-05
		Cs-137	* - 2.35E-05	1.01E-04
		Ra-226	* 4.25E-04	2.55E-03
		Th-228	* - 1.89E-03	1.52E-03
	06/30/03 - 09/29/03	Be-7	6.67E-02	1.39E-02
		K-40	* 3.81E-03	1.03E-02
		Ru-103	* - 8.66E-05	7.88E-04
		Ru-106	* 7.12E-04	3.96E-03
		Cs-134	* 4.99E-04	5.47E-04
		Cs-137	* 4.22E-04	5.74E-04
		Ra-226	* - 1.99E-03	8.81E-03
		Th-228	* 3.76E-03	9.01E-03
	09/29/03 - 12/29/03	Be-7	2.71E-02	6.97E-03
		K-40	* 3.27E-03	9.17E-03
		Ru-103	* - 2.91E-04	4.94E-04
		Ru-106	* - 1.52E-03	4.20E-03
		Cs-134	* 2.44E-04	4.94E-04
		Cs-137	* - 3.07E-04	4.98E-04
		Ra-226	* - 5.68E-04	7.03E-03
		Th-228	* 5.73E-04	8.77E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
5	12/30/02 - 03/31/03	Be-7	3.80E-02	2.47E-03
		K-40	* 3.85E-04	3.13E-03
		Ru-103	* - 1.18E-04	1.04E-04
		Ru-106	* - 2.07E-04	7.53E-04
		Cs-134	* 3.97E-05	7.81E-05
		Cs-137	* 1.67E-04	8.16E-05
		Ra-226	* - 1.78E-03	2.13E-03
		Th-228	* - 1.24E-03	1.36E-03
	03/31/03 - 06/30/03	Be-7	4.86E-02	3.87E-03
		K-40	* - 3.15E-04	3.50E-03
		Ru-103	* - 1.89E-04	2.53E-04
		Ru-106	* - 5.07E-04	1.43E-03
		Cs-134	* - 1.21E-03	1.93E-04
		Cs-137	* - 1.15E-05	1.56E-04
		Ra-226	* - 1.84E-03	2.83E-03
		Th-228	* 1.87E-03	2.28E-03
	06/30/03 - 09/29/03	Be-7	6.55E-02	1.21E-02
		K-40	* 6.27E-03	7.68E-03
		Ru-103	* - 2.41E-04	4.78E-04
		Ru-106	* - 5.32E-04	2.11E-03
		Cs-134	* - 1.48E-04	3.18E-04
		Cs-137	* 2.07E-04	3.51E-04
		Ra-226	* - 3.89E-03	5.34E-03
		Th-228	* - 2.74E-03	5.76E-03
	09/29/03 - 12/29/03	Be-7	2.93E-02	6.82E-03
		K-40	* 7.22E-03	5.90E-03
		Ru-103	* - 1.67E-04	4.34E-04
		Ru-106	* - 2.11E-03	2.97E-03
		Cs-134	* 1.30E-04	3.77E-04
		Cs-137	* - 3.26E-04	3.44E-04
		Ra-226	* 2.03E-03	7.63E-03
		Th-228	* 1.42E-03	7.60E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
6	12/30/02 - 03/31/03	Be-7	4.57E-02	2.86E-03
		K-40	* 2.15E-03	3.10E-03
		Ru-103	* - 2.05E-05	1.50E-04
		Ru-106	* 9.42E-04	1.12E-03
		Cs-134	* 3.72E-06	1.45E-04
		Cs-137	* - 8.42E-06	1.37E-04
		Ra-226	* 1.71E-03	3.60E-03
		Th-228	* 3.35E-03	3.45E-03
	03/31/03 - 06/30/03	Be-7	5.42E-02	3.55E-03
		K-40	* 7.47E-04	2.71E-03
		Ru-103	* 8.41E-05	1.92E-04
		Ru-106	* 5.29E-04	1.12E-03
		Cs-134	* - 2.53E-04	1.37E-04
		Cs-137	* - 5.37E-05	1.18E-04
		Ra-226	* - 7.10E-04	2.33E-03
		Th-228	* - 1.10E-02	2.52E-03
	06/30/03 - 09/29/03	Be-7	6.87E-02	1.42E-02
		K-40	* 2.55E-03	1.01E-02
		Ru-103	* 3.47E-04	5.31E-04
		Ru-106	* - 3.00E-04	3.26E-03
		Cs-134	* - 1.33E-05	3.66E-04
		Cs-137	* - 5.19E-05	3.36E-04
		Ra-226	* - 1.43E-03	7.25E-03
		Th-228	* - 1.36E-02	7.47E-03
	09/29/03 - 12/29/03	Be-7	3.78E-02	6.99E-03
		K-40	* 1.11E-03	8.24E-03
		Ru-103	* 4.25E-05	3.19E-04
		Ru-106	* 1.04E-03	2.80E-03
		Cs-134	* 2.54E-05	2.50E-04
		Cs-137	* 4.20E-04	3.41E-04
		Ra-226	* - 3.35E-03	4.04E-03
		Th-228	* - 3.97E-03	4.55E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
7	12/30/02 - 03/31/03	Be-7	3.96E-02	3.18E-03
		K-40	* - 6.01E-03	4.18E-03
		Ru-103	* - 5.70E-06	1.85E-04
		Ru-106	* - 2.54E-04	1.37E-03
		Cs-134	* - 7.13E-04	1.64E-04
		Cs-137	* - 6.80E-06	1.54E-04
		Ra-226	* - 1.49E-03	3.16E-03
		Th-228	* 2.82E-03	2.86E-03
	03/31/03 - 06/30/03	Be-7	4.60E-02	8.17E-03
		K-40	* 1.87E-02	6.02E-03
		Ru-103	* 1.52E-04	5.04E-04
		Ru-106	* - 9.17E-04	3.01E-03
		Cs-134	* - 1.17E-03	4.48E-04
		Cs-137	* 1.04E-04	3.09E-04
		Ra-226	* - 2.93E-03	5.41E-03
		Th-228	* - 6.42E-03	5.68E-03
	06/30/03 - 09/29/03	Be-7	6.00E-02	1.32E-02
		K-40	* - 3.73E-03	9.84E-03
		Ru-103	* 5.22E-04	7.07E-04
		Ru-106	* 8.11E-04	4.21E-03
		Cs-134	* 1.89E-04	5.51E-04
		Cs-137	* 2.34E-04	4.49E-04
		Ra-226	* - 4.30E-03	7.29E-03
		Th-228	* - 1.09E-02	9.18E-03
	09/29/03 - 12/29/03	Be-7	3.06E-02	7.44E-03
		K-40	* 2.32E-03	8.94E-03
		Ru-103	* 1.27E-04	3.67E-04
		Ru-106	* 8.27E-04	2.92E-03
		Cs-134	* 2.46E-04	2.86E-04
		Cs-137	* - 1.69E-05	3.29E-04
		Ra-226	* - 4.59E-03	4.72E-03
		Th-228	* 7.55E-03	8.25E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
8	12/30/02 - 03/31/03	Be-7	3.74E-02	2.40E-03
		K-40	* 3.00E-03	3.96E-03
		Ru-103	* - 1.74E-05	1.45E-04
		Ru-106	* - 5.29E-04	1.12E-03
		Cs-134	* - 1.55E-03	1.58E-04
		Cs-137	* 1.62E-04	1.78E-04
		Ra-226	* 1.12E-03	3.14E-03
		Th-228	* - 1.00E-03	2.28E-03
	03/31/03 - 06/30/03	Be-7	5.62E-02	4.08E-03
		K-40	* - 1.63E-03	2.36E-03
		Ru-103	* - 4.83E-05	2.15E-04
		Ru-106	* 5.42E-04	1.17E-03
		Cs-134	* - 1.31E-04	1.25E-04
		Cs-137	* - 2.38E-05	1.28E-04
		Ra-226	* - 6.80E-03	2.85E-03
		Th-228	* - 4.64E-04	2.31E-03
	06/30/03 - 09/29/03	Be-7	7.47E-02	1.29E-02
		K-40	* 2.67E-03	6.89E-03
		Ru-103	* - 4.91E-04	5.91E-04
		Ru-106	* 1.92E-03	3.11E-03
		Cs-134	* 1.04E-04	3.65E-04
		Cs-137	* - 1.88E-04	3.82E-04
		Ra-226	* - 8.31E-03	7.86E-03
		Th-228	* 6.93E-03	1.21E-02
	09/29/03 - 12/29/03	Be-7	2.64E-02	9.36E-03
		K-40	* 3.52E-03	1.11E-02
		Ru-103	* - 4.17E-04	5.77E-04
		Ru-106	* 1.04E-03	4.86E-03
		Cs-134	* - 2.47E-05	5.78E-04
		Cs-137	* - 4.66E-04	6.14E-04
		Ra-226	* 9.45E-05	8.75E-03
		Th-228	* - 6.60E-03	8.24E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
9A	12/30/02 - 03/31/03	Be-7	3.03E-02	2.16E-03
Control		K-40	* 1.05E-03	3.85E-03
		Ru-103	* 6.90E-06	1.22E-04
		Ru-106	* 4.96E-04	8.41E-04
		Cs-134	* - 6.99E-06	8.89E-05
		Cs-137	* 1.53E-06	9.17E-05
		Ra-226	* 1.84E-03	3.86E-03
		Th-228	* 3.06E-03	1.48E-03
	03/31/03 - 06/30/03	Be-7	4.42E-02	3.13E-03
		K-40	3.82E-03	1.91E-03
		Ru-103	* 4.88E-05	1.77E-04
		Ru-106	* 2.49E-04	9.40E-04
		Cs-134	* - 2.49E-05	1.17E-04
		Cs-137	* 1.18E-05	1.06E-04
		Ra-226	* 2.52E-04	2.84E-03
		Th-228	* 2.77E-03	2.18E-03
	06/30/03 - 09/29/03	Be-7	5.15E-02	1.20E-02
		K-40	* - 4.52E-03	1.02E-02
		Ru-103	* - 4.81E-04	6.25E-04
		Ru-106	* 2.41E-03	4.57E-03
		Cs-134	* - 9.24E-04	5.95E-04
		Cs-137	* 4.14E-04	5.45E-04
		Ra-226	* - 1.80E-04	8.68E-03
		Th-228	* 6.19E-03	7.49E-03
	09/29/03 - 12/29/03	Be-7	2.27E-02	9.57E-03
		K-40	* - 7.10E-03	8.99E-03
		Ru-103	* 4.23E-05	5.91E-04
		Ru-106	* - 1.36E-03	4.25E-03
		Cs-134	* - 1.81E-04	5.99E-04
		Cs-137	* - 1.59E-04	5.50E-04
		Ra-226	* 5.36E-03	8.30E-03
		Th-228	* 1.21E-02	7.33E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
21	12/30/02 - 03/31/03	Be-7	5.44E-02	3.37E-03
		K-40	* 2.16E-03	3.56E-03
		Ru-103	* - 5.03E-05	1.73E-04
		Ru-106	* - 1.20E-03	1.25E-03
		Cs-134	* - 3.81E-05	1.35E-04
		Cs-137	* - 4.53E-05	1.39E-04
		Ra-226	* 4.59E-04	3.04E-03
		Th-228	* - 5.16E-04	2.78E-03
	03/31/03 - 06/30/03	Be-7	5.63E-02	3.44E-03
		K-40	* 1.71E-05	3.90E-03
		Ru-103	* - 4.02E-06	1.53E-04
		Ru-106	* - 7.30E-04	8.26E-04
		Cs-134	* - 3.10E-05	8.66E-05
		Cs-137	* - 1.71E-06	1.33E-04
		Ra-226	* 2.06E-03	3.22E-03
		Th-228	* - 4.27E-03	1.86E-03
	06/30/03 - 09/29/03	Be-7	6.52E-02	1.09E-02
		K-40	* 5.14E-03	5.25E-03
		Ru-103	* - 1.49E-04	5.08E-04
		Ru-106	* - 3.06E-06	2.69E-03
		Cs-134	* - 2.89E-04	3.79E-04
		Cs-137	* - 9.57E-05	3.55E-04
		Ra-226	* 1.25E-03	8.33E-03
		Th-228	* 7.89E-03	9.69E-03
	09/29/03 - 12/29/03	Be-7	2.99E-02	8.67E-03
		K-40	* 2.71E-03	7.69E-03
		Ru-103	* 8.43E-06	3.93E-04
		Ru-106	* - 1.98E-03	3.55E-03
		Cs-134	* - 1.29E-04	3.93E-04
		Cs-137	* - 6.40E-05	5.08E-04
		Ra-226	* - 8.65E-03	8.29E-03
		Th-228	* 1.00E-02	7.71E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
23	12/30/02 - 03/31/03	Be-7	4.28E-02	2.84E-03
		K-40	* 3.95E-04	2.40E-03
		Ru-103	* 1.19E-04	1.57E-04
		Ru-106	* - 1.01E-03	1.12E-03
		Cs-134	* - 4.15E-06	1.37E-04
		Cs-137	* - 5.95E-05	1.74E-04
		Ra-226	* - 9.08E-04	3.62E-03
		Th-228	* 2.13E-03	2.72E-03
	03/31/03 - 06/30/03	Be-7	4.99E-02	3.39E-03
		K-40	* - 3.72E-03	2.67E-03
		Ru-103	* - 1.20E-04	1.38E-04
		Ru-106	* 4.59E-04	7.75E-04
		Cs-134	* - 6.07E-05	9.06E-05
		Cs-137	* 1.52E-06	9.22E-05
		Ra-226	* 6.62E-04	2.86E-03
		Th-228	* - 1.16E-03	1.71E-03
	06/30/03 - 09/29/03	Be-7	5.64E-02	9.64E-03
		K-40	* - 4.49E-03	6.33E-03
		Ru-103	* 1.74E-04	5.42E-04
		Ru-106	* 1.75E-03	3.13E-03
		Cs-134	* - 1.42E-03	4.16E-04
		Cs-137	* 1.91E-04	3.59E-04
		Ra-226	* 8.94E-04	5.96E-03
		Th-228	* - 9.63E-03	6.89E-03
	09/29/03 - 12/29/03	Be-7	3.04E-02	8.25E-03
		K-40	* 1.03E-03	9.83E-03
		Ru-103	* - 1.90E-04	4.37E-04
		Ru-106	* - 5.62E-04	3.00E-03
		Cs-134	* 5.22E-05	3.85E-04
		Cs-137	* 1.15E-05	3.26E-04
		Ra-226	* - 1.14E-03	5.58E-03
		Th-228	* - 1.01E-02	5.22E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
40	12/30/02 - 03/31/03	Be-7	3.40E-02	2.07E-03
		K-40	* 2.33E-03	2.48E-03
		Ru-103	* - 8.98E-06	1.10E-04
		Ru-106	* - 1.05E-04	8.24E-04
		Cs-134	* - 4.02E-04	1.05E-04
		Cs-137	* 2.00E-05	8.79E-05
		Ra-226	* 1.10E-04	1.09E-02
		Th-228	* 1.26E-03	2.02E-03
	03/31/03 - 06/30/03	Be-7	5.04E-02	3.97E-03
		K-40	* 2.82E-03	3.16E-03
		Ru-103	* 3.73E-05	2.09E-04
		Ru-106	* 2.86E-04	1.26E-03
		Cs-134	* - 3.53E-05	1.50E-04
		Cs-137	* 4.42E-05	1.33E-04
		Ra-226	* 1.96E-03	3.51E-03
		Th-228	* 3.45E-03	2.41E-03
	06/30/03 - 09/29/03	Be-7	6.42E-02	9.10E-03
		K-40	* 2.44E-03	6.81E-03
		Ru-103	* 4.05E-04	4.00E-04
		Ru-106	* 1.12E-03	2.94E-03
		Cs-134	* - 1.85E-04	3.21E-04
		Cs-137	* 2.48E-05	2.60E-04
		Ra-226	* - 3.32E-03	5.64E-03
		Th-228	* 1.13E-03	5.48E-03
	09/29/03 - 12/29/03	Be-7	2.54E-02	6.87E-03
		K-40	* - 2.53E-03	4.22E-03
		Ru-103	* 3.02E-04	4.48E-04
		Ru-106	* - 3.88E-03	2.84E-03
		Cs-134	* - 1.32E-04	4.00E-04
		Cs-137	* 2.22E-04	3.72E-04
		Ra-226	* 5.72E-03	1.32E-02
		Th-228	* - 2.11E-03	7.13E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
48	12/30/02 - 03/31/03	Be-7	4.12E-02	4.07E-03
		K-40	4.99E-03	4.59E-03
		Ru-103	* - 5.38E-05	2.14E-04
		Ru-106	* - 2.94E-04	1.57E-03
		Cs-134	* - 6.87E-05	2.02E-04
		Cs-137	* - 5.84E-05	1.66E-04
		Ra-226	* 1.42E-03	5.13E-03
		Th-228	* - 1.36E-03	3.41E-03
	03/31/03 - 06/30/03	Be-7	4.40E-02	9.03E-03
		K-40	* - 1.40E-03	7.05E-03
		Ru-103	* - 2.21E-04	4.95E-04
		Ru-106	* - 2.57E-03	3.08E-03
		Cs-134	* - 6.33E-04	3.89E-04
		Cs-137	* 3.56E-05	3.51E-04
		Ra-226	* 5.46E-04	5.13E-03
		Th-228	* 6.60E-03	5.07E-03
	06/30/03 - 09/29/03	Be-7	6.07E-02	1.03E-02
		K-40	* - 2.69E-03	7.88E-03
		Ru-103	* 8.56E-05	6.49E-04
		Ru-106	* - 9.51E-04	3.72E-03
		Cs-134	* - 7.03E-04	4.62E-04
		Cs-137	* 4.02E-04	4.58E-04
		Ra-226	* - 1.72E-03	6.84E-03
		Th-228	* - 8.04E-04	6.35E-03
	09/29/03 - 12/29/03	Be-7	2.79E-02	8.46E-03
		K-40	* - 1.21E-03	7.83E-03
		Ru-103	* - 4.71E-05	4.65E-04
		Ru-106	* - 1.87E-04	3.81E-03
		Cs-134	* - 3.17E-04	4.80E-04
		Cs-137	* 1.44E-04	4.00E-04
		Ra-226	* - 4.67E-03	6.94E-03
		Th-228	* 1.48E-03	8.15E-03

* Denotes a result less than the detection limit.

TABLE A-3.1 (cont.)

GAMMA SPECTROMETRY OF PARTICULATES FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
57	12/30/02 - 03/31/03	Be-7	4.21E-02	2.02E-03
		K-40	* - 1.34E-03	2.12E-03
		Ru-103	* - 2.23E-06	7.56E-05
		Ru-106	* 1.58E-04	6.14E-04
		Cs-134	* 1.41E-06	6.76E-05
		Cs-137	* 1.02E-04	7.62E-05
		Ra-226	* - 1.98E-03	1.59E-03
		Th-228	* - 7.26E-03	1.48E-03
	03/31/03 - 06/30/03	Be-7	5.36E-02	3.39E-03
		K-40	* - 5.17E-03	3.25E-03
		Ru-103	* 6.16E-05	2.24E-04
		Ru-106	* - 9.10E-04	1.26E-03
		Cs-134	* - 8.01E-04	1.60E-04
		Cs-137	* - 5.93E-05	1.67E-04
		Ra-226	* 1.00E-03	3.81E-03
		Th-228	* - 9.60E-03	2.59E-03
	06/30/03 - 09/29/03	Be-7	6.86E-02	9.96E-03
		K-40	* 5.53E-03	8.15E-03
		Ru-103	* - 2.57E-04	5.25E-04
		Ru-106	* - 2.76E-03	3.18E-03
		Cs-134	* - 8.24E-04	4.64E-04
		Cs-137	* 4.03E-04	4.31E-04
		Ra-226	* - 2.08E-03	6.42E-03
		Th-228	* - 5.77E-03	6.40E-03
	09/29/03 - 12/29/03	Be-7	2.37E-02	6.85E-03
		K-40	* 1.44E-03	6.58E-03
		Ru-103	* - 1.32E-04	2.98E-04
		Ru-106	* 1.09E-03	2.64E-03
		Cs-134	* - 3.67E-05	2.99E-04
		Cs-137	* - 9.22E-06	3.31E-04
		Ra-226	* - 1.31E-03	4.50E-03
		Th-228	* - 3.51E-03	4.80E-03

* Denotes a result less than the detection limit.

TABLE A-3.2

GAMMA SPECTROMETRY OF AIR PARTICULATES - SUMMARY

Results in pCi/cubic meter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
Be-7	(I)	4.68E-02	2.37E-02	7.47E-02	44	44
Be-7	(C)	3.72E-02	2.27E-02	5.15E-02	4	4
K-40	(I)	2.03E-03	-6.01E-03	2.70E-02	44	1
K-40	(C)	-1.69E-03	-7.10E-03	3.82E-03	4	1
Ru-103	(I)	-1.76E-05	-4.91E-04	5.22E-04	44	0
Ru-103	(C)	-9.58E-05	-4.81E-04	4.88E-05	4	0
Ru-106	(I)	-2.11E-04	-3.88E-03	1.92E-03	44	0
Ru-106	(C)	4.49E-04	-1.36E-03	2.41E-03	4	0
Cs-134	(I)	-2.66E-04	-1.55E-03	4.99E-04	44	0
Cs-134	(C)	-2.84E-04	-9.24E-04	-6.99E-06	4	0
Cs-137	(I)	2.82E-05	-4.66E-04	4.22E-04	44	0
Cs-137	(C)	6.71E-05	-1.59E-04	4.14E-04	4	0
Ra-226	(I)	-1.35E-03	-8.65E-03	5.72E-03	44	0
Ra-226	(C)	1.82E-03	-1.80E-04	5.36E-03	4	0
Th-228	(I)	-1.78E-03	-1.36E-02	1.00E-02	44	0
Th-228	(C)	6.03E-03	2.77E-03	1.21E-02	4	0

(I) Indicator Stations

(C) Control Stations

TABLE A-4.1

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT		OVERALL UNCERTAINTY
1	12/30/02 - 01/06/03	* - 3.48E-03		3.16E-03
	01/06/03 - 01/13/03	* 5.12E-04		3.66E-03
	01/13/03 - 01/20/03	* - 3.08E-03		5.48E-03
	01/20/03 - 01/27/03	* - 8.82E-04		3.80E-03
	01/27/03 - 02/03/03	* - 6.94E-04		4.36E-03
	02/03/03 - 02/10/03	* 1.54E-03		4.14E-03
	02/10/03 - 02/18/03	* - 4.32E-04		3.70E-03
	02/18/03 - 02/24/03	* 4.23E-03		6.16E-03
	02/24/03 - 03/03/03	* - 1.77E-03		6.49E-03
	03/03/03 - 03/10/03		(a)	
	03/10/03 - 03/17/03		(a)	
	03/17/03 - 03/24/03		(a)	
	03/24/03 - 03/31/03		(a)	
	03/31/03 - 04/07/03		(a)	
	04/07/03 - 04/14/03		(a)	
	04/14/03 - 04/21/03		(a)	
	04/21/03 - 04/28/03		(a)	
	04/28/03 - 05/05/03		(a)	
	05/05/03 - 05/12/03	* - 1.35E-03		8.01E-03
	05/12/03 - 05/19/03	* - 1.66E-03		3.46E-03
	05/19/03 - 05/26/03	* - 2.41E-03		4.28E-03
	05/26/03 - 06/02/03	* 5.75E-04		6.27E-03
	06/02/03 - 06/09/03	* - 1.70E-03		2.78E-03
	06/09/03 - 06/16/03	* - 2.42E-03		6.52E-03
	06/17/03 - 06/23/03	* - 3.42E-03		4.23E-03
	06/23/03 - 06/30/03	* - 3.93E-03		1.37E-02
	06/30/03 - 07/07/03	* - 8.15E-04		9.22E-03
	07/07/03 - 07/14/03	* - 5.30E-04		1.17E-02
	07/14/03 - 07/21/03	* - 5.15E-05		7.02E-03
	07/21/03 - 07/28/03	* - 8.24E-04		3.43E-03
	07/28/03 - 08/04/03	* - 3.05E-04		4.67E-03
	08/04/03 - 08/11/03	* 2.76E-03		5.03E-03
	08/11/03 - 08/18/03	* 1.19E-03		9.40E-03
	08/18/03 - 08/25/03	* - 6.50E-03		9.62E-03
	08/25/03 - 09/02/03	* - 3.00E-04		2.75E-03
	09/02/03 - 09/09/03	* - 5.40E-03		1.10E-02
	09/08/03 - 09/15/03	* - 4.28E-04		3.27E-03
	09/15/03 - 09/22/03	* - 2.13E-03		3.91E-03
	09/22/03 - 09/29/03	* - 5.96E-03	(b)	2.83E-02

* Denotes a result less than the detection limit.

(a) Sample not available due to power outage.

(b) Data not included in the summary average.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT		OVERALL UNCERTAINTY
1	09/29/03 - 10/06/03	* 7.74E-04		8.82E-03
	10/06/03 - 10/13/03	* - 5.21E-04		4.31E-03
	10/13/03 - 10/20/03	* - 7.51E-03		6.27E-03
	10/20/03 - 10/27/03	* 2.70E-03		5.68E-03
	10/27/03 - 11/03/03	* 2.86E-03		8.59E-03
	11/03/03 - 11/10/03	* 3.41E-03		1.04E-02
	11/10/03 - 11/17/03	* 3.70E-03		4.24E-03
	11/17/03 - 11/24/03	* 1.57E-02	(b)	2.88E-02
	11/24/03 - 12/01/03	* - 1.72E-04		4.04E-03
	12/01/03 - 12/08/03	* - 8.66E-03		7.92E-03
	12/08/03 - 12/15/03	* - 1.03E-04		7.85E-03
	12/15/03 - 12/22/03	* 7.63E-03	(b)	8.72E-03
	12/22/03 - 12/29/03	* 3.28E-03		1.01E-02
4	12/30/02 - 01/06/03	* - 3.42E-03		3.11E-03
	01/06/03 - 01/13/03	* 5.05E-04		3.60E-03
	01/13/03 - 01/20/03	* - 3.03E-03		5.38E-03
	01/20/03 - 01/27/03	* - 8.69E-04		3.74E-03
	01/27/03 - 02/03/03	* - 6.83E-04		4.28E-03
	02/03/03 - 02/10/03	* 1.52E-03		4.09E-03
	02/10/03 - 02/18/03	* - 4.24E-04		3.64E-03
	02/18/03 - 02/24/03	* 4.17E-03		6.07E-03
	02/24/03 - 03/03/03	* - 7.96E-04		2.93E-03
	03/03/03 - 03/10/03	* - 1.34E-03		2.88E-03
	03/10/03 - 03/17/03	* - 4.12E-03		6.64E-03
	03/17/03 - 03/24/03	* - 4.47E-04		3.50E-03
	03/24/03 - 03/31/03	* - 8.30E-04		2.79E-03
	03/31/03 - 04/07/03	* - 1.03E-03		3.93E-03
	04/07/03 - 04/14/03	* 2.08E-03		2.87E-03
	04/14/03 - 04/21/03	* - 2.68E-03		3.73E-03
	04/21/03 - 04/28/03	* - 6.01E-04		1.91E-03
	04/28/03 - 05/05/03	* - 1.72E-03		3.75E-03
	05/05/03 - 05/12/03	* - 1.27E-03		7.52E-03
	05/12/03 - 05/19/03	* - 2.55E-03		3.56E-03
	05/19/03 - 05/26/03	* - 2.38E-03		4.23E-03
	05/26/03 - 06/02/03	* 5.65E-04		6.16E-03
	06/02/03 - 06/09/03	* - 8.03E-04		4.64E-03
	06/09/03 - 06/16/03	* - 1.91E-03		5.13E-03
	06/16/03 - 06/23/03	* - 2.88E-03		3.56E-03
	06/23/03 - 06/30/03	* - 3.87E-03		1.35E-02

* Denotes a result less than the detection limit.

(b) Data not included in the summary average.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
4	06/30/03 - 07/07/03	* - 8.04E-04	9.10E-03
	07/07/03 - 07/14/03	* - 5.22E-04	1.15E-02
	07/14/03 - 07/21/03	* - 5.08E-05	6.91E-03
	07/21/03 - 07/28/03	* - 8.12E-04	3.38E-03
	07/28/03 - 08/04/03	* - 2.99E-04	4.58E-03
	08/04/03 - 08/11/03	* 2.72E-03	4.96E-03
	08/11/03 - 08/18/03	* 1.17E-03	9.26E-03
	08/18/03 - 08/25/03	* - 6.40E-03	9.47E-03
	08/25/03 - 09/02/03	* - 2.94E-04	2.70E-03
	09/02/03 - 09/09/03	* - 5.32E-03	1.08E-02
	09/08/03 - 09/15/03	* - 4.19E-04	3.20E-03
	09/15/03 - 09/22/03	* - 2.09E-03	3.84E-03
	09/22/03 - 09/29/03	* - 1.62E-03	7.71E-03
	09/29/03 - 10/06/03	* 7.55E-04	8.61E-03
	10/06/03 - 10/13/03	* - 5.19E-04	4.29E-03
	10/13/03 - 10/20/03	* - 7.37E-03	6.16E-03
	10/20/03 - 10/27/03	* 2.66E-03	5.60E-03
	10/27/03 - 11/03/03	* 2.81E-03	8.46E-03
	11/03/03 - 11/10/03	* 3.36E-03	1.03E-02
	11/10/03 - 11/17/03	* 3.64E-03	4.18E-03
	11/17/03 - 11/24/03	* 4.50E-03	8.23E-03
	11/24/03 - 12/01/03	* - 1.69E-04	3.97E-03
	12/01/03 - 12/08/03	* - 8.52E-03	7.79E-03
	12/08/03 - 12/15/03	* - 1.02E-04	7.73E-03
	12/15/03 - 12/22/03	* 4.25E-05	1.12E-02
	12/22/03 - 12/29/03	* 4.17E-03	1.29E-02
5	12/30/02 - 01/06/03	* - 3.43E-03	3.12E-03
	01/06/03 - 01/13/03	* 5.07E-04	3.62E-03
	01/13/03 - 01/20/03	* - 3.04E-03	5.41E-03
	01/20/03 - 01/27/03	* - 8.73E-04	3.76E-03
	01/27/03 - 02/03/03	* - 6.86E-04	4.30E-03
	02/03/03 - 02/10/03	* 1.53E-03	4.11E-03
	02/10/03 - 02/18/03	* - 4.26E-04	3.66E-03
	02/18/03 - 02/24/03	* 4.19E-03	6.09E-03
	02/24/03 - 03/03/03	* - 8.02E-04	2.95E-03
	03/03/03 - 03/10/03	* - 1.34E-03	2.90E-03
	03/10/03 - 03/17/03	* - 4.15E-03	6.69E-03
	03/17/03 - 03/24/03	* - 4.47E-04	3.50E-03
	03/24/03 - 03/31/03	* - 8.34E-04	2.80E-03

* Denotes a result less than the detection limit.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
5	03/31/03 - 04/07/03	* - 1.04E-03	3.95E-03
	04/07/03 - 04/14/03	* 2.09E-03	2.89E-03
	04/14/03 - 04/21/03	* - 2.70E-03	3.75E-03
	04/21/03 - 04/28/03	* - 6.02E-04	1.92E-03
	04/28/03 - 05/05/03	* - 1.73E-03	3.76E-03
	05/05/03 - 05/12/03	* - 1.27E-03	7.55E-03
	05/12/03 - 05/19/03	* - 4.82E-03	5.10E-03
	05/19/03 - 05/26/03	* - 2.39E-03	4.25E-03
	05/26/03 - 06/02/03	* 5.69E-04	6.20E-03
	06/02/03 - 06/09/03	* - 1.54E-03	2.52E-03
	06/09/03 - 06/16/03	* - 1.92E-03	5.17E-03
	06/16/03 - 06/23/03	* - 2.90E-03	3.58E-03
	06/23/03 - 06/30/03	* - 3.88E-03	1.36E-02
	06/30/03 - 07/07/03	* - 8.08E-04	9.14E-03
	07/07/03 - 07/14/03	* - 5.25E-04	1.16E-02
	07/14/03 - 07/21/03	* - 5.10E-05	6.95E-03
	07/21/03 - 07/28/03	* - 8.15E-04	3.40E-03
	07/28/03 - 08/04/03	* - 3.02E-04	4.62E-03
	08/04/03 - 08/11/03	* 4.95E-03	9.03E-03
	08/11/03 - 08/18/03	* 1.32E-03	1.05E-02
	08/18/03 - 08/25/03	* - 6.43E-03	9.52E-03
	08/25/03 - 09/02/03	* - 2.96E-04	2.71E-03
	09/02/03 - 09/09/03	* - 5.34E-03	1.09E-02
	09/08/03 - 09/15/03	* - 4.21E-04	3.22E-03
	09/15/03 - 09/22/03	* - 2.11E-03	3.87E-03
	09/22/03 - 09/29/03	* - 1.63E-03	7.73E-03
	09/29/03 - 10/06/03	* 7.58E-04	8.64E-03
	10/06/03 - 10/13/03	* - 5.21E-04	4.31E-03
	10/13/03 - 10/20/03	* - 7.41E-03	6.19E-03
	10/20/03 - 10/27/03	* 2.68E-03	5.63E-03
	10/27/03 - 11/03/03	* 2.83E-03	8.50E-03
	11/03/03 - 11/10/03	* 3.38E-03	1.03E-02
	11/10/03 - 11/17/03	* 3.66E-03	4.20E-03
	11/17/03 - 11/24/03	* 4.52E-03	8.27E-03
	11/24/03 - 12/01/03	* - 1.69E-04	3.98E-03
	12/01/03 - 12/08/03	* - 8.56E-03	7.82E-03
	12/08/03 - 12/15/03	* - 1.02E-04	7.77E-03
	12/15/03 - 12/22/03	* 4.27E-05	1.12E-02
	12/22/03 - 12/29/03	* 4.21E-03	1.30E-02

* Denotes a result less than the detection limit.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
6	12/30/02 - 01/06/03	* - 3.46E-03	3.15E-03
	01/06/03 - 01/13/03	* 5.11E-04	3.65E-03
	01/13/03 - 01/20/03	* - 3.08E-03	5.47E-03
	01/20/03 - 01/27/03	* - 8.80E-04	3.79E-03
	01/27/03 - 02/03/03	* - 6.91E-04	4.34E-03
	02/03/03 - 02/10/03	* 1.54E-03	4.14E-03
	02/10/03 - 02/18/03	* - 4.31E-04	3.69E-03
	02/18/03 - 02/24/03	* 4.22E-03	6.15E-03
	02/24/03 - 03/03/03	* - 8.09E-04	2.97E-03
	03/03/03 - 03/10/03	* - 1.36E-03	2.93E-03
	03/10/03 - 03/17/03	* - 4.21E-03	6.77E-03
	03/17/03 - 03/24/03	* - 4.50E-04	3.52E-03
	03/24/03 - 03/31/03	* - 8.41E-04	2.83E-03
	03/31/03 - 04/07/03	* - 1.05E-03	3.98E-03
	04/07/03 - 04/14/03	* 2.11E-03	2.91E-03
	04/14/03 - 04/21/03	* - 2.72E-03	3.78E-03
	04/21/03 - 04/28/03	* - 6.09E-04	1.94E-03
	04/28/03 - 05/05/03	* - 1.74E-03	3.80E-03
	05/05/03 - 05/12/03	* - 1.29E-03	7.62E-03
	05/12/03 - 05/19/03	* - 2.17E-03	4.53E-03
	05/19/03 - 05/26/03	* - 2.41E-03	4.27E-03
	05/26/03 - 06/02/03	* 5.74E-04	6.26E-03
	06/02/03 - 06/09/03	* - 1.55E-03	2.54E-03
	06/09/03 - 06/16/03	* - 1.94E-03	5.23E-03
	06/16/03 - 06/23/03	* - 2.92E-03	3.61E-03
	06/23/03 - 06/30/03	* - 3.92E-03	1.37E-02
	06/30/03 - 07/07/03	* - 8.13E-04	9.20E-03
	07/07/03 - 07/14/03	* - 5.29E-04	1.17E-02
	07/14/03 - 07/21/03	* - 5.14E-05	7.00E-03
	07/21/03 - 07/28/03	* - 8.22E-04	3.42E-03
	07/28/03 - 08/04/03	* - 3.04E-04	4.66E-03
	08/04/03 - 08/11/03	* 2.75E-03	5.02E-03
	08/11/03 - 08/18/03	* 1.18E-03	9.38E-03
	08/18/03 - 08/25/03	* - 6.49E-03	9.60E-03
	08/25/03 - 09/02/03	* - 2.98E-04	2.74E-03
	09/02/03 - 09/09/03	* - 5.39E-03	1.10E-02
	09/08/03 - 09/15/03	* - 4.26E-04	3.26E-03
	09/15/03 - 09/22/03	* - 2.12E-03	3.90E-03
	09/22/03 - 09/29/03	* - 1.64E-03	7.77E-03

* Denotes a result less than the detection limit.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
6	09/29/03 - 10/06/03	* 7.72E-04	8.80E-03
	10/06/03 - 10/13/03	* - 5.20E-04	4.30E-03
	10/13/03 - 10/20/03	* - 7.49E-03	6.26E-03
	10/20/03 - 10/27/03	* 2.70E-03	5.68E-03
	10/27/03 - 11/03/03	* 2.85E-03	8.57E-03
	11/03/03 - 11/10/03	* 3.40E-03	1.04E-02
	11/10/03 - 11/17/03	* 3.69E-03	4.23E-03
	11/17/03 - 11/24/03	* 4.56E-03	8.34E-03
	11/24/03 - 12/01/03	* - 1.71E-04	4.03E-03
	12/01/03 - 12/08/03	* - 8.63E-03	7.89E-03
	12/08/03 - 12/15/03	* - 1.03E-04	7.83E-03
	12/15/03 - 12/22/03	* 4.31E-05	1.13E-02
	12/22/03 - 12/29/03	* 4.21E-03	1.30E-02
7	12/30/02 - 01/06/03	* 2.41E-03	3.97E-03
	01/06/03 - 01/13/03	* - 1.45E-03	2.97E-03
	01/13/03 - 01/20/03	* - 3.08E-03	5.47E-03
	01/20/03 - 01/27/03	* 2.37E-03	2.93E-03
	01/27/03 - 02/03/03	* - 6.92E-04	4.34E-03
	02/03/03 - 02/10/03	* 1.54E-03	4.14E-03
	02/10/03 - 02/18/03	* - 1.72E-03	4.56E-03
	02/18/03 - 02/24/03	* - 2.44E-04	5.94E-03
	02/24/03 - 03/03/03	* - 1.68E-03	3.29E-03
	03/03/03 - 03/10/03	* - 1.36E-03	2.93E-03
	03/10/03 - 03/17/03	* - 4.20E-03	6.77E-03
	03/17/03 - 03/24/03	* - 4.51E-04	3.53E-03
	03/24/03 - 03/31/03	* 1.23E-03	3.60E-03
	03/31/03 - 04/07/03	* - 1.05E-03	3.98E-03
	04/07/03 - 04/14/03	* 2.11E-03	2.92E-03
	04/14/03 - 04/21/03	* - 2.72E-03	3.79E-03
	04/21/03 - 04/28/03	* - 6.10E-04	1.94E-03
	04/28/03 - 05/05/03	* - 1.75E-03	3.81E-03
	05/05/03 - 05/12/03	* - 2.58E-04	5.34E-03
	05/12/03 - 05/19/03	* - 8.59E-04	3.77E-03
	05/19/03 - 05/26/03	* 2.47E-03	4.30E-03
	05/26/03 - 06/02/03	* - 1.85E-04	3.81E-03
	06/02/03 - 06/09/03	* - 5.75E-04	2.73E-03
	06/09/03 - 06/16/03	* - 1.09E-03	2.94E-03
	06/16/03 - 06/23/03	* - 1.97E-03	1.70E-03
	06/23/03 - 06/30/03	* 1.43E-02	1.22E-02

* Denotes a result less than the detection limit.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT		OVERALL UNCERTAINTY
7	06/30/03 - 07/07/03	* - 7.02E-03		5.08E-03
	07/07/03 - 07/14/03	* 7.07E-05		5.70E-03
	07/14/03 - 07/21/03	* - 1.98E-03		7.74E-03
	07/21/03 - 07/28/03	* 2.29E-03		2.97E-03
	07/28/03 - 08/04/03	* - 4.44E-03		5.21E-03
	08/04/03 - 08/11/03	* - 2.23E-03		5.41E-03
	08/11/03 - 08/18/03	* 4.22E-03	(b)	8.21E-03
	08/18/03 - 08/25/03	* - 1.25E-03		1.11E-02
	08/25/03 - 09/02/03	* - 1.55E-04		3.53E-03
	09/02/03 - 09/09/03	* - 1.47E-03		1.04E-02
	09/08/03 - 09/15/03	* 9.99E-04		3.31E-03
	09/15/03 - 09/22/03	* - 1.30E-03		2.38E-03
	09/22/03 - 09/29/03	* 4.39E-04		9.58E-03
	09/29/03 - 10/06/03	* - 3.18E-04		1.67E-02
	10/06/03 - 10/13/03	* 3.06E-03		7.09E-03
	10/13/03 - 10/20/03	* 3.28E-03		8.68E-03
	10/20/03 - 10/27/03	* 3.56E-04		6.92E-03
	10/27/03 - 11/03/03	* 5.11E-03		9.43E-03
	11/03/03 - 11/10/03	* 2.84E-03		8.71E-03
	11/10/03 - 11/17/03	* - 7.03E-04		5.88E-03
	11/17/03 - 11/24/03	* 4.55E-03		1.19E-02
	11/24/03 - 12/01/03	* 1.29E-04		2.95E-03
	12/01/03 - 12/08/03	* - 2.91E-03		8.06E-03
	12/08/03 - 12/15/03	* - 6.78E-05		5.16E-03
	12/15/03 - 12/22/03	* - 4.86E-03		8.75E-03
	12/22/03 - 12/29/03	* 4.25E-03		1.31E-02
8	12/30/02 - 01/06/03	* 2.37E-03		3.91E-03
	01/06/03 - 01/13/03	* - 1.43E-03		2.94E-03
	01/13/03 - 01/20/03	* 2.18E-04		5.24E-03
	01/20/03 - 01/27/03	* 2.34E-03		2.90E-03
	01/27/03 - 02/03/03	* 2.12E-03		5.38E-03
	02/03/03 - 02/10/03	* - 2.80E-03		4.46E-03
	02/10/03 - 02/18/03	* - 1.69E-03		4.50E-03
	02/18/03 - 02/24/03	* - 2.41E-04		5.88E-03
	02/24/03 - 03/03/03	* - 1.66E-03		3.26E-03
	03/03/03 - 03/10/03	* 3.27E-04		3.15E-03
	03/10/03 - 03/17/03	* - 7.54E-04		5.47E-03
	03/17/03 - 03/24/03	* 7.61E-04		4.91E-03
	03/24/03 - 03/31/03	* 1.22E-03		3.57E-03

* Denotes a result less than the detection limit.

(b) Data not included in the summary average.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
8	03/31/03 - 04/07/03	* 2.05E-03	3.67E-03
	04/07/03 - 04/14/03	* 2.12E-03	4.52E-03
	04/14/03 - 04/21/03	* - 1.12E-03	1.56E-03
	04/21/03 - 04/28/03	* - 3.11E-04	9.89E-04
	04/28/03 - 05/05/03	* - 9.79E-04	2.13E-03
	05/05/03 - 05/12/03	* - 2.55E-04	5.28E-03
	05/12/03 - 05/19/03	* - 1.54E-03	2.85E-03
	05/19/03 - 05/26/03	* 2.45E-03	4.27E-03
	05/26/03 - 06/02/03	* - 1.83E-04	3.77E-03
	06/02/03 - 06/09/03	* - 5.69E-04	2.70E-03
	06/09/03 - 06/16/03	* 3.77E-03	9.39E-03
	06/16/03 - 06/23/03	* - 1.95E-03	1.68E-03
	06/23/03 - 06/30/03	* 1.41E-02	1.20E-02
	06/30/03 - 07/07/03	(c)	
	07/07/03 - 07/14/03	* 1.01E-04	8.12E-03
	07/14/03 - 07/21/03	* - 1.96E-03	7.66E-03
	07/21/03 - 07/28/03	* 2.26E-03	2.94E-03
	07/28/03 - 08/04/03	* - 4.39E-03	5.15E-03
	08/04/03 - 08/11/03	* - 2.20E-03	5.34E-03
	08/11/03 - 08/18/03	* 3.04E-03	9.67E-03
	08/18/03 - 08/25/03	* - 1.24E-03	1.10E-02
	08/25/03 - 09/02/03	* - 1.53E-04	3.50E-03
	09/02/03 - 09/09/03	* - 1.45E-03	1.02E-02
	09/08/03 - 09/15/03	* 9.84E-04	3.27E-03
	09/15/03 - 09/22/03	* 2.62E-03	4.48E-03
	09/22/03 - 09/29/03	* 4.35E-04	9.51E-03
	09/29/03 - 10/06/03	* - 3.11E-04	1.64E-02
	10/06/03 - 10/13/03	* 5.68E-03	1.32E-02
	10/13/03 - 10/20/03	* 3.24E-03	8.56E-03
	10/20/03 - 10/27/03	* 3.53E-04	6.85E-03
	10/27/03 - 11/03/03	* 5.06E-03	9.33E-03
	11/03/03 - 11/10/03	* 2.81E-03	8.62E-03
	11/10/03 - 11/17/03	* - 6.95E-04	5.82E-03
	11/17/03 - 11/24/03	* 4.51E-03	1.18E-02
	11/24/03 - 12/01/03	* 1.28E-04	2.91E-03
	12/01/03 - 12/08/03	* - 2.88E-03	7.97E-03
	12/08/03 - 12/15/03	* - 8.22E-04	8.77E-03
	12/15/03 - 12/22/03	* - 4.81E-03	8.66E-03
	12/22/03 - 12/29/03	* 3.84E-03	1.53E-02

* Denotes a result less than the detection limit.

(c) No sample due to unit failure.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
9A	12/30/02 - 01/06/03	* 2.39E-03	3.93E-03
Control	01/06/03 - 01/13/03	* - 1.44E-03	2.96E-03
	01/13/03 - 01/20/03	* 2.19E-04	5.26E-03
	01/20/03 - 01/27/03	* 2.36E-03	2.92E-03
	01/27/03 - 02/03/03	* 2.13E-03	5.41E-03
	02/03/03 - 02/10/03	* - 2.82E-03	4.48E-03
	02/10/03 - 02/18/03	* - 1.71E-03	4.53E-03
	02/18/03 - 02/24/03	* - 2.43E-04	5.91E-03
	02/24/03 - 03/03/03	* - 1.67E-03	3.27E-03
	03/03/03 - 03/10/03	* 3.29E-04	3.17E-03
	03/10/03 - 03/17/03	* - 7.58E-04	5.51E-03
	03/17/03 - 03/24/03	* 7.63E-04	4.92E-03
	03/24/03 - 03/31/03	* 1.23E-03	3.58E-03
	03/31/03 - 04/07/03	* 2.06E-03	3.69E-03
	04/07/03 - 04/14/03	* 2.13E-03	4.55E-03
	04/14/03 - 04/21/03	* 5.37E-04	2.83E-03
	04/21/03 - 04/28/03	* - 2.96E-03	3.07E-03
	04/28/03 - 05/05/03	* 1.38E-03	3.72E-03
	05/05/03 - 05/12/03	* - 2.56E-04	5.31E-03
	05/12/03 - 05/19/03	* 2.73E-03	3.82E-03
	05/19/03 - 05/26/03	* 2.46E-03	4.29E-03
	05/26/03 - 06/02/03	* - 1.84E-04	3.79E-03
	06/02/03 - 06/09/03	* - 5.72E-04	2.71E-03
	06/09/03 - 06/16/03	* 3.80E-03	9.44E-03
	06/16/03 - 06/23/03	* - 1.96E-03	1.69E-03
	06/23/03 - 06/30/03	* 1.42E-02	1.21E-02
	06/30/03 - 07/07/03	* - 6.98E-03	5.05E-03
	07/07/03 - 07/14/03	* 7.03E-05	5.67E-03
	07/14/03 - 07/21/03	* - 1.97E-03	7.70E-03
	07/21/03 - 07/28/03	* 2.27E-03	2.96E-03
	07/28/03 - 08/04/03	* - 4.42E-03	5.18E-03
	08/04/03 - 08/11/03	* - 2.22E-03	5.38E-03
	08/11/03 - 08/18/03	* 3.05E-03	9.73E-03
	08/18/03 - 08/25/03	* - 1.24E-03	1.10E-02
	08/25/03 - 09/02/03	* - 1.54E-04	3.51E-03
	09/02/03 - 09/09/03	* - 1.46E-03	1.03E-02
	09/08/03 - 09/15/03	* 9.86E-04	3.27E-03
	09/15/03 - 09/22/03	* 2.65E-03	4.52E-03
	09/22/03 - 09/29/03	* 4.36E-04	9.53E-03

* Denotes a result less than the detection limit.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT		OVERALL UNCERTAINTY
9A	09/29/03 - 10/06/03	* - 3.13E-04		1.64E-02
Control	10/06/03 - 10/13/03	* 3.07E-03		7.13E-03
	10/13/03 - 10/20/03	* 3.25E-03		8.61E-03
	10/20/03 - 10/27/03	* 3.55E-04		6.89E-03
	10/27/03 - 11/03/03	* 5.08E-03		9.38E-03
	11/03/03 - 11/10/03	* 2.83E-03		8.66E-03
	11/10/03 - 11/17/03	* - 6.99E-04		5.85E-03
	11/17/03 - 11/24/03	* 4.53E-03		1.19E-02
	11/24/03 - 12/01/03	* 1.28E-04		2.93E-03
	12/01/03 - 12/08/03	* - 2.90E-03		8.01E-03
	12/08/03 - 12/15/03	* - 8.26E-04		8.82E-03
	12/15/03 - 12/22/03	* - 4.83E-03		8.70E-03
	12/22/03 - 12/30/03	* 3.14E-03		1.25E-02
21	12/30/02 - 01/06/03	* 2.41E-03		3.97E-03
	01/06/03 - 01/13/03	* - 1.45E-03		2.98E-03
	01/13/03 - 01/20/03	* 1.44E-03	(b)	3.46E-02
	01/20/03 - 01/27/03	* 2.37E-03		2.94E-03
	01/27/03 - 02/03/03	* 2.15E-03		5.45E-03
	02/03/03 - 02/10/03	* 4.56E-03		6.06E-03
	02/10/03 - 02/18/03	* - 1.72E-03		4.57E-03
	02/18/03 - 02/24/03	* - 2.44E-04		5.95E-03
	02/24/03 - 03/03/03	* - 1.69E-03		3.31E-03
	03/03/03 - 03/10/03	* 3.31E-04		3.20E-03
	03/10/03 - 03/17/03	* - 7.67E-04		5.57E-03
	03/17/03 - 03/24/03	* 7.67E-04		4.95E-03
	03/24/03 - 03/31/03	* 1.24E-03		3.61E-03
	03/31/03 - 04/07/03	* 2.08E-03		3.71E-03
	04/07/03 - 04/14/03	* 6.66E-03	(b)	1.42E-02
	04/15/03 - 04/21/03	* 6.38E-04		3.36E-03
	04/21/03 - 04/28/03	* - 2.98E-03		3.08E-03
	04/28/03 - 05/05/03	* 1.39E-03		3.77E-03
	05/05/03 - 05/12/03	* - 2.58E-04		5.36E-03
	05/12/03 - 05/19/03	* - 5.58E-04		1.68E-03
	05/19/03 - 05/26/03	* 2.47E-03		4.31E-03
	05/26/03 - 06/02/03	* - 1.85E-04		3.81E-03
	06/02/03 - 06/09/03	* - 5.76E-04		2.73E-03
	06/09/03 - 06/16/03	* 3.85E-03		9.59E-03
	06/16/03 - 06/23/03	* - 1.97E-03		1.70E-03
	06/23/03 - 06/30/03	* 1.43E-02		1.22E-02

* Denotes a result less than the detection limit.

(b) Data not included in the summary average.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
21	06/30/03 - 07/07/03	* - 7.04E-03	5.09E-03
	07/07/03 - 07/14/03	* 7.08E-05	5.71E-03
	07/14/03 - 07/21/03	* - 1.98E-03	7.76E-03
	07/21/03 - 07/28/03	* 2.29E-03	2.98E-03
	07/28/03 - 08/04/03	* - 4.44E-03	5.21E-03
	08/04/03 - 08/11/03	* - 2.23E-03	5.42E-03
	08/11/03 - 08/18/03	* 3.08E-03	9.81E-03
	08/18/03 - 08/25/03	* - 1.25E-03	1.11E-02
	08/25/03 - 09/02/03	* - 1.55E-04	3.55E-03
	09/02/03 - 09/09/03	* - 1.47E-03	1.04E-02
	09/08/03 - 09/15/03	* 1.01E-03	3.34E-03
	09/15/03 - 09/22/03	* 2.66E-03	4.54E-03
	09/22/03 - 09/29/03	* 4.39E-04	9.58E-03
	09/29/03 - 10/06/03	* - 3.18E-04	1.67E-02
	10/06/03 - 10/13/03	* 3.07E-03	7.11E-03
	10/13/03 - 10/20/03	* 3.29E-03	8.70E-03
	10/20/03 - 10/27/03	* 3.56E-04	6.92E-03
	10/27/03 - 11/03/03	* 5.12E-03	9.45E-03
	11/03/03 - 11/10/03	* 2.85E-03	8.72E-03
	11/10/03 - 11/17/03	* - 7.04E-04	5.89E-03
	11/17/03 - 11/24/03	* 4.60E-03	1.20E-02
	11/24/03 - 12/01/03	* 1.29E-04	2.95E-03
	12/01/03 - 12/08/03	* - 2.92E-03	8.08E-03
	12/08/03 - 12/15/03	* - 8.33E-04	8.89E-03
	12/15/03 - 12/22/03	* - 4.87E-03	8.77E-03
	12/22/03 - 12/29/03	* 3.88E-03	1.55E-02
23	12/30/02 - 01/06/03	* - 2.53E-03	4.26E-03
	01/06/03 - 01/13/03	* 3.22E-03	4.42E-03
	01/13/03 - 01/20/03	* 2.21E-04	5.31E-03
	01/20/03 - 01/27/03	* - 2.67E-03	4.13E-03
	01/27/03 - 02/03/03	* 2.15E-03	5.44E-03
	02/03/03 - 02/10/03	* - 2.83E-03	4.50E-03
	02/10/03 - 02/18/03	* - 1.66E-03	3.58E-03
	02/18/03 - 02/24/03	* - 2.21E-03	5.72E-03
	02/24/03 - 03/03/03	* - 4.18E-04	2.42E-03
	03/03/03 - 03/10/03	* 3.31E-04	3.19E-03
	03/10/03 - 03/17/03	* - 7.67E-04	5.57E-03
	03/17/03 - 03/24/03	* 7.67E-04	4.94E-03
	03/24/03 - 03/31/03	* 4.77E-04	2.78E-03

* Denotes a result less than the detection limit.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT		OVERALL UNCERTAINTY
23	03/31/03 - 04/07/03	* 2.07E-03		3.71E-03
	04/07/03 - 04/14/03	* 2.15E-03		4.58E-03
	04/14/03 - 04/21/03	* 5.42E-04		2.86E-03
	04/21/03 - 04/28/03	* - 2.98E-03		3.08E-03
	04/28/03 - 05/05/03	* 1.39E-03		3.76E-03
	05/05/03 - 05/12/03	* 2.30E-03		4.18E-03
	05/12/03 - 05/19/03	* - 2.09E-03		4.48E-03
	05/19/03 - 05/26/03	* - 9.32E-04		3.28E-03
	05/26/03 - 06/02/03	* 3.27E-03		6.25E-03
	06/02/03 - 06/09/03	* - 2.45E-03		1.13E-02
	06/09/03 - 06/16/03	* 3.85E-03		9.58E-03
	06/16/03 - 06/23/03	* 2.18E-03		2.44E-03
	06/23/03 - 06/30/03	* - 1.28E-03		1.21E-02
	06/30/03 - 07/07/03	* - 7.04E-03		5.09E-03
	07/07/03 - 07/14/03	* - 5.89E-03		6.18E-03
	07/14/03 - 07/21/03	* 1.09E-03		8.54E-03
	07/21/03 - 07/28/03	* 1.82E-03		2.36E-03
	07/28/03 - 08/04/03	* - 4.64E-03		4.82E-03
	08/04/03 - 08/11/03	* - 1.89E-03		3.65E-03
	08/11/03 - 08/18/03	* 2.55E-03		7.29E-03
	08/18/03 - 08/25/03	* 6.85E-03		7.32E-03
	08/25/03 - 09/02/03	* - 1.20E-04		2.75E-03
	09/02/03 - 09/09/03	* 3.37E-03		8.95E-03
	09/08/03 - 09/15/03	* - 1.71E-03		3.58E-03
	09/15/03 - 09/22/03	* 1.90E-02	(b)	3.25E-02
	09/22/03 - 09/29/03	* 9.80E-04		4.73E-03
	09/29/03 - 10/06/03	* 1.45E-03		3.83E-03
	10/06/03 - 10/13/03	* - 5.92E-03		5.35E-03
	10/13/03 - 10/20/03	* - 2.05E-03		7.05E-03
	10/20/03 - 10/27/03	* - 5.66E-03		7.87E-03
	10/27/03 - 11/03/03		(c)	
	11/03/03 - 11/10/03	* 4.24E-03		8.50E-03
	11/10/03 - 11/17/03	* - 8.48E-04		7.10E-03
	11/17/03 - 11/24/03	* 1.42E-02	(b)	8.90E-02
	11/24/03 - 12/01/03	* - 3.52E-03		7.01E-03
	12/01/03 - 12/08/03	* - 1.43E-03		5.98E-03
	12/08/03 - 12/15/03	* - 8.32E-04		8.88E-03
	12/15/03 - 12/22/03	* - 7.21E-03		1.02E-02
	12/22/03 - 12/29/03	* 3.88E-03		1.55E-02

* Denotes a result less than the detection limit.

(b) Sample not available due to unit failure.

(c) Sample not available due to unit failure.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
40	12/30/02 - 01/06/03	* - 2.49E-03	4.20E-03
	01/06/03 - 01/13/03	* 3.19E-03	4.37E-03
	01/13/03 - 01/20/03	* 2.18E-04	5.24E-03
	01/20/03 - 01/27/03	* - 2.64E-03	4.09E-03
	01/27/03 - 02/03/03	* 2.53E-03	3.73E-03
	02/03/03 - 02/10/03	* - 2.81E-03	4.46E-03
	02/10/03 - 02/18/03	* - 1.64E-03	3.54E-03
	02/18/03 - 02/24/03	* - 2.18E-03	5.66E-03
	02/24/03 - 03/03/03	* - 4.12E-04	2.38E-03
	03/03/03 - 03/10/03	* 2.33E-03	4.76E-03
	03/10/03 - 03/17/03	* - 3.40E-03	1.06E-02
	03/17/03 - 03/24/03	* 4.44E-04	5.05E-03
	03/24/03 - 03/31/03	* 4.71E-04	2.75E-03
	03/31/03 - 04/07/03	* 1.16E-03	2.08E-03
	04/07/03 - 04/14/03	* 1.29E-03	2.69E-03
	04/14/03 - 04/21/03	* 3.11E-04	3.45E-03
	04/21/03 - 04/28/03	* - 2.94E-03	3.05E-03
	04/28/03 - 05/05/03	* 1.37E-03	3.71E-03
	05/05/03 - 05/12/03	* 2.27E-03	4.13E-03
	05/12/03 - 05/19/03	* - 1.68E-03	3.61E-03
	05/19/03 - 05/26/03	* - 9.24E-04	3.25E-03
	05/26/03 - 06/02/03	* 3.23E-03	6.18E-03
	06/02/03 - 06/09/03	* - 2.43E-03	1.12E-02
	06/09/03 - 06/16/03	* - 6.85E-04	7.18E-03
	06/16/03 - 06/23/03	* 2.16E-03	2.42E-03
	06/23/03 - 06/30/03	* - 1.26E-03	1.19E-02
	06/30/03 - 07/07/03	* 5.77E-03	9.26E-03
	07/07/03 - 07/14/03	* - 5.83E-03	6.11E-03
	07/14/03 - 07/21/03	* 1.08E-03	8.45E-03
	07/21/03 - 07/28/03	* 2.81E-04	3.95E-03
	07/28/03 - 08/04/03	* - 4.59E-03	4.77E-03
	08/04/03 - 08/11/03	* - 2.38E-03	4.58E-03
	08/11/03 - 08/18/03	* 2.52E-03	7.21E-03
	08/18/03 - 08/25/03	* 6.77E-03	7.24E-03
	08/25/03 - 09/02/03	* 2.75E-03	2.67E-03
	09/02/03 - 09/09/03	* 3.34E-03	8.86E-03
	09/08/03 - 09/15/03	* - 1.68E-03	3.51E-03
	09/15/03 - 09/22/03	* - 4.02E-03	2.87E-03
	09/22/03 - 09/29/03	* 9.71E-04	4.69E-03

* Denotes a result less than the detection limit.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
40	09/29/03 - 10/06/03	* 1.42E-03	3.75E-03
	10/06/03 - 10/13/03	* - 1.02E-02	9.23E-03
	10/13/03 - 10/20/03	* - 2.02E-03	6.95E-03
	10/20/03 - 10/27/03	* - 5.61E-03	7.80E-03
	10/27/03 - 11/03/03	* 5.64E-03	7.18E-03
	11/03/03 - 11/10/03	* 4.19E-03	8.41E-03
	11/10/03 - 11/17/03	* 1.50E-03	3.72E-03
	11/17/03 - 11/24/03	* - 1.75E-02	1.53E-02
	11/24/03 - 12/01/03	* 4.92E-03	3.99E-03
	12/01/03 - 12/08/03	* - 1.41E-03	5.91E-03
	12/08/03 - 12/15/03	* - 3.70E-03	8.20E-03
	12/15/03 - 12/22/03	* - 7.13E-03	1.01E-02
	12/22/03 - 12/29/03	* - 2.79E-03	1.48E-02
48	12/30/02 - 01/06/03	* - 2.49E-03	4.19E-03
	01/06/03 - 01/13/03	* 3.18E-03	4.36E-03
	01/13/03 - 01/20/03	* - 2.98E-03	3.78E-03
	01/20/03 - 01/27/03	* - 2.63E-03	4.08E-03
	01/27/03 - 02/03/03	* 2.53E-03	3.72E-03
	02/03/03 - 02/10/03	* 4.51E-03	6.00E-03
	02/10/03 - 02/18/03	* - 1.63E-03	3.52E-03
	02/18/03 - 02/24/03	* - 2.18E-03	5.64E-03
	02/24/03 - 03/03/03	* - 4.11E-04	2.38E-03
	03/03/03 - 03/10/03	* 2.33E-03	4.75E-03
	03/10/03 - 03/17/03	* - 3.39E-03	1.05E-02
	03/17/03 - 03/24/03	* 4.44E-04	5.05E-03
	03/24/03 - 03/31/03	* 4.70E-04	2.75E-03
	03/31/03 - 04/07/03	* - 1.90E-03	2.94E-03
	04/07/03 - 04/14/03	* 1.28E-03	2.69E-03
	04/14/03 - 04/21/03	* 3.12E-04	3.46E-03
	04/21/03 - 04/28/03	* - 1.88E-05	2.04E-03
	04/28/03 - 05/05/03	* 1.20E-03	2.76E-03
	05/05/03 - 05/12/03	* 2.26E-03	4.12E-03
	05/12/03 - 05/19/03	* - 2.06E-03	4.42E-03
	05/19/03 - 05/26/03	* - 9.22E-04	3.24E-03
	05/26/03 - 06/02/03	* 3.22E-03	6.17E-03
	06/02/03 - 06/09/03	* - 2.42E-03	1.12E-02
	06/09/03 - 06/16/03	* - 6.83E-04	7.17E-03
	06/16/03 - 06/23/03	* 2.15E-03	2.41E-03
	06/23/03 - 06/30/03	* - 1.26E-03	1.19E-02

* Denotes a result less than the detection limit.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
48	06/30/03 - 07/07/03	* 6.19E-03	9.93E-03
	07/07/03 - 07/14/03	* - 5.81E-03	6.10E-03
	07/14/03 - 07/21/03	* 1.08E-03	8.43E-03
	07/21/03 - 07/28/03	* 2.81E-04	3.94E-03
	07/28/03 - 08/04/03	* - 4.58E-03	4.76E-03
	08/04/03 - 08/11/03	* - 1.86E-03	3.59E-03
	08/11/03 - 08/18/03	* 2.52E-03	7.19E-03
	08/18/03 - 08/25/03	* 6.77E-03	7.25E-03
	08/25/03 - 09/02/03	* 2.74E-03	2.67E-03
	09/02/03 - 09/09/03	* 3.33E-03	8.84E-03
	09/08/03 - 09/15/03	* - 1.67E-03	3.50E-03
	09/15/03 - 09/22/03	* - 3.99E-03	2.85E-03
	09/22/03 - 09/29/03	* 9.71E-04	4.69E-03
	09/29/03 - 10/06/03	* 1.41E-03	3.75E-03
	10/06/03 - 10/13/03	* - 1.02E-02	9.21E-03
	10/13/03 - 10/20/03	* - 2.01E-03	6.93E-03
	10/20/03 - 10/27/03	* - 5.71E-03	7.94E-03
	10/27/03 - 11/03/03	* 5.63E-03	7.17E-03
	11/03/03 - 11/10/03	* 4.18E-03	8.39E-03
	11/10/03 - 11/17/03	* 1.50E-03	3.71E-03
	11/17/03 - 11/24/03	* - 1.80E-02	1.57E-02
	11/24/03 - 12/01/03	* 4.91E-03	3.98E-03
	12/01/03 - 12/08/03	* - 1.41E-03	5.89E-03
	12/08/03 - 12/15/03	* - 3.69E-03	8.18E-03
	12/15/03 - 12/22/03	* - 7.12E-03	1.01E-02
	12/22/03 - 12/29/03	* - 2.78E-03	1.48E-02
57	12/30/02 - 01/06/03	* - 2.53E-03	4.26E-03
	01/06/03 - 01/13/03	* 3.23E-03	4.42E-03
	01/13/03 - 01/20/03	* - 3.03E-03	3.84E-03
	01/20/03 - 01/27/03	* - 2.67E-03	4.14E-03
	01/27/03 - 02/03/03	* 2.15E-03	5.45E-03
	02/03/03 - 02/10/03	* 4.58E-03	6.08E-03
	02/10/03 - 02/18/03	* - 1.66E-03	3.59E-03
	02/18/03 - 02/24/03	* - 2.21E-03	5.73E-03
	02/24/03 - 03/03/03	* - 4.19E-04	2.42E-03
	03/03/03 - 03/10/03	* 2.36E-03	4.81E-03
	03/10/03 - 03/17/03	* - 3.46E-03	1.07E-02
	03/17/03 - 03/24/03	* 4.49E-04	5.10E-03
	03/24/03 - 03/31/03	* 4.77E-04	2.79E-03

* Denotes a result less than the detection limit.

TABLE A-4.1 (cont.)

I-131 IN CHARCOAL FILTERS

Results in pCi/cubic meter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
57	03/31/03 - 04/07/03	* - 1.93E-03	2.99E-03
	04/07/03 - 04/14/03	* 1.30E-03	2.73E-03
	04/14/03 - 04/21/03	* 3.16E-04	3.50E-03
	04/21/03 - 04/28/03	* - 1.91E-05	2.07E-03
	04/28/03 - 05/05/03	* 1.22E-03	2.82E-03
	05/05/03 - 05/12/03	* 2.30E-03	4.19E-03
	05/12/03 - 05/19/03	* - 2.09E-03	4.48E-03
	05/19/03 - 05/26/03	* - 9.33E-04	3.28E-03
	05/26/03 - 06/02/03	* 3.27E-03	6.26E-03
	06/02/03 - 06/09/03	* - 2.46E-03	1.13E-02
	06/09/03 - 06/16/03	* - 6.99E-04	7.33E-03
	06/16/03 - 06/23/03	* 2.19E-03	2.45E-03
	06/23/03 - 06/30/03	* - 1.28E-03	1.21E-02
	06/30/03 - 07/07/03	* 5.85E-03	9.38E-03
	07/07/03 - 07/14/03	* - 5.90E-03	6.19E-03
	07/14/03 - 07/21/03	* 1.10E-03	8.56E-03
	07/21/03 - 07/28/03	* 2.85E-04	4.00E-03
	07/28/03 - 08/04/03	* - 4.63E-03	4.81E-03
	08/04/03 - 08/11/03	* - 1.90E-03	3.66E-03
	08/11/03 - 08/18/03	* 2.56E-03	7.31E-03
	08/18/03 - 08/25/03	* 6.86E-03	7.33E-03
	08/25/03 - 09/02/03	* 2.79E-03	2.72E-03
	09/02/03 - 09/09/03	* 3.38E-03	8.97E-03
	09/08/03 - 09/15/03	* - 1.71E-03	3.59E-03
	09/15/03 - 09/22/03	* - 4.07E-03	2.90E-03
	09/22/03 - 09/29/03	* 9.81E-04	4.74E-03
	09/29/03 - 10/06/03	* 1.45E-03	3.84E-03
	10/06/03 - 10/13/03	* - 1.02E-02	9.26E-03
	10/13/03 - 10/20/03	* - 2.05E-03	7.06E-03
	10/20/03 - 10/27/03	* - 5.67E-03	7.88E-03
	10/27/03 - 11/03/03	* 5.71E-03	7.27E-03
	11/03/03 - 11/10/03	* 4.24E-03	8.51E-03
	11/10/03 - 11/17/03	* 1.52E-03	3.77E-03
	11/17/03 - 11/24/03	* - 1.78E-02	1.56E-02
	11/24/03 - 12/01/03	* 4.99E-03	4.04E-03
	12/01/03 - 12/08/03	* - 1.43E-03	5.99E-03
	12/08/03 - 12/15/03	* - 3.75E-03	8.31E-03
	12/15/03 - 12/22/03	* - 7.22E-03	1.03E-02
	12/22/03 - 12/29/03	* - 2.82E-03	1.50E-02

* Denotes a result less than the detection limit.

TABLE A-4.2

I-131 CHARCOAL FILTERS - SUMMARY

Results in pCi/cubic meter

NUCLIDE		AVERAGE	LOW *	HIGH *	NUMBER SAMPLES	NUMBER POSITIVE
I-131	(I)	-3.55E-04	-1.80E-02	1.43E-02	554	0
I-131	(C)	5.38E-04	-6.98E-03	1.42E-02	52	0

* Does not include unacceptable data.

(I) Indicator Stations

(C) Control Stations

TABLE A-5.1

GROSS BETA IN WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD		RESULT	OVERALL UNCERTAINTY
	River/Drinking			
26	01/02/03 - 02/04/03		1.79E+00	1.05E+00
Control	02/04/03 - 03/04/03	*	1.18E+00	1.92E+00
	03/04/03 - 04/01/03		3.03E+00	1.97E+00
	04/01/03 - 05/05/03	*	5.54E-01	1.78E+00
	05/06/03 - 06/03/03	*	0.00E+00	1.76E+00
	06/03/03 - 06/30/03	*	1.48E+00	1.87E+00
	06/30/03 - 08/05/03	*	1.17E+00	1.09E+00
	08/05/03 - 09/03/03	*	2.25E-01	1.72E+00
	09/03/03 - 10/01/03	*	7.75E-01	1.95E+00
	10/01/03 - 11/04/03		2.37E+00	1.18E+00
	11/04/03 - 12/02/03	*	1.01E+00	1.94E+00
	12/02/03 - 01/06/04	*	2.01E+00	1.68E+00
29	01/02/03 - 02/04/03		2.11E+00	1.09E+00
	02/04/03 - 03/04/03	*	4.72E-01	1.86E+00
	03/04/03 - 04/01/03	*	2.41E+00	1.93E+00
	04/01/03 - 05/05/03	*	1.42E+00	1.85E+00
	05/06/03 - 06/03/03		2.97E+00	2.01E+00
	06/03/03 - 06/30/03	*	2.32E-01	1.75E+00
	06/30/03 - 08/05/03		1.86E+00	1.15E+00
	08/05/03 - 09/03/03	*	1.28E+00	1.82E+00
	09/03/03 - 10/01/03	*	4.68E-01	1.94E+00
	10/01/03 - 11/04/03		1.85E+00	1.14E+00
	11/04/03 - 12/02/03	*	- 1.71E+00	1.72E+00
	12/02/03 - 01/06/04		2.55E+00	1.73E+00
	Discharge			
27	01/02/03 - 02/04/03		9.53E+00	1.98E+00
	02/04/03 - 03/04/03		1.01E+01	3.14E+00
	03/04/03 - 04/01/03		9.15E+00	2.98E+00
	04/01/03 - 05/05/03		5.75E+00	2.72E+00
	05/06/03 - 06/03/03	*	2.27E+00	2.04E+00
	06/03/03 - 06/30/03		3.58E+00	2.17E+00
	06/30/03 - 08/05/03		1.26E+01	2.59E+00
	08/05/03 - 09/03/03		1.33E+01	3.75E+00
	09/03/03 - 10/01/03		1.45E+01	4.05E+00
	10/01/03 - 11/04/03		1.93E+01	3.16E+00
	11/04/03 - 12/02/03		2.06E+01	3.88E+00
	12/02/03 - 01/06/04		1.83E+01	3.66E+00

* Denotes a result less than the detection limit.

TABLE A-5.2

GROSS BETA IN WATER - SUMMARY

Results in pCi/cubic liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			River/Drinking			
Gr-Beta	(I)	1.33E+00	-1.71E+00	2.97E+00	12	5
Gr-Beta	(C)	1.30E+00	0.00E+00	3.03E+00	12	3
			Discharge			
Gr-Beta	(I)	1.16E+01	2.27E+00	2.06E+01	12	11

(I) Indicator Stations

(C) Control Stations

TABLE A-6.1
TRITIUM IN WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
	River/Drinking		
26 Control	01/02/03 - 04/01/03	* 9.41E+01	1.09E+02
	04/01/03 - 06/30/03	* - 6.09E+00	9.22E+01
	06/30/03 - 10/01/03	* - 1.50E+01	1.16E+02
	10/01/03 - 01/06/04	* 1.10E+02	1.18E+02
29	01/02/03 - 04/01/03	2.58E+02	1.15E+02
	04/01/03 - 06/30/03	* 8.88E+00	1.01E+02
	06/30/03 - 10/01/03	* 1.01E+02	1.18E+02
	10/01/03 - 01/06/04	* 1.08E+02	1.16E+02
	Discharge		
27	01/02/03 - 04/01/03	3.31E+02	1.18E+02
	04/01/03 - 06/30/03	* - 4.95E+00	1.13E+02
	06/30/03 - 10/01/03	* 1.50E+02	1.26E+02
	10/01/03 - 01/06/04	2.33E+02	1.28E+02
	Ground		
31 (Well 1)	03/04/03	* - 9.64E+01	1.07E+02
	06/03/03	* - 2.49E+01	1.13E+02
	09/03/03	* - 1.32E+02	1.13E+02
	12/02/03	* 5.19E+00	1.11E+02
32 (Well 2)	03/04/03	* - 3.17E+01	1.11E+02
	06/03/03	* - 7.55E+01	1.12E+02
	09/03/03	* - 4.94E+01	1.15E+02
	12/02/03	* 9.95E+01	1.13E+02
52 (well 3)	03/04/03	* 2.82E+01	1.09E+02
	06/03/03	* - 7.55E+01	1.12E+02
	09/03/03	* 9.77E+00	1.47E+02
	12/02/03	* - 2.11E+02	1.49E+02

* Denotes a result less than the detection limit.

TABLE A-6.2

TRITIUM IN WATER - SUMMARY

Results in pCi/cubic liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			River/Drinking			
H-3	(I)	1.19E+02	8.88E+00	2.58E+02	4	1
H-3	(C)	4.58E+01	-1.50E+01	1.10E+02	4	0
			Discharge			
H-3	(I)	1.77E+02	-4.95E+00	3.31E+02	4	2
			Ground			
H-3	(I)	-4.61E+01	-2.11E+02	9.95E+01	12	0

(I) Indicator Stations

(C) Control Stations

TABLE A-7.1

GAMMA SPECTROMETRY OF WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
26 Control	01/02/03 - 02/04/03	Be-7	* - 1.32E+00	7.82E+00
		K-40	* - 4.21E+01	2.25E+01
		Mn-54	* - 4.37E-01	8.07E-01
		Co-58	* - 1.65E-01	8.26E-01
		Fe-59	* 6.40E-01	1.68E+00
		Co-60	* 4.51E-01	8.18E-01
		Zn-65	* - 7.03E-01	1.59E+00
		Nb-95	* - 5.51E-01	8.75E-01
		Zr-95	* - 1.10E-01	1.48E+00
		Cs-134	* - 9.94E-02	7.49E-01
		Cs-137	* 3.38E-01	8.31E-01
		Ba-140	* 4.43E-01	4.25E+00
		La-140	* - 6.09E-01	1.29E+00
		Ra-226	* 1.66E+00	4.48E+01
		Th-228	* - 5.60E+01	2.50E+01
	02/04/03 - 03/04/03	Be-7	* - 3.06E+00	2.12E+01
		K-40	* 2.06E+01	5.98E+01
		Mn-54	* 5.46E-03	2.32E+00
		Co-58	* - 1.53E-01	2.32E+00
		Fe-59	* 1.03E+00	4.73E+00
		Co-60	* 1.48E+00	2.20E+00
		Zn-65	* - 1.99E+00	5.46E+00
		Nb-95	* 3.09E+00	2.68E+00
		Zr-95	* 1.10E+00	4.06E+00
		Cs-134	* - 1.27E+01	2.66E+00
		Cs-137	* 4.15E-01	2.52E+00
		Ba-140	* 3.86E+00	1.22E+01
		La-140	* - 8.93E-01	3.87E+00
		Ra-226	* 5.02E+01	8.75E+01
		Th-228	* - 1.18E+02	5.74E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
26 Control	03/04/03 - 04/01/03	Be-7	* - 1.05E+01	2.50E+01
		K-40	* - 1.19E+02	6.56E+01
		Mn-54	* - 7.73E-01	2.98E+00
		Co-58	* 1.61E+00	3.06E+00
		Fe-59	* 8.60E-01	5.76E+00
		Co-60	* 2.80E+00	3.15E+00
		Zn-65	* 1.88E+00	6.04E+00
		Nb-95	* - 7.47E-01	3.17E+00
		Zr-95	* 6.64E+00	5.64E+00
		Cs-134	* - 7.73E-01	2.86E+00
		Cs-137	* 4.83E+00	3.39E+00
		Ba-140	* - 6.68E+00	1.47E+01
		La-140	* - 1.22E+00	4.34E+00
		Ra-226	* - 4.50E+01	7.90E+01
		Th-228	* - 1.85E+01	5.81E+01
	04/01/03 - 05/05/03	Be-7	* - 2.39E+01	1.21E+01
		K-40	6.71E+01	4.79E+01
		Mn-54	* - 7.86E-01	1.35E+00
		Co-58	* - 1.87E+00	1.37E+00
		Fe-59	* 2.54E-01	2.72E+00
		Co-60	* - 7.28E-01	1.36E+00
		Zn-65	* - 5.33E+00	3.03E+00
		Nb-95	* 1.81E+00	1.55E+00
		Zr-95	* 2.62E+00	2.44E+00
		Cs-134	* - 1.99E+00	1.32E+00
		Cs-137	* - 6.66E-01	1.52E+00
		Ba-140	* - 9.43E+00	7.25E+00
		La-140	* - 6.91E+00	2.36E+00
		Ra-226	* - 5.97E+01	3.46E+01
		Th-228	* 2.46E+01	2.45E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
26 Control	05/06/03 - 06/03/03	Be-7	* 5.24E+00	1.59E+01
		K-40	* - 1.35E+01	3.90E+01
		Mn-54	* 1.19E-01	1.98E+00
		Co-58	* - 8.01E-01	1.93E+00
		Fe-59	* 3.11E-01	3.98E+00
		Co-60	* 1.22E+00	2.02E+00
		Zn-65	* - 1.12E+01	4.55E+00
		Nb-95	* 5.74E-01	1.98E+00
		Zr-95	* 3.48E+00	3.40E+00
		Cs-134	* - 1.55E+00	2.15E+00
		Cs-137	* 7.05E-01	1.99E+00
		Ba-140	* 5.78E-01	8.97E+00
		La-140	* - 8.98E-01	3.23E+00
		Ra-226	* - 8.72E+00	5.38E+01
		Th-228	* - 1.61E+02	4.51E+01
	06/03/03 - 06/30/03	Be-7	* - 2.78E+00	1.70E+01
		K-40	* - 1.09E+02	5.62E+01
		Mn-54	* 9.72E-01	2.32E+00
		Co-58	* 5.13E-01	2.18E+00
		Fe-59	* - 3.03E+00	7.13E+00
		Co-60	* - 2.48E+00	5.35E+00
		Zn-65	* - 9.88E-03	8.35E+00
		Nb-95	* - 2.06E+00	2.30E+00
		Zr-95	* - 7.34E-01	3.70E+00
		Cs-134	* 3.85E-01	2.11E+00
		Cs-137	* - 2.21E+00	2.56E+00
		Ba-140	* - 3.45E-01	1.07E+01
		La-140	* - 1.37E+00	2.89E+00
		Ra-226	* - 6.19E+01	5.20E+01
		Th-228	* - 7.71E+01	4.39E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
26 Control	06/30/03 - 08/05/03	Be-7	* - 1.05E+01	1.75E+01
		K-40	* 6.25E+00	5.11E+01
		Mn-54	* 1.66E+00	2.06E+00
		Co-58	* - 4.38E-01	1.99E+00
		Fe-59	* - 8.88E-01	4.20E+00
		Co-60	* - 8.91E-01	2.19E+00
		Zn-65	* - 7.90E+00	4.86E+00
		Nb-95	* 1.28E+00	2.04E+00
		Zr-95	* - 2.21E+00	3.56E+00
		Cs-134	* - 1.17E+01	2.39E+00
		Cs-137	* 3.62E+00	2.15E+00
		Ba-140	* 1.28E+00	7.90E+00
		La-140	* - 2.32E+00	2.68E+00
		Ra-226	* 2.27E+01	6.24E+01
		Th-228	* - 7.12E+01	4.77E+01
	08/05/03 - 09/03/03	Be-7	* 1.35E+01	1.40E+01
		K-40	* - 7.20E+01	3.98E+01
		Mn-54	* 2.61E-02	1.51E+00
		Co-58	* - 6.02E-01	1.62E+00
		Fe-59	* 1.66E-01	3.21E+00
		Co-60	* 1.30E+00	1.67E+00
		Zn-65	* 1.77E-01	3.30E+00
		Nb-95	* - 9.97E-01	1.69E+00
		Zr-95	* 2.21E+00	2.81E+00
		Cs-134	* 4.31E-01	1.44E+00
		Cs-137	* 3.80E-01	1.52E+00
		Ba-140	* - 9.63E-01	8.22E+00
		La-140	* - 2.47E+00	3.04E+00
		Ra-226	* 5.51E+01	7.62E+01
		Th-228	* - 5.84E+01	4.39E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
26 Control	09/03/03 - 10/01/03	Be-7	* 3.62E-01	1.33E+01
		K-40	* - 6.21E+01	3.55E+01
		Mn-54	* - 5.66E-01	1.46E+00
		Co-58	* - 6.25E-01	1.47E+00
		Fe-59	* - 1.24E+00	2.96E+00
		Co-60	* 1.84E+00	1.49E+00
		Zn-65	* - 5.17E+00	3.31E+00
		Nb-95	* 3.20E-01	1.49E+00
		Zr-95	* 2.33E+00	2.59E+00
		Cs-134	* - 4.91E+00	1.62E+00
		Cs-137	* - 1.28E-01	1.60E+00
		Ba-140	* 4.30E+00	7.49E+00
		La-140	* - 1.58E+00	2.49E+00
		Ra-226	* - 2.98E+01	4.87E+01
		Th-228	* - 8.60E+00	3.81E+01
	10/01/03 - 11/04/03	Be-7	* 1.39E+01	1.41E+01
		K-40	* 2.14E+01	6.13E+01
		Mn-54	* 9.24E-01	1.45E+00
		Co-58	* 1.27E+00	1.56E+00
		Fe-59	* - 1.34E+00	2.96E+00
		Co-60	* 1.76E+00	1.60E+00
		Zn-65	* 2.26E-01	3.07E+00
		Nb-95	* 9.52E-01	1.55E+00
		Zr-95	* 1.14E+00	2.76E+00
		Cs-134	* - 1.54E+00	1.53E+00
		Cs-137	* 1.10E+00	1.72E+00
		Ba-140	* 2.10E+00	6.76E+00
		La-140	* - 7.82E-01	1.98E+00
		Ra-226	* 3.45E+01	8.74E+01
		Th-228	* - 2.91E+02	4.64E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
26 Control	11/04/03 - 12/02/03	Be-7	* - 9.53E-01	2.48E+01
		K-40	* - 2.69E+01	6.11E+01
		Mn-54	* 1.42E+00	3.17E+00
		Co-58	* 2.41E+00	2.76E+00
		Fe-59	* 3.43E+00	5.48E+00
		Co-60	* 5.45E+00	4.72E+00
		Zn-65	* - 5.03E+00	7.83E+00
		Nb-95	* - 9.17E-01	3.58E+00
		Zr-95	* 1.71E+00	5.04E+00
		Cs-134	* - 1.84E+00	3.26E+00
		Cs-137	* 1.26E+00	2.96E+00
		Ba-140	* 2.95E+00	1.33E+01
		La-140	* 1.12E+00	4.35E+00
		Ra-226	* 5.19E+00	1.08E+02
		Th-228	* 6.54E+01	1.10E+02
	12/02/03 - 01/06/04	Be-7	* - 9.64E+00	1.12E+01
		K-40	* - 3.78E+01	3.34E+01
		Mn-54	* 9.12E-01	1.31E+00
		Co-58	* - 1.42E+00	1.32E+00
		Fe-59	* - 2.05E+00	2.85E+00
		Co-60	* 1.30E+00	2.66E+00
		Zn-65	* 1.63E+00	2.84E+00
		Nb-95	* - 1.40E+00	1.37E+00
		Zr-95	* - 8.34E-01	2.35E+00
		Cs-134	* - 3.90E-01	1.30E+00
		Cs-137	* 2.16E+00	1.46E+00
		Ba-140	* 1.09E+01	7.38E+00
		La-140	* - 1.78E+00	2.70E+00
		Ra-226	* 3.44E+00	5.32E+01
		Th-228	* - 1.06E+02	3.20E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
29	01/02/03 - 02/04/03	Be-7	* 7.45E+00	1.44E+01
		K-40	* 5.95E+00	4.82E+01
		Mn-54	* - 1.92E+00	1.47E+00
		Co-58	* - 4.64E-01	1.42E+00
		Fe-59	* - 2.15E+00	3.80E+00
		Co-60	* - 4.15E-01	1.72E+00
		Zn-65	* - 7.31E-01	3.89E+00
		Nb-95	* - 1.70E+00	1.80E+00
		Zr-95	* - 5.09E-01	2.64E+00
		Cs-134	* - 1.01E-01	1.41E+00
		Cs-137	* - 5.90E-02	1.69E+00
		Ba-140	* - 1.59E+00	8.78E+00
		La-140	* 1.72E-01	2.66E+00
		Ra-226	* - 1.36E+01	4.67E+01
		Th-228	* 4.00E+01	7.92E+01
	02/04/03 - 03/04/03	Be-7	* - 1.61E+00	2.13E+01
		K-40	* - 4.10E+01	4.79E+01
		Mn-54	* - 5.68E-01	2.53E+00
		Co-58	* - 1.72E+00	2.46E+00
		Fe-59	* - 8.75E-01	4.89E+00
		Co-60	* - 1.05E+00	2.38E+00
		Zn-65	* - 2.74E+01	6.00E+00
		Nb-95	* 3.02E+00	2.54E+00
		Zr-95	* 4.19E+00	4.40E+00
		Cs-134	* - 1.09E+00	2.64E+00
		Cs-137	* 2.34E+00	2.67E+00
		Ba-140	* 3.84E+00	1.21E+01
		La-140	* 1.80E+00	4.00E+00
		Ra-226	* - 3.09E+01	6.89E+01
		Th-228	* - 2.69E+01	6.05E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
29	03/04/03 - 04/01/03	Be-7	* - 6.90E+00	1.92E+01
		K-40	* 3.80E+02	3.77E+01
		Mn-54	* 1.38E+00	2.28E+00
		Co-58	* 5.70E-01	2.36E+00
		Fe-59	* - 5.96E+00	4.78E+00
		Co-60	* 2.07E+00	2.20E+00
		Zn-65	* - 2.10E+00	5.32E+00
		Nb-95	* 8.28E-02	2.35E+00
		Zr-95	* 5.26E-01	4.04E+00
		Cs-134	* - 5.67E+00	2.48E+00
		Cs-137	* - 3.11E-01	3.07E+00
		Ba-140	* 1.36E+01	1.17E+01
		La-140	* 3.52E-01	3.97E+00
		Ra-226	* 4.86E+01	8.60E+01
		Th-228	* 6.28E+01	3.84E+01
	04/01/03 - 05/05/03	Be-7	* - 6.52E+00	1.83E+01
		K-40	* - 9.96E+01	4.55E+01
		Mn-54	* - 5.58E-01	2.33E+00
		Co-58	* 4.97E-01	2.01E+00
		Fe-59	* 1.55E-01	1.06E+01
		Co-60	* 2.88E+00	3.71E+00
		Zn-65	* 1.32E+00	9.49E+00
		Nb-95	* - 2.99E+00	2.15E+00
		Zr-95	* - 4.61E-01	3.59E+00
		Cs-134	* - 8.53E-01	2.37E+00
		Cs-137	* - 4.00E-01	2.60E+00
		Ba-140	* 4.88E+00	1.14E+01
		La-140	* - 2.74E+00	3.31E+00
		Ra-226	* 6.59E+01	9.50E+01
		Th-228	* 2.09E+01	5.20E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
29	05/06/03 - 06/03/03	Be-7	* 1.99E+00	1.47E+01
		K-40	* - 5.72E+01	3.90E+01
		Mn-54	* 1.69E-01	1.77E+00
		Co-58	* 6.67E-01	1.69E+00
		Fe-59	* - 1.93E+00	3.37E+00
		Co-60	* 1.23E-01	1.66E+00
		Zn-65	* - 2.21E+00	3.73E+00
		Nb-95	* 1.49E+00	1.77E+00
		Zr-95	* - 5.05E-01	2.89E+00
		Cs-134	* - 1.49E+00	1.75E+00
		Cs-137	* - 4.34E-01	1.73E+00
		Ba-140	* - 8.37E+00	8.14E+00
		La-140	* - 1.47E+00	2.51E+00
		Ra-226	* 1.50E+01	7.54E+01
		Th-228	* - 1.41E+01	4.18E+01
	06/03/03 - 06/30/03	Be-7	* - 1.72E+01	1.85E+01
		K-40	* - 2.75E+01	5.16E+01
		Mn-54	* - 4.90E-01	2.15E+00
		Co-58	* 6.98E-01	2.24E+00
		Fe-59	* 1.53E+00	4.60E+00
		Co-60	* 2.60E+00	2.34E+00
		Zn-65	* - 5.22E+00	4.99E+00
		Nb-95	* 1.23E+00	2.24E+00
		Zr-95	* 2.70E+00	3.84E+00
		Cs-134	* - 2.11E+00	2.17E+00
		Cs-137	* 1.47E+00	2.97E+00
		Ba-140	* 8.04E+00	1.10E+01
		La-140	* - 2.31E+00	3.56E+00
		Ra-226	* 3.67E+00	6.21E+01
		Th-228	* - 6.26E+01	4.06E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
29	06/30/03 - 08/05/03	Be-7	* 1.67E+01	3.00E+01
		K-40	* - 1.04E+00	6.67E+01
		Mn-54	* 7.80E-02	3.63E+00
		Co-58	* - 1.92E+00	3.13E+00
		Fe-59	* - 2.93E+00	6.44E+00
		Co-60	* 2.08E-01	3.19E+00
		Zn-65	* - 9.29E+00	9.37E+00
		Nb-95	* - 1.95E+00	3.14E+00
		Zr-95	* 6.46E-02	5.62E+00
		Cs-134	* - 2.68E+00	4.04E+00
		Cs-137	* - 7.83E-01	3.51E+00
		Ba-140	* 3.07E+00	1.65E+01
		La-140	* 1.28E+00	5.04E+00
		Ra-226	* 3.63E+01	1.14E+02
		Th-228	* 7.77E+01	8.33E+01
	08/05/03 - 09/03/03	Be-7	* 2.26E+00	1.05E+01
		K-40	* - 6.07E+01	3.56E+01
		Mn-54	* - 4.95E-01	1.41E+00
		Co-58	* - 6.20E-01	1.41E+00
		Fe-59	* - 1.56E+00	6.26E+00
		Co-60	* 1.87E+00	3.26E+00
		Zn-65	* - 1.68E+00	6.81E+00
		Nb-95	* - 8.95E-01	1.31E+00
		Zr-95	* - 2.55E-01	2.21E+00
		Cs-134	* - 6.25E-01	1.29E+00
		Cs-137	* - 7.50E-01	1.92E+00
		Ba-140	* 1.45E+00	5.98E+00
		La-140	* - 8.82E-01	2.04E+00
		Ra-226	* 4.17E+01	6.33E+01
		Th-228	* 2.08E+01	3.96E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
29	09/03/03 - 10/01/03	Be-7	* 3.18E+00	1.03E+01
		K-40	* - 6.44E+01	3.72E+01
		Mn-54	* - 2.87E-01	1.41E+00
		Co-58	* - 1.35E+00	1.29E+00
		Fe-59	* - 1.23E+00	6.47E+00
		Co-60	* 1.60E+00	3.00E+00
		Zn-65	* 5.18E+00	7.67E+00
		Nb-95	* - 7.76E-01	1.29E+00
		Zr-95	* 5.69E-02	2.01E+00
		Cs-134	* 7.66E-01	1.32E+00
		Cs-137	* - 1.22E+00	1.88E+00
		Ba-140	* - 8.25E-01	5.82E+00
		La-140	* - 7.69E-01	1.88E+00
		Ra-226	* - 6.09E+01	4.15E+01
		Th-228	* - 7.30E+01	3.59E+01
	10/01/03 - 11/04/03	Be-7	* 8.81E+00	1.43E+01
		K-40	* - 9.22E-01	3.76E+01
		Mn-54	* - 1.38E-01	1.80E+00
		Co-58	* 4.94E-01	1.64E+00
		Fe-59	* - 9.66E-01	3.25E+00
		Co-60	* 1.26E+00	1.85E+00
		Zn-65	* - 1.32E+01	4.11E+00
		Nb-95	* 1.39E+00	1.73E+00
		Zr-95	* 4.17E-01	2.89E+00
		Cs-134	* - 1.13E+01	1.98E+00
		Cs-137	* - 5.33E-01	1.83E+00
		Ba-140	* - 2.35E+00	6.54E+00
		La-140	* - 1.43E+00	2.41E+00
		Ra-226	* - 4.41E+00	4.67E+01
		Th-228	* - 3.52E+02	4.32E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
29	11/04/03 - 12/02/03	Be-7	* - 4.14E+00	1.18E+01
		K-40	* - 1.20E+02	3.62E+01
		Mn-54	* - 5.65E-01	1.45E+00
		Co-58	* 6.01E-01	1.41E+00
		Fe-59	* 3.06E+00	7.34E+00
		Co-60	* 3.15E+00	2.75E+00
		Zn-65	* - 4.31E+00	7.28E+00
		Nb-95	* 4.77E-01	1.41E+00
		Zr-95	* 1.29E-01	2.29E+00
		Cs-134	* 2.68E-01	1.49E+00
		Cs-137	* - 1.88E+00	2.00E+00
		Ba-140	* 2.50E+00	6.69E+00
		La-140	* 9.13E-02	2.22E+00
		Ra-226	* 1.39E+01	6.35E+01
		Th-228	* 2.73E+01	4.39E+01
	12/02/03 - 01/06/04	Be-7	* 1.04E+00	1.04E+01
		K-40	* - 9.45E+01	3.11E+01
		Mn-54	* 1.04E-01	1.31E+00
		Co-58	* - 4.30E-01	1.26E+00
		Fe-59	* - 3.93E+00	6.57E+00
		Co-60	* 1.93E+00	2.46E+00
		Zn-65	* - 8.39E+00	6.32E+00
		Nb-95	* - 1.93E-01	1.19E+00
		Zr-95	* - 1.93E+00	2.05E+00
		Cs-134	* - 4.34E-01	1.16E+00
		Cs-137	* 8.28E-01	2.97E+00
		Ba-140	* 1.32E+00	6.85E+00
		La-140	* - 1.13E+00	1.98E+00
		Ra-226	* - 6.87E+01	3.84E+01
		Th-228	* - 8.63E+01	2.92E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		Discharge		
27	01/02/03 - 02/04/03	Be-7	* 4.90E+00	7.08E+00
		K-40	* 9.88E+00	2.09E+01
		Mn-54	* - 2.44E-01	7.74E-01
		Co-58	* - 2.92E-01	7.79E-01
		Fe-59	* - 1.07E-01	1.58E+00
		Co-60	* 2.64E-01	7.57E-01
		Zn-65	* - 7.19E-01	1.56E+00
		Nb-95	* 1.33E-01	8.13E-01
		Zr-95	* 5.34E-01	1.38E+00
		Cs-134	* - 1.12E+00	7.73E-01
		Cs-137	* 7.16E-01	8.48E-01
		Ba-140	* - 3.33E+00	4.21E+00
		La-140	* - 1.05E+00	1.25E+00
		Ra-226	* 2.68E+01	3.71E+01
		Th-228	* - 9.92E+01	2.26E+01
	02/04/03 - 03/04/03	Be-7	* 1.87E+01	2.96E+01
		K-40	* 4.74E+01	8.94E+01
		Mn-54	* - 2.13E-01	3.37E+00
		Co-58	* - 2.50E+00	3.66E+00
		Fe-59	* 5.06E+00	7.28E+00
		Co-60	* 3.26E-01	3.56E+00
		Zn-65	* - 4.80E+00	8.25E+00
		Nb-95	* 1.17E+00	3.70E+00
		Zr-95	* 2.02E+00	6.69E+00
		Cs-134	* 2.55E+00	3.82E+00
		Cs-137	* 1.38E+00	3.75E+00
		Ba-140	* 7.00E-01	1.72E+01
		La-140	* - 1.20E-01	5.66E+00
		Ra-226	* 6.80E+01	1.05E+02
		Th-228	* 3.72E+01	6.21E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
27	03/04/03 - 04/01/03	Be-7	* 9.11E+00	1.44E+01
		K-40	* - 6.91E+01	4.59E+01
		Mn-54	* - 3.55E-02	1.78E+00
		Co-58	* - 7.66E-01	1.71E+00
		Fe-59	* - 6.19E-01	3.14E+00
		Co-60	* 7.01E-01	1.70E+00
		Zn-65	* 1.80E-01	3.14E+00
		Nb-95	* - 1.81E-01	1.71E+00
		Zr-95	* - 2.30E-01	2.91E+00
		Cs-134	* - 1.19E+00	1.78E+00
		Cs-137	* - 7.95E-01	1.78E+00
		Ba-140	* 4.50E+00	8.23E+00
		La-140	* - 4.52E-01	2.99E+00
		Ra-226	* - 1.00E+02	5.55E+01
		Th-228	* - 1.29E+01	3.38E+01
	04/01/03 - 05/05/03	Be-7	* 1.19E+00	2.43E+01
		K-40	* - 7.16E+01	5.95E+01
		Mn-54	* 1.20E+00	3.06E+00
		Co-58	* 2.27E-01	2.90E+00
		Fe-59	* - 4.90E+00	6.67E+00
		Co-60	* 4.83E-03	5.26E+00
		Zn-65	* - 5.86E+00	5.70E+00
		Nb-95	* 1.47E+00	3.21E+00
		Zr-95	* 3.27E-01	5.42E+00
		Cs-134	* - 1.46E+00	3.25E+00
		Cs-137	* 1.81E-01	3.41E+00
		Ba-140	* - 3.20E+00	1.57E+01
		La-140	* - 4.57E-01	5.46E+00
		Ra-226	* 2.65E+01	1.35E+02
		Th-228	* - 9.42E+01	6.16E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
27	05/06/03 - 06/03/03	Be-7	* 1.37E+00	1.78E+01
		K-40	* - 4.95E+01	4.52E+01
		Mn-54	* 1.03E+00	2.21E+00
		Co-58	* - 1.49E+00	2.10E+00
		Fe-59	* - 3.14E+00	4.36E+00
		Co-60	* - 9.40E-01	2.80E+00
		Zn-65	* 2.13E-01	5.14E+00
		Nb-95	* 3.14E-01	2.24E+00
		Zr-95	* 2.90E+00	3.75E+00
		Cs-134	* - 2.44E-01	2.38E+00
		Cs-137	* 1.78E+00	2.39E+00
		Ba-140	* - 1.27E+00	1.03E+01
		La-140	* - 7.69E-01	3.22E+00
		Ra-226	* 3.91E+01	7.53E+01
		Th-228	* 4.88E+01	5.20E+01
	06/03/03 - 06/30/03	Be-7	* 1.14E+01	1.36E+01
		K-40	* - 1.07E+02	4.64E+01
		Mn-54	* 1.57E+00	1.52E+00
		Co-58	* - 9.91E-02	1.52E+00
		Fe-59	* 3.87E-01	3.22E+00
		Co-60	* 3.82E-01	1.59E+00
		Zn-65	* - 8.04E-01	3.18E+00
		Nb-95	* - 3.40E-01	1.54E+00
		Zr-95	* 8.76E-01	2.82E+00
		Cs-134	* - 2.15E+00	1.62E+00
		Cs-137	* - 1.46E-01	1.78E+00
		Ba-140	* - 3.75E+00	8.53E+00
		La-140	* 1.18E+00	2.46E+00
		Ra-226	* - 3.75E+01	5.50E+01
		Th-228	* - 9.84E+01	3.28E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
27	06/30/03 - 08/05/03	Be-7	* - 9.02E+00	2.85E+01
		K-40	* - 9.51E+00	5.84E+01
		Mn-54	* 3.15E+00	3.45E+00
		Co-58	* - 1.29E+00	3.67E+00
		Fe-59	* 2.31E-01	7.16E+00
		Co-60	* - 4.58E-01	3.59E+00
		Zn-65	* - 9.47E+00	7.99E+00
		Nb-95	* - 8.67E-01	3.40E+00
		Zr-95	* - 3.07E+00	5.92E+00
		Cs-134	* - 1.57E+01	4.21E+00
		Cs-137	* - 8.93E-01	3.68E+00
		Ba-140	* 7.75E+00	1.50E+01
		La-140	* - 1.16E+00	5.29E+00
		Ra-226	* - 4.19E+01	8.01E+01
		Th-228	* - 7.40E+01	7.39E+01
	08/05/03 - 09/03/03	Be-7	* 2.06E+00	1.81E+01
		K-40	* - 3.19E+01	4.72E+01
		Mn-54	* - 5.32E-01	2.06E+00
		Co-58	* - 7.03E-01	2.19E+00
		Fe-59	* 1.77E+00	4.45E+00
		Co-60	* - 1.93E+00	2.53E+00
		Zn-65	* - 1.56E+01	5.12E+00
		Nb-95	* 2.35E+00	2.29E+00
		Zr-95	* - 4.98E-01	3.83E+00
		Cs-134	* - 1.00E+00	2.25E+00
		Cs-137	* 1.07E-01	2.60E+00
		Ba-140	* - 2.88E-01	1.10E+01
		La-140	* - 1.78E+00	3.67E+00
		Ra-226	* 4.00E+00	7.70E+01
		Th-228	* 9.19E+00	4.81E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)

GAMMA SPECTROMETRY OF WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
27	09/03/03 - 10/01/03	Be-7	* 3.35E-01	1.80E+01
		K-40	* 1.26E+01	4.91E+01
		Mn-54	* 1.49E+00	2.10E+00
		Co-58	* - 1.23E+00	2.09E+00
		Fe-59	* 3.27E-01	3.97E+00
		Co-60	* 6.79E-02	1.91E+00
		Zn-65	* - 4.31E-01	4.94E+00
		Nb-95	* - 1.34E+00	2.33E+00
		Zr-95	* 3.33E+00	3.68E+00
		Cs-134	* - 2.47E+00	2.36E+00
		Cs-137	* - 1.91E+00	2.98E+00
		Ba-140	* - 2.09E+00	9.71E+00
		La-140	* - 5.95E+00	3.62E+00
		Ra-226	* - 3.86E+01	5.99E+01
		Th-228	* - 7.26E+01	4.42E+01
	10/01/03 - 11/04/03	Be-7	* - 4.82E+00	1.59E+01
		K-40	* - 2.99E+01	4.21E+01
		Mn-54	* 2.02E+00	2.08E+00
		Co-58	* 4.25E-01	1.96E+00
		Fe-59	* - 7.98E-01	3.72E+00
		Co-60	* - 1.14E+00	2.14E+00
		Zn-65	* - 9.01E+00	4.64E+00
		Nb-95	* 9.65E-01	1.99E+00
		Zr-95	* - 6.69E-01	3.40E+00
		Cs-134	* - 1.00E+01	2.26E+00
		Cs-137	* - 3.59E-01	2.12E+00
		Ba-140	* - 9.98E-01	7.45E+00
		La-140	* - 1.36E+00	2.65E+00
		Ra-226	* 2.17E+01	6.67E+01
		Th-228	* - 2.20E+02	4.97E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results In pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		River/Drinking		
27	11/04/03 - 12/02/03	Be-7	* 1.33E+01	2.23E+01
		K-40	* 8.78E+00	4.89E+01
		Mn-54	* - 7.23E-01	2.66E+00
		Co-58	* 7.88E-01	2.66E+00
		Fe-59	* 2.14E+00	5.20E+00
		Co-60	* 1.05E+00	2.69E+00
		Zn-65	* - 1.93E+00	6.50E+00
		Nb-95	* 5.71E-01	2.87E+00
		Zr-95	* - 2.87E+00	4.66E+00
		Cs-134	* - 8.61E-01	2.85E+00
		Cs-137	* - 4.18E-01	2.63E+00
		Ba-140	* 8.93E+00	1.25E+01
		La-140	* - 2.61E+00	4.32E+00
		Ra-226	* - 1.16E+00	6.45E+01
		Th-228	* - 1.63E+02	6.12E+01
	12/02/03 - 01/06/04	Be-7	* - 5.70E-01	1.48E+01
		K-40	* 1.54E-02	3.36E+01
		Mn-54	* 3.68E-01	1.67E+00
		Co-58	* - 1.00E+00	1.72E+00
		Fe-59	* - 1.41E-01	3.40E+00
		Co-60	* - 1.70E-01	1.69E+00
		Zn-65	* - 8.95E+00	4.03E+00
		Nb-95	* 9.80E-02	1.73E+00
		Zr-95	* 1.82E+00	2.90E+00
		Cs-134	* - 1.08E+01	1.93E+00
		Cs-137	* 9.55E-01	1.58E+00
		Ba-140	* 1.44E+00	9.32E+00
		La-140	* - 2.39E+00	3.09E+00
		Ra-226	* 1.60E-01	4.50E+01
		Th-228	* - 2.02E+02	4.20E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		Ground		
31	03/04/03	Be-7	* - 3.56E+00	1.62E+01
		K-40	* - 2.64E+01	4.17E+01
		Mn-54	* 2.28E-01	1.96E+00
		Co-58	* - 2.83E-01	1.90E+00
		Fe-59	* 2.02E+00	3.63E+00
		Co-60	* 6.76E-01	1.93E+00
		Zn-65	* - 1.40E+01	4.57E+00
		Nb-95	* 9.42E-01	1.98E+00
		Zr-95	* - 2.98E-01	3.31E+00
		Cs-134	* 9.92E-01	2.15E+00
		Cs-137	* - 3.30E-02	1.99E+00
		Ba-140	* 2.19E-01	1.01E+01
		La-140	* 3.55E-01	3.99E+00
		Ra-226	* - 1.69E+01	5.22E+01
		Th-228	* - 1.50E+02	4.64E+01
	06/03/03	Be-7	* 1.43E+00	1.71E+01
		K-40	* - 1.61E+01	3.55E+01
		Mn-54	* 5.56E-01	2.11E+00
		Co-58	* 6.64E-01	1.99E+00
		Fe-59	* - 1.02E+00	4.11E+00
		Co-60	* - 6.27E-01	1.95E+00
		Zn-65	* - 4.00E+00	4.03E+00
		Nb-95	* 3.95E-01	2.16E+00
		Zr-95	* - 1.20E+00	3.90E+00
		Cs-134	* 2.15E-01	2.18E+00
		Cs-137	* - 3.51E-02	1.90E+00
		Ba-140	* 3.81E+00	1.06E+01
		La-140	* - 2.00E-01	2.76E+00
		Ra-226	* 8.43E+01	1.06E+02
		Th-228	* - 1.14E+02	4.78E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		Ground		
31	09/03/03	Be-7	* 1.09E+01	1.47E+01
		K-40	* 3.47E+00	6.12E+01
		Mn-54	* - 1.86E-01	1.60E+00
		Co-58	* - 8.48E-02	1.55E+00
		Fe-59	* 6.62E-01	3.23E+00
		Co-60	* 1.91E+00	1.70E+00
		Zn-65	* 2.02E-01	3.09E+00
		Nb-95	* - 4.19E-01	2.02E+00
		Zr-95	* - 6.30E-01	3.09E+00
		Cs-134	* - 1.51E-02	1.78E+00
		Cs-137	* - 7.92E-02	1.75E+00
		Ba-140	* - 1.97E-01	9.11E+00
		La-140	* 3.05E-01	2.76E+00
		Ra-226	* - 3.68E+01	5.31E+01
		Th-228	* - 7.19E+01	4.51E+01
	12/02/03	Be-7	* 4.04E+00	1.42E+01
		K-40	* - 3.61E+01	4.08E+01
		Mn-54	* - 9.73E-01	1.92E+00
		Co-58	* - 1.45E+00	1.93E+00
		Fe-59	* - 1.34E+00	3.78E+00
		Co-60	* 5.95E+00	2.59E+00
		Zn-65	* 1.74E+00	3.84E+00
		Nb-95	* - 3.64E-01	1.96E+00
		Zr-95	* 1.10E+00	3.37E+00
		Cs-134	* 5.95E-01	1.86E+00
		Cs-137	* 2.42E+00	3.14E+00
		Ba-140	* 1.16E+01	8.20E+00
		La-140	* 3.00E-01	3.06E+00
		Ra-226	* - 6.79E+01	4.29E+01
		Th-228	* - 2.04E+01	3.38E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		Ground		
32	03/04/03	Be-7	* - 4.53E+00	2.09E+01
		K-40	* - 3.80E+01	4.46E+01
		Mn-54	* 5.47E-01	2.52E+00
		Co-58	* - 2.62E+00	2.60E+00
		Fe-59	* 4.67E+00	5.15E+00
		Co-60	* 6.82E-01	2.74E+00
		Zn-65	* - 1.90E+00	6.46E+00
		Nb-95	* 3.95E+00	3.08E+00
		Zr-95	* - 1.25E-01	4.38E+00
		Cs-134	* - 3.15E-01	2.83E+00
		Cs-137	* - 7.81E-01	2.52E+00
		Ba-140	* 1.91E+00	1.29E+01
		La-140	* 5.75E+00	4.34E+00
		Ra-226	* - 1.74E+01	6.61E+01
		Th-228	* 7.30E+01	5.09E+01
	06/03/03	Be-7	* - 8.11E+00	2.04E+01
		K-40	* 3.22E+00	3.69E+01
		Mn-54	* - 6.81E-01	2.17E+00
		Co-58	* - 1.58E+00	2.50E+00
		Fe-59	* - 1.29E+00	5.20E+00
		Co-60	* 4.62E-01	2.15E+00
		Zn-65	* 2.43E+00	4.74E+00
		Nb-95	* 2.35E+00	2.64E+00
		Zr-95	* - 3.15E+00	4.03E+00
		Cs-134	* 2.50E+00	2.59E+00
		Cs-137	* - 1.81E+00	2.24E+00
		Ba-140	* - 5.27E+00	1.26E+01
		La-140	* 5.62E-01	4.37E+00
		Ra-226	* - 5.54E+00	6.16E+01
		Th-228	* 7.26E+01	6.63E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		Ground		
32	09/03/03	Be-7	* - 6.83E-01	1.42E+01
		K-40	* 9.05E+00	4.54E+01
		Mn-54	* - 4.79E-01	1.56E+00
		Co-58	* - 1.41E-01	1.71E+00
		Fe-59	* - 2.65E-01	3.37E+00
		Co-60	* 1.12E+00	1.57E+00
		Zn-65	* - 1.25E+00	3.83E+00
		Nb-95	* 8.00E-01	1.78E+00
		Zr-95	* - 2.35E+00	3.07E+00
		Cs-134	* - 2.24E-02	1.83E+00
		Cs-137	* 5.36E-01	1.67E+00
		Ba-140	* 2.12E+00	8.71E+00
		La-140	* - 2.93E+00	2.82E+00
		Ra-226	* 3.75E+01	6.86E+01
		Th-228	* - 1.43E+02	4.46E+01
	12/02/03	Be-7	* - 7.91E+00	3.82E+01
		K-40	* 3.14E+01	8.94E+01
		Mn-54	* 1.03E+00	4.82E+00
		Co-58	* - 2.06E+00	4.88E+00
		Fe-59	* 5.75E+00	9.97E+00
		Co-60	* 2.00E+00	4.79E+00
		Zn-65	* 7.28E-01	1.13E+01
		Nb-95	* 6.00E+00	5.93E+00
		Zr-95	* - 3.24E+00	8.22E+00
		Cs-134	* - 1.62E+00	4.97E+00
		Cs-137	* - 3.38E+00	4.51E+00
		Ba-140	* - 6.28E+00	2.20E+01
		La-140	* - 7.54E+00	6.87E+00
		Ra-226	* 2.97E+01	1.07E+02
		Th-228	* 1.82E+02	9.04E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)
GAMMA SPECTROMETRY OF WATER
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		Ground		
52	03/04/03	Be-7	* - 2.21E+01	1.97E+01
		K-40	* - 6.27E+01	5.51E+01
		Mn-54	* - 1.31E-01	2.43E+00
		Co-58	* 2.58E-01	2.41E+00
		Fe-59	* - 2.55E-01	5.13E+00
		Co-60	* 8.40E-01	2.50E+00
		Zn-65	* - 1.08E+01	5.69E+00
		Nb-95	* 5.32E-03	2.66E+00
		Zr-95	* 3.11E+00	4.58E+00
		Cs-134	* - 8.69E+00	2.66E+00
		Cs-137	* - 5.13E+00	3.08E+00
		Ba-140	* - 1.26E+00	1.22E+01
		La-140	* - 2.83E+00	4.48E+00
		Ra-226	* 4.26E+00	6.53E+01
		Th-228	* - 2.67E+01	5.56E+01
	06/03/03	Be-7	* - 3.75E+00	2.01E+01
		K-40	* - 7.16E+01	4.15E+01
		Mn-54	* 1.90E+00	1.90E+00
		Co-58	* 3.64E-01	2.09E+00
		Fe-59	* - 2.23E+00	3.63E+00
		Co-60	* 1.04E+00	1.90E+00
		Zn-65	* 1.19E+00	3.60E+00
		Nb-95	* - 1.81E-01	2.04E+00
		Zr-95	* 1.49E+00	3.29E+00
		Cs-134	* - 6.38E-01	2.09E+00
		Cs-137	* 1.19E-03	1.86E+00
		Ba-140	* 4.72E+00	1.08E+01
		La-140	* 1.69E+00	3.25E+00
		Ra-226	* - 3.33E+01	5.10E+01
		Th-228	* - 2.03E+01	4.16E+01

* Denotes a result less than the detection limit.

TABLE A-7.1 (cont.)

GAMMA SPECTROMETRY OF WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
		Ground		
52	09/03/03	Be-7	* 1.10E+01	2.20E+01
		K-40	* 8.72E+00	5.45E+01
		Mn-54	* - 5.54E-01	2.55E+00
		Co-58	* 1.49E+00	2.61E+00
		Fe-59	* 4.23E-02	5.34E+00
		Co-60	* 3.22E+00	2.71E+00
		Zn-65	* - 4.12E-01	6.15E+00
		Nb-95	* 3.04E+00	2.78E+00
		Zr-95	* 3.17E+00	4.81E+00
		Cs-134	* 1.23E+00	2.65E+00
		Cs-137	* - 1.11E+00	2.62E+00
		Ba-140	* - 1.23E+00	1.29E+01
		La-140	* - 2.07E+00	4.31E+00
		Ra-226	* - 1.39E+01	6.32E+01
		Th-228	* - 5.69E+01	5.39E+01
	12/02/03	Be-7	* - 1.04E+00	2.63E+01
		K-40	* 2.33E+01	7.29E+01
		Mn-54	* 1.08E+00	2.59E+00
		Co-58	* - 5.07E-01	2.67E+00
		Fe-59	* - 7.21E+00	5.96E+00
		Co-60	* 8.14E-01	2.72E+00
		Zn-65	* - 3.28E+00	7.00E+00
		Nb-95	* 1.23E+00	3.22E+00
		Zr-95	* - 3.42E+00	5.11E+00
		Cs-134	* - 1.33E+00	3.24E+00
		Cs-137	* 2.74E+00	3.19E+00
		Ba-140	* 1.53E-01	1.46E+01
		La-140	* - 2.61E+00	4.23E+00
		Ra-226	* 7.77E+01	1.10E+02
		Th-228	* - 1.51E+01	6.80E+01

* Denotes a result less than the detection limit.

TABLE A-7.2

GAMMA SPECTROMETRY OF WATER - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			River/Drinking			
K-40	(I)	-1.51E+01	-1.20E+02	3.80E+02	12	0
K-40	(C)	-3.06E+01	-1.19E+02	6.71E+01	12	1
Mn-54	(I)	-2.74E-01	-1.92E+00	1.38E+00	12	0
Mn-54	(C)	2.90E-01	-7.86E-01	1.66E+00	12	0
Co-58	(I)	-2.48E-01	-1.92E+00	6.98E-01	12	0
Co-58	(C)	-2.26E-02	-1.87E+00	2.41E+00	12	0
Fe-59	(I)	-1.40E+00	-5.96E+00	3.06E+00	12	0
Fe-59	(C)	-1.55E-01	-3.03E+00	3.43E+00	12	0
Co-60	(I)	1.35E+00	-1.05E+00	3.15E+00	12	0
Co-60	(C)	1.13E+00	-2.48E+00	5.45E+00	12	0
Zn-65	(I)	-5.67E+00	-2.74E+01	5.18E+00	12	0
Zn-65	(C)	-2.78E+00	-1.12E+01	1.88E+00	12	0
Nb-95	(I)	-6.79E-02	-2.99E+00	3.02E+00	12	0
Nb-95	(C)	1.13E-01	-2.06E+00	3.09E+00	12	0
Zr-95	(I)	3.69E-01	-1.93E+00	4.19E+00	12	0
Zr-95	(C)	1.45E+00	-2.21E+00	6.64E+00	12	0

(I) Indicator Stations

(C) Control Stations

TABLE A-7.2 (cont.)
GAMMA SPECTROMETRY OF WATER - SUMMARY
Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			River/Drinking			
Cs-134	(I)	-2.11E+00	-1.13E+01	7.66E-01	12	0
Cs-134	(C)	-3.06E+00	-1.27E+01	4.31E-01	12	0
Cs-137	(I)	-1.44E-01	-1.88E+00	2.34E+00	12	0
Cs-137	(C)	9.84E-01	-2.21E+00	4.83E+00	12	0
Ba-140	(I)	2.13E+00	-8.37E+00	1.36E+01	12	0
Ba-140	(C)	7.49E-01	-9.43E+00	1.09E+01	12	0
La-140	(I)	-5.86E-01	-2.74E+00	1.80E+00	12	0
La-140	(C)	-1.64E+00	-6.91E+00	1.12E+00	12	0
Ra-226	(I)	3.88E+00	-6.87E+01	6.59E+01	12	0
Ra-226	(C)	-2.69E+00	-6.19E+01	5.51E+01	12	0
Th-228	(I)	-3.05E+01	-3.52E+02	7.77E+01	12	0
Th-228	(C)	-7.30E+01	-2.91E+02	6.54E+01	12	0

(I) Indicator Stations
(C) Control Stations

TABLE A-7.2 (cont.)
GAMMA SPECTROMETRY OF WATER - SUMMARY
Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			Discharge			
K-40	(I)	-2.42E+01	-1.07E+02	4.74E+01	12	0
Mn-54	(I)	7.57E-01	-7.23E-01	3.15E+00	12	0
Co-58	(I)	-6.61E-01	-2.50E+00	7.88E-01	12	0
Fe-59	(I)	1.75E-02	-4.90E+00	5.06E+00	12	0
Co-60	(I)	-1.54E-01	-1.93E+00	1.05E+00	12	0
Zn-65	(I)	-4.77E+00	-1.56E+01	2.13E-01	12	0
Nb-95	(I)	3.62E-01	-1.34E+00	2.35E+00	12	0
Zr-95	(I)	3.73E-01	-3.07E+00	3.33E+00	12	0
Cs-134	(I)	-3.70E+00	-1.57E+01	2.55E+00	12	0
Cs-137	(I)	4.98E-02	-1.91E+00	1.78E+00	12	0
Ba-140	(I)	7.00E-01	-3.75E+00	8.93E+00	12	0
La-140	(I)	-1.41E+00	-5.95E+00	1.18E+00	12	0
Ra-226	(I)	-2.74E+00	-1.00E+02	6.80E+01	12	0
Th-228	(I)	-7.84E+01	-2.20E+02	4.88E+01	12	0

(I) Indicator Stations

TABLE A-7.2 (cont.)
GAMMA SPECTROMETRY OF WATER - SUMMARY
Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			Ground			
K-40	(I)	-1.43E+01	-7.16E+01	3.14E+01	12	0
Mn-54	(I)	1.95E-01	-9.73E-01	1.90E+00	12	0
Co-58	(I)	-4.96E-01	-2.62E+00	1.49E+00	12	0
Fe-59	(I)	-3.88E-02	-7.21E+00	5.75E+00	12	0
Co-60	(I)	1.51E+00	-6.27E-01	5.95E+00	12	0
Zn-65	(I)	-2.45E+00	-1.40E+01	2.43E+00	12	0
Nb-95	(I)	1.48E+00	-4.19E-01	6.00E+00	12	0
Zr-95	(I)	-4.62E-01	-3.42E+00	3.17E+00	12	0
Cs-134	(I)	-5.92E-01	-8.69E+00	2.50E+00	12	0
Cs-137	(I)	-5.55E-01	-5.13E+00	2.74E+00	12	0
Ba-140	(I)	8.58E-01	-6.28E+00	1.16E+01	12	0
La-140	(I)	-7.68E-01	-7.54E+00	5.75E+00	12	0
Ra-226	(I)	3.48E+00	-6.79E+01	8.43E+01	12	0
Th-228	(I)	-2.42E+01	-1.50E+02	1.82E+02	12	0

(I) Indicator Stations

TABLE A-8.1

GAMMA SPECTROMETRY OF SOIL

Results in pCi/kilogram

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
01	06/17/03	K-40	1.58E+04	7.34E+02
		Cs-134	* - 9.29E+00	1.65E+01
		Cs-137	2.33E+02	3.20E+01
		Ra-226	1.63E+03	4.97E+02
		Th-228	1.90E+03	5.06E+02
		Sr-90	* 2.22E+01	1.58E+01
07	06/17/03	K-40	1.51E+04	6.11E+02
		Cs-134	* 7.14E+00	1.40E+01
		Cs-137	8.80E+01	2.21E+01
		Ra-226	8.36E+02	4.77E+02
		Th-228	1.96E+03	4.24E+02
		Sr-90	* 2.36E+01	2.01E+01
9A Control	06/17/03	K-40	1.48E+04	8.11E+02
		Cs-134	* - 1.38E+01	2.05E+01
		Cs-137	* 7.08E+00	2.23E+01
		Ra-226	1.35E+03	6.29E+02
		Th-228	1.85E+03	5.45E+02
21	06/17/03	K-40	1.67E+04	7.04E+02
		Cs-134	* 6.10E+00	1.59E+01
		Cs-137	* 9.61E+00	1.76E+01
		Ra-226	1.38E+03	6.19E+02
		Th-228	1.50E+03	4.51E+02
23	06/17/03	K-40	1.72E+04	8.16E+02
		Cs-134	* - 1.91E+00	1.92E+01
		Cs-137	1.06E+02	3.89E+01
		Ra-226	1.85E+03	7.40E+02
		Th-228	2.04E+03	6.41E+02
		Sr-90	* 1.73E+01	1.42E+01

* Denotes a result less than the detection limit.

TABLE A-8.2

GAMMA SPECTROMETRY OF SOIL - SUMMARY

Results in pCi/kilogram

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
K-40	(I)	1.62E+04	1.51E+04	1.72E+04	4	4
K-40	(C)	1.48E+04	1.48E+04	1.48E+04	1	1
Cs-134	(I)	5.10E-01	-9.29E+00	7.14E+00	4	0
Cs-134	(C)	-1.38E+01	-1.38E+01	-1.38E+01	1	0
Cs-137	(I)	1.09E+02	9.61E+00	2.33E+02	4	3
Cs-137	(C)	7.08E+00	7.08E+00	7.08E+00	1	0
Ra-226	(I)	1.42E+03	8.36E+02	1.85E+03	4	4
Ra-226	(C)	1.35E+03	1.35E+03	1.35E+03	1	1
Th-228	(I)	1.85E+03	1.50E+03	2.04E+03	4	4
Th-228	(C)	1.85E+03	1.85E+03	1.85E+03	1	1
Sr-90*	(I)	2.10E+01	1.73E+01	2.36E+01	3	0

* Beta counter

(I) Indicator Stations

(C) Control Stations

TABLE A-9.1

GAMMA SPECTROMETRY OF SEDIMENT

Results in pCi/kilogram

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
33	03/13/03	K-40	1.83E+04	1.21E+03
Control		Co-57	* 8.16E+00	1.76E+01
(Upstream)		Co-60	* 6.63E+00	3.05E+01
		Cs-134	* - 1.65E+01	3.00E+01
		Cs-137	6.93E+01	5.32E+01
		Eu-152	* 1.85E+01	7.21E+01
		Ra-226	* 8.37E+02	8.70E+02
		Ac-228	1.52E+03	3.01E+02
		Th-228	1.66E+03	8.51E+02
		U-235	* 9.24E+01	1.51E+02
	10/30/03	K-40	1.76E+04	1.10E+03
		Co-57	* 5.01E+00	1.95E+01
		Co-60	* - 2.02E+01	2.45E+01
		Cs-134	* - 3.84E-02	2.03E+01
		Cs-137	* 3.84E+01	3.93E+01
		Eu-152	* - 1.90E+01	6.41E+01
		Ra-226	* 7.88E+01	5.67E+02
		Ac-228	9.30E+02	1.96E+02
		Th-228	2.50E+03	8.40E+02
		U-235	* 1.57E+02	1.52E+02
34	03/13/03	K-40	2.08E+04	1.21E+03
(Downstream)		Co-57	* 1.59E+01	2.31E+01
		Co-60	* 8.37E+00	3.07E+01
		Cs-134	* - 3.28E+00	3.04E+01
		Cs-137	1.72E+02	5.41E+01
		Eu-152	* 8.62E+01	8.29E+01
		Ra-226	2.14E+03	7.86E+02
		Ac-228	1.56E+03	4.82E+02
		Th-228	2.99E+03	1.07E+03
		U-235	* - 1.61E+02	1.81E+02
	10/30/03	K-40	1.83E+04	9.38E+02
		Co-57	* 1.38E+00	1.89E+01
		Co-60	* 6.34E+00	2.02E+01
		Cs-134	* - 1.97E+01	2.15E+01
		Cs-137	1.79E+02	3.19E+01
		Eu-152	* - 3.10E+01	6.32E+01
		Ra-226	9.95E+02	7.66E+02
		Ac-228	7.86E+02	1.62E+02
		Th-228	2.25E+03	7.96E+02
		U-235	* 6.19E+01	1.40E+02

* Denotes a result less than the detection limit.

TABLE A-9.2

GAMMA SPECTROMETRY OF SEDIMENT - SUMMARY

Result in pCi/kilogram

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
K-40	(I)	1.96E+04	1.83E+04	2.08E+04	2	2
K-40	(C)	1.80E+04	1.76E+04	1.83E+04	2	2
Co-57	(I)	8.64E+00	1.38E+00	1.59E+01	2	0
Co-57	(C)	6.59E+00	5.01E+00	8.16E+00	2	0
Co-60	(I)	7.36E+00	6.34E+00	8.37E+00	2	0
Co-60	(C)	-6.79E+00	-2.02E+01	6.63E+00	2	0
Cs-134	(I)	-1.15E+01	-1.97E+01	-3.28E+00	2	0
Cs-134	(C)	-8.27E+00	-1.65E+01	-3.84E-02	2	0
Cs-137	(I)	1.76E+02	1.72E+02	1.79E+02	2	2
Cs-137	(C)	5.39E+01	3.84E+01	6.93E+01	2	1
Eu-152	(I)	2.76E+01	-3.10E+01	8.62E+01	2	0
Eu-152	(C)	-2.50E-01	-1.90E+01	1.85E+01	2	0
Ra-226	(I)	1.57E+03	9.95E+02	2.14E+03	2	2
Ra-226	(C)	4.58E+02	7.88E+01	8.37E+02	2	0
Ac-228	(I)	1.17E+03	7.86E+02	1.56E+03	2	2
Ac-228	(C)	1.23E+03	9.30E+02	1.52E+03	2	2

(I) Indicator Stations

(C) Control Stations

TABLE A-9.2 (cont.)

GAMMA SPECTROMETRY OF SEDIMENT - SUMMARY

Result in pCi/kilogram

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
Th-228	(I)	2.62E+03	2.25E+03	2.99E+03	2	2
Th-228	(C)	2.08E+03	1.66E+03	2.50E+03	2	2
U-235	(I)	-4.96E+01	-1.61E+02	6.19E+01	2	0
U-235	(C)	1.25E+02	9.24E+01	1.57E+02	2	0

(I) Indicator Stations

(C) Control Stations

TABLE A-10.1

GAMMA SPECTROMETRY OF FISH

Results in pCi/kilogram (wet)

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
30	09/30/03	K-40	3.34E+03	7.15E+02
Steelhead		Mn-54	* 2.61E+00	2.58E+01
		Co-58	* - 5.52E+00	2.97E+01
		Fe-59	* - 1.15E+01	6.06E+01
		Co-60	* - 8.59E+00	2.81E+01
		Zn-65	* - 1.10E+02	6.97E+01
		Cs-134	* - 1.12E+02	3.13E+01
		Cs-137	* - 8.70E+00	2.86E+01
		Ra-226	* - 2.20E+02	4.93E+02
		Th-228	* 8.09E+01	4.52E+02
30	10/20/03	K-40	3.39E+03	5.02E+02
Carp		Mn-54	* - 4.54E+00	1.30E+01
		Co-58	* - 5.40E+00	1.34E+01
		Fe-59	* 7.59E+00	8.56E+01
		Co-60	* 1.40E+01	2.46E+01
		Zn-65	* 1.50E+00	6.19E+01
		Cs-134	* - 1.91E+00	1.20E+01
		Cs-137	* - 1.01E+01	1.33E+01
		Ra-226	* 4.71E+01	4.50E+02
		Th-228	* - 1.66E+02	2.29E+02
30	10/20/03	K-40	3.65E+03	3.52E+02
Sucker		Mn-54	* 6.73E+00	9.38E+00
		Co-58	* - 4.23E+00	1.19E+01
		Fe-59	* 7.06E+00	2.79E+01
		Co-60	* - 1.97E+00	9.58E+00
		Zn-65	* - 2.25E+01	2.26E+01
		Cs-134	* - 2.24E+00	1.04E+01
		Cs-137	* 2.23E+00	1.01E+01
		Ra-226	* 5.97E+01	2.41E+02
		Th-228	* 1.68E+02	1.89E+02

* Denotes a result less than the detection limit.

TABLE 10-A.1 (Cont)

GAMMA SPECTROMETRY OF FISH

Results in pCi/kilogram (wet)

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
38 Control Steelhead	09/30/03	K-40	3.70E+03	5.06E+02
		Mn-54	* - 1.31E+00	1.66E+01
		Co-58	* - 1.98E+00	1.70E+01
		Fe-59	* - 1.52E+01	3.60E+01
		Co-60	* 1.76E+01	1.73E+01
		Zn-65	* - 3.29E+01	3.52E+01
		Cs-134	* - 1.18E+01	1.55E+01
		Cs-137	* - 1.45E+00	1.61E+01
		Ra-226	* 6.04E+02	5.48E+02
		Th-228	* 5.30E+02	3.62E+02
38 Control Carp	10/21/03	K-40	3.20E+03	2.59E+02
		Mn-54	* - 3.17E+00	8.85E+00
		Co-58	* 9.01E+00	8.87E+00
		Fe-59	* 1.25E+00	2.01E+01
		Co-60	* 5.24E-01	7.63E+00
		Zn-65	* - 3.61E+01	1.73E+01
		Cs-134	* - 1.39E+00	7.30E+00
		Cs-137	* - 3.36E+00	7.53E+00
		Ra-226	* 1.18E+02	2.90E+02
		Th-228	* 2.16E+02	1.64E+02
38 Control Sucker	10/21/03	K-40	1.19E+03	1.06E+02
		Mn-54	* - 4.57E-01	2.92E+00
		Co-58	* - 2.71E-01	3.25E+00
		Fe-59	* - 9.88E-01	8.19E+00
		Co-60	* - 3.32E-01	3.09E+00
		Zn-65	* - 7.81E+00	7.31E+00
		Cs-134	* - 1.36E+01	2.99E+00
		Cs-137	* 1.37E+00	2.70E+00
		Ra-226	* 1.32E+01	7.94E+01
		Th-228	* - 4.25E+01	4.76E+01

* Denotes a result less than the detection limit.

TABLE A-10.2

GAMMA SPECTROMETRY OF FISH - SUMMARY

Results in pCi/kilogram

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
K-40	(I)	3.46E+03	3.34E+03	3.65E+03	3	3
K-40	(C)	2.70E+03	1.19E+03	3.70E+03	3	3
Co-60	(I)	1.15E+00	-8.59E+00	1.40E+01	3	0
Co-60	(C)	5.93E+00	-3.32E-01	1.76E+01	3	0
Fe-59	(I)	1.05E+00	-1.15E+01	7.59E+00	3	0
Fe-59	(C)	-4.98E+00	-1.52E+01	1.25E+00	3	0
Zn-65	(I)	-4.37E+01	-1.10E+02	1.50E+00	3	0
Zn-65	(C)	-2.56E+01	-3.61E+01	-7.81E+00	3	0
Co-58	(I)	-5.05E+00	-5.52E+00	-4.23E+00	3	0
Co-58	(C)	2.25E+00	-1.98E+00	9.01E+00	3	0
Cs-134	(I)	-3.87E+01	-1.12E+02	-1.91E+00	3	0
Cs-134	(C)	-8.93E+00	-1.36E+01	-1.39E+00	3	0
Cs-137	(I)	-5.52E+00	-1.01E+01	2.23E+00	3	0
Cs-137	(C)	-1.15E+00	-3.36E+00	1.37E+00	3	0
Mn-54	(I)	1.60E+00	-4.54E+00	6.73E+00	3	0
Mn-54	(C)	-1.65E+00	-3.17E+00	-4.57E-01	3	0

(I) Indicator Stations

(C) Control Stations

TABLE A-10.2

GAMMA SPECTROMETRY OF FISH - SUMMARY

Results in pCi/kilogram (wet)

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
Ra-226	(I)	-3.77E+01	-2.20E+02	5.97E+01	3	0
Ra-226	(C)	2.45E+02	1.32E+01	6.04E+02	3	0
Th-228	(I)	2.76E+01	-1.66E+02	1.68E+02	3	0
Th-228	(C)	2.35E+02	-4.25E+01	5.30E+02	3	0

(I) Indicator Stations

(C) Control Stations

TABLE A-11.1

I-131 IN MILK

Results in pCi/liter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
9B	01/21/03	* 7.52E-03	3.66E-01
	02/11/03	* - 8.40E-02	4.62E-01
	03/12/03	* - 8.58E-02	3.91E-01
	04/08/03	* - 5.63E-02	3.32E-01
	04/21/03	* - 2.61E-01	2.97E-01
	05/20/03	* - 3.90E-01	3.44E-01
	05/27/03	* 9.42E-02	4.14E-01
	06/10/03	* 4.63E-01	4.98E-01
	06/24/03	* - 1.14E-01	2.25E-01
	07/08/03	* 2.19E-01	4.03E-01
	07/22/03	* 1.11E-01	4.44E-01
	08/12/03	* 4.95E-01	4.74E-01
	08/26/03	* - 1.03E-01	3.44E-01
	09/10/03	* 4.85E-01	4.23E-01
	09/23/03	* - 5.96E-02	4.20E-01
	10/14/03	* - 1.08E-01	2.82E-01
	11/11/03	* 1.30E-01	5.00E-01
	12/16/03	* 2.41E-01	2.66E-01
36	01/21/03	* 8.15E-01	5.47E-01
	02/11/03	* - 1.44E-01	4.44E-01
	03/12/03	* - 2.26E-01	3.36E-01
	04/08/03	* 4.87E-02	3.97E-01
	04/21/03	* 9.82E-02	2.91E-01
	05/20/03	* - 1.38E-01	3.28E-01
	05/27/03	* 8.66E-02	4.42E-01
	06/10/03	* 4.75E-02	6.08E-01
	06/24/03	* - 2.13E-01	2.59E-01
	07/08/03	* 1.11E-01	4.74E-01
	07/22/03	* 3.32E-01	5.87E-01
	08/12/03	* 4.22E-01	4.37E-01
	08/26/03	* 2.46E-02	3.76E-01
	09/10/03	* - 8.51E-02	4.35E-01
	09/23/03	* - 1.74E-01	5.01E-01
	10/14/03	* - 1.40E-01	2.76E-01
	11/11/03	* 1.97E-01	3.84E-01
	12/16/03	* 2.41E-01	2.66E-01

* Denotes a result less than the detection limit.

TABLE A-11.1 (cont.)

I-131 IN MILK

Results in pCi/liter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
64	01/21/03	* 7.24E-01	6.01E-01
	02/11/03	* 2.69E-01	3.99E-01
	03/12/03	* - 2.43E-02	3.89E-01
	04/08/03	* - 3.76E-01	3.54E-01
	04/21/03	(a)	
	05/20/03	* 2.50E-02	3.04E-01
	05/27/03	(a)	
	06/10/03	* - 2.64E-01	5.69E-01
	06/24/03	(b)	

* Denotes a result less than the detection limit.

(a) Sample not available

(b) Station no longer used.

TABLE A-11.2

I-131 IN MILK - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
I-131	(I)	5.53E-02	-3.90E-01	8.15E-01	42	0

(I) Indicator Stations

TABLE A-12.1

GAMMA SPECTROMETRY OF MILK

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
9B	01/21/03	K-40	1.32E+03	9.09E+01
		Cs-134	* 1.94E-01	1.85E+00
		Cs-137	* 1.08E+00	1.93E+00
		Ba-140	* 9.96E+00	9.53E+00
		La-140	* - 1.17E+00	2.80E+00
	02/11/03	K-40	1.33E+03	8.35E+01
		Cs-134	* 7.72E-01	1.43E+00
		Cs-137	* - 3.85E-01	1.94E+00
		Ba-140	* 1.59E+00	7.89E+00
		La-140	* - 1.28E+00	2.42E+00
	03/12/03	K-40	1.37E+03	7.14E+01
		Cs-134	* 2.23E-01	1.98E+00
		Cs-137	* 8.38E-02	1.90E+00
		Ba-140	* - 1.66E+00	7.86E+00
		La-140	* - 3.05E+00	3.23E+00
	04/08/03	K-40	1.46E+03	1.02E+02
		Cs-134	* - 8.91E+00	2.88E+00
		Cs-137	* - 1.31E+00	3.62E+00
		Ba-140	* 5.22E+00	1.23E+01
		La-140	* - 5.99E-01	4.10E+00
	04/21/03	K-40	1.38E+03	1.17E+02
		Cs-134	* 1.22E+00	3.74E+00
		Cs-137	* - 1.11E-01	3.79E+00
		Ba-140	* 5.52E-01	1.65E+01
		La-140	* - 6.41E-01	5.66E+00
	05/20/03	K-40	1.45E+03	1.37E+02
		Cs-134	* - 3.04E+00	3.04E+00
		Cs-137	* - 1.72E+00	3.39E+00
		Ba-140	* 2.50E+00	1.47E+01
		La-140	* 5.73E-01	4.52E+00
	05/27/03	K-40	1.37E+03	1.00E+02
		Cs-134	* - 1.24E+01	3.02E+00
		Cs-137	* - 7.66E-02	2.76E+00
		Ba-140	* 2.45E+00	1.20E+01
		La-140	* 3.50E-01	4.18E+00

* Denotes a result less than the detection limit.

TABLE A-12.1 (cont.)
GAMMA SPECTROMETRY OF MILK
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
9B	06/10/03	K-40	1.43E+03	9.96E+01
		Cs-134	* 3.66E-01	1.85E+00
		Cs-137	* - 5.28E-01	2.50E+00
		Ba-140	* 2.21E+00	8.16E+00
		La-140	* 7.10E-01	2.54E+00
	06/24/03	K-40	1.32E+03	1.31E+02
		Cs-134	* 1.01E+00	2.30E+00
		Cs-137	* - 1.48E+00	3.07E+00
		Ba-140	* 7.91E+00	1.07E+01
		La-140	* 5.99E+00	5.14E+00
	07/08/03	K-40	1.26E+03	8.79E+01
		Cs-134	* 1.26E-01	1.64E+00
		Cs-137	* - 2.51E+00	2.28E+00
		Ba-140	* 7.24E-01	1.19E+01
		La-140	* 6.81E-01	3.45E+00
	07/22/03	K-40	1.35E+03	7.20E+01
		Cs-134	* 8.45E-01	1.93E+00
		Cs-137	* - 1.66E+00	1.68E+00
		Ba-140	* - 2.36E+00	8.61E+00
		La-140	* - 1.18E+00	2.42E+00
	08/12/03	K-40	1.49E+03	1.84E+02
		Cs-134	* - 7.20E-01	3.24E+00
		Cs-137	* - 8.39E-01	3.65E+00
		Ba-140	* - 9.76E+00	1.80E+01
		La-140	* 3.40E+00	5.15E+00
	08/26/03	K-40	1.29E+03	7.30E+01
		Cs-134	* 4.14E-01	1.24E+00
		Cs-137	* - 1.25E+00	2.00E+00
		Ba-140	* 4.62E+00	5.98E+00
		La-140	* - 1.48E+00	2.30E+00
	09/10/03	K-40	1.23E+03	8.64E+01
		Cs-134	* - 1.65E+00	1.82E+00
		Cs-137	* 3.70E-01	2.02E+00
		Ba-140	* 1.15E+00	8.27E+00
		La-140	* - 2.28E+00	2.61E+00

* Denotes a result less than the detection limit.

TABLE A-12.1 (cont.)

GAMMA SPECTROMETRY OF MILK

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
9B	09/23/03	K-40	1.41E+03	8.03E+01
		Cs-134	* 1.67E+00	2.30E+00
		Cs-137	* - 2.09E+00	2.65E+00
		Ba-140	* 5.71E+00	9.41E+00
		La-140	* - 7.35E-01	2.98E+00
	10/14/03	K-40	1.24E+03	8.48E+01
		Cs-134	* - 5.99E-01	1.45E+00
		Cs-137	* 1.12E-01	1.89E+00
		Ba-140	* 3.08E+00	6.82E+00
		La-140	* 1.09E+00	2.04E+00
	11/11/03	K-40	1.30E+03	7.05E+01
		Cs-134	* 1.55E+00	2.55E+00
		Cs-137	* - 1.83E+00	1.84E+00
		Ba-140	* 4.73E-01	8.03E+00
		La-140	* - 1.40E+00	2.23E+00
	12/16/03	K-40	1.32E+03	8.12E+01
		Cs-134	* - 9.53E+00	2.12E+00
		Cs-137	* 4.12E-01	1.97E+00
		Ba-140	* 1.53E+00	7.36E+00
		La-140	* 7.54E-02	2.41E+00

* Denotes a result less than the detection limit.

TABLE A-12.1 (cont.)

GAMMA SPECTROMETRY OF MILK

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
36	01/21/03	K-40	1.48E+03	8.03E+01
		Cs-134	* - 5.21E+00	1.98E+00
		Cs-137	* 2.41E+00	1.91E+00
		Ba-140	* - 4.28E+00	9.13E+00
		La-140	* 3.58E-01	2.76E+00
	02/11/03	K-40	1.39E+03	8.95E+01
		Cs-134	* - 1.04E+01	2.51E+00
		Cs-137	* 1.44E+00	2.50E+00
		Ba-140	* - 5.55E+00	1.16E+01
		La-140	* - 1.67E+00	4.00E+00
	03/12/03	K-40	1.49E+03	9.19E+01
		Cs-134	* - 2.46E-01	1.82E+00
		Cs-137	* 1.71E+00	1.86E+00
		Ba-140	* - 7.02E+00	8.82E+00
		La-140	* 2.86E+00	2.57E+00
	04/08/03	K-40	1.55E+03	9.24E+01
		Cs-134	* - 6.56E+00	2.50E+00
		Cs-137	* - 1.22E+00	2.52E+00
		Ba-140	* 1.07E+00	1.08E+01
		La-140	* - 8.27E-01	3.67E+00
	04/21/03	K-40	1.44E+03	7.55E+01
		Cs-134	* - 1.20E+01	2.25E+00
		Cs-137	* 1.03E+00	2.11E+00
		Ba-140	* 1.87E+00	9.62E+00
		La-140	* 7.96E-01	3.17E+00
	05/20/03	K-40	1.35E+03	8.94E+01
		Cs-134	* - 1.15E+01	2.56E+00
		Cs-137	* - 4.01E-01	2.48E+00
		Ba-140	* 5.28E+00	1.12E+01
		La-140	* - 4.65E-01	4.03E+00
	05/27/03	K-40	1.33E+03	1.01E+02
		Cs-134	* - 2.30E-01	2.61E+00
		Cs-137	* 3.27E+00	3.28E+00
		Ba-140	* - 3.66E+00	1.16E+01
		La-140	* - 1.74E+00	4.31E+00

* Denotes a result less than the detection limit.

TABLE A-12.1 (cont.)

GAMMA SPECTROMETRY OF MILK

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
36	06/10/03	K-40	1.56E+03	1.24E+02
		Cs-134	* - 5.39E-01	3.39E+00
		Cs-137	* 1.06E-01	3.46E+00
		Ba-140	* 1.16E-01	1.44E+01
		La-140	* - 2.66E+00	5.02E+00
	06/24/03	K-40	1.31E+03	6.83E+01
		Cs-134	* - 2.40E-01	2.00E+00
		Cs-137	* 2.14E+00	1.83E+00
		Ba-140	* - 5.44E+00	8.11E+00
		La-140	* - 4.52E-01	2.89E+00
	07/08/03	K-40	1.30E+03	7.65E+01
		Cs-134	* - 7.54E+00	2.15E+00
		Cs-137	* - 1.04E+00	2.51E+00
		Ba-140	* 1.24E+01	1.31E+01
		La-140	* - 1.40E+00	4.45E+00
	07/22/03	K-40	1.26E+03	8.19E+01
		Cs-134	* - 4.28E-01	1.47E+00
		Cs-137	* 1.33E+00	1.68E+00
		Ba-140	* 2.69E-01	7.08E+00
		La-140	* - 2.24E+00	1.89E+00
	08/12/03	K-40	1.47E+03	1.10E+02
		Cs-134	* - 1.72E-01	1.96E+00
		Cs-137	* - 7.22E-01	2.09E+00
		Ba-140	* - 1.63E-01	1.03E+01
		La-140	* 3.60E-01	3.28E+00
	08/26/03	K-40	1.35E+03	6.97E+01
		Cs-134	* - 1.45E+01	2.54E+00
		Cs-137	* - 2.20E-01	1.83E+00
		Ba-140	* 5.35E+00	8.52E+00
		La-140	* - 1.08E+00	3.11E+00
	09/10/03	K-40	1.39E+03	7.52E+01
		Cs-134	* - 1.25E+01	2.11E+00
		Cs-137	* 1.21E+00	1.94E+00
		Ba-140	* - 1.84E+00	8.30E+00
		La-140	* - 1.68E+00	2.64E+00

* Denotes a result less than the detection limit.

TABLE A-12.1 (cont.)

GAMMA SPECTROMETRY OF MILK

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
36	09/23/03	K-40	1.43E+03	9.35E+01
		Cs-134	* - 7.77E-01	1.91E+00
		Cs-137	* 2.69E+00	1.82E+00
		Ba-140	* - 5.50E+00	8.19E+00
		La-140	* - 1.93E-01	2.51E+00
	10/14/03	K-40	1.28E+03	9.11E+01
		Cs-134	* - 1.88E+01	3.11E+00
		Cs-137	* - 1.19E-01	2.86E+00
		Ba-140	* - 2.55E+00	1.19E+01
		La-140	* - 9.31E-01	4.21E+00
	11/11/03	K-40	1.23E+03	9.13E+01
		Cs-134	* - 1.51E+01	2.78E+00
		Cs-137	* 5.14E-01	2.62E+00
		Ba-140	* 2.09E+00	1.16E+01
		La-140	* - 5.20E-01	3.90E+00
	12/16/03	K-40	1.32E+03	8.11E+01
		Cs-134	* 6.56E-02	1.51E+00
		Cs-137	* 7.58E-02	2.18E+00
		Ba-140	* 1.48E+00	5.30E+00
		La-140	* - 4.12E-02	1.93E+00

* Denotes a result less than the detection limit.

TABLE A-12.1 (cont.)
GAMMA SPECTROMETRY OF MILK
Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
64	01/21/03	K-40	1.55E+03	1.20E+02
		Cs-134	* - 1.20E+00	3.31E+00
		Cs-137	* 9.27E-01	2.99E+00
		Ba-140	* 3.95E-01	1.43E+01
		La-140	* 1.53E+00	4.41E+00
	02/11/03	K-40	1.54E+03	8.27E+01
		Cs-134	* - 1.38E+01	2.34E+00
		Cs-137	* - 6.62E-01	2.20E+00
		Ba-140	* 8.57E+00	1.10E+01
		La-140	* - 3.58E+00	3.76E+00
	03/12/03	K-40	1.43E+03	7.72E+01
		Cs-134	* - 7.74E+00	2.20E+00
		Cs-137	* 4.02E-01	2.02E+00
		Ba-140	* 3.45E+00	8.69E+00
		La-140	* 2.28E-01	2.82E+00
	04/08/03	K-40	1.66E+03	7.93E+01
		Cs-134	* - 4.29E-01	3.38E+00
		Cs-137	* 1.42E+00	2.17E+00
		Ba-140	* - 3.68E-01	9.59E+00
		La-140	* 6.36E-01	3.17E+00
	04/21/03	K-40	(a)	
		Cs-134		
		Cs-137		
		Ba-140		
		La-140		
	05/20/03	K-40	1.44E+03	1.06E+02
		Cs-134	* - 4.99E+00	2.54E+00
		Cs-137	* 2.60E-01	3.31E+00
		Ba-140	* - 4.41E+00	1.28E+01
		La-140	* - 3.08E+00	4.63E+00
	05/27/03	K-40	(a)	
		Cs-134		
		Cs-137		
		Ba-140		
		La-140		

* Denotes a result less than the detection limit.
(a) Milk not available.

TABLE A-12.1 (cont.)

GAMMA SPECTROMETRY OF MILK

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
64	06/10/03	K-40	1.36E+03	1.14E+02
		Cs-134	* 1.64E-01	3.38E+00
		Cs-137	* - 1.78E+00	3.11E+00
		Ba-140	* 1.06E+01	1.51E+01
		La-140	* - 2.75E+00	4.18E+00
	06/24/03	K-40	(b)	
		Cs-134		
		Cs-137		
		Ba-140		
		La-140		

* Denotes a result less than the detection limit.

(b) Station 64 no longer being used.

TABLE A-12.2

GAMMA SPECTROMETRY OF MILK - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
K-40	(I)	1.39E+03	1.23E+03	1.66E+03	42	42
Cs-134	(I)	-4.12E+00	-1.88E+01	1.67E+00	42	0
Cs-137	(I)	2.47E-02	-2.51E+00	3.27E+00	42	0
Ba-140	(I)	1.14E+00	-9.76E+00	1.24E+01	42	0
La-140	(I)	-4.64E-01	-3.58E+00	5.99E+00	42	0

(I) Indicator Stations

TABLE A-13.1

I-131 IN BROADLEAF IN LIEU OF MILK

Results in pCi/kg (wet)

LOCATION	COLLECTION DATE	RESULT	OVERALL UNCERTAINTY
9G	01/21/03	* - 3.76E-01	4.85E+00
Control	02/11/03	* 6.34E+00	6.17E+00
	03/12/03	* - 1.93E+00	3.13E+00
	04/08/03	* 6.46E+00	2.17E+01
	05/20/03	* 1.30E+01	1.99E+01
	06/24/03	* 2.69E+00	3.80E+00
	07/08/03	* 3.14E+00	1.24E+01
	08/12/03	* 4.24E+01	2.93E+01
	09/10/03	* 1.00E+01	6.87E+00
	10/14/03	* - 2.48E+00	4.46E+00
	11/11/03	* 3.57E+00	2.81E+00
	12/16/03	* 2.41E+00	6.49E+00

* Denotes a result less than the detection limit.

TABLE A-13.2

I-131 IN BROADLEAF IN LIEU OF MILK - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
I-131	(C)	7.10E+00	-2.48E+00	4.24E+01	12	0

(C) Control Stations

Table A-14.1

GAMMA SPECTROMETRY OF BROADLEAF IN LIEU OF MILK

Results in pCi/kilogram (wet)

Location	Collection Date	Nuclide	Result	Overall Uncertainty
9G	01/21/03	Be-7	* 3.40E+01	4.91E+01
Control		K-40	4.05E+03	2.20E+02
Cornchop Meeker		Cs-134	* - 2.16E+01	5.70E+00
		Cs-137	* 2.92E+00	5.25E+00
		Ba-140	* - 2.15E+01	4.09E+01
		La-140	* - 1.73E+01	1.25E+01
		Th-228	* 4.57E+01	1.23E+02
9G	02/11/03	Be-7	* - 3.20E+00	5.02E+01
Control		K-40	5.14E+03	2.69E+02
Cornchop Meeker		Cs-134	* - 4.27E+00	6.38E+00
		Cs-137	* - 7.46E+00	7.89E+00
		Ba-140	* 1.60E+00	2.98E+01
		La-140	* - 4.94E+00	8.79E+00
		Th-228	* - 2.26E+02	1.31E+02
9G	03/12/03	Be-7	* - 2.99E+01	6.19E+01
Control		K-40	4.00E+03	2.99E+02
Cornchop Meeker		Cs-134	* 1.46E+00	8.44E+00
		Cs-137	* - 4.49E+00	8.17E+00
		Ba-140	* 1.39E+01	3.18E+01
		La-140	* 1.99E+00	1.05E+01
		Th-228	* - 7.04E+01	1.65E+02
9G	04/08/03	Be-7	* 3.69E+01	3.54E+01
Control		K-40	4.75E+03	1.91E+02
Cornchop Meeker		Cs-134	* - 3.64E+01	5.23E+00
		Cs-137	* - 1.91E-01	4.91E+00
		Ba-140	* 6.46E+00	2.06E+01
		La-140	* - 1.13E+01	6.37E+00
		Th-228	* - 1.63E+02	9.55E+01
9G	05/20/03	Be-7	1.64E+02	7.58E+01
Control		K-40	6.93E+03	3.03E+02
Grass Meeker		Cs-134	* - 2.78E+01	7.24E+00
		Cs-137	* 2.20E+00	7.33E+00
		Ba-140	* - 9.76E+00	3.71E+01
		La-140	* 7.78E+00	1.15E+01
		Th-228	* - 6.04E+01	1.68E+02

* Denotes a result less than the detection limit.

Table A-14.1 (cont.)

GAMMA SPECTROMETRY OF BROADLEAF IN LIEU OF MILK

Results in pCi/kilogram (wet)

Location	Collection Date	Nuclide	Result	Overall Uncertainty
9G	06/24/03	Be-7	* 4.34E+01	1.09E+02
Control		K-40	7.93E+03	5.01E+02
Grass Meeker		Cs-134	* - 6.25E-02	1.31E+01
		Cs-137	* - 2.82E+00	1.37E+01
		Ba-140	* - 1.25E+01	5.72E+01
		La-140	* - 1.65E+01	1.76E+01
		Th-228	* 5.44E+02	2.46E+02
9G	07/08/03	Be-7	* 4.23E+01	7.97E+01
Control		K-40	5.97E+03	3.44E+02
Grass Meeker		Cs-134	* - 1.00E+01	1.00E+01
		Cs-137	* - 4.75E+00	9.34E+00
		Ba-140	* 2.19E+00	6.12E+01
		La-140	* - 1.93E-01	1.90E+01
		Th-228	* 2.43E+02	1.71E+02
9G	08/12/03	Be-7	2.52E+02	1.44E+02
Control		K-40	4.94E+03	4.10E+02
Grass Meeker		Cs-134	* - 2.16E+01	1.20E+01
		Cs-137	* - 4.50E+00	1.08E+01
		Ba-140	* 4.29E+01	5.13E+01
		La-140	* - 5.86E+00	1.51E+01
		Th-228	* 3.78E+01	2.16E+02
9G	09/10/03	Be-7	4.02E+02	1.32E+02
Control		K-40	4.14E+03	4.63E+02
Grass Meeker		Cs-134	* - 6.14E-01	1.07E+01
		Cs-137	* 2.40E+00	1.06E+01
		Ba-140	* 7.29E+00	4.15E+01
		La-140	* - 4.99E+00	1.14E+01
		Th-228	* - 2.57E+02	1.75E+02
9G	10/14/03	Be-7	4.82E+02	1.12E+02
Control		K-40	1.55E+04	3.54E+02
Cornchop Meeker		Cs-134	* - 5.36E+00	7.44E+00
		Cs-137	* 1.78E+00	7.24E+00
		Ba-140	* - 5.59E+00	3.69E+01
		La-140	* - 2.56E+00	9.50E+00
		Th-228	* 2.00E+02	2.11E+02

* Denotes a result less than the detection limit.

Table A-14.1 (cont.)

GAMMA SPECTROMETRY OF BROADLEAF IN LIEU OF MILK

Results in pCi/kilogram (wet)

Location	Collection Date	Nuclide	Result	Overall Uncertainty
9G	11/11/03	Be-7	1.15E+02	2.90E+01
Control		K-40	6.13E+03	1.05E+02
Cornchop Meeker		Cs-134	* - 2.86E+01	2.24E+00
		Cs-137	* 1.19E+00	3.57E+00
		Ba-140	* - 1.50E+01	1.65E+01
		La-140	* - 2.84E+00	4.89E+00
		Th-228	* - 7.70E+01	6.41E+01
9G	12/16/03	Be-7	1.74E+02	1.14E+02
Control		K-40	4.36E+03	3.91E+02
Cornchop Meeker		Cs-134	* - 6.58E-01	6.31E+00
		Cs-137	* 3.27E+00	6.38E+00
		Ba-140	* - 2.57E+00	2.04E+01
		La-140	* 2.24E+00	4.20E+00
		Th-228	* 2.62E+01	1.15E+02

* Denotes a result less than the detection limit.

TABLE A-14.2

GAMMA SPECTROMETRY OF BROADLEAF IN LIEU OF MILK - SUMMARY

Results in pCi/kilogram (wet)

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
Be-7	(C)	1.43E+02	-2.99E+01	4.82E+02	12	6
K-40	(C)	6.15E+03	4.00E+03	1.55E+04	12	12
Cs-134	(C)	-1.30E+01	-3.64E+01	1.46E+00	12	0
Cs-137	(C)	-8.71E-01	-7.46E+00	3.27E+00	12	0
Ba-140	(C)	6.18E-01	-2.15E+01	4.29E+01	12	0
La-140	(C)	-4.54E+00	-1.73E+01	7.78E+00	12	0
Th-228	(C)	2.02E+01	-2.57E+02	5.44E+02	12	0

(C) Control Stations

TABLE A-15.1

GAMMA SPECTROMETRY OF ROOTS

Results in pCi/kilogram (wet)

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
9C Control Onions	06/24/03	Cs-134	* 4.60E-01	3.27E+00
		Cs-137	* 1.58E+00	3.50E+00
		I-131	* - 4.63E+00	7.22E+00
37 Onions	06/24/03	Cs-134	* - 1.42E+01	4.00E+00
		Cs-137	* - 3.21E+00	4.90E+00
		I-131	* 8.70E-01	6.66E+00
9C Control Onions	07/22/03	Cs-134	* 6.11E-01	1.59E+00
		Cs-137	* - 2.06E-01	2.31E+00
		I-131	* - 6.89E+00	1.57E+01
37 Onions	07/22/03	Cs-134	* - 2.76E+01	1.18E+01
		Cs-137	* 1.69E+00	1.08E+01
		I-131	* - 1.12E+01	2.23E+01
9C Control Potatoes	08/26/03	Cs-134	* - 1.98E+01	3.93E+00
		Cs-137	* 2.68E+00	3.75E+00
		I-131	* - 1.42E+00	7.14E+00
37 Potatoes	08/26/03	Cs-134	* - 1.82E+01	3.27E+00
		Cs-137	* - 1.59E+00	3.60E+00
		I-131	* 8.04E-01	5.33E+00
9C Control Potatoes	09/23/03	Cs-134	* 9.60E-01	3.10E+00
		Cs-137	* 8.45E-01	3.04E+00
		I-131	* - 6.65E-01	6.05E+00
37 Potatoes	09/23/03	Cs-134	* - 1.01E+01	3.27E+00
		Cs-137	* 9.89E-01	3.31E+00
		I-131	* - 1.37E+00	6.33E+00

* Denotes a result less than the detection limit.

TABLE A-15.2

GAMMA SPECTROMETRY OF ROOTS - SUMMARY

Results in pCi/kilogram (wet)

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
Cs-134	(I)	-1.75E+01	-2.76E+01	-1.01E+01	4	0
Cs-134	(C)	-4.44E+00	-1.98E+01	9.60E-01	4	0
Cs-137	(I)	-5.30E-01	-3.21E+00	1.69E+00	4	0
Cs-137	(C)	1.22E+00	-2.06E-01	2.68E+00	4	0
I-131	(I)	-2.72E+00	-1.12E+01	8.70E-01	4	0
I-131	(C)	-3.40E+00	-6.89E+00	-6.65E-01	4	0

(I) Indicator Station

(C) Control Station

TABLE A-16.1

GAMMA SPECTROMETRY OF FRUIT

Results in pCi/kilogram (wet)

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
9C	06/24/03	Cs-134	* - 1.99E+01	3.96E+00
Control		Cs-137	* - 5.88E-01	3.70E+00
Cherries		I-131	* 3.78E-01	7.35E+00
37	06/24/03	Cs-134	* - 1.20E+01	2.32E+00
Cherries		Cs-137	* - 1.95E-01	2.23E+00
		I-131	* 7.89E-01	3.60E+00
9C	07/22/03	Cs-134	* - 3.34E-01	5.91E+00
Control		Cs-137	* 2.81E+00	5.72E+00
Peaches		I-131	* 2.34E-01	1.27E+01
37	07/22/03	Cs-134	* - 5.20E+00	6.29E+00
Peaches		Cs-137	* 5.93E+00	6.35E+00
		I-131	* - 9.58E+00	1.25E+01
9C	08/26/03	Cs-134	* - 9.56E+00	2.91E+00
Control		Cs-137	* 2.90E+00	3.08E+00
Pears		I-131	* - 4.87E-01	5.02E+00
37	08/26/03	Cs-134	* 1.81E+00	2.67E+00
Pears		Cs-137	* 3.73E-01	2.82E+00
		I-131	* - 3.50E-01	4.93E+00
9C	09/23/03	Cs-134	* - 5.12E-01	4.05E+00
Control		Cs-137	* - 1.81E+00	3.96E+00
Apples		I-131	* - 8.00E-01	7.64E+00
37	09/23/03	Cs-134	* 3.61E-01	1.86E+00
Apples		Cs-137	* - 2.19E+00	2.78E+00
		I-131	* 4.83E-01	3.75E+00
92	09/30/03	Cs-134	* - 1.65E+00	4.10E+00
Apples		Cs-137	* 1.86E+00	3.68E+00
		I-131	* 9.49E+00	1.36E+01

* Denotes a result less than the detection limit.

TABLE A-16.2

GAMMA SPECTROMETRY OF FRUIT - SUMMARY

Results in pCi/kilogram (wet)

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
Cs-134	(I)	-3.34E+00	-1.20E+01	1.81E+00	5	0
Cs-134	(C)	-7.58E+00	-1.99E+01	-3.34E-01	4	0
Cs-137	(I)	1.16E+00	-2.19E+00	5.93E+00	5	0
Cs-137	(C)	8.28E-01	-1.81E+00	2.90E+00	4	0
I-131	(I)	1.66E-01	-9.58E+00	9.49E+00	5	0
I-131	(C)	-1.69E-01	-8.00E-01	3.78E-01	4	0

(I) Indicator Station

(C) Control Station

TABLE A-17.1

GAMMA SPECTROMETRY OF VEGETABLES

Results in pCi/kilogram (wet)

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
9C	04/21/03	Cs-134	* - 1.72E+01	4.26E+00
Control		Cs-137	* 5.44E+00	4.29E+00
Asparagus		I-131	* - 5.58E+00	7.19E+00
37	04/21/03	Cs-134	* 1.18E+00	9.34E+00
Asparagus		Cs-137	* - 7.43E+00	8.49E+00
		I-131	* - 1.43E+01	1.63E+01
9C	05/20/03	Cs-134	* - 2.00E+00	4.38E+00
Control		Cs-137	* 3.88E+00	4.53E+00
Asparagus		I-131	* 1.05E+00	8.81E+00
37	05/20/03	Cs-134	* - 1.01E+00	6.31E+00
Asparagus		Cs-137	* - 1.54E-01	6.07E+00
		I-131	* 2.89E+00	1.30E+01
9C	06/24/03	Cs-134	* 3.00E+00	5.35E+00
Control		Cs-137	* - 5.29E-01	5.07E+00
Cabbage		I-131	* 1.71E-01	9.24E+00
37	06/24/03	Cs-134	* - 3.29E+01	7.70E+00
Cabbage		Cs-137	* 1.02E+00	7.05E+00
		I-131	* 1.51E+00	1.24E+01
9C	07/22/03	Cs-134	* 4.62E+00	8.49E+00
Control		Cs-137	* - 1.34E+00	1.01E+01
Greenbeans		I-131	* - 1.52E+01	1.72E+01
37	07/22/03	Cs-134	* - 3.07E+01	7.85E+00
Greenbeans		Cs-137	* 2.46E+00	7.85E+00
		I-131	* 8.10E+00	1.51E+01
9C	08/26/03	Cs-134	* - 2.60E+00	2.86E+00
Control		Cs-137	* 3.02E+00	2.86E+00
Cucumbers		I-131	* 5.97E-01	5.46E+00
37	08/26/03	Cs-134	* 4.70E-01	5.07E+00
Cabbage		Cs-137	* - 8.60E+00	5.99E+00
		I-131	* - 5.61E+00	9.89E+00

* Denotes a result less than the detection limit.

TABLE A-17.1

GAMMA SPECTROMETRY OF VEGETABLES

Results in pCi/kilogram (wet)

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
9C	04/21/03	Cs-134	* - 1.72E+01	4.26E+00
Control		Cs-137	* 5.44E+00	4.29E+00
Asparagus		I-131	* - 5.58E+00	7.19E+00
37	04/21/03	Cs-134	* 1.18E+00	9.34E+00
Asparagus		Cs-137	* - 7.43E+00	8.49E+00
		I-131	* - 1.43E+01	1.63E+01
9C	05/20/03	Cs-134	* - 2.00E+00	4.38E+00
Control		Cs-137	* 3.88E+00	4.53E+00
Asparagus		I-131	* 1.05E+00	8.81E+00
37	05/20/03	Cs-134	* - 1.01E+00	6.31E+00
Asparagus		Cs-137	* - 1.54E-01	6.07E+00
		I-131	* 2.89E+00	1.30E+01
9C	06/24/03	Cs-134	* 3.00E+00	5.35E+00
Control		Cs-137	* - 5.29E-01	5.07E+00
Cabbage		I-131	* 1.71E-01	9.24E+00
37	06/24/03	Cs-134	* - 3.29E+01	7.70E+00
Cabbage		Cs-137	* 1.02E+00	7.05E+00
		I-131	* 1.51E+00	1.24E+01
9C	07/22/03	Cs-134	* 4.62E+00	8.49E+00
Control		Cs-137	* - 1.34E+00	1.01E+01
Greenbeans		I-131	* - 1.52E+01	1.72E+01
37	07/22/03	Cs-134	* - 3.07E+01	7.85E+00
Greenbeans		Cs-137	* 2.46E+00	7.85E+00
		I-131	* 8.10E+00	1.51E+01
9C	08/26/03	Cs-134	* - 2.60E+00	2.86E+00
Control		Cs-137	* 3.02E+00	2.86E+00
Cucumbers		I-131	* 5.97E-01	5.46E+00
37	08/26/03	Cs-134	* 4.70E-01	5.07E+00
Cabbage		Cs-137	* - 8.60E+00	5.99E+00
		I-131	* - 5.61E+00	9.89E+00

* Denotes a result less than the detection limit.

TABLE A-17.1 (Cont.)

GAMMA SPECTROMETRY OF VEGETABLES

Results in pCi/kilogram (wet)

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
9C	09/23/03	Cs-134	* - 1.24E+00	2.89E+00
Control		Cs-137	* - 6.28E-01	3.53E+00
Bell peppers		I-131	* 1.35E+00	5.30E+00
37	09/23/03	Cs-134	* 2.40E-01	4.18E+00
Bell peppers		Cs-137	* 2.48E+00	3.91E+00
		I-131	* - 4.52E-01	1.26E+01

* Denotes a result less than the detection limit.

TABLE A-17.2

GAMMA SPECTROMETRY OF VEGETABLES - SUMMARY

Results in pCi/kilogram (wet)

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
Cs-134	(I)	-1.05E+01	-3.29E+01	1.18E+00	6	0
Cs-134	(C)	-2.57E+00	-1.72E+01	4.62E+00	6	0
Cs-137	(I)	-1.70E+00	-8.60E+00	2.48E+00	6	0
Cs-137	(C)	1.64E+00	-1.34E+00	5.44E+00	6	0
I-131	(I)	-1.31E+00	-1.43E+01	8.10E+00	6	0
I-131	(C)	-2.94E+00	-1.52E+01	1.35E+00	6	0

(I) Indicator Station

(C) Control Station

ENERGY NORTHWEST – 2003

SPECIAL INTEREST TABLES

TABLE B-2.1

GAMMA SPECTROMETRY OF STORM DRAIN WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
101	01/02/03 - 02/04/03	Be-7	* 7.18E+00	1.15E+01
		K-40	* - 2.99E+01	2.64E+01
		Mn-54	* 3.79E-01	1.23E+00
		Co-58	* 4.88E-01	1.23E+00
		Fe-59	* 4.62E-01	2.74E+00
		Co-60	* - 5.27E-02	1.19E+00
		Zn-65	* - 5.43E+00	2.87E+00
		Nb-95	* 6.74E-01	1.23E+00
		Zr-95	* 5.71E-01	2.20E+00
		Cs-134	* - 4.40E+00	1.33E+00
		Cs-137	* 7.84E-02	1.75E+00
		Ba-140	* 5.12E+00	6.36E+00
		La-140	* - 1.60E+00	2.22E+00
		Ra-226	* 5.64E+00	3.80E+01
		Th-228	* 1.04E+01	2.86E+01
	02/04/03 - 03/04/03	Be-7	* - 3.23E+00	1.27E+01
		K-40	* 2.34E+01	5.15E+01
		Mn-54	* 1.99E+00	1.72E+00
		Co-58	* 5.83E-01	1.46E+00
		Fe-59	* - 6.94E-01	7.70E+00
		Co-60	* 3.82E+00	2.74E+00
		Zn-65	* - 1.28E+00	7.60E+00
		Nb-95	* - 1.13E-01	1.59E+00
		Zr-95	* - 5.56E-01	2.50E+00
		Cs-134	* 2.86E-02	1.34E+00
		Cs-137	* - 1.45E+00	2.18E+00
		Ba-140	* 7.52E-01	7.07E+00
		La-140	* 1.54E-01	2.37E+00
		Ra-226	* 8.21E+00	6.38E+01
		Th-228	* - 1.64E+02	3.85E+01

* Denotes a result less than the detection limit.

TABLE B-2.1 (Cont.)

GAMMA SPECTROMETRY OF STORM DRAIN WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
101	03/04/03 - 04/02/03	Be-7	* - 5.26E+00	1.56E+01
		K-40	* - 5.59E+01	3.79E+01
		Mn-54	* - 2.18E-01	1.78E+00
		Co-58	* 3.58E-02	1.71E+00
		Fe-59	* 1.75E+00	3.61E+00
		Co-60	* - 1.58E+00	1.77E+00
		Zn-65	* 2.14E+00	4.24E+00
		Nb-95	* 4.50E-01	1.81E+00
		Zr-95	* - 2.68E+00	2.94E+00
		Cs-134	* 1.45E-01	1.93E+00
		Cs-137	* - 8.45E-02	1.71E+00
		Ba-140	* 1.60E+00	8.96E+00
		La-140	* - 8.23E-01	3.04E+00
		Ra-226	* 1.71E+01	7.96E+01
		Th-228	* 3.43E+01	3.86E+01
	04/02/03 - 05/07/03	Be-7	* 7.50E+00	1.92E+01
		K-40	* 1.33E+01	4.45E+01
		Mn-54	* 1.17E+00	2.21E+00
		Co-58	* - 1.95E-02	2.24E+00
		Fe-59	* - 2.49E+00	4.66E+00
		Co-60	* - 2.79E+00	2.29E+00
		Zn-65	* - 9.85E+00	5.48E+00
		Nb-95	* 1.64E+00	2.25E+00
		Zr-95	* - 3.70E+00	3.79E+00
		Cs-134	* - 2.27E+00	2.52E+00
		Cs-137	* 1.33E-01	2.30E+00
		Ba-140	* 4.81E+00	1.06E+01
		La-140	* 1.75E+00	3.64E+00
		Ra-226	* 1.04E+01	6.20E+01
		Th-228	* - 5.74E+01	4.85E+01

* Denotes a result less than the detection limit.

TABLE B-2.1 (Cont.)

GAMMA SPECTROMETRY OF STORM DRAIN WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
101	05/07/03 - 06/02/03	Be-7	* - 1.68E+00	1.93E+01
		K-40	* - 3.92E+01	4.32E+01
		Mn-54	* - 9.56E-02	2.31E+00
		Co-58	* - 1.01E+00	2.35E+00
		Fe-59	* - 4.85E-01	5.06E+00
		Co-60	* 1.01E+00	2.54E+00
		Zn-65	* 3.14E+00	5.63E+00
		Nb-95	* 4.49E+00	2.99E+00
		Zr-95	* - 5.25E-01	4.13E+00
		Cs-134	* 6.91E-01	2.62E+00
		Cs-137	* 4.61E-01	2.42E+00
		Ba-140	* 9.81E+00	1.13E+01
		La-140	* - 2.37E-01	4.40E+00
		Ra-226	* - 2.44E+01	6.11E+01
		Th-228	* 3.78E+01	6.91E+01
	06/02/03 - 07/01/03	Be-7	* 5.64E+00	8.27E+00
		K-40	* - 6.28E+01	3.31E+01
		Mn-54	* 6.43E-01	1.01E+00
		Co-58	* - 4.19E-01	1.02E+00
		Fe-59	* - 8.62E-01	1.96E+00
		Co-60	* 5.00E-01	8.79E-01
		Zn-65	* - 8.19E-02	1.81E+00
		Nb-95	* 7.52E-01	1.05E+00
		Zr-95	* - 1.24E+00	1.83E+00
		Cs-134	* - 5.66E-01	8.93E-01
		Cs-137	* 6.90E-01	9.93E-01
		Ba-140	* 1.30E+00	5.37E+00
		La-140	* - 6.29E-01	1.71E+00
		Ra-226	* 2.34E+01	5.10E+01
		Th-228	* - 5.00E+01	1.80E+01

* Denotes a result less than the detection limit.

TABLE B-2.1 (Cont.)

GAMMA SPECTROMETRY OF STORM DRAIN WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
101	07/01/03 - 08/05/03	Be-7	* 3.01E+00	1.39E+01
		K-40	* - 2.68E+01	3.68E+01
		Mn-54	* - 1.38E-01	1.65E+00
		Co-58	* - 5.57E-01	1.53E+00
		Fe-59	* 1.97E+00	3.27E+00
		Co-60	* 1.89E-01	1.61E+00
		Zn-65	* 2.48E+00	4.15E+00
		Nb-95	* 9.39E-01	1.72E+00
		Zr-95	* 7.08E-01	2.73E+00
		Cs-134	* 2.75E-01	1.81E+00
		Cs-137	* - 5.16E-01	1.67E+00
		Ba-140	* 9.97E+00	7.06E+00
		La-140	* - 2.40E+00	2.12E+00
		Ra-226	* - 1.88E+01	5.20E+01
		Th-228	* 2.31E+01	3.93E+01
	08/05/03 - 09/03/03	Be-7	* 3.00E+00	1.90E+01
		K-40	* - 5.54E-01	4.57E+01
		Mn-54	* 2.21E-01	2.40E+00
		Co-58	* 2.98E-01	2.32E+00
		Fe-59	* - 4.20E-01	4.84E+00
		Co-60	* - 1.61E+00	2.54E+00
		Zn-65	* - 1.10E+01	5.70E+00
		Nb-95	* 1.79E+00	2.49E+00
		Zr-95	* - 1.32E+00	4.10E+00
		Cs-134	* - 1.12E+01	2.67E+00
		Cs-137	* 5.50E-01	2.54E+00
		Ba-140	* 1.23E+01	1.03E+01
		La-140	* - 1.09E+00	3.70E+00
		Ra-226	* - 3.22E+01	5.74E+01
		Th-228	* 4.86E+01	4.35E+01

* Denotes a result less than the detection limit.

TABLE B-2.1 (Cont.)

GAMMA SPECTROMETRY OF STORM DRAIN WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
101	09/03/03 - 10/01/03	Be-7	* - 3.60E+00	1.38E+01
		K-40	* - 5.47E+01	4.38E+01
		Mn-54	* 8.47E-01	1.71E+00
		Co-58	* - 8.82E-01	1.66E+00
		Fe-59	* - 5.09E-01	8.77E+00
		Co-60	* 4.17E+00	3.84E+00
		Zn-65	* - 3.03E+00	9.06E+00
		Nb-95	* 2.77E-02	1.70E+00
		Zr-95	* 1.91E+00	2.87E+00
		Cs-134	* - 2.33E-01	1.75E+00
		Cs-137	* 6.54E-02	2.16E+00
		Ba-140	* 3.01E+00	7.91E+00
		La-140	* - 1.41E+00	2.76E+00
		Ra-226	* 4.13E+01	7.76E+01
		Th-228	* - 5.67E+01	3.95E+01
	10/01/03 - 11/06/03	Be-7	* 1.18E+01	1.92E+01
		K-40	* - 2.31E+01	5.26E+01
		Mn-54	* 1.28E-01	2.29E+00
		Co-58	* - 7.80E-01	2.30E+00
		Fe-59	* 1.12E+00	4.72E+00
		Co-60	* 1.69E+00	2.39E+00
		Zn-65	* - 1.43E+01	5.36E+00
		Nb-95	* 1.03E-01	2.45E+00
		Zr-95	* - 3.78E-01	4.12E+00
		Cs-134	* - 1.31E+00	2.46E+00
		Cs-137	* 4.41E+00	2.52E+00
		Ba-140	* 2.31E+00	1.02E+01
		La-140	* 6.00E-01	3.65E+00
		Ra-226	* 2.80E+01	6.42E+01
		Th-228	* 5.19E+01	4.50E+01

* Denotes a result less than the detection limit.

TABLE B-2.1 (Cont.)

GAMMA SPECTROMETRY OF STORM DRAIN WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
101	11/06/03 - 12/03/03	Be-7	* 3.77E+00	1.99E+01
		K-40	* - 2.63E+01	5.33E+01
		Mn-54	* 7.18E-01	2.78E+00
		Co-58	* - 2.70E-01	2.81E+00
		Fe-59	* - 1.48E+00	5.07E+00
		Co-60	* 3.41E-01	2.60E+00
		Zn-65	* - 1.02E+01	6.00E+00
		Nb-95	* 1.89E+00	2.48E+00
		Zr-95	* 1.09E+00	4.25E+00
		Cs-134	* 9.20E-01	2.68E+00
		Cs-137	* - 5.39E-01	2.55E+00
		Ba-140	* 3.13E+00	1.09E+01
		La-140	* 7.17E-01	3.67E+00
		Ra-226	* - 2.88E+01	6.43E+01
		Th-228	* 5.34E+01	4.77E+01
	12/03/03 - 01/07/04	Be-7	* 2.16E+01	2.66E+01
		K-40	* - 5.65E+01	6.25E+01
		Mn-54	* - 1.61E+00	2.95E+00
		Co-58	* - 4.85E-01	3.16E+00
		Fe-59	* 8.81E-01	5.49E+00
		Co-60	* 3.26E-03	3.71E+00
		Zn-65	* - 1.34E+00	6.88E+00
		Nb-95	* 1.06E-01	3.35E+00
		Zr-95	* 2.02E+00	5.27E+00
		Cs-134	* - 2.05E+00	2.96E+00
		Cs-137	* - 2.07E+00	2.89E+00
		Ba-140	* 2.75E+00	1.64E+01
		La-140	* 8.25E-01	4.69E+00
		Ra-226	* 2.14E+01	1.49E+02
		Th-228	* 3.99E+01	5.60E+01

* Denotes a result less than the detection limit.

TABLE B-2.2

GAMMA SPECTROMETRY OF STORM DRAIN WATER - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
		Station 101 - Outfall				
Be-7	(I)	4.14E+00	-5.26E+00	2.16E+01	12	0
K-40	(I)	-2.83E+01	-6.28E+01	2.34E+01	12	0
Mn-54	(I)	3.36E-01	-1.61E+00	1.99E+00	12	0
Co-58	(I)	-2.51E-01	-1.01E+00	5.83E-01	12	0
Fe-59	(I)	-6.31E-02	-2.49E+00	1.97E+00	12	0
Co-60	(I)	4.74E-01	-2.79E+00	4.17E+00	12	0
Zn-65	(I)	-4.06E+00	-1.43E+01	3.14E+00	12	0
Nb-95	(I)	1.06E+00	-1.13E-01	4.49E+00	12	0
Zr-95	(I)	-3.42E-01	-3.70E+00	2.02E+00	12	0
Cs-134	(I)	-1.66E+00	-1.12E+01	9.20E-01	12	0
Cs-137	(I)	1.44E-01	-2.07E+00	4.41E+00	12	0
Ba-140	(I)	4.74E+00	7.52E-01	1.23E+01	12	0
LA-140	(I)	-3.45E-01	-2.40E+00	1.75E+00	12	0
Ra-226	(I)	4.27E+00	-3.22E+01	4.13E+01	12	0
Th-228	(I)	-2.39E+00	-1.64E+02	5.34E+01	12	0

(I) Indicator Station

TABLE B-3.1

GROSS BETA IN STORM DRAIN WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD		RESULT	OVERALL UNCERTAINTY
101	01/02/03 - 02/04/03		4.92E+00	2.15E+00
	02/04/03 - 03/04/03	*	2.65E+00	1.92E+00
	03/04/03 - 04/02/03	*	1.95E+00	1.90E+00
	04/02/03 - 05/07/03		3.28E+00	2.04E+00
	05/07/03 - 06/02/03		1.01E+01	2.69E+00
	06/02/03 - 07/01/03		4.68E+00	2.05E+00
	07/01/03 - 08/05/03		2.32E+00	1.40E+00
	08/05/03 - 09/03/03	*	0.00E+00	1.25E+00
	09/03/03 - 10/01/03		3.65E+00	1.77E+00
	10/01/03 - 11/06/03		2.30E+00	1.25E+00
	11/06/03 - 12/03/03	*	7.46E-01	1.82E+00
	12/03/03 - 01/07/04		4.16E+00	1.87E+00

* Denotes a result less than the detection limit.

TABLE B-3.2

GROSS BETA IN STORM DRAIN WATER - SUMMARY

Results in pCi/liter

NUCLIDE	AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
Station 101- Outfall					
Gross Beta (I)	3.40E+00	0.00E+00	1.01E+01	12	8

(I) Indicator Station

TABLE B-4.1

TRITIUM IN STORM DRAIN WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
101	01/02/03 - 02/04/03	1.23E+04	3.34E+02
	02/04/03 - 03/04/03	7.76E+03	2.75E+02
	03/04/03 - 04/02/03	8.06E+02	1.34E+02
	04/02/03 - 05/07/03	1.50E+03	1.59E+02
	05/07/03 - 06/02/03	5.22E+02	1.38E+02
	06/02/03 - 07/01/03	2.41E+02	1.22E+02
	07/01/03 - 08/05/03	3.99E+02	1.28E+02
	08/05/03 - 09/03/03	2.28E+02	1.38E+02
	09/03/03 - 10/01/03	3.13E+03	1.62E+02
	10/01/03 - 11/06/03	2.53E+02	1.25E+02
	11/06/03 - 12/03/03	7.96E+03	2.79E+02
	12/03/03 - 01/07/04	3.35E+03	2.11E+02

* Denotes a result less than the detection limit.

TABLE B-4.2

TRITIUM IN STORM DRAIN WATER - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLE	NUMBER POSITIVE
			Station 101 - Outfall			
H-3	(I)	3.20E+03	2.28E+02	1.23E+04	12	12

(I) Indicator Station

TABLE B-5.1

GROSS ALPHA IN SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
102A	01/02/03 - 02/04/03	* 0.00E+00	2.33E+00
	02/04/03 - 03/04/03	* - 5.10E-01	2.70E+00
	03/04/03 - 04/01/03	* 2.85E+00	2.85E+00
	04/01/03 - 05/05/03	* - 3.91E+00	5.19E+00
	05/06/03 - 06/03/03	* - 1.12E+00	1.29E+00
	06/03/03 - 06/30/03	* - 1.30E+00	2.25E+00
	06/30/03 - 08/05/03	* 7.47E-01	1.49E+00
	08/05/03 - 09/03/03	* 3.53E+00	3.74E+00
	09/03/03 - 10/01/03	* 3.55E-01	1.23E+00
	10/01/81 - 11/04/03	* 2.53E+00	3.15E+00
	11/04/03 - 12/02/03	* 3.72E+00	3.79E+00
	12/02/03 - 01/06/04	* - 3.70E-01	2.67E+00
102B	01/02/03 - 02/04/03	* 0.00E+00	2.37E+00
	02/04/03 - 03/04/03	* 3.49E+00	3.55E+00
	03/04/03 - 04/01/03	5.41E+00	4.17E+00
	04/01/03 - 05/05/03	* 3.40E-01	1.80E+00
	05/06/03 - 06/03/03	* 7.29E-01	2.73E+00
	06/03/03 - 06/30/03	* 1.63E+00	1.99E+00
	06/30/03 - 08/05/03	* 1.82E+00	1.87E+00
	08/05/03 - 09/03/03	* - 6.18E-01	1.75E+00
	09/03/03 - 10/01/03	* 2.89E-01	1.00E+00
	10/01/81 - 11/04/03	* 2.47E+00	3.08E+00
	11/04/03 - 12/02/03	* 2.46E+00	3.07E+00
	12/02/03 - 01/06/04	* 7.40E-01	2.96E+00

* Denotes a result less than the detection limit.

TABLE B-5.2

GROSS ALPHA IN SANITARY WASTE TREATMENT WATER - SUMMARY

Results in pCi/liter

NUCLIDE	AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
		102A			
Gross Alpha (I)	5.44E-01	-3.91E+00	3.72E+00	12	0
		102B			
Gross Alpha (I)	1.56E+00	-6.18E-01	5.41E+00	12	1

(I) Indicator Stations

TABLE B-6.1

GROSS BETA IN SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
102A	01/02/03 - 02/04/03	3.56E+01	4.27E+00
	02/04/03 - 03/04/03	3.92E+01	4.73E+00
	03/04/03 - 04/01/03	4.37E+01	4.61E+00
	04/01/03 - 05/05/03	3.53E+01	5.92E+00
	05/06/03 - 06/03/03	2.84E+01	4.03E+00
	06/03/03 - 06/30/03	2.38E+01	3.70E+00
	06/30/03 - 08/05/03	2.27E+01	2.66E+00
	08/05/03 - 09/03/03	3.73E+01	4.70E+00
	09/03/03 - 10/01/03	3.17E+01	4.21E+00
	10/01/81 - 11/04/03	2.75E+01	3.65E+00
	11/04/03 - 12/02/03	3.50E+01	4.42E+00
	12/02/03 - 01/06/04	2.74E+01	3.81E+00
102B	01/02/03 - 02/04/03	2.83E+01	3.83E+00
	02/04/03 - 03/04/03	2.94E+01	4.10E+00
	03/04/03 - 04/01/03	3.95E+01	4.47E+00
	04/01/03 - 05/05/03	3.24E+01	3.98E+00
	05/06/03 - 06/03/03	3.92E+01	4.53E+00
	06/03/03 - 06/30/03	3.07E+01	4.05E+00
	06/30/03 - 08/05/03	2.91E+01	2.98E+00
	08/05/03 - 09/03/03	2.86E+01	3.99E+00
	09/03/03 - 10/01/03	2.46E+01	3.66E+00
	10/01/81 - 11/04/03	2.52E+01	3.51E+00
	11/04/03 - 12/02/03	2.74E+01	3.88E+00
	12/02/03 - 01/06/04	2.80E+01	3.84E+00

* Denotes a result less than the detection limit.

TABLE B-6.2

GROSS BETA IN SANITARY WASTE TREATMENT WATER - SUMMARY

Results In pCi/liter

NUCLIDE	AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
		102 A			
Gross Beta (I)	3.23E+01	2.27E+01	4.37E+01	12	12
		102 B			
Gross Beta (I)	3.02E+01	2.46E+01	3.95E+01	12	12

(I) Indicator Stations

TABLE B-7.1

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102A	01/02/03 - 02/04/03	Be-7	* - 5.10E+00	2.13E+01
		K-40	1.02E+02	4.66E+01
		Mn-54	* 1.23E+00	2.38E+00
		Co-58	* - 1.49E+00	2.42E+00
		Fe-59	* - 7.88E-01	5.68E+00
		Co-60	* 9.68E-01	2.77E+00
		Zn-65	* - 1.93E+00	5.03E+00
		Nb-95	* 2.06E-01	2.84E+00
		Zr-95	* 2.59E-01	4.53E+00
		Cs-134	* - 4.65E+00	2.75E+00
		Cs-137	* 1.14E+00	2.52E+00
		Ba-140	* 1.14E+01	1.22E+01
		La-140	* - 3.55E+00	4.81E+00
		Ra-226	* 1.07E+01	6.17E+01
		Th-228	* - 8.43E+01	5.26E+01
	02/04/03 - 03/04/03	Be-7	* - 9.24E+00	1.46E+01
		K-40	* - 2.90E+01	4.05E+01
		Mn-54	* - 2.10E-01	1.72E+00
		Co-58	* - 2.75E+00	2.18E+00
		Fe-59	* - 1.39E+00	3.34E+00
		Co-60	* - 2.28E+01	2.49E+00
		Zn-65	* - 8.76E+00	3.94E+00
		Nb-95	* 1.51E+00	1.81E+00
		Zr-95	* - 6.10E-01	2.96E+00
		Cs-134	* - 6.44E-01	1.93E+00
		Cs-137	* 1.09E+00	1.80E+00
		Ba-140	* 8.00E-01	8.92E+00
		La-140	* - 3.33E+00	2.81E+00
		Ra-226	* 6.60E+00	6.85E+01
		Th-228	* 3.54E+01	3.66E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102A	03/04/03 - 04/01/03	Be-7	* - 3.93E-01	2.03E+01
		K-40	7.68E+01	4.88E+01
		Mn-54	* - 2.35E+00	2.20E+00
		Co-58	* - 1.51E+00	2.49E+00
		Fe-59	* 1.81E+00	4.16E+00
		Co-60	* - 7.74E-01	2.62E+00
		Zn-65	* 2.31E+00	5.11E+00
		Nb-95	* - 1.19E+00	2.31E+00
		Zr-95	* 9.27E-01	4.26E+00
		Cs-134	* - 6.63E-01	2.52E+00
		Cs-137	* 5.81E-02	2.65E+00
		Ba-140	* - 1.92E+00	1.05E+01
		La-140	* - 5.74E-01	3.58E+00
		Ra-226	* 5.69E+01	6.34E+01
		Th-228	* - 3.86E+01	5.79E+01
	04/01/03 - 05/05/03	Be-7	* 1.32E+01	1.70E+01
		K-40	* - 1.33E+02	5.10E+01
		Mn-54	* 1.23E-01	1.87E+00
		Co-58	* 1.00E+00	1.73E+00
		Fe-59	* - 1.66E+00	3.58E+00
		Co-60	* 4.50E-01	2.05E+00
		Zn-65	* - 2.19E+00	4.04E+00
		Nb-95	* 1.24E+00	1.88E+00
		Zr-95	* 8.50E-02	3.23E+00
		Cs-134	* - 1.66E-01	1.85E+00
		Cs-137	* 8.39E-01	2.05E+00
		Ba-140	* 8.26E-01	7.39E+00
		La-140	* - 1.79E+00	2.61E+00
		Ra-226	* 7.28E+01	9.57E+01
		Th-228	* - 8.93E+01	4.03E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102A	05/06/03 - 06/03/03	Be-7	* 1.44E+01	1.10E+01
		K-40	* 1.29E+01	4.83E+01
		Mn-54	* - 2.35E-01	1.51E+00
		Co-58	* - 9.64E-02	1.43E+00
		Fe-59	* 1.03E+00	2.99E+00
		Co-60	* 2.32E+00	2.78E+00
		Zn-65	* - 5.96E-01	3.27E+00
		Nb-95	* 1.09E-01	1.51E+00
		Zr-95	* 5.72E-01	2.56E+00
		Cs-134	* - 2.07E-01	1.32E+00
		Cs-137	* 7.83E-01	1.58E+00
		Ba-140	* 2.87E+00	6.39E+00
		La-140	* 1.20E-01	2.43E+00
		Ra-226	* - 4.25E+01	4.30E+01
		Th-228	* 1.71E+01	4.79E+01
	06/03/03 - 06/30/03	Be-7	* 3.20E-01	6.28E+00
		K-40	* 1.68E+01	3.40E+01
		Mn-54	* 7.14E-01	8.03E-01
		Co-58	* 4.46E-01	7.93E-01
		Fe-59	* - 9.95E-01	1.72E+00
		Co-60	* - 1.78E+00	1.86E+00
		Zn-65	* 9.79E-01	1.58E+00
		Nb-95	* - 6.46E-01	9.37E-01
		Zr-95	* 1.65E-01	1.49E+00
		Cs-134	* 1.94E-01	7.19E-01
		Cs-137	* 3.62E-01	1.73E+00
		Ba-140	* 6.52E+00	4.62E+00
		La-140	* - 8.71E-01	1.58E+00
		Ra-226	* 2.52E+01	4.11E+01
		Th-228	* - 1.64E+02	2.15E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102A	06/30/03 - 08/05/03	Be-7	* 8.68E+00	1.12E+01
		K-40	* 2.61E+00	5.33E+01
		Mn-54	* - 6.37E-01	1.49E+00
		Co-58	* - 4.39E-01	1.50E+00
		Fe-59	* - 5.59E-01	2.70E+00
		Co-60	* - 4.35E-01	1.42E+00
		Zn-65	* - 1.10E+00	2.83E+00
		Nb-95	* - 2.36E-02	1.52E+00
		Zr-95	* - 1.28E+00	2.61E+00
		Cs-134	* 6.29E-01	1.36E+00
		Cs-137	* - 7.48E-01	1.53E+00
		Ba-140	* - 4.17E+00	5.96E+00
		La-140	* - 3.85E-02	1.77E+00
		Ra-226	* 3.98E+01	7.40E+01
		Th-228	* - 8.95E+01	3.59E+01
	08/05/03 - 09/03/03	Be-7	* - 1.75E+00	2.09E+01
		K-40	* 5.34E+01	5.12E+01
		Mn-54	* - 3.02E-01	2.46E+00
		Co-58	* 3.48E-01	2.70E+00
		Fe-59	* - 4.89E+00	5.21E+00
		Co-60	* 1.16E+00	2.63E+00
		Zn-65	* 7.23E+00	6.39E+00
		Nb-95	* 2.62E+00	2.67E+00
		Zr-95	* - 6.17E-01	4.35E+00
		Cs-134	* - 2.86E-01	2.88E+00
		Cs-137	* - 1.57E+00	2.66E+00
		Ba-140	* 1.07E+01	1.30E+01
		La-140	* 3.56E+00	4.49E+00
		Ra-226	* - 5.63E+01	5.94E+01
		Th-228	* - 3.87E+01	4.83E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102A	09/03/03 - 10/01/03	Be-7	* - 1.87E+00	1.80E+01
		K-40	* - 1.96E+01	4.19E+01
		Mn-54	* - 1.79E+00	2.00E+00
		Co-58	* 7.12E-01	2.02E+00
		Fe-59	* - 2.10E+00	4.04E+00
		Co-60	* - 8.03E-02	2.08E+00
		Zn-65	* 1.50E+00	5.00E+00
		Nb-95	* 8.65E-02	2.07E+00
		Zr-95	* 9.83E-01	3.51E+00
		Cs-134	* - 4.38E-01	2.20E+00
		Cs-137	* 2.18E+00	2.09E+00
		Ba-140	* 2.85E+00	9.30E+00
		La-140	* - 3.11E+00	3.20E+00
		Ra-226	8.81E+01	7.94E+01
		Th-228	* 1.01E+02	3.87E+01
	10/01/03 - 11/04/03	Be-7	* - 6.09E+00	1.08E+01
		K-40	* - 2.41E+01	3.50E+01
		Mn-54	* 1.43E-01	1.45E+00
		Co-58	* 2.01E-01	1.22E+00
		Fe-59	* - 4.56E+00	6.84E+00
		Co-60	* 2.47E+00	2.55E+00
		Zn-65	* - 4.94E+00	6.72E+00
		Nb-95	* 4.38E-02	1.29E+00
		Zr-95	* 6.26E-01	2.26E+00
		Cs-134	* 1.02E+00	1.36E+00
		Cs-137	* - 8.79E-02	1.81E+00
		Ba-140	* - 1.15E+00	6.47E+00
		La-140	* 1.68E-02	2.19E+00
		Ra-226	* - 8.39E+01	3.82E+01
		Th-228	* 1.20E+01	4.76E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102A	11/04/03 - 12/02/03	Be-7	* - 4.03E+00	1.53E+01
		K-40	* 5.64E+01	5.87E+01
		Mn-54	* 2.65E+00	2.10E+00
		Co-58	* - 1.30E-01	1.82E+00
		Fe-59	* - 1.73E+00	9.62E+00
		Co-60	* 6.17E-02	3.89E+00
		Zn-65	* - 1.39E+01	9.78E+00
		Nb-95	* - 8.53E-01	1.90E+00
		Zr-95	* - 2.23E+00	3.14E+00
		Cs-134	* 1.99E+00	1.90E+00
		Cs-137	* - 5.52E-01	2.33E+00
		Ba-140	* 4.35E+00	8.12E+00
		La-140	* - 9.98E-01	2.84E+00
		Ra-226	* - 8.08E+01	4.73E+01
		Th-228	* 1.39E+01	3.57E+01
	12/02/03 - 01/06/04	Be-7	* - 8.87E+00	1.80E+01
		K-40	* 3.11E+01	5.19E+01
		Mn-54	* - 1.51E+00	2.19E+00
		Co-58	* 2.45E+00	2.08E+00
		Fe-59	* 1.29E+00	4.21E+00
		Co-60	* - 1.03E+00	2.13E+00
		Zn-65	* - 1.08E+01	4.67E+00
		Nb-95	* 1.88E+00	2.17E+00
		Zr-95	* 1.82E+00	3.75E+00
		Cs-134	* - 1.16E+01	2.34E+00
		Cs-137	* 3.30E-01	2.08E+00
		Ba-140	* - 3.08E+00	1.14E+01
		La-140	* - 4.18E+00	3.78E+00
		Ra-226	* - 3.02E+01	5.69E+01
		Th-228	* 1.66E+01	4.86E+01

* Denotes a result less than the detection limit.

TABLE B-7.2

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			102A			
Be-7	(I)	-6.19E-02	-9.24E+00	1.44E+01	12	0
K-40	(I)	1.22E+01	-1.33E+02	1.02E+02	12	2
Mn-54	(I)	-1.81E-01	-2.35E+00	2.65E+00	12	0
Co-58	(I)	-1.05E-01	-2.75E+00	2.45E+00	12	0
Fe-59	(I)	-1.21E+00	-4.89E+00	1.81E+00	12	0
Co-60	(I)	-1.62E+00	-2.28E+01	2.47E+00	12	0
Zn-65	(I)	-2.68E+00	-1.39E+01	7.23E+00	12	0
Nb-95	(I)	4.15E-01	-1.19E+00	2.62E+00	12	0
Zr-95	(I)	5.83E-02	-2.23E+00	1.82E+00	12	0
Cs-134	(I)	-1.24E+00	-1.16E+01	1.99E+00	12	0
Cs-137	(I)	3.19E-01	-1.57E+00	2.18E+00	12	0
Ba-140	(I)	2.50E+00	-4.17E+00	1.14E+01	12	0
La-140	(I)	-1.23E+00	-4.18E+00	3.56E+00	12	0
Ra-226	(I)	5.33E-01	-8.39E+01	8.81E+01	12	1
Th-228	(I)	-2.57E+01	-1.64E+02	1.01E+02	12	0

(I) Indicator Station

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102B Monthly Headworks	01/02/03 - 02/04/03	Be-7	* - 6.40E+00	2.18E+01
		K-40	* 2.91E+01	5.28E+01
		Mn-54	* 3.31E-01	2.38E+00
		Co-58	* - 1.45E+00	2.49E+00
		Fe-59	* - 3.09E+00	4.44E+00
		Co-60	* - 4.42E-02	2.37E+00
		Zn-65	* - 5.35E+00	5.55E+00
		Nb-95	* 7.18E-02	2.47E+00
		Zr-95	* 4.04E+00	3.96E+00
		Cs-134	* - 6.38E+00	2.58E+00
		Cs-137	* 1.19E+00	2.43E+00
		Ba-140	* - 2.83E+00	1.17E+01
		La-140	* - 2.26E-01	3.71E+00
		Ra-226	* 3.34E+01	8.21E+01
		Th-228	* 2.54E+01	5.00E+01
	02/04/03 - 03/04/03	Be-7	* - 2.11E+00	1.67E+01
		K-40	* 6.26E+00	4.48E+01
		Mn-54	* 7.41E-02	1.98E+00
		Co-58	* 4.78E-02	1.92E+00
		Fe-59	* 1.81E+00	4.07E+00
		Co-60	* 1.04E+00	2.00E+00
		Zn-65	* - 1.66E+01	4.49E+00
		Nb-95	* 2.63E-01	2.01E+00
		Zr-95	* 2.14E+00	3.50E+00
		Cs-134	* - 9.91E+00	2.29E+00
		Cs-137	* 8.70E-01	2.06E+00
		Ba-140	* 1.21E+01	9.39E+00
		La-140	* - 2.49E+00	3.50E+00
		Ra-226	* - 1.13E+01	5.39E+01
		Th-228	* - 1.86E+02	4.79E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102B Monthly Headworks	03/04/03 - 04/01/03	Be-7	* - 1.21E+01	1.52E+01
		K-40	* 7.83E+00	4.73E+01
		Mn-54	* 5.30E-01	1.85E+00
		Co-58	* 1.38E+00	1.87E+00
		Fe-59	* - 1.39E+00	3.63E+00
		Co-60	* 1.28E+00	1.80E+00
		Zn-65	* - 3.48E+00	3.80E+00
		Nb-95	* 8.09E-01	1.90E+00
		Zr-95	* - 1.04E-01	3.20E+00
		Cs-134	* - 2.15E+00	2.15E+00
		Cs-137	* - 9.29E-01	2.00E+00
		Ba-140	* 1.15E+01	8.65E+00
		La-140	* - 1.91E+00	3.14E+00
		Ra-226	* - 3.01E+01	5.81E+01
		Th-228	* 2.91E+01	4.33E+01
	04/05/03 - 05/05/03	Be-7	* 4.84E+00	3.48E+01
		K-40	* - 1.08E+02	8.89E+01
		Mn-54	* - 1.18E+00	3.94E+00
		Co-58	* 1.10E+00	3.72E+00
		Fe-59	* - 1.35E+00	7.98E+00
		Co-60	* 3.20E+00	4.28E+00
		Zn-65	* 3.53E+00	9.31E+00
		Nb-95	* - 1.82E+00	3.66E+00
		Zr-95	* 1.40E+00	6.53E+00
		Cs-134	* - 2.31E+00	4.44E+00
		Cs-137	* 3.88E+00	4.13E+00
		Ba-140	* 4.29E+00	1.69E+01
		La-140	* - 3.37E+00	6.21E+00
		Ra-226	* - 5.72E+01	1.03E+02
		Th-228	* 1.18E+02	8.52E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102B	05/06/03 - 06/03/03	Be-7	* 5.75E-01	1.80E+01
Monthly		K-40	* - 4.56E+00	4.61E+01
Headworks		Mn-54	* - 8.03E-02	2.19E+00
		Co-58	* - 7.08E-01	2.20E+00
		Fe-59	* - 1.27E+00	4.43E+00
		Co-60	* - 5.15E-01	2.28E+00
		Zn-65	* - 5.79E+00	5.01E+00
		Nb-95	* - 1.80E-01	2.29E+00
		Zr-95	* 4.83E+00	3.88E+00
		Cs-134	* - 3.73E+00	2.27E+00
		Cs-137	* 3.60E-01	2.32E+00
		Ba-140	* 4.85E+00	9.99E+00
		La-140	* - 6.45E-01	3.41E+00
		Ra-226	* 2.80E+01	5.68E+01
		Th-228	* - 1.28E+02	5.02E+01
	06/03/03 - 06/30/03	Be-7	* - 1.43E+00	1.20E+01
		K-40	4.18E+01	3.83E+01
		Mn-54	* - 6.12E-02	1.32E+00
		Co-58	* 1.22E-01	1.37E+00
		Fe-59	* 1.27E+00	2.82E+00
		Co-60	* 8.37E-01	1.37E+00
		Zn-65	* - 1.25E+01	3.07E+00
		Nb-95	* 5.57E-01	1.46E+00
		Zr-95	* 1.79E-02	2.47E+00
		Cs-134	* - 9.93E+00	1.44E+00
		Cs-137	* - 5.36E-02	1.34E+00
		Ba-140	* - 2.29E+00	8.47E+00
		La-140	* - 9.12E-01	3.00E+00
		Ra-226	* 9.48E+00	4.40E+01
		Th-228	* - 1.92E+02	3.70E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102B	06/30/03 - 08/05/03	Be-7	* - 3.02E+00	9.75E+00
Monthly		K-40	* - 5.38E+01	3.52E+01
Headworks		Mn-54	* 5.82E-01	1.33E+00
		Co-58	* 5.50E-01	1.27E+00
		Fe-59	* - 8.69E-01	6.20E+00
		Co-60	* - 3.32E-01	3.19E+00
		Zn-65	* - 3.62E+00	6.39E+00
		Nb-95	* - 3.92E-01	1.29E+00
		Zr-95	* 7.10E-01	2.11E+00
		Cs-134	* 8.44E-01	1.14E+00
		Cs-137	* 1.96E+00	2.67E+00
		Ba-140	* 4.10E+00	5.09E+00
		La-140	* 3.91E-01	1.66E+00
		Ra-226	* 2.79E+01	7.03E+01
		Th-228	* - 9.02E+01	3.21E+01
	08/05/03 - 09/03/03	Be-7	* - 1.63E+00	2.58E+01
		K-40	* - 2.64E+00	6.74E+01
		Mn-54	* 2.76E+00	3.06E+00
		Co-58	* - 2.29E+00	3.17E+00
		Fe-59	* 3.02E+00	6.55E+00
		Co-60	* - 1.63E+00	3.17E+00
		Zn-65	* - 9.78E+00	7.02E+00
		Nb-95	* 2.62E+00	3.18E+00
		Zr-95	* - 2.14E+00	5.42E+00
		Cs-134	* - 1.28E+01	3.29E+00
		Cs-137	* 1.87E+00	3.17E+00
		Ba-140	* - 1.33E+01	1.52E+01
		La-140	* - 1.66E+00	5.40E+00
		Ra-226	* - 2.89E+01	6.90E+01
		Th-228	* - 5.59E+01	6.63E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102B Monthly Headworks	09/03/03 - 10/01/03	Be-7	* 1.32E+01	2.17E+01
		K-40	* - 3.62E+01	6.06E+01
		Mn-54	* 1.33E+00	2.61E+00
		Co-58	* 4.06E-01	2.55E+00
		Fe-59	* - 3.38E+00	5.42E+00
		Co-60	* 9.12E-01	2.67E+00
		Zn-65	* - 1.38E+01	6.23E+00
		Nb-95	* 1.81E+00	2.61E+00
		Zr-95	* 1.23E+00	4.55E+00
		Cs-134	* - 8.93E-01	2.91E+00
		Cs-137	* 5.35E-01	2.59E+00
		Ba-140	* 4.04E-02	1.21E+01
		La-140	* 3.14E+00	4.10E+00
		Ra-226	* - 5.37E+01	6.55E+01
		Th-228	* 2.21E+01	4.61E+01
	10/01/03 - 11/04/03	Be-7	* - 3.72E-01	1.02E+01
		K-40	* - 6.64E+01	3.55E+01
		Mn-54	* - 1.62E-01	1.33E+00
		Co-58	* 1.42E-01	1.22E+00
		Fe-59	* - 4.03E+00	6.42E+00
		Co-60	* 2.30E+00	2.73E+00
		Zn-65	* - 1.17E+00	6.54E+00
		Nb-95	* - 3.93E-01	1.29E+00
		Zr-95	* 1.43E+00	2.03E+00
		Cs-134	* - 3.93E-01	1.34E+00
		Cs-137	* - 4.08E-01	1.81E+00
		Ba-140	* 6.24E+00	5.54E+00
		La-140	* 1.42E+00	1.84E+00
		Ra-226	* 1.32E+01	6.25E+01
		Th-228	4.07E+01	3.87E+01

* Denotes a result less than the detection limit.

TABLE B-7.1 (cont.)

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102B	11/04/03 - 12/02/03	Be-7	* 8.08E+00	1.46E+01
Monthly		K-40	4.55E+01	4.26E+01
Headworks		Mn-54	* - 7.81E-01	1.77E+00
		Co-58	* - 2.96E-01	1.80E+00
		Fe-59	* - 1.84E+00	3.40E+00
		Co-60	* 3.10E-01	1.77E+00
		Zn-65	* 2.98E-01	4.01E+00
		Nb-95	* 2.21E+00	2.02E+00
		Zr-95	* 1.44E+00	3.09E+00
		Cs-134	* - 4.09E-01	1.87E+00
		Cs-137	* - 2.52E-01	1.80E+00
		Ba-140	* - 5.49E+00	8.36E+00
		La-140	* - 1.58E+00	2.95E+00
		Ra-226	* - 4.12E+00	4.71E+01
		Th-228	* 5.82E+01	5.29E+01
	12/02/03 - 01/06/04	Be-7	* 2.80E+00	1.34E+01
		K-40	5.74E+01	4.99E+01
		Mn-54	* 4.56E-01	1.43E+00
		Co-58	* 1.89E-01	1.45E+00
		Fe-59	* - 1.08E+00	3.16E+00
		Co-60	* 1.34E+00	1.67E+00
		Zn-65	* - 1.81E-01	3.11E+00
		Nb-95	* 8.53E-02	1.64E+00
		Zr-95	* 4.18E-01	2.78E+00
		Cs-134	* 9.37E-01	1.39E+00
		Cs-137	* 3.90E-01	1.58E+00
		Ba-140	* 2.74E+00	8.50E+00
		La-140	* - 3.11E+00	2.77E+00
		Ra-226	* 2.47E+00	7.87E+01
		Th-228	* - 2.48E+01	2.88E+01

* Denotes a result less than the detection limit.

TABLE B-7.2

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			102B - Monthly Headworks			
Be-7	(I)	2.03E-01	-1.21E+01	1.32E+01	12	0
K-40	(I)	-6.98E+00	-1.08E+02	5.74E+01	12	3
Mn-54	(I)	3.17E-01	-1.18E+00	2.76E+00	12	0
Co-58	(I)	-6.73E-02	-2.29E+00	1.38E+00	12	0
Fe-59	(I)	-1.02E+00	-4.03E+00	3.02E+00	12	0
Co-60	(I)	7.25E-01	-1.63E+00	3.20E+00	12	0
Zn-65	(I)	-5.70E+00	-1.66E+01	3.53E+00	12	0
Nb-95	(I)	4.70E-01	-1.82E+00	2.62E+00	12	0
Zr-95	(I)	1.28E+00	-2.14E+00	4.83E+00	12	0
Cs-134	(I)	-3.93E+00	-1.28E+01	9.37E-01	12	0
Cs-137	(I)	7.84E-01	-9.29E-01	3.88E+00	12	0
Ba-140	(I)	1.83E+00	-1.33E+01	1.21E+01	12	0
La-140	(I)	-9.13E-01	-3.37E+00	3.14E+00	12	0
Ra-226	(I)	-5.91E+00	-5.72E+01	3.34E+01	12	0
Th-228	(I)	-3.20E+01	-1.92E+02	1.18E+02	12	0

(I) Indicator Station

TABLE B-8.1

TRITIUM IN SANITARY WASTE TREATMENT WATER

Results in pCi/liter

LOCATION	COLLECTION PERIOD	RESULT	OVERALL UNCERTAINTY
	FFTF - Effluent		
H-3	01/02/03 - 02/04/03	3.24E+03	2.16E+02
102A	02/04/03 - 03/04/03	3.34E+03	2.25E+02
	03/04/03 - 04/01/03	7.45E+03	2.96E+02
	04/01/03 - 05/05/03	3.23E+03	2.14E+02
	05/06/03 - 06/03/03	3.57E+03	2.19E+02
	06/03/03 - 06/30/03	2.83E+03	1.92E+02
	06/30/03 - 08/05/03	3.29E+03	2.12E+02
	08/05/03 - 09/03/03	3.02E+03	2.34E+02
	09/03/03 - 10/01/03	2.85E+03	1.84E+02
	10/01/03 - 11/04/03	3.34E+03	2.30E+02
	11/04/03 - 12/02/03	2.86E+03	2.77E+02
	12/02/03 - 01/06/04	3.43E+03	2.54E+02
	Monthly Headworks		
H-3	01/02/03 - 02/04/03	9.74E+02	1.63E+02
102B	02/04/03 - 03/04/03	8.64E+02	1.69E+02
	03/04/03 - 04/01/03	1.79E+03	1.87E+02
	04/05/03 - 05/05/03	9.13E+02	1.69E+02
	05/06/03 - 06/03/03	5.17E+02	1.70E+02
	06/03/03 - 06/30/03	4.86E+02	1.73E+02
	06/30/03 - 08/05/03	1.16E+03	1.76E+02
	08/05/03 - 09/03/03	8.24E+02	1.74E+02
	09/03/03 - 10/01/03	9.58E+02	1.32E+02
	10/01/03 - 11/04/03	6.71E+02	2.03E+02
	11/04/03 - 12/02/03	6.76E+02	1.92E+02
	12/02/03 - 01/06/04	7.45E+02	2.18E+02

TABLE B-8.2

TRITIUM IN SANITARY WASTE TREATMENT WATER - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			All Samples			
H-3	(I)	2.21E+03	4.86E+02	7.45E+03	24	24
			FFTF Effluent			
H-3 102A	(I)	3.54E+03	2.83E+03	7.45E+03	12	12
			Monthly Headworks			
H-3 102B	(I)	8.82E+02	4.86E+02	1.79E+03	12	12

(I) Indicator Stations

TABLE B-9.1

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT SEDIMENT

Results in pCi/kilogram

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
102D	10/28/03	Be-7	* 5.93E+01	7.61E+01
		K-40	6.94E+03	4.04E+02
		Mn-54	* 8.89E+00	9.30E+00
		Co-58	* 4.94E+00	9.62E+00
		Fe-59	* - 2.51E+01	2.22E+01
		Co-60	1.36E+02	2.19E+01
		Zn-65	* - 1.28E-01	2.19E+01
		Nb-95	* - 4.28E+00	1.08E+01
		Zr-95	* - 8.82E-01	1.74E+01
		Cs-134	* - 2.60E+00	8.46E+00
		Cs-137	1.36E+02	2.22E+01
		Ba-140	* 3.66E+01	5.83E+01
		La-140	* - 2.23E+00	2.08E+01
		Ra-226	* 1.80E+03	3.75E+02
		Th-228	* 2.16E+02	2.65E+02

* Denotes a result less than the detection limit.

TABLE B-9.2

GAMMA SPECTROMETRY OF SANITARY WASTE TREATMENT WATER - SUMMARY

Results in pCi/liter

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			102D			
Be-7	(I)	5.93E+01	5.93E+01	5.93E+01	1	0
K-40	(I)	6.94E+03	6.94E+03	6.94E+03	1	1
Mn-54	(I)	8.89E+00	8.89E+00	8.89E+00	1	0
Co-58	(I)	4.94E+00	4.94E+00	4.94E+00	1	0
Fe-59	(I)	-2.51E+01	-2.51E+01	-2.51E+01	1	0
Co-60	(I)	1.36E+02	1.36E+02	1.36E+02	1	1
Zn-65	(I)	-1.28E-01	-1.28E-01	-1.28E-01	1	0
Nb-95	(I)	-4.28E+00	-4.28E+00	-4.28E+00	1	0
Zr-95	(I)	-8.82E-01	-8.82E-01	-8.82E-01	1	0
Cs-134	(I)	-2.60E+00	-2.60E+00	-2.60E+00	1	0
Cs-137	(I)	1.36E+02	1.36E+02	1.36E+02	1	1
Ba-140	(I)	3.66E+01	3.66E+01	3.66E+01	1	0
La-140	(I)	-2.23E+00	-2.23E+00	-2.23E+00	1	0
Ra-226	(I)	1.80E+03	1.80E+03	1.80E+03	1	0
Th-228	(I)	2.16E+02	2.16E+02	2.16E+02	1	0

(I) Indicator Stations

TABLE B-10.1

GAMMA SPECTROMETRY OF COOLING TOWER SEDIMENT

Results in pCi/kilogram

LOCATION	COLLECTION PERIOD	NUCLIDE	RESULT	OVERALL UNCERTAINTY
119B	06/30/03	Be-7	7.17E+03	7.96E+02
		K-40	1.23E+04	1.20E+03
		Mn-54	* 1.51E+00	2.79E+01
		Co-58	* - 1.64E+01	3.06E+01
		Fe-59	* - 5.58E+01	6.12E+01
		Co-60	* 3.13E+01	4.91E+01
		Zn-65	* 3.51E+01	6.02E+01
		Nb-95	* - 2.40E+01	3.33E+01
		Zr-95	* 3.87E+01	5.26E+01
		Cs-134	* 9.17E+00	2.79E+01
		Cs-137	1.91E+02	6.93E+01
		Ba-140	* 8.25E+01	2.03E+02
		La-140	* 1.20E+01	6.99E+01
		Ra-226	4.48E+03	1.06E+03
		Th-228	3.47E+03	1.25E+03

* Denotes a result less than the detection limit.

TABLE B-10.2

GAMMA SPECTROMETRY OF COOLING TOWER SEDIMENT - SUMMARY

Results in pCi/kilogram

NUCLIDE		AVERAGE	LOW	HIGH	NUMBER SAMPLES	NUMBER POSITIVE
			119B			
Be-7	(I)	7.17E+03	7.17E+03	7.17E+03	1	1
K-40	(I)	1.23E+04	1.23E+04	1.23E+04	1	1
Mn-54	(I)	1.51E+00	1.51E+00	1.51E+00	1	0
Co-58	(I)	-1.64E+01	-1.64E+01	-1.64E+01	1	0
Fe-59	(I)	-5.58E+01	-5.58E+01	-5.58E+01	1	0
Co-60	(I)	3.13E+01	3.13E+01	3.13E+01	1	0
Zn-65	(I)	3.51E+01	3.51E+01	3.51E+01	1	0
Nb-95	(I)	-2.40E+01	-2.40E+01	-2.40E+01	1	0
Zr-95	(I)	3.87E+01	3.87E+01	3.87E+01	1	0
Cs-134	(I)	9.17E+00	9.17E+00	9.17E+00	1	0
Cs-137	(I)	1.91E+02	1.91E+02	1.91E+02	1	1
Ba-140	(I)	8.25E+01	8.25E+01	8.25E+01	1	0
La-140	(I)	1.20E+01	1.20E+01	1.20E+01	1	0
Ra-226	(I)	4.48E+03	4.48E+03	4.48E+03	1	1
Th-228	(I)	3.47E+03	3.47E+03	3.47E+03	1	1

(I) Indicator Stations