

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

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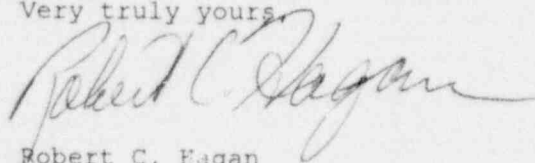
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Subject: Docket No. 50-482: Annual Environmental Operating Report

Gentlemen:

Enclosed is the Annual Environmental Operating Report which is being submitted pursuant to Wolf Creek Generating Station (WCGS) Facility Operating License NPF-42, Appendix B. This report covers the operating of WCGS for the period of January 1, 1993 to December 31, 1993.

Very truly yours,



Robert C. Hagan

RCH/jad

Enclosure

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WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

1993 ANNUAL RADIOLOGICAL

ENVIRONMENTAL OPERATING REPORT



APRIL 15, 1994

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## INTRODUCTION

The 1993 Annual Radiological Environmental Operating Report for Wolf Creek Generating Station (WCGS) covers the period from January 1 through December 31, 1993. WCGS is located in Coffey County, Kansas, approximately five miles northeast of Burlington, Kansas.

Fuel loading commenced at WCGS on March 12, 1985. The operational phase of the Radiological Environmental Monitoring Program (REMP) began on May 22, 1985 with initial criticality and the first detectable quantities of radioactivity were reported in plant effluents in June 1985.

This report contains a description of the REMP conducted by Wolf Creek Nuclear Operating Corporation (WCNOC), results of sample analyses performed by Teledyne Isotopes and WCNOC health physics technicians, a discussion of monitoring program results, a description of revisions to and deviations from the program, and comments on the results of the Environmental Protection Agency (EPA) Interlaboratory Comparison Program. Individual sample results and a summary of results in the Nuclear Regulatory Commission (NRC) Branch Technical Position specified format are included as appendices to the report.

No radiological effects of plant operations were detected in airborne particulate and radioiodine filters, fish, irrigated crops, broadleaf vegetation, milk, ground water, or drinking water.

During 1993, activation products were detected in aquatic plants and algae, shoreline soil, and bottom sediment samples.

No measurable impact on human exposure due to plant operation was seen for the year.

## **I. PROGRAM DESCRIPTION**

Radiological environmental samples were collected according to the schedule in Section 5.0 and Table 5-1 of the WCGS Offsite Dose Calculation Manual (ODCM). All samples were collected by WCNOC's Environmental Management and Radiological Services groups. The samples were processed and analyzed by Teledyne Isotopes of Westwood, New Jersey. Table 1 lists sampling pathways and frequencies of sampling and analysis. Table 2 lists each sample location's distance and direction from the plant. Samples in addition to those required by the WCGS ODCM were obtained in conjunction with the Kansas Department of Health and Environment (KDHE) and to monitor additional parameters.

The following is a description of the sampling and analysis program by individual pathways. Deviations are permitted from the required sampling schedule if specimens are not attainable due to hazardous conditions, seasonable unavailability, malfunction of automatic sampling equipment, and other legitimate reasons. Deviations from the routine sampling schedule and other problems encountered during the year are described in Section IV, Program Deviations.

### **A. Airborne**

Low volume air sampling pumps continuously collected particulate and radioiodine samples on 47 mm glass fiber filters and charcoal canisters, respectively. Weekly, the filters and charcoal canisters are changed out, labeled, and then shipped to Teledyne Isotopes for analysis. The volume of air sampled was calculated from the average of initial and final flow rates and the total time of collection. Each pump is equipped with a time totalizer that is checked weekly against the elapsed time.

Gross beta analysis of the air particulate samples were performed approximately 72 hours post collection to allow the radon and thoron daughter products to decay. Each filter was mounted on a stainless steel planchette and counted on an automatic alpha-beta counter.

Weekly air particulate filters were combined into quarterly composites for each location and analyzed for gamma emitting isotopes on a Ge(Li) detector.

Charcoal canisters were routinely counted in groups of five to determine the presence or absence of I-131. Positive indication of I-131 would have resulted in analysis of each individual charcoal canister.

Air samples were collected from the three sectors with the highest ground level deposition constants (D/Q), the community of New Strawn, and a control location. Distances and directions to sampling locations from the plant site are listed in Table 2; locations are shown in Figure 1 (nearby locations) and Figure 5 (distant locations).

### **B. Direct Radiation**

One type of thermoluminescent dosimeters (TLDs) used during 1993 were provided by Teledyne Isotopes. The TLDs consisted of rectangular Teflon wafers impregnated with  $\text{CaSO}_4:\text{Dy}$ . Prior to placement in the field, the dosimeters were annealed for at least one hour at 250 to 260 degrees Centigrade. The TLDs are then placed in polyethylene pouches and holders containing 0.093 inch thick copper shields to filter out low energy radiation. Freshly annealed dosimeters were exchanged with exposed dosimeters and the exposed dosimeters are shipped to Teledyne Isotopes for analysis. Four freshly annealed TLDs are shipped as controls with the exposed TLDs to record any exposure received in transit.

Gamma exposures are measured on a Teledyne Model 8300 TLD reader. Individual dosimeters are then exposed to a Cs-137 source to determine each dosimeter's calibration factor.

Panasonic UD-814-AQ TLDs were also used during the third and fourth quarters of 1993. These TLDs consist of one lithium-borate element and three calcium sulfate elements in a plastic case. Each TLD is annealed and analyzed by Wolf Creek health physics technicians on a Panasonic UD-710A TLD reader.

In general, TLDs are positioned roughly 3 to 4 feet above the ground on utility poles. They are contained in either plastic thermostat boxes or fiberglass air sample pump housings. The boxes and housings protect them from the elements and tampering. Two TLDs are placed at each designated location. TLD sample locations are illustrated in Figure 2 (nearby locations) and Figure 5 (distant locations). Table 2 provides the distance and direction of each location from the site.

### **C. Waterborne**

All water samples are analyzed for gamma emitters on a Ge(Li) detector. Radiochemical analysis for I-131 is performed on drinking water and ground water samples. Gross beta analysis is performed on drinking water samples. Tritium analysis is performed by liquid scintillation monthly for surface water and quarterly for drinking water. Tritium analysis is performed by gas proportional counter quarterly for ground water. All water sampling locations are listed in Table 2 and shown in Figures 3 and 5.

Drinking water is sampled at the water treatment facilities for the towns of Burlington and Leroy. The Burlington facility is located upstream and the Leroy facility is located downstream of the confluence of the effluent from Wolf Creek Cooling Lake (WCCL) and the Neosho River. Monthly, composite samples are obtained from automatic composite samplers at each location that draw approximately 10 ml samples hourly.

Monthly, grab samples are drawn from each surface water location. Surface water is sampled at the outfall of John Redmond Reservoir (JRR) as a control and in the discharge cove and spillway of WCCL for indicator locations.

Ground water samples are collected quarterly from four locations. One ground water well is hydrologically upgradient from the site (location B-12) and is used as a control location. Three additional samples (C-10, C-49, and D-65) are obtained from wells hydrologically downgradient from the site as indicator samples.

Shoreline sediments are sampled semiannually for gamma analysis at the discharge cove (indicator, Figure 3) and at JRR (control, Figure 3).

Bottom sediments are also collected semiannually. Samples are obtained for gamma analysis at the discharge cove (indicator, Figure 3) and at JRR (control, Figure 3). In addition, a sample was obtained in the area of the ultimate heat sink (UHS, Figure 3).

Semiannual aquatic plant and algae samples are obtained for gamma analysis from the discharge cove area or from an alternate location near the discharge cove (DC and DC ALT, respectively on Figure 3).



#### D. Ingestion

Milk samples are collected semimonthly from April through November (while the animals are feeding on pasture grass) and monthly from December through March (while the animals are on stored feed). No sampling locations were identified within 5 miles of the plant that produced milk for human consumption during 1993. Therefore, only control samples were obtained. Radiochemical I-131 and gamma isotopic analyses were performed on each sample. The control location is illustrated on Figure 5.

Broadleaf vegetation samples were collected monthly during the growing season from four gardens. The three indicator gardens (two regular and one alternate) and a control garden were sampled (Figure 5). Gamma isotopic analysis was performed on all samples.

Irrigated crops (soybeans and corn) were also sampled. Two samples were obtained from cropland downstream of the confluence of WCCL effluents and the Neosho River (indicator) and one sample was obtained upstream (control). However, due to high rainfall amounts in the region during 1993, no irrigation from the Neosho River occurred during 1993. The samples were still obtained to serve as baseline data and to continue contact with local landowners. Gamma isotopic analysis was performed on each sample.

Fish are sampled from the tail waters of JRR (control) and from WCCL semiannually for gamma isotopic analysis (Figure 4). Several recreationally important species and rough species are sampled. Gamma isotopic analysis is performed on boneless meat portions of the fish.

Game animals and fowl are sampled annually in the immediate vicinity of the plant and at a control location that is remote from the site. Gamma isotopic analysis is performed on boneless meat portions of the game.

All sampling locations listed in this section are outlined in Table 2.

## **II. DISCUSSION OF RESULTS**

Analysis results for all pathways are summarized in Appendix A using the format described in NRC Radiological Assessment Branch Technical Position, Revision 1, November 1979. Results for individual samples are listed in Appendix B.

In this section, results are discussed by pathway and analysis type. Operational results are related to controls, preoperational data, sources of radioactivity, and effluent releases when applicable. Trends or seasonal effects are discussed. Tables 3 through 16 illustrate results of interest for 1993. Associated errors for positive results may be obtained in Appendix B.

### **A. Airborne**

Results of the weekly gross beta analysis are summarized in Table 3.

Figure 6 illustrates a plot of weekly gross beta results for 1993. Figure 8 illustrates a historical plot of the gross beta I/C ratios and includes a smoothed average trend. Although the smoothed average has a very slight increasing trend, the gross beta values for the time period are consistent with expected background and suggest that the slightly increasing I/C ratios are a result of changing environmental conditions. For instance, Figure 7 illustrates a slightly decreasing trend for location 40 (airborne sample control location) since 1989. Decreasing control values would tend to increase the I/C ratio over time. In addition, no radioiodine has been detected since 1989. Therefore, the slight increase in gross beta I/C ratios is due to a slight decrease in control location gross beta values over time and is not due to plant operations. It is also interesting to note that the smoothed plot (Figure 7) shows a definite seasonal cyclic trend in which gross beta values peak in the winter months (December or January) and decrease to a low point in the spring months (May or June).

Figure 9 illustrates a historical plot of average weekly indicator and control gross beta values during plant operations.

Table 4 summarizes the gamma analyses of 1993 airborne particulate filter quarterly composites. The table shows that only natural radioisotopes Be-7 and K-40 were detected.

No effects of plant operation were seen via air samples during 1993.

### **B. Direct Radiation**

1993 quarterly gamma exposures for each location are summarized in Tables 5 and 6. Values are normalized to a standard 90 day quarter. Figure 10 shows the nearsite TLD data expressed as a percentage of the control data. Results from TLDs located near the plant site (<3 miles distant) have been combined into quarterly averages. Note that nearsite TLD locations have historically trended higher than the control locations both prior to and after WCGS became operational. Figure 11 shows the historical quarterly average values expressed in mRem/std 90 day quarter for both nearsite and control locations.

Figure 11 also shows that the levels of direct radiation measured by thermoluminescent dosimeters near Wolf Creek have declined from 1980 to 1993. This decrease in measured radiation levels is suspected to be caused by a decline in TLD efficiency. Linear regression analyses of the direct radiation levels expressed as averages for a standard 90-day quarter indicate that measured radiation levels have declined significantly at indicator locations ( $p$  is less than or equal to 0.05 and  $r$ -squared is



equal to 0.49) and at control locations ( $p$  is less than or equal to 0.05 and  $r$ -squared is equal to 0.45). This decrease in measured direct radiation levels is not believed to be caused by a decrease in environmental direct radiation levels because Kansas Department of Health and Environment direct radiation results for locations near Wolf Creek do not show a similar decrease in measured direct radiation levels (internal KDHE data).

Despite the decline in direct radiation levels measured by Wolf Creek's TLDs, a comparison of indicator and control location results still indicates that the direct radiation levels are not related to plant operation. As also shown in Figure 11, the ratio of the near-site indicator location results to the control location results has remained near 100 percent through 1993. The near-site indicator location results and the control location results exhibited significant correlation ( $p$  is less than or equal to 0.05 and  $R$  is equal to 0.93) and this indicates that fluctuations in direct radiation levels were measured with a high degree of certainty by both the indicator and control location TLDs.

However, if measured direct radiation levels continue to decline, the TLD results will fall below the range of pre-operational averages for Wolf Creek and the range of direct radiation levels measured by the NRC (note 1) and KDHE (note 2). Panasonic UD-814-AQ TLDs were placed in the same locations as the Teledyne Isotopes TLDs during the third and fourth quarters of 1993 as a cross-comparison measure and the Teledyne TLDs will be replaced with the Panasonic TLDs during 1994. Please note that the supplemental Panasonic TLD data were used for the third quarter of 1993 on Figure 11 because the third quarter Teledyne TLDs could not be accurately analyzed. Please refer to the program deviations section for more information about the third quarter TLDs.

#### Notes:

1. United States Nuclear Regulatory Commission, 1994. NRC TLD Direct Radiation Monitoring Network Progress Report, October-December 1993 (NUREG-0837, volume 13, number 4), pg. 309.

2. Kansas Department of Health and Environment, 1992. Report of Results of the Radiological Environmental Monitoring Program Around the Wolf Creek Generating Station Between July 1, 1991 and June 30, 1992 (SFY 1992), pg. 36.

#### C. Waterborne

##### (1) Drinking Water

Results of drinking water gamma isotopic analyses are summarized in Table 7. No tritium was detected in drinking water samples during 1993. Figure 14 illustrates the historical drinking water gross beta data through 1993. The control site samples for May 4 through June 1 and August 3 through August 31 exhibited elevated gross beta results, especially in the duplicate sample results for indicator location LW-40 on both June 1 and August 31. The indicator and control location both displayed elevated values for June 1, which suggests that the elevated values are not related to plant operations. Comparing the error range for the indicator location gross beta results on June 1 and August 31 shows that the initial results are within the error range of the duplicate results. No other nuclides were identified during 1993.

No activity due to plant operations were evident in drinking water samples during 1993.

## **(2) Surface Water**

Surface water data is summarized in Table 8. Tritium was the only nuclide identified in surface water samples during 1993. Figure 12 illustrates smoothed tritium data for WCCL from startup in May 1985 through 1993 for locations DC and SP and the cumulative curies of tritium released to WCCL. Tritium values have been declining recently and the declining trend may be due to high precipitation during 1993. Significant discharge from WCCL occurred during 1993 as a result of precipitation. The increased precipitation allowed some dilution or replacement (with nontritiated water) of the tritiated water inventory in WCCL. The region had experienced a prolonged drought during the previous 2 to 3 years. Little discharge from WCCL occurred during the dry period. Note that the tritium levels are well below the 20,000 pCi/liter reporting limit for drinking water sources and the 30,000 pCi/liter limit for other water sources. Figure 13 illustrates the same smoothed tritium data for WCCL except quarterly tritium effluent discharges are plotted.

## **(3) Ground Water**

No gamma emitters or tritium were detected in ground water samples during 1993. A summary of results is included in Table 9.

## **(4) Shoreline Sediment**

Naturally occurring nuclides Ra-226, Th-228, and K-40 were detected in shoreline sediment samples during 1993. Co-60 and Cs-137 were detected in samples obtained from the discharge cove (DC) and Cs-137 was also detected in a control location sample collected from JRR. The Co-60 activity is attributable to plant operations but the Cs-137 activity is likely the result of increased atmospheric fallout. The levels of Cs-137 activity detected in the discharge cove and control location samples exceed the range of Cs-137 fallout measured during pre-operational studies (0.0131 to 0.0478 pCi/L). No Cs-134 was detected in the shoreline sediment samples, as would be expected if the source of the Cs-137 activity was plant operations. Cs-134 has a half-life of 2.05 years and it would be expected to be detected in a sample collected close to a source of both Cs-134 and Cs-137. Neither Cs-137 or Cs-134 were detected in monthly surface water samples collected at the discharge cove or JRR during 1993. Analysis results are summarized in Table 11.

## **D. Ingestion**

### **(1) Milk**

No indicator locations for milk were available for sampling during 1993 (see Program Deviation section for explanation). A control sample was routinely obtained for analysis. All milk samples analyzed contained K-40 at levels consistent with preoperational data. The yearly average K-40 concentration was 1340 pCi/liter. Table 15 summarizes milk analysis results for 1993.

No other gamma emitters were detected.

### **(2) Food and Garden Crops**

Gamma analyses of broadleaf vegetation samples during 1993 revealed naturally occurring gamma emitters K-40 and Be-7 at concentration consistent with preoperational levels.

Another naturally-occurring isotope, Th-228, was detected in one broadleaf vegetation sample during 1993 at 0.0606 pCi/gram. Broadleaf vegetation results are summarized in Table 13.

No additional gamma emitters were detected in broadleaf vegetation samples during the remainder of the year.

Crop samples were obtained from lands normally irrigated by the Neosho River below the outfall of WCCL. However, due to adequate precipitation during 1993, no irrigation was needed. The samples were still obtained to continue Wolf Creek's relationship with local landowners and to continue to establish baseline values. Results of crop analyses are summarized in Table 14.

No nuclides attributable to plant operations were detected.

### **(3) Fish**

Analysis results are illustrated in Table 16. Naturally occurring K-40 was detected in all fish samples with an average concentration of 3.33 pCi/gram (wet weight). Th-228 was also detected in all fish samples. No other radionuclides were detected in fish during the year.

## **E. Special Samples (not required by the WCGS ODCM)**

### **(1) Game Animals and Birds**

Naturally occurring K-40 was detected in all game animal and bird samples in concentrations consistent with preoperational levels.

No other radionuclides were detected and no effects of plant operations were detected in this pathway.

### **(2) Bottom Sediment**

Table 12 shows gamma emitters detected during 1993 in bottom sediment samples. Sampling locations include the Ultimate Heat Sink (UHS), DC, and JRR. Natural nuclides detected include K-40, Ra-226, and Th-228.

Several other nuclides were detected in bottom sediment samples. A portion of the Cs-137 activity detected in WCCL bottom sediments is probably attributable to fallout and a portion is due to plant operation. The Cs-137 levels are only slightly higher than those reported prior to WCGS criticality and therefore a major portion of the activity is due to fallout. However, the Mn-54 and Co-60 activity shown in the table are attributed to plant operations and are regularly identified in plant effluents.

Be-7 was detected in one of five supplemental samples collected in the discharge cove during 1993 as an attempt to determine the variation of activity levels in the discharge cove. The activity levels detected at the supplemental sample locations were consistent with the levels detected at location DC.

### **(3) Aquatic Vegetation**

Table 10 shows gamma emitters detected during 1993 in aquatic plant samples. Be-7, K-40 and Ra-226 were detected in all samples collected. Th-228 was detected in one sample. An alga sample accumulated the most detectable activity. Mn-54, Co-58, Co-60, Cs-134, and Cs-137 were all detected in at least the alga sample and some were detected in the other aquatic plant samples as well.

### **III. ANNUAL LAND USE CENSUS RESULTS AND PROGRAM REVISIONS**

Section 5.2 of the WCGS ODCM directs that "A Land Use Census shall be conducted annually during the growing season to identify the nearest (1) milk animal, (2) residence, and (3) garden of greater than 500 square feet producing broadleaf vegetation in each of 16 meteorological sectors within five miles of the WCGS Site." The results shall also be included in the Annual Radiological Environmental Operating Report. Table 5-1 of the WCGS ODCM states that garden (broadleaf) sampling locations will be "from two indicator locations with highest calculated annual average D/Q".

#### **Methodology**

The 1993 Land Use Survey was completed in October. Information was collected using a combination of mailed survey forms, telephone contacts, and door-to-door contacts.

Surveys were mailed to the rural residences within five miles of WCGS during the second week of August 1993. The survey excludes the residents of New Strawn, Burlington, and a trailer park just north of Burlington. These locations are excluded because of the large number of households and the low probability that information gained from these residences would affect the locations used for REMP sampling. A total of 137 surveys were mailed to rural locations, and 115 responses (83.9 percent) were received or obtained by Wolf Creek personnel. Response rates for the last six years range from 85 to 90 percent.

#### **Results**

The total population for the responding residences was 373 persons for an average of 2.63 persons per household. This average and the 137 known occupied residences are used to estimate the total rural population within five miles of the site (excluding New Strawn, Burlington, and the trailer park). The rural population is estimated at 384 persons. The population estimates were 466 in 1991 and 500 in 1992. The drop in rural population for 1993 is attributed to the change in survey methodology described above but not to an actual reduction in population. Results are summarized in Tables 17 and 18.

No milk animals that produced milk for human consumption were identified within 5 miles of WCGS again in 1993.

#### **Summary**

On the basis of the data collected in the 1993 Land Use Census, no changes are required in the REMP.

#### IV. PROGRAM DEVIATIONS

##### **Airborne**

Location 37, 8/3/93 to 8/10/93: No airborne particulate or radioiodine samples were collected from location 37 during this week because the air sample pump switch did not completely engage when the pump was turned on after changing sample filters on 8-3-93. The switch apparently turned the pump off as the pump fuse was not blown. The switch was checked and the pump functioned properly after it was restored to service.

Location 32, 8/10/93 to 8/17/93: No airborne particulates were collected during this week at location 32 because the particulate filter was not properly seated in the sample head. A small gap allowed air to be drawn around, rather than through, the filter. The sample head was examined for mechanical defects and none were found. The particulate filter was replaced and the pump returned to service. Air particulate gross beta results from the other four WCNOG sampling locations for this week are consistent with historical air particulate gross beta levels, as are the air particulate gross beta results for location 32 from the week of 8/17/93 to 8/24/93. These results indicate that the sampling equipment functioned properly when returned to service.

##### **Drinking Water**

Location LW-40, 4-25-93 to 4-26-93: Approximately 210 milliliters of the 7,200 milliliter monthly composite sample were not collected on these days because the sample collector blew its fuse after routine maintenance was performed on 4-25-93. The tubing used to replace the tubing in the pump roller housing was too stiff for the pump motor to turn the roller easily. The resistance of the stiffer tubing caused the motor to blow the fuse. The sampler with the improper tubing was replaced with a back-up sampler and composite sampling continued. The water sampler maintenance procedure was revised to specify and require that only the sampler manufacturer's replacement tubing be used. The loss of the 210 milliliters of drinking water did not significantly affect the drinking water analysis results for April 1993 and the composite sampler functioned properly during May and June of 1993.

Location BW-15, October 1993: The drinking water sample for October was not collected at Burlington because the tube from the sample pump to the collection container was not connected properly after the September sample was collected. An extra tubing connection was removed on 11-2-93 to prevent future mistakes of this type. The November sample was properly collected.

Location LW-40, October 1993: The tube from the sample pump to the collection container was not connected properly after the September sample was collected and the sample was pumped into the sample container housing, instead of the sample container. One gallon of drinking water was collected from the container housing and the analysis results were consistent with results from previous months. An extra tubing connection was removed on 11-2-93 to prevent future mistakes of this type. The November sample was properly collected.

Location BW-15, December 1993: The composite sampler was damaged during December and collected only half its normal monthly volume. The sampler case had been cracked and the electronic components interrupted the composite sampling program. Damage to the sampler was detected on 1-4-94 and the broken sampler replaced on 1-5-94. The replacement sampler functioned properly.



## **Direct Radiation Samplers (TLDs)**

All Locations, Second Quarter 1993: TLDs were collected from all sampling locations as required. Even though the shipping container was clearly marked "DO NOT X-RAY", the shipping container was inadvertently x-rayed before leaving WCGS. The TLDs were shipped to Teledyne Isotopes and analyzed as per normal protocol. Four freshly annealed TLDs were included in the shipping package as per procedure to record transit exposure. The TLD results showed no adverse consequences due to the x-ray exposure and no abnormal readings resulted. The TLDs included to record transit exposure yielded exposures similar to what is normally experienced during shipment.

Location 9, Second Quarter 1993: The TLD housing cover was missing and thus the TLDs had been exposed to the elements prior to collection. The cover was replaced after the TLDs were collected. No abnormal readings resulted.

Location 16, Second Quarter 1993: The tree to which the TLDs and protective housing were affixed was struck by lightning sometime during the second quarter. The TLD housing cover was missing and thus the TLDs had been exposed to the elements prior to collection. The cover was replaced after the TLDs were collected. No abnormal readings resulted.

Location 29, Second Quarter 1993: The TLD housing cover was missing and thus the TLDs had been exposed to the elements prior to collection. The cover was replaced after the TLDs were collected. No abnormal readings resulted.

All Locations, Third Quarter, 1993: Abnormal and unusable results were produced when the third quarter TLDs were analyzed by Teledyne Isotopes. Some locations has negative results while other results varied widely between locations and the transit dosimeters used to detect any dose absorbed during shipment indicated abnormally high exposures of 42.1 millirems to 56.3 millirems. Normal transit TLD dose readings are three to five millirems. It appears as if the TLDs received significant dose from an unknown source during shipment but that could not be confirmed by Federal Express. In 1994, WCNOC will replace the Teledyne TLDs with Panasonic TLDs that can be analyzed on site, which will reduce the potential of receiving abnormal transit dose.

Location 5, Fourth Quarter 1993: The TLD housing cover was missing and thus the TLDs had been exposed to the elements prior to collection. The cover was replaced after the TLDs were collected. No abnormal readings resulted.

## **Ingestion**

### **Milk**

There were no deviations in milk sampling. However, there are still no indicator sampling locations available within five miles of the plant. Refer to Section III, Annual Land Use Census Results and Program Revisions.



## Broadleaf Vegetation

Broadleaf Vegetation is sampled when seasonably available. No broadleaf vegetation deviations occurred during 1993. Listed below are those sample locations and dates when the samples were not collected due to seasonal unavailability. No corrective actions were necessary. Samples were collected at the secondary location G-1 when available. Sample locations A-1 and R-1 are the primary sample locations and S-4 is the control location.

All locations (4/93)	Samples unavailable Gardens not yet established
A-1, G-1 (5/93)	Sample not yet available. Garden at A-1 and G-1 not yet established All other gardens sampled
A-1, G-1 (6/93)	Sample not yet available. Garden at A-1 and G-1 not yet established All other gardens sampled
G-1 (7/93)	Sample not yet available. Garden at G-1 not yet established All other gardens sampled
R-1, G-1 (8/93)	Growing season complete for vegetation species selected by landowners. All other gardens sampled
R-1, G-1 (9/93)	Growing season complete for vegetation species selected by landowners. All other gardens sampled
R-1, G-1, S-4 (10/93)	Growing season complete for vegetation species selected by landowners. A-1 sampled.

## **V. EPA INTERLABORATORY COMPARISON RESULTS**

Teledyne Isotopes is contracted to perform radiological analysis of environmental samples for WCNO. Teledyne participated in the EPA Interlaboratory Comparison Program during 1993.

Table 19 shows interlaboratory comparison test results received during the year. The table lists the sample date, the sample media, the nuclide or analysis type, the known value reported by the EPA, the measured value reported by Teledyne Isotopes (based upon triplicate analysis), and the normalized deviation from the known. Results are listed in the table for sample media and analysis types corresponding to those performed for WCNO.

Except for one measurement, all of the Teledyne Isotopes results were within three standard deviations of the known EPA results. Only results exceeding three standard deviations require corrective action. In the case of the one exception, an investigation was performed as described in footnote (e) of Table 19. Three results were between two and three standard deviations. Those three required investigation. The footnotes of Table 19 describe the results of the investigations.

TABLE 1

**1993 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM  
SAMPLE COLLECTION**

EXPOSURE PATHWAY/ SAMPLE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
AIRBORNE			
Radioiodine and Particulates	Samples from five locations	Continuous sampler operation with sample collection weekly, or more frequently if required by dust loading.	Analyze radioiodine canister weekly for I-131
	Samples from locations near the site boundary in three sectors having the highest calculated annual average D/Q (Locations 2, 3, and 37 on Figure 1)		Analyze particulate filter weekly for gross beta activity; perform quarterly gamma isotopic analysis composite (by location)
	Sample from the vicinity of a community having the highest calculated annual average D/Q (Location 32 on Figure 1, New Strawn)		
	Sample from a control location 10 - 20 miles distant in a low D/Q sector (Location 40 on Figure 5)		
DIRECT RADIATION			
	40 routine monitoring stations with two or more dosimeters measuring dose continuously placed as follows:	Quarterly	Gamma dose quarterly

TABLE 1 (Cont'd)

EXPOSURE PATHWAY/ SAMPLE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
--------------------------------	--	--------------------------------------	--------------------------------------

## DIRECT RADIATION (cont'd)

An inner ring of stations, one in each meteorological sector 0-3 mile range from the site (Locations 1-14, 18, 26-31, 37, and 38 on Figure 2)

An outer ring of stations, one in each meteorological sector in the 3-5 mile range from the site (Locations 15-17, 19-22, 24, 25, and 32-36 on Figure 2)

The balance of the stations to be placed in special interest areas such as population centers (Locations 23 and 32), nearby residences (Many locations are near a local residence), schools (Location 23), and in one or two areas to serve as control stations 10-20 miles distant from the site (Locations 39 and 40 on Figures 2 and 5)

Locations 41, 42, and 43 are not required sampling stations but have been added as special interest sampling locations

TABLE 1 (Cont'd)

EXPOSURE PATHWAY/ SAMPLE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
<b>WATERBORNE</b>			
Surface	One sample upstream (Location MUSH on Figure 3) and two samples downstream (Locations DC and SP on Figure 3)	Monthly grab sample	Monthly gamma isotopic analysis and composite for tritium analysis quarterly
Ground	Samples from one or two sources only if likely to be affected Indicator samples at locations hydrologically downgradient of the site (Locations C-10, C-49, and D-65 on Figure 3); Control sample at a location hydrologically upgradient of the site (Location B-12 on Figure 3)	Quarterly	Quarterly gamma isotopic and tritium analysis
Drinking	Sample of municipal water supply at an indicator location downstream of the site (Location LW-40 on Figure 5); Control sample from location upstream of the site (Location BW-15 on Figure 3)	Monthly Composite	Monthly gamma isotopic analysis and gross beta analysis of composite sample. Quarterly tritium analysis of composites.
Shoreline sediment	One sample from the vicinity of Wolf Creek Cooling Lake discharge cove and one sample from John Redmond Reservoir (Locations DC and JRR respectively on Figure 3).	Semiannually	Semiannual gamma isotopic analysis

TABLE 1 (Cont'd)

EXPOSURE PATHWAY/ SAMPLE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
<b>WATERBORNE (cont'd)</b>			
Bottom sediment	One sample from the vicinity of Wolf Creek Cooling Lake discharge cove and one sample from John Redmond Reservoir (Locations DC and JRR respectively on Figure 3). Special samples were obtained from the vicinity of the Ultimate Heat Sink.	Semiannually	Semiannual gamma isotopic analysis
Rooted Aquatics or Algae	One sample from the vicinity of Wolf Creek Cooling Lake (Location DC on Figure 3).	Semiannually	Semiannual gamma isotopic analysis
<b>INGESTION</b>			
Milk	Samples from milking animals at three indicator locations within five miles of the site having the highest dose potential (currently there are no indicator locations producing milk for human consumption within five miles of the site); one sample from a control location greater than 10 miles from the site (Location S-3 on Figure 5)	Semimonthly while animals are on pasture (April to November) and monthly during the remainder of the year (December to March)	Gamma isotopic analysis and I-131 analysis of each sample



TABLE 1 (Cont'd)

EXPOSURE PATHWAY/ SAMPLE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
INGESTION (cont'd)			
Fish	Indicator samples of 1-3 recreationally important species from Wolf Creek Cooling Lake; control samples of similar species from John Redmond Reservoir (several sampling areas indicated on Figure 4)	Semiannually	Gamma isotopic analysis on edible portions
Broadleaf Vegetation	Samples of available broadleaf vegetation from two indicator locations with highest calculated annual average D/Q (Locations A-1 and R-1 and alternate location G-1 on Figure 4); sample of similar broadleaf vegetation from a control location greater than 10 miles from the site in a low D/Q sector (Location S-4 on Figure 5)	Monthly when available	Gamma isotopic analysis on edible portions
Irrigated Crops	Sample of crops irrigated with water from the Neosho River downstream of the Neosho River - Wolf Creek confluence (Location NR-D1 and NR-D2 on Figure 5); control sample irrigated with water from the Neosho River upstream of the Neosho River - Wolf Creek confluence (Location NR-U1 on Figure 5)	At time of harvest	Gamma isotopic analysis on edible portions

TABLE 1 (Cont'd)

EXPOSURE PATHWAY/ SAMPLE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
INGESTION (cont'd)			
Game birds and animals	Indicator samples of region specific recreationally important species from the vicinity of Wolf Creek Cooling Lake; control samples of similar species from locations about 15 miles northwest of WCGS.	Annually	Gamma isotopic analysis on edible portions

**TABLE 2**  
**SAMPLE LOCATION NUMBERS, DISTANCES (Miles), AND DIRECTIONS**

Location Number	Distance / Direction	Location Number	Distance / Direction	Location Number	Distance / Direction
<b>TLD and Air Particulates and Radioiodines</b>					
1	1.4/N	15	4.5/ESE	29	2.6/SSW
2	2.7/N	16	4.2/E	30	2.2/SW
3	3.0/NNE	17	3.6/SE	31	3.0/WNW
4	4.0/NNE	18	3.2/SSE	32	3.2/WNW
5	4.0/NE	19	4.0/SSE	33	3.7/WNW
6	4.4/ENE	20	3.3/S	34	4.0/NW
7	1.9/NE	21	3.8/S	35	4.6/NNW
8	1.6/ENE	22	4.1/SSW	36	4.2/N
9	2.0/ENE	23	4.5/SW	37	2.1/NNW
10	2.4/ENE	24	4.1/WSW	38	1.2/NW
11	1.5/E	25	3.6/W	39	13.0/N
12	1.8/ESE	26	2.6/WSW	40	>15.0/WNW
13	1.5/SE	27	2.1/SW	41	0.8/NNW
14	2.8/SE	28	2.8/SW	42	0.8/SSE
				43	0.8/WNW
<b>Ground water</b>		<b>Drinking water</b>		<b>Surface water</b>	
B-12	2.2/NNE	BW-15	3.9/SW	MUSH	3.6/W
C-10	2.8/W	LW-40	10.0/SSE	DC	0.6/WNW
C-49	2.9/SW			SP	2.9/S
D-65	3.9/S				
<b>Milk</b>		<b>Broadleaf vegetation</b>		<b>Irrigated Crops</b>	
S-3	>15.0/WNW	A-1	1.4/N	NR-U1	4.2/SW
		R-1	2.1/NNW	NR-D1	>10.0/S
		G-1	1.6/SE	NR-D2	>10.0/S
		S-4	>15.0/WNW		
<b>Fish</b>		<b>Shoreline and Bottom Sediments</b>		<b>Aquatic Vegetation / Algae</b>	
WCCL	0.6/WNW	DC	0.6/WNW	DC	0.6/WNW
JRR	4/W	JRR	4/W		
		UHS	0.6/E		
<b>Game Birds and Animals</b>					
WCCL	General Vicinity				
Beto Junction	>15.0/NNW				

**TABLE 3**  
**1993 Airborne Particulate Gross Beta Analyses**  
**(pCi / cubic meter, analysis error reported in Appendix B)**

WEEK	DATE		Location				
	Beginning	Ending	2	3	32	37	40
1	12/29/92	1/5/93	0.034	0.034	0.031	0.034	0.031
2	1/5/93	1/12/93	0.033	0.033	0.036	0.040	0.037
3	1/12/93	1/19/93	0.046	0.046	0.059	0.048	0.056
4	1/19/93	1/26/93	0.023	0.023	0.035	0.023	0.025
5	1/26/93	2/2/93	0.029	0.029	0.030	0.026	0.028
6	2/2/93	2/9/93	0.029	0.029	0.035	0.024	0.031
7	2/9/93	2/16/93	0.027	0.027	0.017	0.027	0.032
8	2/16/93	2/23/93	0.031	0.031	0.032	0.031	0.029
9	2/23/93	3/2/93	0.035	0.035	0.028	0.025	0.031
10	3/2/93	3/9/93	0.025	0.025	0.023	0.022	0.027
11	3/9/93	3/16/93	0.016	0.016	0.012	0.013	0.014
12	3/16/93	3/23/93	0.023	0.023	0.018	0.024	0.022
13	3/23/93	3/30/93	0.017	0.017	0.012	0.017	0.015
14	3/30/93	4/6/93	0.015	0.015	0.015	0.014	0.019
15	4/6/93	4/13/93	0.017	0.017	0.018	0.014	0.017
16	4/13/93	4/20/93	0.016	0.016	0.017	0.015	0.016
17	4/20/93	4/27/93	0.027	0.027	0.028	0.030	0.029
18	4/27/93	5/4/93	0.019	0.019	0.014	0.014	0.018
19	5/4/93	5/11/93	0.021	0.021	0.014	0.015	0.014
20	5/11/93	5/18/93	0.015	0.015	0.015	0.017	0.013
21	5/18/93	5/25/93	0.016	0.016	0.015	0.018	0.016
22	5/25/93	6/1/93	0.019	0.019	0.016	0.016	0.018
23	6/1/93	6/8/93	0.019	0.019	0.017	0.017	0.021
24	6/8/93	6/15/93	0.022	0.022	0.018	0.018	0.019
25	6/15/93	6/22/93	0.018	0.018	0.015	0.017	0.016
26	6/22/93	6/29/93	0.015	0.015	0.013	0.016	0.017
27	6/29/93	7/6/93	0.024	0.024	0.020	0.022	0.019
28	7/6/93	7/13/93	0.020	0.020	0.018	0.020	0.021
29	7/13/93	7/20/93	0.017	0.017	0.019	0.020	0.018
30	7/20/93	7/27/93	0.022	0.022	0.019	0.019	0.024
31	7/27/93	8/3/93	0.022	0.022	0.023	0.022	0.027
32	8/3/93	8/10/93	0.024	0.024	0.021	0.024	0.000
33	8/10/93	8/17/93	0.027	0.027	0.028	0.000	0.032
34	8/17/93	8/24/93	0.023	0.023	0.021	0.024	0.024
35	8/24/93	8/31/93	0.028	0.028	0.029	0.026	0.028
36	8/31/93	9/7/93	0.020	0.020	0.021	0.024	0.022
37	9/7/93	9/14/93	0.020	0.020	0.017	0.019	0.032
38	9/14/93	9/21/93	0.024	0.024	0.021	0.023	0.025
39	9/21/93	9/28/93	0.020	0.020	0.018	0.019	0.020
40	9/28/93	10/5/93	0.025	0.025	0.027	0.025	0.025
41	10/5/93	10/12/93	0.026	0.026	0.027	0.028	0.031
42	10/12/93	10/19/93	0.019	0.019	0.025	0.027	0.029
43	10/19/93	10/26/93	0.022	0.022	0.023	0.029	0.025
44	10/26/93	11/2/93	0.019	0.019	0.020	0.023	0.025
45	11/2/93	11/9/93	0.024	0.024	0.020	0.021	0.023
46	11/9/93	11/16/93	0.022	0.022	0.016	0.025	0.022
47	11/16/93	11/23/93	0.028	0.028	0.024	0.026	0.027
48	11/23/93	11/30/93	0.031	0.031	0.028	0.028	0.023
49	11/30/93	12/7/93	0.029	0.029	0.036	0.036	0.035
50	12/7/93	12/14/93	0.032	0.032	0.030	0.035	0.031
51	12/14/93	12/21/93	0.029	0.029	0.026	0.030	0.030
52	12/21/93	12/28/93	0.024	0.024	0.024	0.025	0.019

**TABLE 4**  
**Airborne Particulate Quarterly Composite Gamma Isotopic Analyses**  
 (pCi / cubic meter, analysis error reported in Appendix B)

LOCATION	YEAR	QTR	BE-7	BE-7 ERROR	K-40	K-40 ERROR	I-131	CS-134	CS-137
2	1993	1	0.06	0.0073	<	0.01	< 0.002	< 0.0006	< 0.0006
2	1993	2	0.08	0.0075	<	0.01	< 0.003	< 0.0005	< 0.0004
2	1993	3	0.07	0.0077	<	0.01	< 0.002	< 0.0004	< 0.0005
2	1993	4	0.06	0.006	<	0.008	< 0.002	< 0.0003	< 0.0006
3	1993	1	0.04	0.0053	<	0.009	< 0.002	< 0.0005	< 0.0006
3	1993	2	0.06	0.0064	<	0.02	< 0.003	< 0.0006	< 0.0006
3	1993	3	0.06	0.0062	<	0.01	< 0.002	< 0.0005	< 0.0005
3	1993	4	0.06	0.0064	<	0.02	< 0.003	< 0.0006	< 0.0006
32	1993	1	0.05	0.0053	<	0.008	< 0.002	< 0.0005	< 0.0006
32	1993	2	0.08	0.0081	0.00601	0.00303	< 0.002	< 0.0004	< 0.0004
32	1993	3	0.08	0.0083	0.00794	0.00402	< 0.002	< 0.0005	< 0.0005
32	1993	4	0.07	0.0072	<	0.009	< 0.003	< 0.0005	< 0.0004
37	1993	1	0.05	0.0063	<	0.02	< 0.002	< 0.0006	< 0.0006
37	1993	2	0.07	0.0074	0.00872	0.00408	< 0.003	< 0.0005	< 0.0005
37	1993	3	0.08	0.0079	<	0.007	< 0.002	< 0.0005	< 0.0005
37	1993	4	0.06	0.006	0.0104	0.0048	< 0.002	< 0.0005	< 0.0005
40	1993	1	0.05	0.0059	<	0.01	< 0.002	< 0.0005	< 0.0005
40	1993	2	0.08	0.0077	0.00663	0.00347	< 0.003	< 0.0005	< 0.0005
40	1993	3	0.06	0.0063	0.00597	0.00312	< 0.001	< 0.0004	< 0.0003
40	1993	4	0.06	0.006	<	0.007	< 0.002	< 0.0004	< 0.0004

**TABLE 5**  
**1993 First & Second Quarter TLD Results**  
 (mr / 90 day qtr)

**First Quarter**

LOCATION	DAYS	90 D AVG	90 D 2STV
1	91.0	13.9	1.9
2	91.0	13.5	0.7
3	91.0	13.4	1.2
4	91.0	13.2	0.8
5	91.0	12.9	1.0
6	91.0	13.4	2.2
7	91.0	12.3	0.8
8	90.9	13.3	1.9
9	91.0	13.0	1.6
10	91.0	13.5	1.0
11	91.0	13.7	1.0
12	91.0	13.4	1.7
13	91.0	13.9	2.2
14	91.0	13.2	3.4
15	91.0	13.6	1.2
16	91.0	13.0	0.8
17	91.0	13.2	1.7
18	91.0	15.0	1.6
19	91.0	14.0	1.2
20	91.0	13.3	1.6
21	91.0	12.4	0.7
22	91.0	13.0	1.3
23	91.0	14.0	0.5
24	91.0	14.0	1.2
25	91.0	10.5	1.0
26	91.0	12.5	1.2
27	91.0	15.3	1.8
28	91.0	12.1	1.2
29	91.0	11.1	0.6
30	91.0	13.1	0.9
31	91.0	13.2	1.5
32	91.0	12.8	1.7
33	91.0	15.0	2.0
34	91.0	14.7	1.2
35	90.9	14.2	1.3
36	90.9	12.5	2.0
37	91.0	12.4	1.1
38	91.0	14.2	1.1
39	91.0	13.6	0.9
40	90.7	12.8	2.2
41	91.0	11.8	1.1
42	91.0	9.4	0.7
43	91.0	10.4	2.5

**Second Quarter**

LOCATION	DAYS	90 D AVG	90 D 2STV
1	92.3	15.0	1.8
2	92.3	14.8	2.7
3	92.2	14.2	1.4
4	92.2	15.6	2.3
5	92.2	14.1	2.0
6	92.1	13.8	1.3
7	92.2	14.0	1.5
8	92.3	14.9	1.4
9	92.2	11.4	5.7
10	92.1	15.7	6.4
11	92.2	15.5	1.9
12	92.2	14.8	1.3
13	92.2	14.8	1.4
14	92.2	15.0	1.6
15	92.1	14.3	1.4
16	92.1	14.3	2.3
17	92.1	14.2	1.8
18	92.1	14.6	1.5
19	92.1	15.5	2.1
20	92.0	15.0	1.4
21	92.0	12.1	1.8
22	92.1	13.5	1.7
23	92.0	14.9	1.6
24	92.0	14.2	1.5
25	92.0	11.8	0.8
26	92.0	13.7	1.3
27	92.0	14.7	1.3
28	92.0	12.6	1.8
29	92.0	11.8	1.7
30	92.0	13.6	1.5
31	92.0	14.1	1.2
32	92.0	13.3	1.1
33	92.0	14.7	1.3
34	92.0	14.8	1.8
35	92.2	15.1	2.0
36	92.2	14.3	0.8
37	92.0	14.4	2.3
38	92.0	15.4	2.9
39	92.1	13.9	1.5
40	92.4	12.8	3.1
41	92.3	12.1	1.0
42	92.3	8.8	1.8
43	92.1	9.8	1.2



TABLE 6  
1993 Third & Fourth Quarter TLD Results  
(mr / 90 day qtr)

Third Quarter (Panasonic TLD data)

LOCATION	DAYS	90 D AVG	90 D 2STV
1	97.9	17.5	1.0
2	97.8	15.6	1.9
3	97.9	14.9	0.8
4	97.9	16.0	0.6
5	97.9	14.9	1.0
6	97.9	13.7	1.1
7	97.9	14.6	1.1
8	97.9	16.1	1.6
9	97.9	13.9	1.1
10	98.0	15.8	1.4
11	97.9	17.5	2.9
12	97.9	16.0	1.7
13	97.9	17.0	0.6
14	97.9	18.1	1.9
15	97.9	16.8	1.7
16	97.9	15.9	0.7
17	97.9	18.0	2.2
18	97.9	16.9	2.7
19	97.9	18.9	1.3
20	98.0	16.1	1.8
21	98.0	15.3	5.9
22	97.9	15.1	1.3
23	98.0	14.8	2.1
24	98.0	15.0	0.8
25	98.0	12.1	0.8
26	98.0	13.9	1.0
27	98.0	15.2	0.9
28	98.0	13.7	0.3
29	98.0	13.2	1.1
30	98.0	15.3	1.5
31	98.0	15.8	0.5
32	98.0	15.5	1.9
33	98.0	17.2	0.3
34	98.0	17.4	1.0
35	97.9	19.4	2.3
36	97.9	18.7	1.7
37	98.0	17.3	2.2
38	98.0	18.8	2.1
39	98.0	16.8	0.8
40	98.0	16.2	2.4
41	97.9	15.5	1.4
42	97.9	12.5	1.6
43	97.9	11.2	2.2

Fourth Quarter (Teledyne TLD data)

LOCATION	DAYS	90 D AVG	90 D 2STV
1	83.0	15.6	2.3
2	83.1	14.7	1.7
3	83.1	14.8	1.5
4	83.1	15.4	3.3
5	83.0	13.9	1.1
6	83.1	14.7	1.5
7	83.1	13.8	0.9
8	83.0	16.2	1.0
9	83.1	14.2	1.1
10	83.1	15.7	1.9
11	83.1	15.6	1.5
12	83.1	14.1	1.5
13	83.1	15.6	1.2
14	83.1	16.1	1.6
15	83.1	16.7	1.7
16	83.1	16.4	1.5
17	83.1	14.9	1.6
18	83.1	16.6	1.7
19	83.1	16.8	1.0
20	83.1	19.4	3.7
21	83.1	15.7	1.7
22	83.0	16.0	1.6
23	83.1	16.5	1.7
24	83.1	16.4	1.1
25	83.1	13.3	2.3
26	83.1	14.1	0.7
27	83.0	15.7	1.0
28	83.0	16.7	1.2
29	83.0	14.1	1.6
30	83.1	15.5	1.5
31	83.1	16.4	1.3
32	83.0	15.5	0.7
33	83.1	16.4	2.1
34	83.0	16.5	1.2
35	83.1	15.4	0.9
36	83.1	15.3	1.9
37	83.0	15.7	0.9
38	83.0	16.9	1.6
39	83.1	14.3	2.6
40	83.0	14.3	1.0
41	83.0	15.3	1.2
42	83.0	11.8	0.6
43	83.0	10.3	0.5

**TABLE 7**  
**1993 Drinking Water Radiological Analyses**  
**(pCi / liter, analysis error reported in Appendix B)**

SAMPLE COLLECTION START DATE	LOCATION	GR-B	GR-B ERROR	MN-54	FE-59	CO-58	CO-60	ZN-65	ZR- NB-95	I-131	CS-134	CS-137
2/2/93	BW15	5	+/- 1.8	< 3	< 6	< 3	< 3	< 7	< 3	< 1	< 3	< 3
2/2/93	BW15	5.1	+/- 1.8	< 2	< 5	< 2	< 2	< 5	< 2	< 1	< 3	< 3
3/2/93	BW15	6.8	+/- 1.3	< 2	< 6	< 3	< 3	< 6	< 3	< 0.2	< 3	< 4
4/6/93	BW15	7.9	+/- 1.4	< 3	< 7	< 3	< 4	< 6	< 3	< 0.5	< 4	< 4
5/4/93	BW15	5.9	+/- 1.1	< 3	< 6	< 3	< 4	< 7	< 4	< 0.2	< 4	< 4
6/1/93	BW15	9.4	+/- 1.7	< 3	< 7	< 3	< 3	< 7	< 3	< 0.2	< 3	< 4
7/6/93	BW15	6.8	+/- 1.2	< 3	< 6	< 3	< 3	< 7	< 4	< 0.5	< 4	< 4
8/3/93	BW15	6.2	+/- 1.3	< 4	< 7	< 4	< 4	< 9	< 4	< 0.4	< 4	< 4
8/31/93	BW15	7.1	+/- 3.5	< 3	< 6	< 3	< 3	< 6	< 3	< 0.9	< 3	< 3
11/30/93	BW15	6.4	+/- 1.4	< 3	< 6	< 3	< 3	< 7	< 3	< 0.2	< 3	< 3
11/30/93	BW15	7.9	+/- 1.5	< 3	< 6	< 3	< 4	< 6	< 3	< 0.1	< 3	< 3
2/2/93	LW40	6.7	+/- 1.4	< 3	< 7	< 3	< 4	< 8	< 3	< 0.6	< 4	< 4
3/2/93	LW40	6.2	+/- 1.4	< 3	< 6	< 3	< 3	< 6	< 3	< 0.1	< 3	< 4
4/6/93	LW40	8.5	+/- 1.5	< 4	< 9	< 4	< 4	< 10	< 5	< 0.5	< 5	< 5
5/4/93	LW40	6.4	+/- 1.3	< 4	< 8	< 4	< 4	< 8	< 4	< 0.2	< 4	< 4
6/1/93	LW40	6.7	+/- 2.2	< 3	< 6	< 3	< 3	< 6	< 3	< 0.5	< 3	< 4
6/1/93	LW40	12	+/- 3	< 3	< 7	< 3	< 3	< 7	< 3	< 0.6	< 3	< 3
7/6/93	LW40	6	+/- 1.3	< 4	< 9	< 4	< 4	< 9	< 4	< 0.4	< 5	< 5
8/3/93	LW40	5.3	+/- 1.4	< 4	< 7	< 3	< 4	< 8	< 4	< 0.4	< 4	< 4
8/31/93	LW40	13	+/- 4	< 3	< 6	< 3	< 4	< 7	< 3	< 0.8	< 3	< 4
10/5/93	LW40	2.3	+/- 1.3	< 4	< 8	< 4	< 4	< 8	< 4	< 0.2	< 4	< 4
11/30/93	LW40	7.4	+/- 1.5	< 3	< 7	< 3	< 3	< 8	< 4	< 0.2	< 3	< 4
11/30/93	LW40	6.7	+/- 1.5	< 4	< 9	< 4	< 5	< 8	< 4	< 0.2	< 5	< 5

**TABLE 8**  
**1993 Surface Water Radiological Analyses**  
**(pCi / liter, analysis error reported in Appendix B)**

LOCATION	DATE	H-3	MN-54	FE-59	CO-58	CO-60	ZN-65	ZR- NB-95	I-131	CS- 134	CS- 137	BA-LA- 140	COMMENTS
DC	1/19/93	6300	< 3	< 7	< 3	< 4	< 8	< 4	< 6	< 4	< 4	< 5	
DC	2/23/93	6400	< 3	< 8	< 3	< 4	< 7	< 4	< 10	< 4	< 4	< 9	
DC	2/23/93	6600	< 3	< 8	< 3	< 4	< 7	< 4	< 10	< 3	< 4	< 7	DUPLICATE DC
DC	3/16/93	7800	< 4	< 10	< 4	< 5	< 10	< 5	< 8	< 5	< 5	< 6	
DC	4/20/93	8900	< 3	< 6	< 3	< 3	< 6	< 3	< 5	< 3	< 3	< 4	
DC	5/18/93	7300	< 3	< 7	< 3	< 4	< 7	< 4	< 7	< 4	< 4	< 6	
DC	6/15/93	7300	< 3	< 7	< 4	< 4	< 8	< 4	< 6	< 4	< 4	< 5	
DC	7/20/93	5900	< 3	< 7	< 3	< 4	< 6	< 4	< 6	< 3	< 4	< 5	
DC	8/17/93	6500	< 3	< 7	< 3	< 3	< 6	< 3	< 7	< 3	< 3	< 5	
DC	8/17/93	6800	< 3	< 6	< 3	< 3	< 5	< 3	< 7	< 3	< 4	< 7	DUPLICATE
DC	9/21/93	6700	< 3	< 8	< 4	< 4	< 8	< 4	< 8	< 4	< 4	< 7	
DC	10/19/93	6700	< 3	< 7	< 3	< 3	< 7	< 3	< 10	< 3	< 3	< 10	
DC	11/16/93	6800	< 3	< 8	< 3	< 3	< 6	< 4	< 20	< 3	< 3	< 9	
DC	12/21/93	6600	< 3	< 6	< 3	< 3	< 6	< 3	< 7	< 3	< 4	< 6	
MUSH	1/19/93	< 600	< 3	< 7	< 3	< 4	< 7	< 4	< 6	< 3	< 5	< 5	
MUSH	2/23/93	< 100	< 3	< 8	< 3	< 3	< 7	< 3	< 10	< 3	< 5	< 7	
MUSH	3/16/93	< 600	< 3	< 6	< 3	< 4	< 7	< 3	< 6	< 3	< 5	< 5	
MUSH	4/20/93	< 400	< 4	< 9	< 4	< 4	< 8	< 4	< 7	< 4	< 4	< 6	
MUSH	5/18/93	< 600	< 3	< 6	< 3	< 3	< 6	< 3	< 4	< 3	< 3	< 4	
MUSH	6/15/93	< 600	< 4	< 9	< 4	< 5	< 10	< 5	< 10	< 5	< 5	< 7	
MUSH	7/20/93	< 700	< 3	< 6	< 3	< 3	< 7	< 3	< 6	< 3	< 4	< 4	
MUSH	8/17/93	< 700	< 3	< 7	< 3	< 3	< 7	< 3	< 8	< 3	< 4	< 6	
MUSH	9/21/93	< 500	< 3	< 7	< 3	< 4	< 7	< 3	< 7	< 4	< 4	< 6	
MUSH	10/19/93	< 400	< 3	< 8	< 4	< 4	< 7	< 3	< 10	< 4	< 4	< 9	
MUSH	11/16/93	< 400	< 3	< 7	< 3	< 3	< 6	< 3	< 20	< 3	< 3	< 9	
MUSH	12/21/93	< 300	< 3	< 7	< 3	< 3	< 7	< 4	< 8	< 3	< 4	< 8	
SP	1/19/93	6400	< 3	< 6	< 3	< 4	< 7	< 3	< 6	< 4	< 5	< 6	
SP	2/23/93	7000	< 4	< 8	< 4	< 3	< 7	< 4	< 10	< 3	< 4	< 8	
SP	3/16/93	8400	< 3	< 6	< 3	< 3	< 7	< 3	< 6	< 3	< 4	< 5	
SP	4/20/93	8900	< 4	< 8	< 4	< 4	< 8	< 4	< 8	< 4	< 4	< 7	
SP	5/18/93	7400	< 3	< 7	< 4	< 4	< 8	< 4	< 6	< 4	< 4	< 6	
SP	6/15/93	7500	< 4	< 10	< 5	< 5	< 10	< 5	< 8	< 5	< 5	< 6	
SP	7/29/93	6000	< 3	< 7	< 3	< 3	< 6	< 3	< 7	< 4	< 4	< 6	
SP	8/17/93	5600	< 3	< 7	< 3	< 3	< 7	< 3	< 8	< 3	< 4	< 6	
SP	9/21/93	6500	< 3	< 7	< 3	< 4	< 6	< 3	< 7	< 3	< 3	< 6	
SP	10/19/93	7100	< 4	< 10	< 4	< 4	< 8	< 4	< 20	< 4	< 4	< 10	
SP	11/16/93	6300	< 3	< 8	< 3	< 3	< 7	< 4	< 10	< 3	< 3	< 9	
SP	12/21/93	6500	< 2	< 6	< 3	< 3	< 5	< 3	< 6	< 3	< 4	< 5	

**TABLE 9**  
**1993 Ground Water Radiological Analyses**  
**(pCi / liter, analysis error reported in Appendix B)**

LOC	DATE	H-3	MN-54	FE-59	CO-58	CO-60	ZN-65	ZR-NB-95	I-131	CS-134	CS-137	BA-LA-140
B12	23-Feb-93	< 100	< 3	< 8	< 3	< 4	< 8	< 4	< 0.3	< 4	< 4	< 8
B12	18-May-93	< 200	< 3	< 5	< 3	< 3	< 6	< 3	< 0.1	< 3	< 3	< 4
B12	17-Aug-93	< 200	< 3	< 7	< 3	< 3	< 6	< 4	< 0.1	< 3	< 5	< 7
B12	16-Nov-93	< 400	< 3	< 8	< 4	< 4	< 7	< 4	< 0.2	< 4	< 4	< 10
C10	23-Feb-93	< 100	< 5	< 10	< 5	< 5	< 10	< 5	< 0.3	< 5	< 5	< 9
C10	18-May-93	< 200	< 3	< 6	< 3	< 3	< 6	< 3	< 0.3	< 3	< 3	< 4
C10	17-Aug-93	< 200	< 5	< 10	< 5	< 5	< 10	< 6	< 0.2	< 6	< 6	< 9
C10	16-Nov-93	< 400	< 3	< 8	< 3	< 4	< 6	< 3	< 0.2	< 3	< 3	< 8
C49	23-Feb-93	< 100	< 4	< 8	< 4	< 4	< 8	< 4	< 0.2	< 4	< 4	< 7
C49	18-May-93	< 200	< 3	< 7	< 3	< 3	< 7	< 3	< 0.1	< 3	< 4	< 5
C49	17-Aug-93	< 200	< 3	< 6	< 3	< 3	< 5	< 3	< 0.1	< 3	< 4	< 5
C49	16-Nov-93	< 400	< 3	< 7	< 3	< 3	< 7	< 3	< 0.2	< 3	< 3	< 7
D65	23-Feb-93	< 100	< 4	< 10	< 4	< 4	< 9	< 4	< 0.3	< 4	< 4	< 8
D65	18-May-93	< 200	< 4	< 7	< 4	< 4	< 7	< 4	< 0.3	< 4	< 4	< 6
D65	17-Aug-93	< 200	< 3	< 7	< 4	< 4	< 7	< 4	< 0.1	< 3	< 4	< 6
D65	16-Nov-93	< 400	< 3	< 8	< 3	< 4	< 8	< 4	< 0.2	< 3	< 4	< 10
P65	05-May-93	< 200	< 2	< 5	< 3	< 3	< 6	< 3	< 0.2	< 3	< 4	< 4

**TABLE 10**  
**1993 Aquatic Plants Radiological Analyses**  
**(pCi / liter, analysis error reported in Appendix B)**

LOC	TYPE	DATE	BE-7	K-40	MN-54	CO-58	CO-60	CS-134	CS-137	RA-226	TH-228	CR-81	SB-125
DC	ALGAE	6/29/93	6.19E-01	1.0E+00	6.78E-02	9.18E-01	6.58E-01	7.39E-02	1.06E-01	3.44E-01	1.81E-01	2.35E-01	4.59E-02
DC	ROOTED AQUATIC	6/29/93	8.81E-02	1.91E+00		6.47E-02	2.61E-02			1.63E-01			
DC ALT	AM POND WEED	9/29/93	3.01E-02	2.60E+00					7.28E-03	1.62E-02			

**TABLE 11**  
**1993 Shoreline Sediment Radiological Analyses**  
**(pCi / kg dry, analysis error reported in Appendix B)**

LOCATION	DATE	BE-7	K-40	CO-58	CO-60	CS-134	CS-137	RA-226	TH-228	RA-228
DC	20-Apr-93	< 0.5	9.77	< 0.05	0.0928	< 0.06	0.174	1.91	1.09	< LLD
JRR	20-Apr-93	< 0.4	10.80	< 0.03	< 0.03	< 0.05	< 0.04	2.32	1.71	< LLD
DC	28-Sep-93	< 0.3	7.50	< 0.03	< 0.03	< 0.04	0.0731	0.738	0.69	< LLD
JRR	09-Nov-93	< 0.3	8.77	< 0.03	< 0.03	< 0.04	0.108	1.55	1.01	< LLD
JRR	09-Nov-93	< 0.4	8.70	< 0.04	< 0.03	< 0.05	0.139	2.36	1.16	< LLD

Those numbers reported as <LLD are not normally tracked in WCNOG shoreline sediment databases unless activity is detected.

**TABLE 12**  
**1993 Bottom Sediment Radiological Analyses**

LOC	DATE	BE-7	K-40	MN-54	CO-58	CO-60	CS-134	CS-137	RA-226	TH-228
DC1	5/25/93	<LLD	12.8 +/- 1.3	<LLD	<LLD	1.370 +/- 0.14	0.185 +/- 0.05	0.726 +/- 0.073	3.040 +/- 0.7	1.230 +/- 0.12
DC2	5/25/93	<LLD	4.3 +/- 0.5	<LLD	<LLD	0.474 +/- 0.054	<LLD	0.408 +/- 0.047	1.770 +/- 0.75	0.611 +/- 0.061
DC3	5/25/93	0.454 +/- 0.239	4.9 +/- 0.49	0.077 +/- 0.0028	0.324 +/- 0.039	0.793 +/- 0.079	0.139 +/- 0.03	0.222 +/- 0.036	1.660 +/- 0.45	0.586 +/- 0.059
DC4	5/25/93	<LLD	13.2 +/- 1.3	<LLD	<LLD	1.430 +/- 0.14	0.361 +/- 0.056	0.942 +/- 0.094	2.150 +/- 0.07	1.430 +/- 0.014
DC5	5/25/93	<LLD	13.1 +/- 1.3	<LLD	<LLD	2.340 +/- 0.23	0.293 +/- 0.049	0.840 +/- 0.084	2.530 +/- 0.68	1.530 +/- 0.15
DC	6/29/93	<LLD	14.1 +/- 1.4	<LLD	<LLD	1.180 +/- 0.12	0.271 +/- 0.057	0.893 +/- 0.089	3.290 +/- 0.83	1.330 +/- 0.13
UHS	7/2/93	<LLD	13.7 +/- 1.4	<LLD	<LLD	<LLD	<LLD	0.368 +/- 0.048	2.490 +/- 0.6	1.310 +/- 0.13
JRR	7/2/93	<LLD	17.1 +/- 1.7	<LLD	<LLD	<LLD	<LLD	0.225 +/- 0.038	2.420 +/- 0.54	1.390 +/- 0.14
DC	9/28/93	<LLD	12.0 +/- 1.2	0.057 +/- 0.0325	<LLD	1.080 +/- 0.11	0.322 +/- 0.046	0.647 +/- 0.065	2.120 +/- 0.59	1.240 +/- 0.12
JRR	11/9/1993	<LLD	10.9 +/- 1.1	<LLD	<LLD	<LLD	<LLD	0.216 +/- 0.03	1.590 +/- 0.54	1.100 +/- 0.11

Those numbers reported as <LLD are not normally tracked in WCNOG bottom sediment databases unless activity is detected.

\* Duplicate Sample



**TABLE 13**  
**1993 Broadleaf Vegetation Radiological Analyses**  
**(pCi / kg dry, analysis error reported in Appendix B)**

DATE	TYPE	LOC	BE-7	BE-7 ERROR	K-40	K-40 ERROR	RU-103	I-131	CS-134	CS-137	RA-226	TH-228
27-May-93	LETTUCE	S4	0.57	0.116	5.4	0.54	< 0.01	< 0.02	< 0.02	< 0.02	< 0.3	< 0.02
25-May-93	LETTUCE	R1	0.931	0.115	5.46	0.55	< 0.01	< 0.02	< 0.01	< 0.01	< 0.2	< 0.02
22-Jun-93	CABBAGE	S-4	0.367	0.066	3.45	0.34	< 0.009	< 0.01	< 0.009	< 0.009	< 0.02	< 0.02
29-Jun-93	LETTUCE	R-1	0.852	0.085	8.48	0.85	< 0.008	< 0.01	< 0.008	< 0.009	< 0.1	< 0.01
27-Jul-93	CABBAGE	S-4	1.49	0.150	3.75	0.37	< 0.01	< 0.02	< 0.009	< 0.009	< 0.2	< 0.01
27-Jul-93	CABBAGE	F	.1	0.110	3.4	0.34	< 0.01	< 0.02	< 0.01	< 0.01	< 0.2	< 0.02
27-Jul-93	SWISS CHARD	I	0.689	0.099	4.24	0.42	< 0.01	< 0.02	< 0.01	< 0.01	< 0.2	< 0.02
17-Aug-93	SWISS CHARD		0.242	0.058	6.28	0.63	< 0.008	< 0.01	< 0.009	< 0.01	< 0.2	< 0.01
17-Aug-93	SWISS CHARD	A-	0.31	0.067	6.19	0.62	< 0.009	< 0.01	< 0.01	< 0.009	< 0.2	< 0.01
24-Aug-93	CABBAGE	S-4	0.33	0.088	3.96	0.4	< 0.01	< 0.02	< 0.01	< 0.01	< 0.2	< 0.02
21-Sep-93	SWISS CHARD	A-1	0.527	0.840	3.89	0.39	< 0.01	< 0.02	< 0.01	< 0.01	< 0.2	0.0606
21-Sep-93	CABBAGE	S-4	0.626	0.100	4.15	0.41	< 0.02	< 0.03	< 0.01	< 0.01	< 0.2	< 0.02
26-Oct-93	SWISS CHARD	A-1	0.557	0.072	2.67	0.27	< 0.009	< 0.02	< 0.009	< 0.009	< 0.2	< 0.01

**TABLE 14**  
**1993 Irrigated Crops Radiological Analyses**  
**(pCi / kg dry, analysis error reported in Appendix B)**

DATE	TYPE	LOC	BE-7	BE-7 ERROR	K-40	K-40 ERROR	RU-103	I-131	CS-134	CS-137	RA-226	TH-228
19-Oct-93	SOYBEANS	NR-U1	< 0.06	N/A	13.1	1.3	< 0.008	< 0.009	< 0.009	< 0.009	< 0.1	0.01
19-Oct-93	CORN	NR-U1	< 0.08	N/A	2.72	0.27	< 0.01	< 0.01	< 0.01	< 0.01	< 0.2	0.02
19-Oct-93	SOYBEANS	NR-D1	< 0.09	N/A	14.7	1.5	< 0.01	< 0.02	< 0.01	< 0.01	< 0.2	< 0.02
19-Oct-93	CORN	NR-D2	< 0.06	N/A	2.9	0.29	< 0.007	< 0.01	< 0.008	< 0.008	< 0.1	< 0.01

**TABLE 15**  
**1993 Milk Radiological Analyses**  
**(pCi / kg dry, analysis error reported in Appendix B)**

TYPE	DATE	I-131	K-40	K-40 ERROR	CS-134	CS-137	BA-LA- 140	COMMENTS
COW	1/12/93	< 0.2	1350	+/- 140	< 4	< 4	< 6	
COW	1/12/93	< 0.2	1390	+/- 140	< 4	< 5	< 6	DUPLICATE
COW	2/10/93	< 0.4	1340	+/- 130	< 4	< 5	< 7	
COW	2/10/93	< 0.4	1510	+/- 150	< 5	< 5	< 7	DUPLICATE
COW	3/9/93	< 0.6	1390	+/- 140	< 4	< 5	< 5	
COW	4/13/93	< 0.02	1370	+/- 140	< 4	< 5	< 5	
COW	4/28/93	< 0.02	1470	+/- 150	< 3	< 3	< 4	
COW	5/11/93	< 0.02	1360	+/- 140	< 4	< 4	< 5	
COW	5/25/93	< 0.1	1400	+/- 140	< 4	< 4	< 6	
COW	6/8/93	< 0.1	1410	+/- 140	< 4	< 4	< 4	
COW	7/13/93	< 0.02	1270	+/- 130	< 4	< 4	< 6	
COW	7/27/93	< 0.02	1390	+/- 140	< 4	< 4	< 5	
COW	8/10/93	< 0.3	1480	+/- 150	< 4	< 4	< 7	
COW	8/24/93	< 0.02	<100		< 4	< 4	< 5	K-40 <100
COW	9/7/93	< 0.2	1360	+/- 140	< 4	< 4	< 6	
COW	9/21/93	< 0.3	1320	+/- 130	< 4	< 4	< 6	
COW	10/12/93	< 0.3	1420	+/- 140	< 4	< 4	< 7	
COW	10/26/93	< 0.7	1540	+/- 150	< 4	< 4	< 6	
COW	11/9/93	< 0.2	1370	+/- 140	< 5	< 5	< 6	
COW	11/23/93	< 0.3	1390	+/- 140	< 5	< 5	< 6	
COW	12/7/93	< 0.2	1410	+/- 140	< 3	< 4	< 5	

**TABLE 16**  
**1993 Fish Radiological Analyses**  
**(pCi / kg dry, analysis error reported in Appendix B)**

DATE	SPECIES	Location	K-40	MN-54	FE-59	CO-58	CO-60	ZN-65	CS-134	CS-137	TH-228
30-Apr-93	CHANNEL CAT	WCCL	3.59	< 0.01	< 0.03	< 0.01	< 0.01	< 0.03	< 0.02	< 0.02	0.02
30-Apr-93	WILLOW CAT	WCCL	3.71	< 0.01	< 0.03	< 0.02	< 0.01	< 0.03	< 0.02	< 0.02	0.03
30-Apr-93	CARP	WCCL	3.07	< 0.02	< 0.03	< 0.02	< 0.01	< 0.03	< 0.02	< 0.02	0.03
18-May-93	WHITE BASS	JRR	3.57	< 0.03	< 0.06	< 0.03	< 0.03	< 0.05	< 0.03	< 0.03	0.06
18-May-93	COMMON CARP	JRR	3.27	< 0.03	< 0.06	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	0.04
09-Nov-93	CARP	JRR	3.28	< 0.01	< 0.03	< 0.01	< 0.01	< 0.03	< 0.01	< 0.01	0.02
05-Oct-93	SM BASS/WIPER	WCCL	2.70	< 0.01	< 0.03	< 0.01	< 0.01	< 0.03	< 0.01	< 0.01	0.02
05-Oct-93	CHANNEL CATFISH	WCCL	2.80	< 0.02	< 0.05	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	0.04
05-Oct-93	CARP	WCCL	3.23	< 0.02	< 0.04	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	0.04

TABLE 17  
1993 Land Use Census Residence Data

SECTOR	TOTAL POPULATION FOR SECTOR	NO. OF RESPONSES/ HOUSEHOLDS	1992 DISTANCE(Mi) / CLOSEST RESIDENCE	1993 DISTANCE(Mi) / CLOSEST RESIDENCE
A	13	6/6	1.4/A1.4	1.4/A1.4
B	16	6/6	3.1/B3.1	3.1/B3.1
C	23	9/9	2.0/C2.0	<b>1.9/C1.9</b>
D	12	5/5	2.1/D2.1	2.1/D2.1
E	10	4/4	1.8/E1.8	1.8/E1.8
F	43	15/15	1.8/F1.8	<b>1.6/F1.6</b>
G	23	9/9	1.6/G1.6	1.6/G1.6
H	13	4/4	3.1/H3.1	3.1/H3.1
J	21	7/8	3.3/J3.3	3.3/J3.3
K	7	4/4	2.6/K2.6	2.6/K2.6
L	43	14/15	2.1/L2.1	2.1/L2.1
M	28	15/16	1.6/M1.6	1.6/M1.6
N	15	6/6	2.1/N2.1	2.1/N2.1
P	74	24/25	2.9/P2.9	<b>2.8/P2.8</b>
Q	25	10/10	1.4/Q1.4	1.4/Q1.4
R	7	4/4	1.9/R1.9	<b>2.1/R2.1</b>

NOTE: Entries shown in bold indicate changes from the 1992 land use census.

TABLE 18  
1993 Land Use Census Milk and Garden Data

SECTOR	1992 DISTANCE (MI)/MILK ANIMAL	1993 DISTANCE (MI)/MILK ANIMAL	1992 DISTANCE (MI)/CLOSEST GARDEN	1993 DISTANCE (MI)/CLOSEST GARDEN	D/Q (DEPOSITION CONSTANT)/ RANKING
A	none	none	1.4/A-01	1.4/A1.4	4.70E-09/1
B	4.9/B4.9	4.9/B4.9	3.1/B-02	<b><u>4.2/B4.2</u></b>	<b><u>4.41E-10/11</u></b>
C	none	none	2.0/C-01	<b><u>2.6/C2.6</u></b>	<b><u>5.13E-10/10</u></b>
D	<b><u>none</u></b>	none	2.1/D-01	2.1/D2.1	<b><u>2.54E-10/15</u></b>
E	none	none	1.8/E-01	1.8/E1.8	<b><u>5.80E-10/7</u></b>
F	none	<b><u>4.9/F4.9</u></b>	1.6/F-07	<b><u>1.8/F1.8</u></b>	<b><u>7.06E-10/4</u></b>
G	none	<b><u>3.6/G3.6</u></b>	1.6/G-01	1.6/G1.6	1.82E-09/3
H	none	<b><u>4.9/H4.9</u></b>	3.1/H-02	<b><u>4.9/H4.9</u></b>	<b><u>7.66E-10/14</u></b>
J	none	none	3.3/J-01	<b><u>4.0/J4.0</u></b>	<b><u>4.07E-10/12</u></b>
K	none	none	2.6/K-06	<b><u>4.1/K4.1</u></b>	<b><u>3.61E-10/13</u></b>
L	none	none	2.6/L-39	2.6/L2.6	<b><u>5.55E-10/9</u></b>
M	1.6/M1.6	<b><u>none</u></b>	1.6/M, 19	<b><u>2.4/M2.4</u></b>	<b><u>5.60E-10/8</u></b>
N	none	none	2.6/N-03	2.6/N2.6	<b><u>5.86E-10/6</u></b>
P	none	none	2.8/P-26	<b><u>4.3/P4.3</u></b>	<b><u>2.31E-10/16</u></b>
Q	none	none	2.3/Q-03	<b><u>3.9/Q3.9</u></b>	<b><u>6.24E-10/5</u></b>
R	none	none	2.1/R-01	2.1/R2.1	2.11E-09/2

NOTE: underlined and bold entries indicate changes from the 1992 land use census.

TABLE 19  
1993 US EPA Interlaboratory Comparison Program

Collection Date	Media	Nuclide	EPA Result(a)		Teledyne Isotopes Result(b)		Deviation(c)
01/29/93	Water	Gr-Beta	44.0 ±	5.0	52.00 ±	1.00	2.77 (d)
02/05/93	Water	I-131	100.0 ±	10.0	106.67 ±	5.77	1.15
04/20/93	Water	Gr-Beta	177.0 ±	27.0	150.0 ±	0.00	-1.73
		Co-60	39.0 ±	5.0	40.67 ±	3.51	0.58
		Cs-134	27.0 ±	5.0	23.67 ±	1.53	-1.15
		Cs-137	32.0 ±	5.0	34.33 ±	2.08	0.81
06/04/93	Water	H-3	9844.0 ±	984.0	9366.67 ±	152.75	-0.84
06/11/93	Water	Co-60	15.0 ±	5.0	16.33 ±	1.53	0.46
		Zn-65	103.0 ±	10.0	121.33 ±	20.09	3.18 (e)
		Ru-106	119.0 ±	12.0	106.33 ±	15.89	-1.83
		Cs-134	5.0 ±	5.0	5.67 ±	0.58	0.23
		Cs-137	5.0 ±	5.0	6.67 ±	0.58	0.58
		Ba-133	99.0 ±	10.0	104.33 ±	9.29	0.92
07/23/93	Water	Gr-Beta	43.0 ±	6.9	42.67 ±	2.52	-0.08
08/27/93	Air Filter	Gr-Beta	47.0 ±	5.0	49.00 ±	1.73	0.69
		Cs-137	9.0 ±	5.0	9.67 ±	0.58	0.23
09/24/93	Milk	I-131	120.0 ±	12.0	126.67 ±	5.77	0.96
		Cs-137	49.0 ±	5.0	50.67 ±	1.15	0.58
		K	1679.0 ±	84.0	1620.00 ±	17.32	-1.22
10/08/93	Water	I-131	117.0 ±	12.0	103.33 ±	5.77	-1.97
10/29/93	Water	Gr-Beta	15.0 ±	5.0	15.67 ±	2.08	0.23
11/5/93	Water	H-3	7398.0 ±	740.0	6900.00 ±	100.00	-1.17
11/12/93	Water	Co-60	30.0 ±	5.0	28.67 ±	2.89	-0.46
		Zn-65	150.0 ±	15.0	152.00 ±	9.17	0.23
		Ru-106	201.0 ±	20.0	177.33 ±	5.51	-2.05 (f)
		Cs-134	59.0 ±	5.0	53.33 ±	4.93	-1.96
		Cs-137	40.0 ±	5.0	41.33 ±	3.06	0.46
		Ba-133	79.0 ±	8.0	69.33 ±	3.06	-2.09 (f)



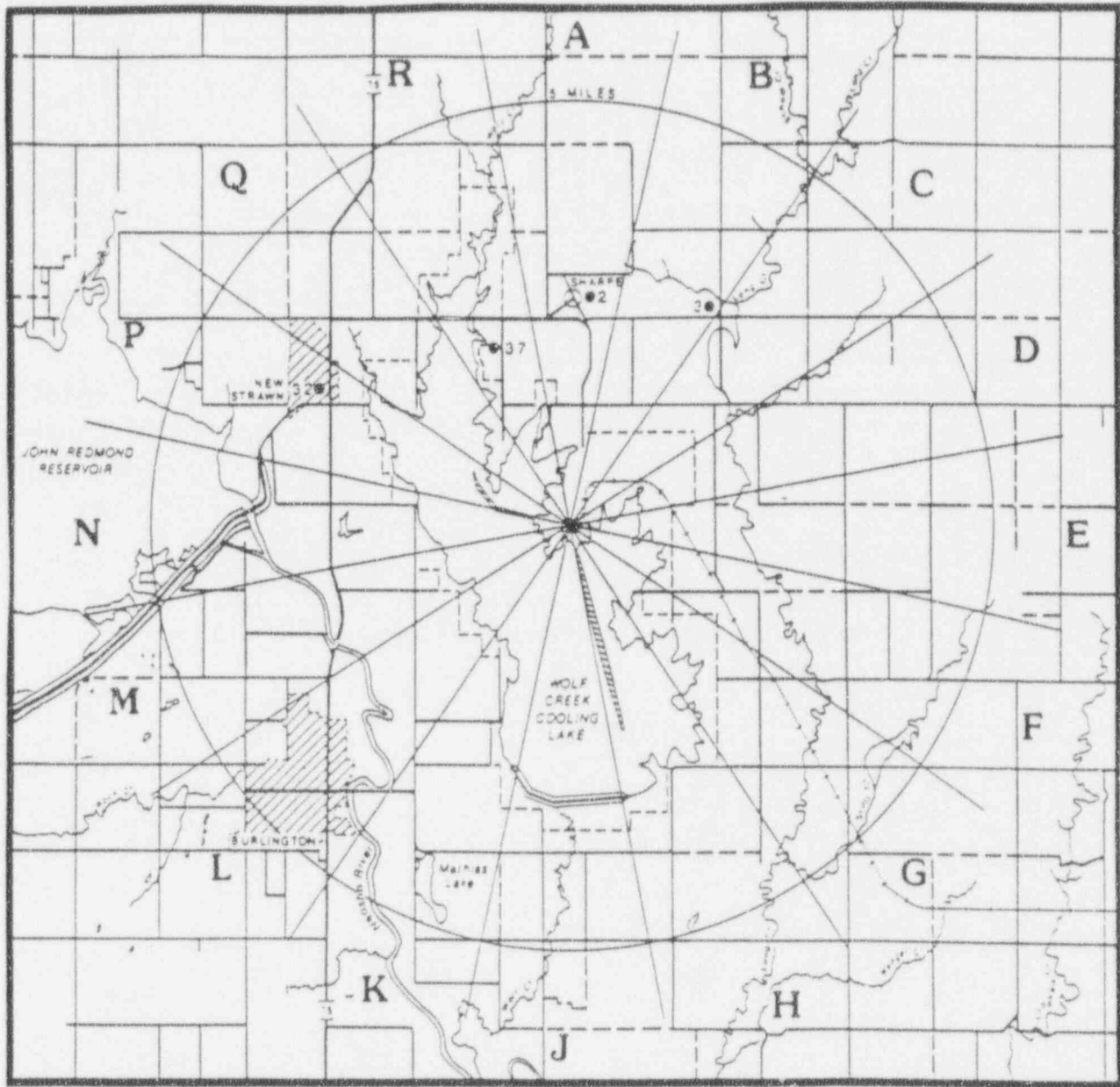
TABLE 19 (cont'd)  
1993 US EPA Interlaboratory Comparison Program

Collection Date	Media	Nuclide	EPA Result(a)	Teledyne Isotopes Result(b)
--------------------	-------	---------	---------------	--------------------------------

**Footnotes:**

- (a) EPA Results-Expected laboratory precision (1 sigma). Units are pCi/liter for water and milk except K is in mg/liter. Units are total pCi for air particulate filters.
- (b) Teledyne Results - Average  $\pm$  one sigma. Units are pCi/liter for water and milk except K is in mg/liter. Units are total pCi for air particulate filters.
- (c) Normalized deviation from the known.
- (d) By oversight, we did not use the special self-absorption curve which we had previously derived using EPA water and Cs-137 standard. We will use the EPA curve in the future. We may also re-derive this curve using a water sample which the EPA has agreed to send us.
- (e) The calculations were checked and found to be correct. The results of six gamma emitting isotopes were reported to the EPA. The results of four were within 1 normalized deviation; a fifth, within 2 normalized deviations. Only the Zn-65 average was outside the control limits. There is no obvious reason why one isotope should be outside the control limits, while five other isotopes were within control limits.
- (f) An investigation is being conducted; the results will be available shortly.

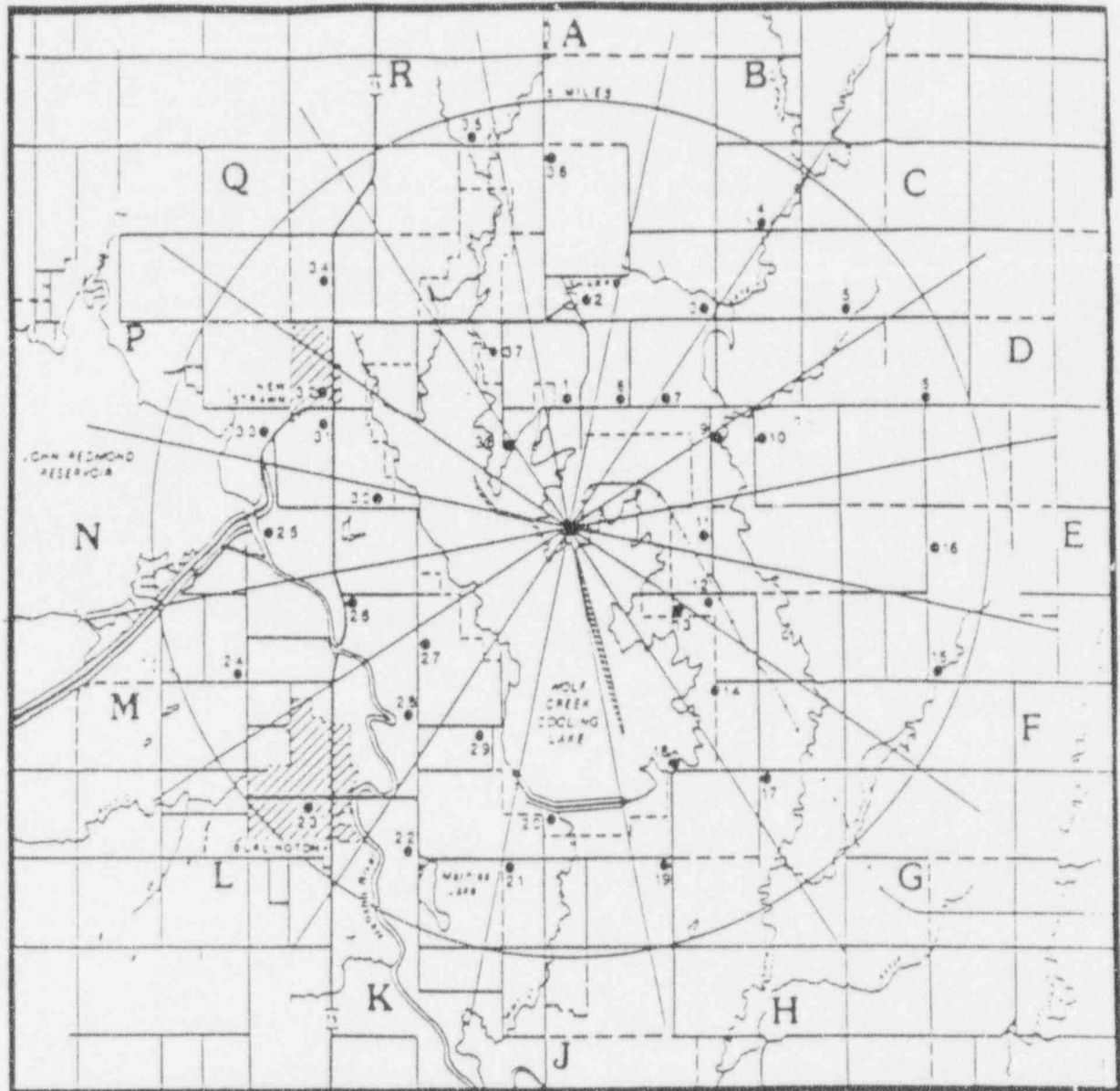
FIGURE 1



### AIRBORNE PATHWAY SAMPLING LOCATIONS

• - AIRBORNE PARTICULATE AND RADIOIODINE

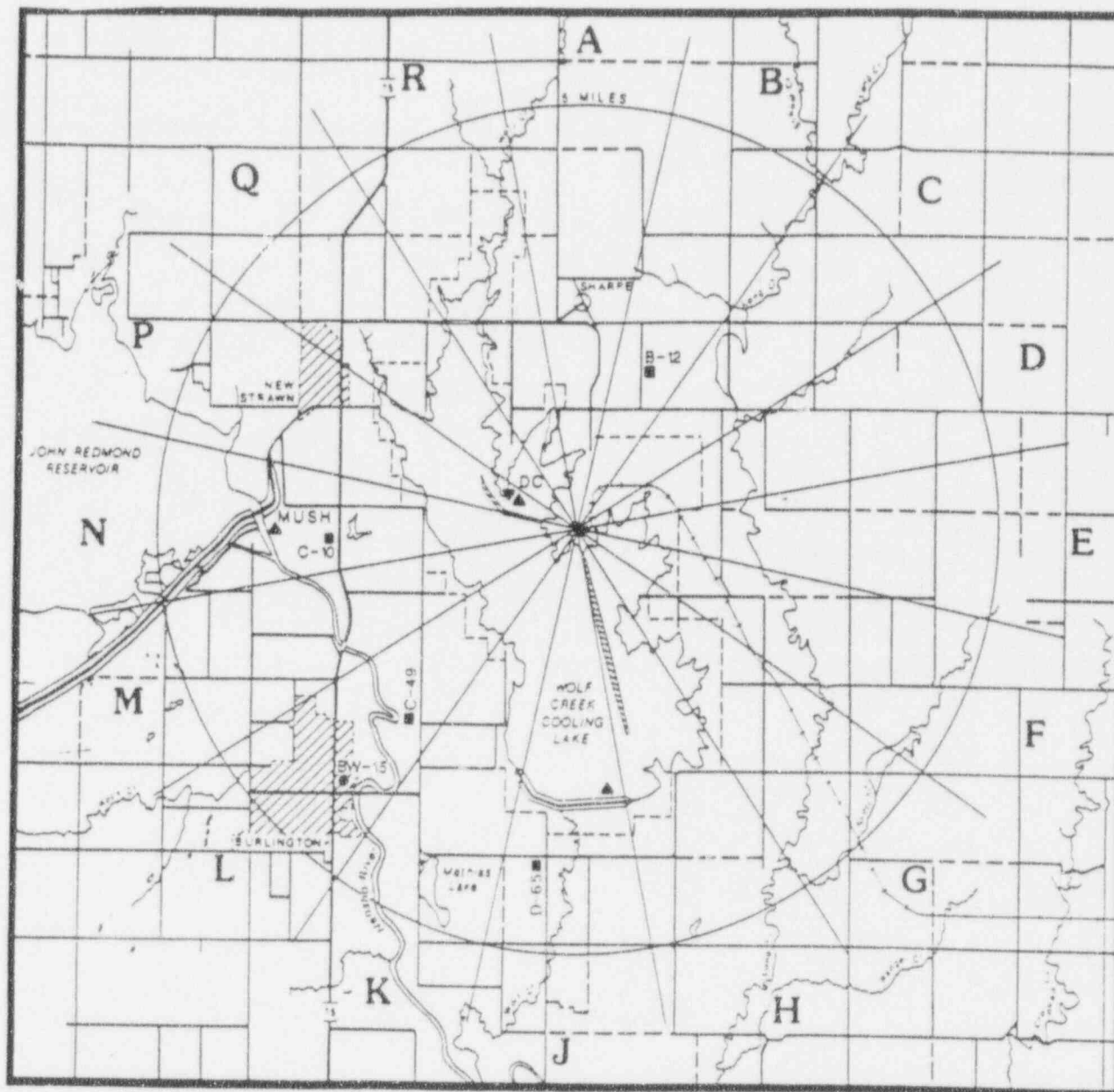
FIGURE 2



## DIRECT RADIATION PATHWAY SAMPLING LOCATIONS

• - TLD LOCATIONS

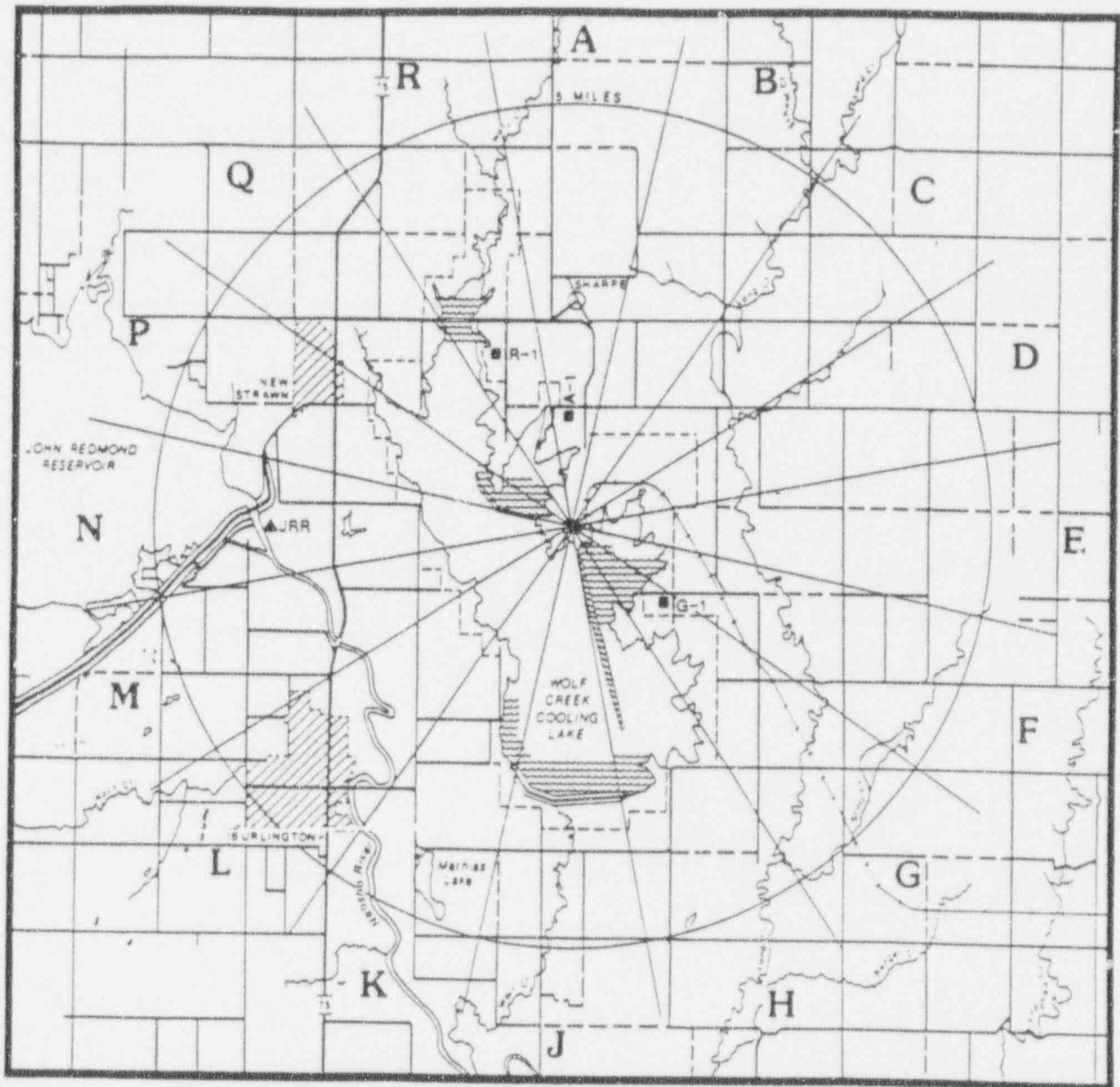
FIGURE 3



### WATERBORNE PATHWAY SAMPLING LOCATIONS

- - DRINKING WATER      ▲ - SURFACE WATER
- - GROUND WATER      ▼ - SHORELINE SEDIMENT

FIGURE 4

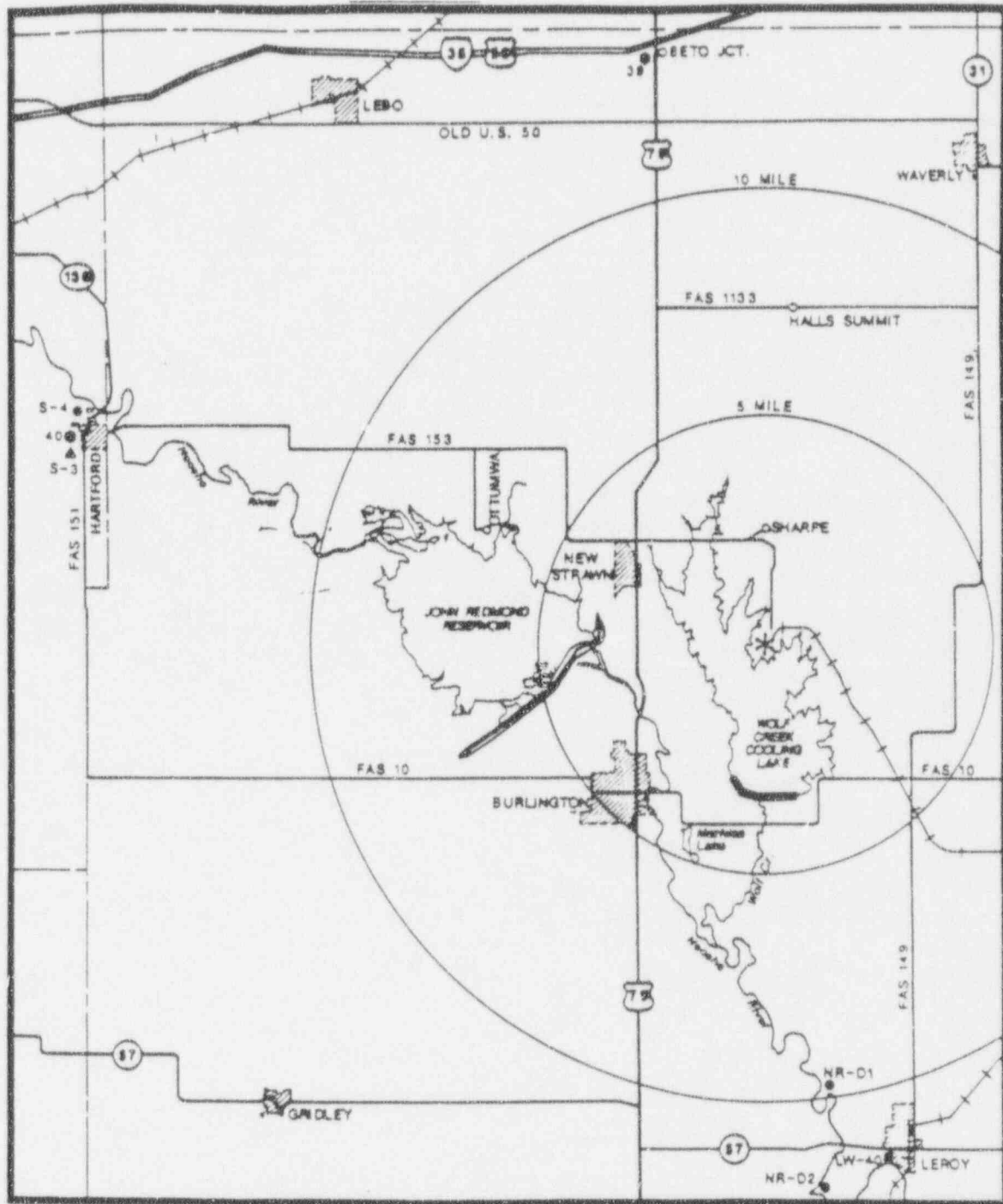


# INGESTION PATHWAY SAMPLING LOCATIONS

■ - FOOD PRODUCTS

△ - FISH (JRR)    ▴ - FISH (WCCL)

FIGURE 5



### DISTANT SAMPLING LOCATIONS

- - TLD      ■ - DRINKING WATER
- ▲ - MILK      ● - BROADLEAF VEGETATION/  
IRRIGATED CROPS



FIGURE 6

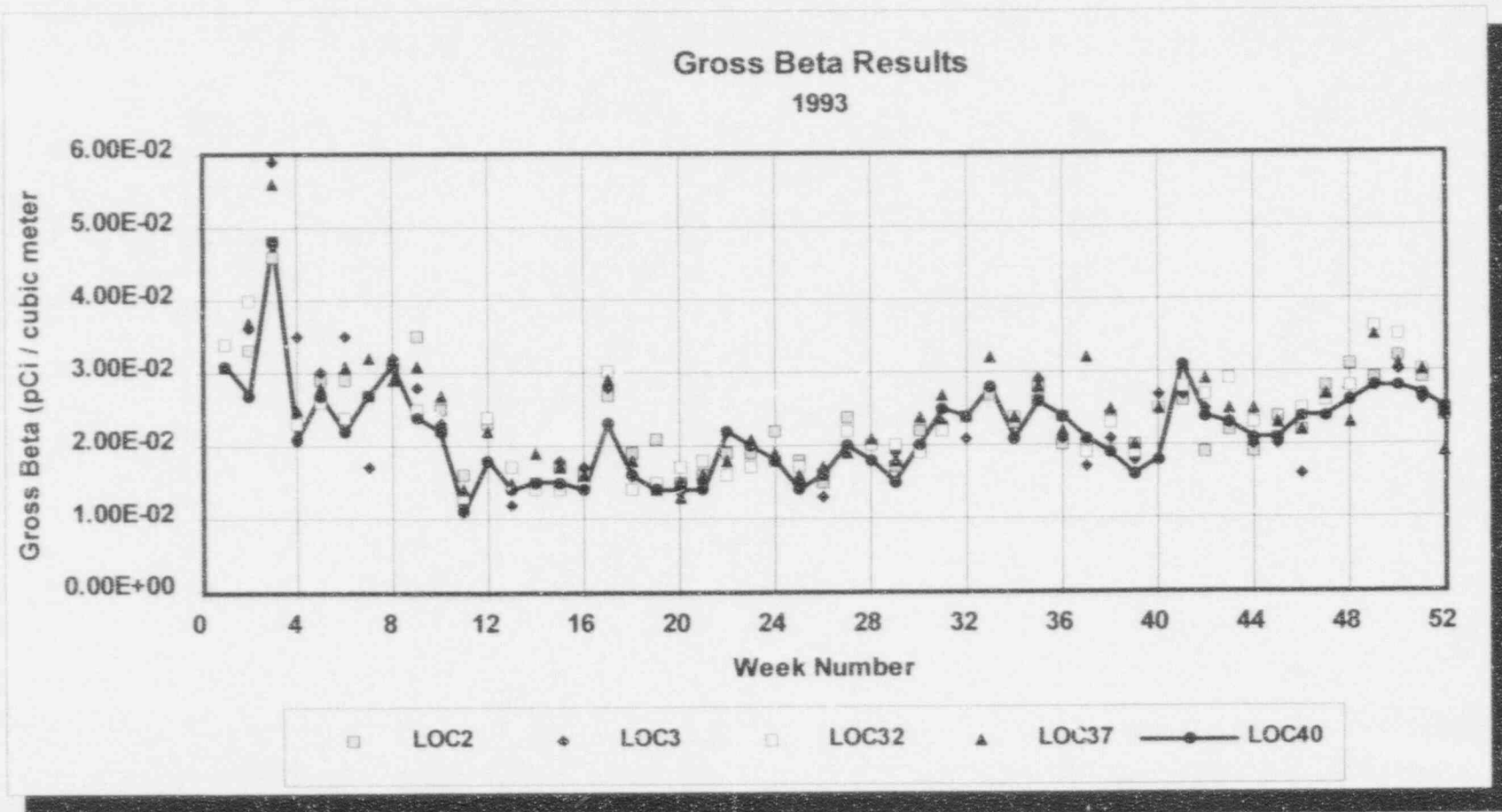


FIGURE 7

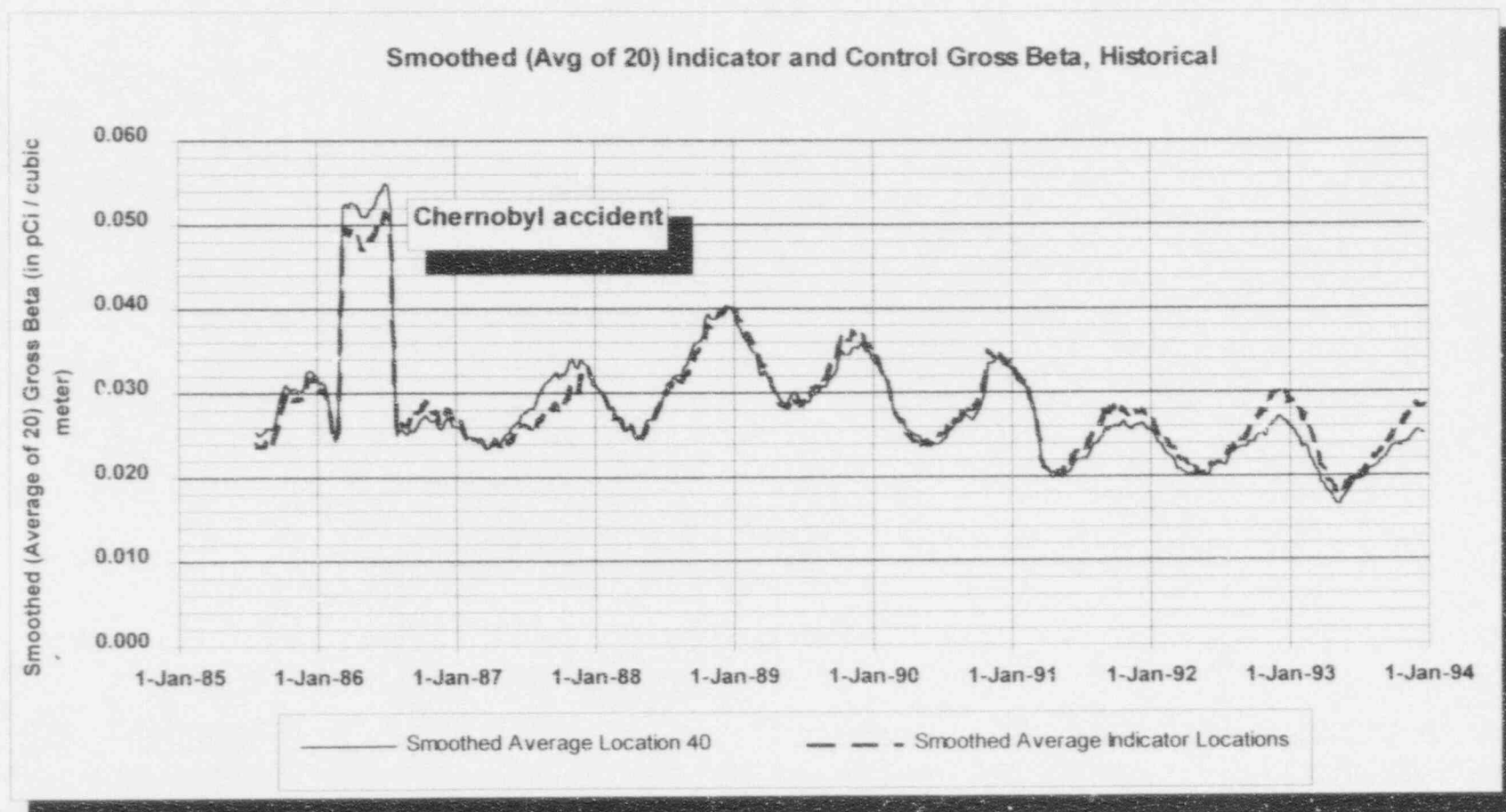


FIGURE 8

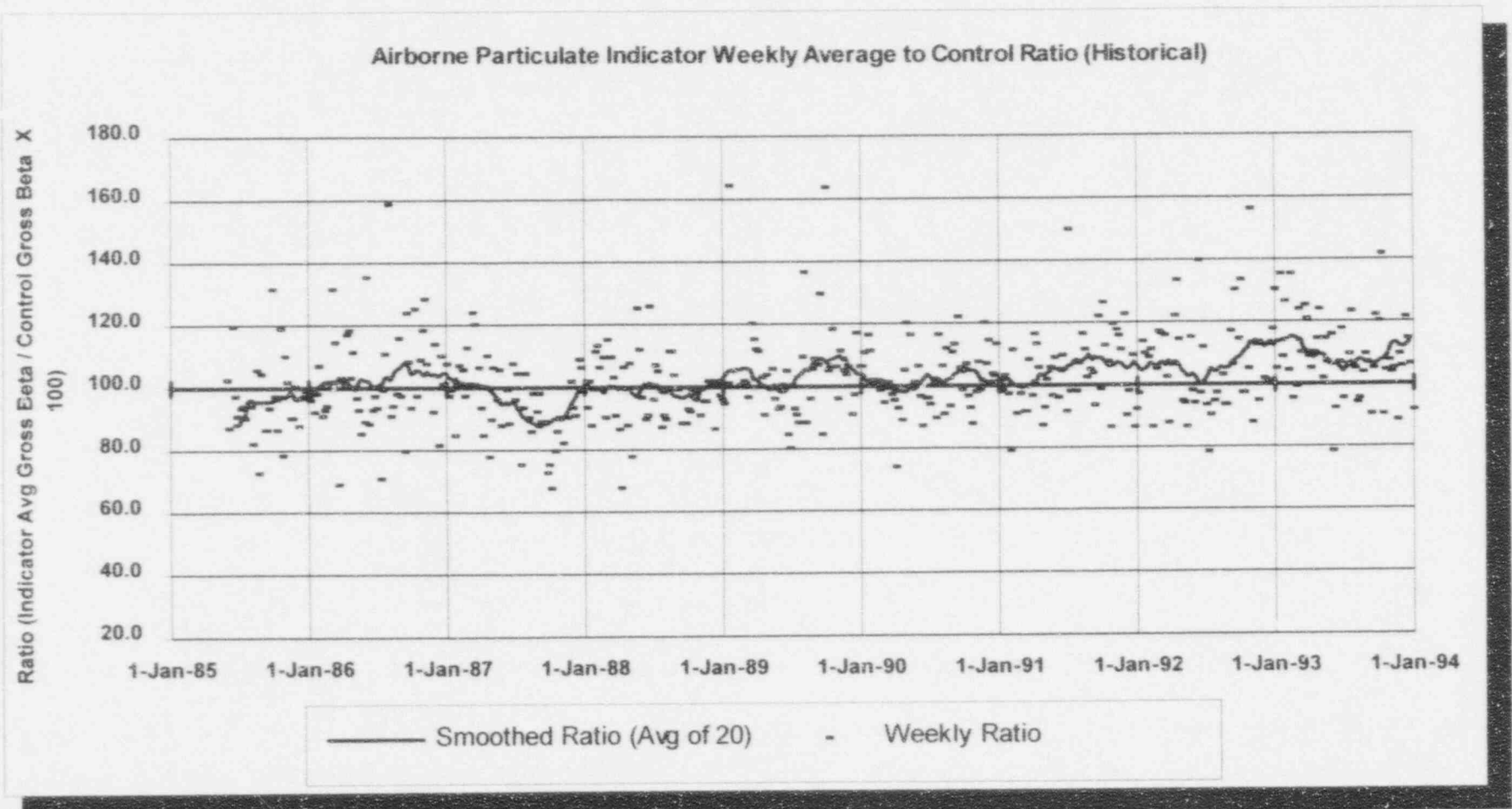


FIGURE 9

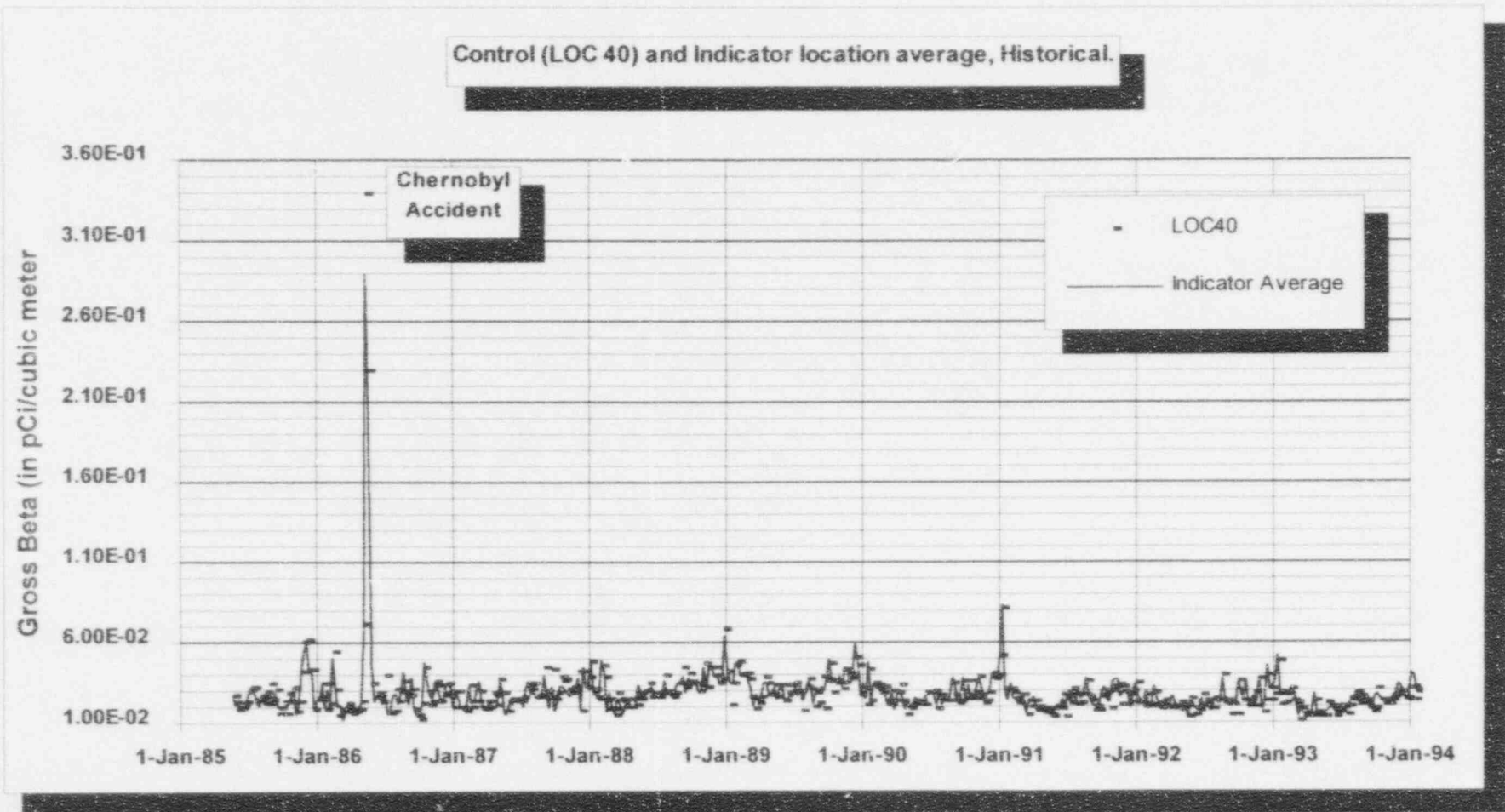


Figure 10

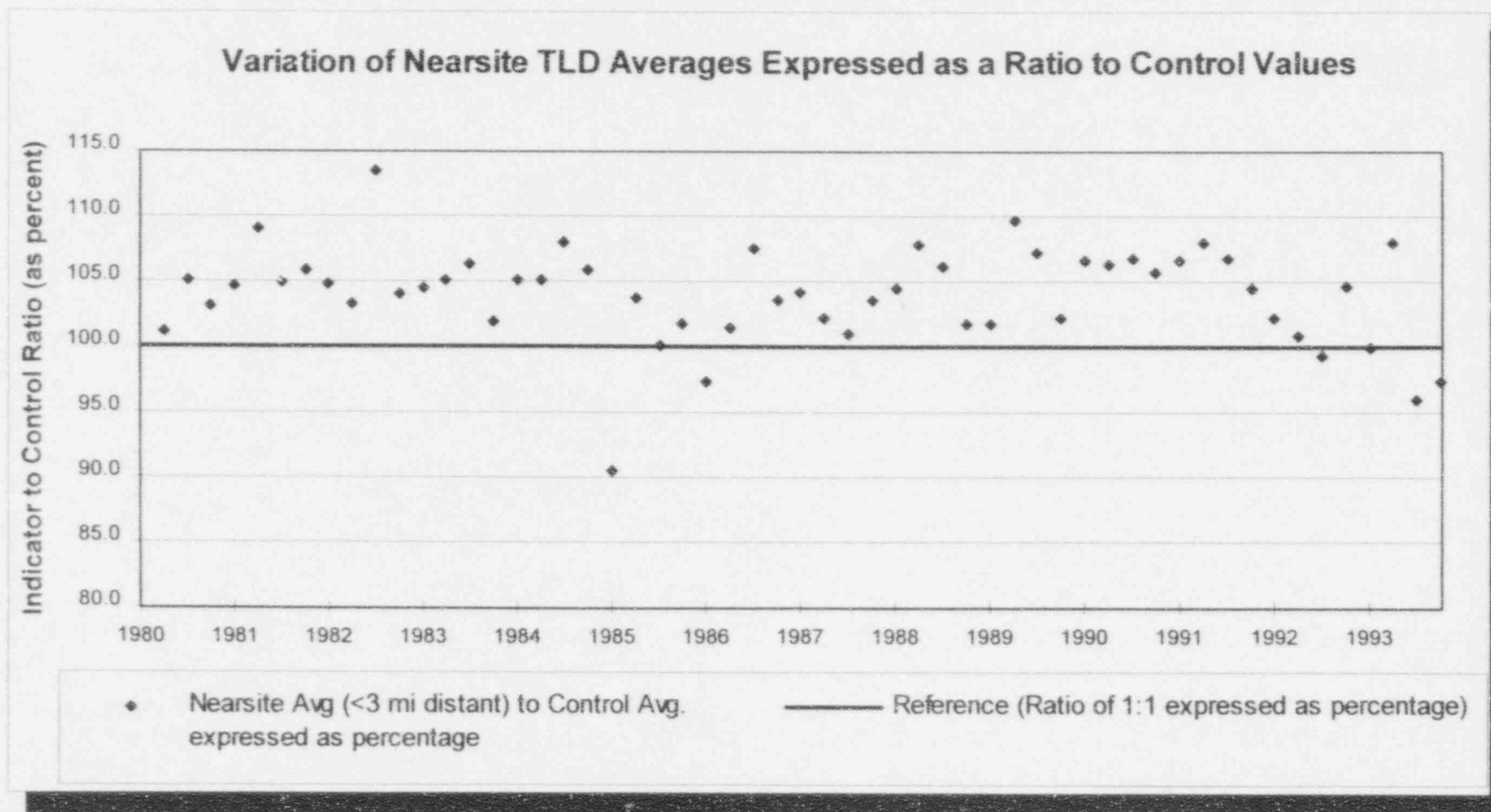


FIGURE 11

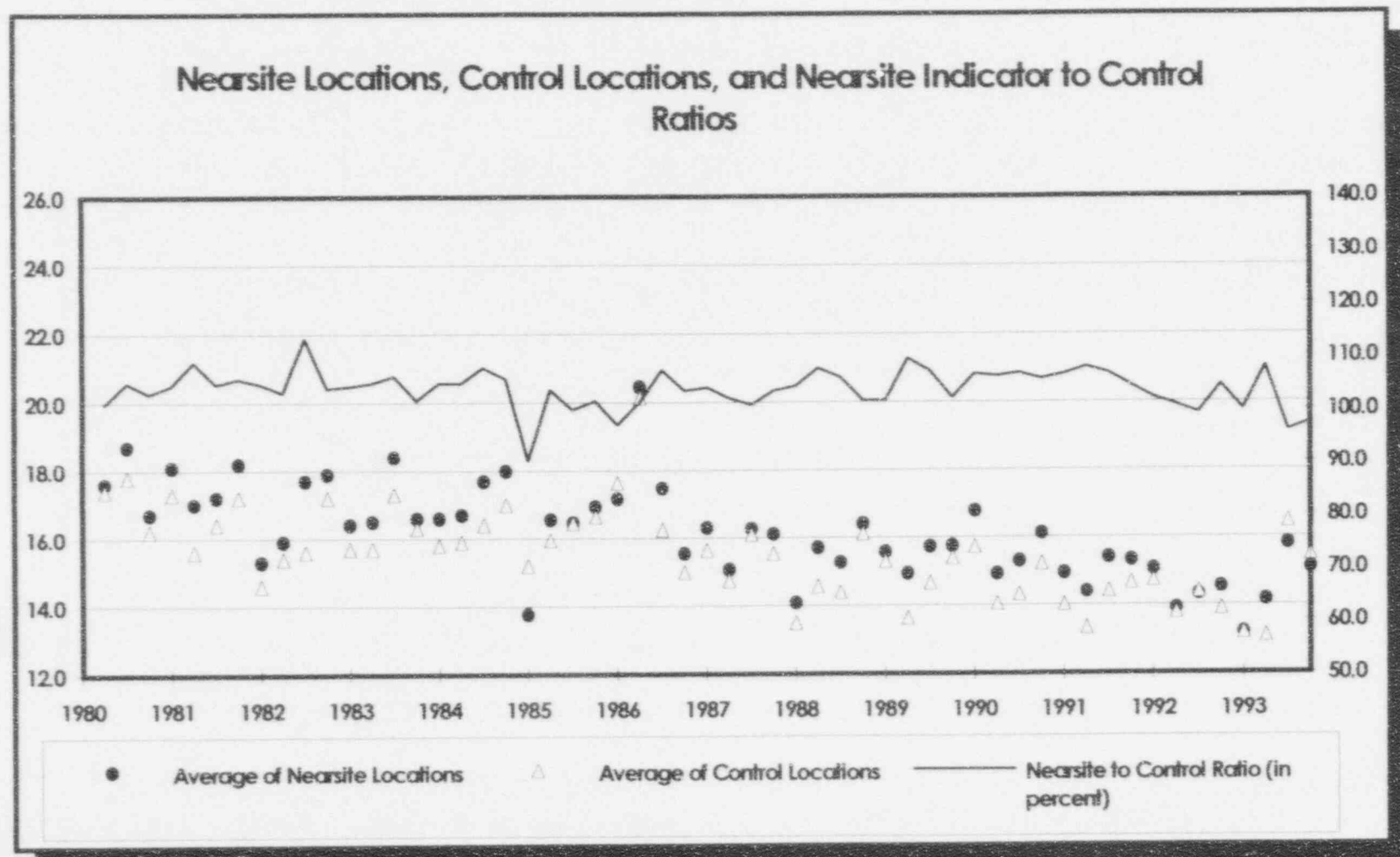




FIGURE 12

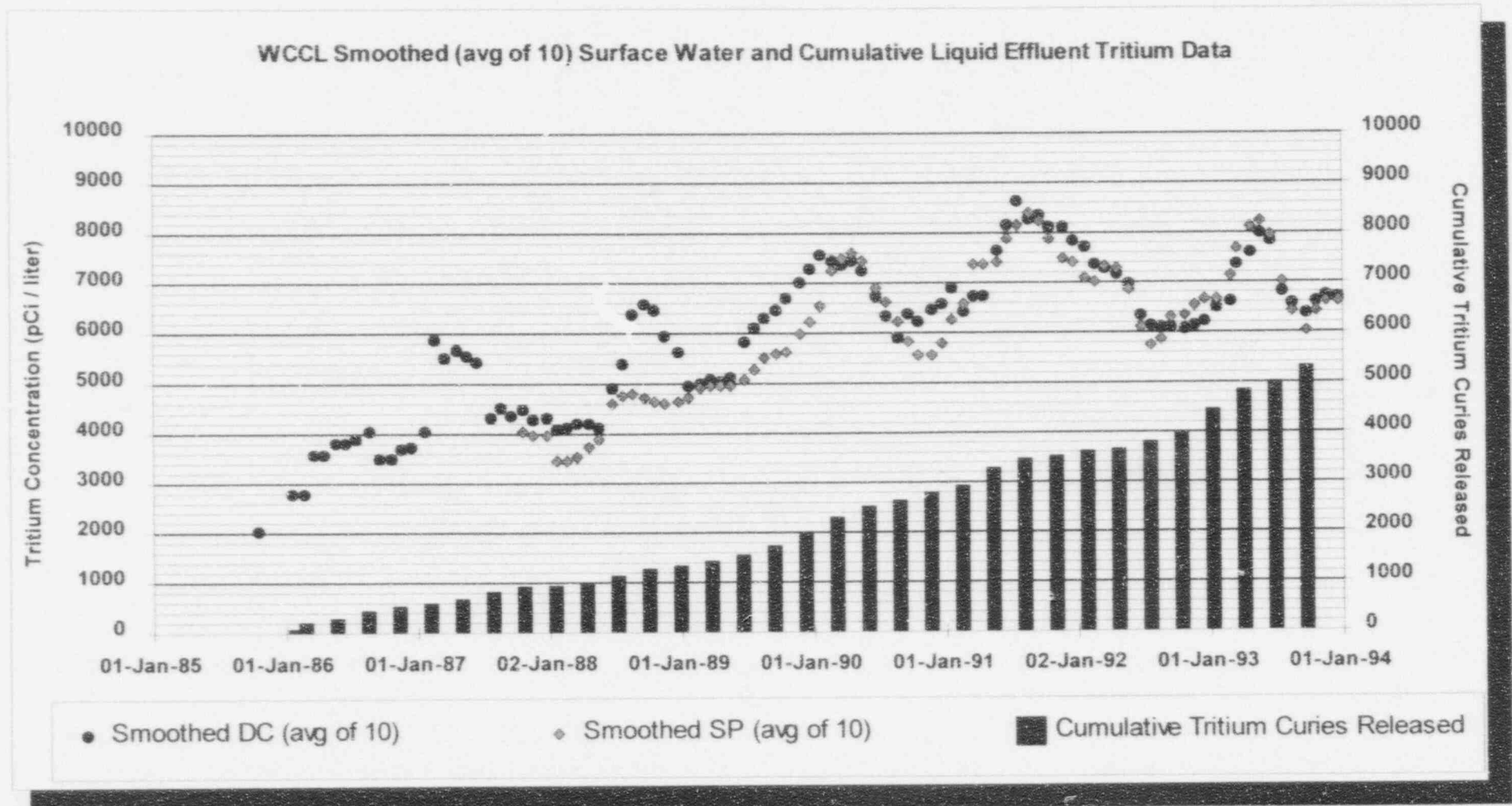


FIGURE 13

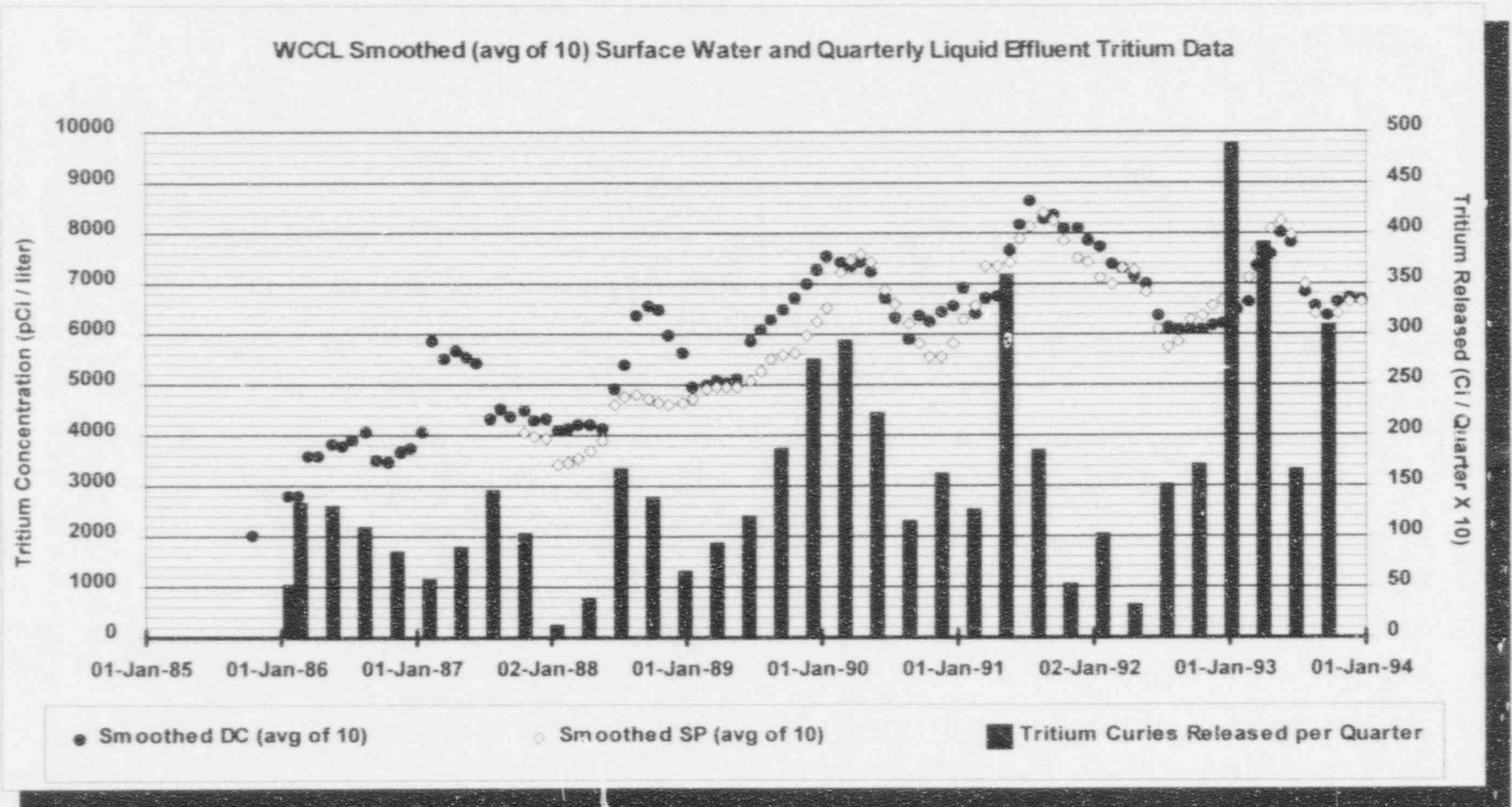
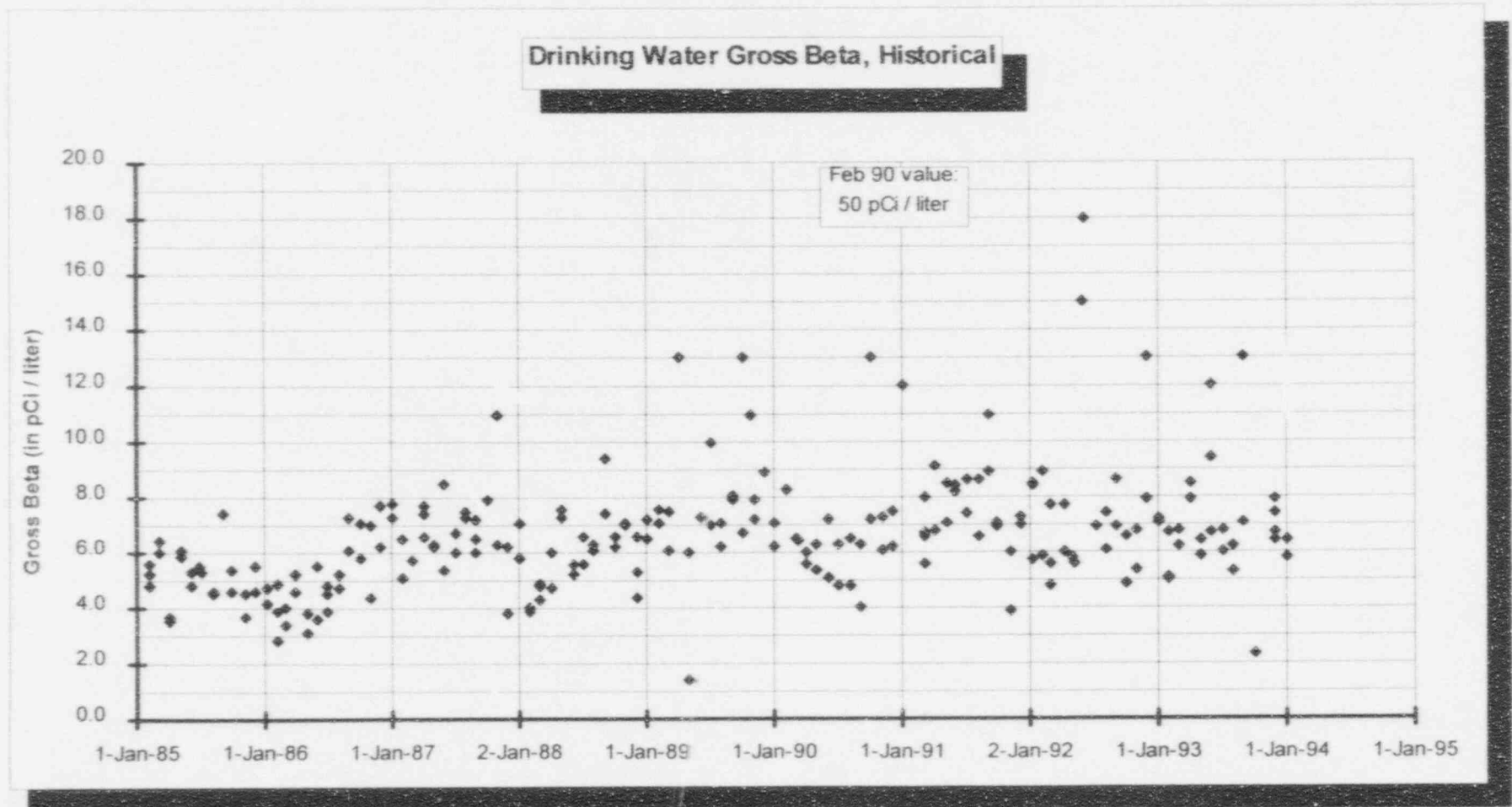


FIGURE 14



Appendix A

Summary Tables in the format of NRC Radiological  
Assessment Branch Technical Position  
Revision 1, November 1979

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

Name of Facility Wolf Creek Nuclear Docket No. STN 50-482

Location of Facility Coffey County, Kansas Reporting Period Annual 1993  
(County, State)

Medium of Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analysis Performed	Lower Limit of Detection (LLD)	All Indicator Locations		Location with Highest Name Distance and Directions	Annual Mean		Control Locations **Mean (f) **Range	Number of Nonroutine Reported Measurements**
			** Mean (f) ** Range						
			Station No. 40						
Air Particulate (X10 <sup>-3</sup> pCi/Cu.M.)	Gross (258)	3	24(206/206) (12-59)		37 2.1 miles NNW	24(51/51) (13-56)		22(52/52) (11-48)	0
	Beta								
	1-131 (258)	7	-(0/206)		N/A	N/A		-(0/52)	
	Gamma (20)								
Be-7		1	65(16/16) (39-83)		32 3.2 miles NNW	70(4/4) (48-83)		62(4/4) (48-77)	0
K-40		24	8.3(4/16) (6.0-10)		37 2.1 miles NNW	10(2/4) (8.7-10)		6.3(2/4) (6.0-7.0)	0
Stations 39 and 40									
External Radiation mR/day)	TLR (240)	0.05	0.16(228/228) (0.11-0.25)		20	0.18(6/6) (0.14-0.25)		0.15(12/12) (0.13-0.17)	0
	Quarterly								

\* Nominal Lower Limit of Detection (LLD)

\*\* Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

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			** Mean (f)	**Range		** Mean (f)	**Range	**Mean (f)	**Range	
J. Redmond Reservoir										
Fish (pCi/g wet)	Gamma (9)									
	K-40	0.5	3.2(6/6)	(2.7-3.7)	JRR	3.4(3/3)	(3.3-3.6)	3.4(3/3)	(3.3-3.6)	0
Food and Garden Crops (pCi/g wet weight)	Gamma (12)									
	Be-7	0.09	0.70(7/7)	(0.24-1.1)	R-1 2.1 miles NNW	0.96(3/3)	(0.85-1.1)	0.68(5/5)	(0.33-1.5)	0
	K-40	0.5	4.9(7/7)	(2.6-8.5)	R-1 2.1 miles NNW	5.8(3/3)	(3.4-8.5)	4.1(5/5)	(3.5-5.4)	0
	Ra-226	0.2	-(0/7)	--	NA	NA	--	-(0/5)	--	0
	Th-228	0.02	0.061(1/7)	--	A-1	0.06(1/4)	--	-(0/5)	--	0
Irrigated Crop (pCi/g dry weight)	Gamma (5)									
	Be-7	0.02	0.50(1/3)	--	EA-1	0.50(1/1)	--	-(0/2)	--	0
	K-40	0.5	6.7(3/3)	(2.4-15)	NR-D1 6.5 miles S	15(1/1)	--	7.9(2.2)	(2.7-13)	0

\* Nominal Lower Limit of Detection (LLD)

\*\* Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)



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			** Mean (f)	** Range	Name	Distance and Directions	** Mean (f)	** Range	** Mean (f)	** Range	
			Station S-3								
Milk (pCi/l)	I-131 (20)	3	--	--	--	--	--	--	--	(0/20)	0
	Gamma (20)										
	K-40	100	--	--	--	--	--	--	1392(19/20) (1270-1540)		0

\* Nominal Lower Limit of Detection (L.D.)

\*\* Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

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Location of Facility Coffey County, Kansas Reporting Period Annual 1993  
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Medium of Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analysis Performed	Lower Limit of Detection (LLD)	All Indicator Locations ** Mean (f) **Range	Location with Highest Name Distance and Directions	Annual Mean **Mean (f) **Range	Control Locations **Mean (f) **Range	Number of Nonroutine Reported Measurements**
Station No. JRR							
Sediment/Silt (pCi/g dry weight)	Gamma (10)						
	BE-7	0.3	0.45(1/8) --	DC-3	0.45(1/1) --	-(0/2) --	0
	K-40	0.5	11(8/8) (4.3-14)	JRR 4 miles W	14(2/2) (11-17)	14(2/2) (11-17)	0
	Co-58	0.02	0.32(1/8) --	DC-3	0.32(1/1) --	-(0/2) --	0
	Mn-54	0.03	0.067(2/8) (0.057-0.077)	DC-3	0.077(1/1) --	-(0/2) --	0
	Co-60	0.02	1.2(7/8) (0.47-2.3)	DC-5	2.3(1/1) --	-(0/2) --	0
	Cs-134	0.06	0.26(6/8) (0.14-0.36)	DC-4	0.36(1/1) --	-(0/2) --	0
	Cs-137	0.06	0.63(8/8) (0.22-0.94)	DC-4	0.94(1/1) --	0.22(2/2) (0.22-0.23)	0
	Ra-226	0.5	2.4(8/8) (1.7-3.3)	DC-1	3.0(1/1) --	2.0(2/2) (1.6-2.4)	0
	Th-228	0.04	1.2(8/8) (0.59-1.5)	DC-5	1.5(1/1) --	1.3(2/2) (1.1-1.4)	0

\* Nominal Lower Limit of Detection (LLD)

\*\* Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

Name of Facility Wolf Creek Nuclear Docket No. SIN 50-482

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			** Mean (f) **Range		**Mean (f) **Range	**Mean (f) **Range Station No. JRR	
Shoreline Soil (pCi/g dry weight)	Gamma (4)						
	K-40	0.5	8.6(2/2) (7.5-9.8)	JRR 4.0 miles W	9.8(2/2) (8.8-11)	9.8(2/2) (8.8-11)	0
	Co-60	0.03	0.09(1/2) --	DC 0.6 miles WNW	0.09(1/2) --	-(0/2) --	0
	Cs-137	0.06	0.12(2/2) (0.07-0.17)	DC 0.6 miles WNW	0.12(2/2) (0.07-0.17)	0.11(1/2) --	0
	Ra-226	0.5	1.3(2/2) (0.74-1.9)	JRR 4.0 miles W	1.9(2/2) (1.6-2.3)	1.9(2/2) (1.6-2.3)	0
	Th-228	0.04	0.89(2/2) (0.69-1.1)	JRR 4.0 miles W	1.4(2/2) (1.0-1.7)	1.4(2/2) (1.0-1.7)	0

\* Nominal Lower Limit of Detection (LLD)

\*\* Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

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Medium of Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analysis Performed	Lower Limit of Detection (LLD)	All Indicator Locations	Location with Highest	Annual Mean	Control Locations	Number of Nonroutine Reported Measurements**
			** Mean (f) **Range	Name Distance and Directions	**Mean (f) **Range	**Mean (f) **Range No Control	
Soil (pCi/g dry weight)	Gamma (f)						
	Bc-7	0.3	0.6(1/1) --	A1 1.4 miles N	0.6(1/1) --	--	0
	K-40	0.5	9.0(1/1) --	A1 1.4 miles N	9.0(1/1) --	--	0
	Cs-137	0.06	0.10(1/1) --	A1 1.4 miles N	0.10(1/1) --	--	0
	Ra-226	0.5	1.6(1/1) --	A1 1.4 miles N	1.6(1/1) --	--	0
	Th-228	0.04	0.8(1/1) --	A1 1.4 miles N	0.8(1/1) --	--	0

\* Nominal Lower Limit of Detection (LLD)

\*\* Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

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			** Mean (f)	**Range		**Mean (f)	**Range	**Mean (f)	**Range	
Vegetation								No Control		
Aquatic										
(pCi/g wet weight)										
	Gamma (3)									
	Be-7	0.1	0.34(3/3) (0.09-0.62)		DC 0.6 miles WNW	0.34(3/3) (0.09-0.62)		--		0
	K-40	0.5	1.9(3/3) (1.3-2.6)		DC 0.6 miles WNW	1.9(3/3) (1.3-2.6)		--		0
	Cr-51	0.5	0.24(1/3)	--	DC 0.6 miles WNW	0.24(1/3)		--		0
	Mn-54	0.04	0.07(1/3)	--	DC 0.6 miles WNW	0.07(1/3)		--		0
	Co-58	0.01	0.49(2/3) (0.064-0.920)		DC 0.6 miles WNW	0.49(2/3) (0.064-0.920)		--		0
	Fe-59	0.04	0.03(1/3)	--	DC 0.6 miles WNW	0.03(1/3)		--		0
	Co-60	0.01	0.34(2/3) (0.026-0.660)		DC 0.6 miles WNW	0.34(2/3) (0.026-0.660)		--		0
	Nb-95	0.04	0.12(1/3)	--	DC 0.6 miles WNW	0.12(1/3)		--		0
	Zr-95	0.04	0.06(1/3)	--	DC 0.6 miles WNW	0.06(1/3)		--		0
	Ru-103	0.02	0.01(1/3)	--	DC 0.6 miles WNW	0.01(1/3)		--		0

\* Nominal Lower Limit of Detection (LLD)

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			** Mean (f)	**Range		**Mean (f)	**Range	**Mean (f)	**Range	
			No Control							
Vegetation Aquatic (pCi/g wet weight)	Gamma (3)									
	Ru-106	0.1	0.15(1/3)	--	DC 0.6 miles WNW	0.15(1/3)	--	--	--	0
	Sb-125	0.05	0.05(1/3)	--	DC 0.6 miles WNW	0.05(1/3)	--	--	--	0
	Cs-134	0.02	0.07(1/3)	--	DC 0.6 miles WNW	0.07(1/3)	--	--	--	0
	Cs-137	0.01	0.06(2/3) (0.007-0.106)		DC 0.6 miles WNW	0.06(2/3) (0.007-0.106)		--	--	0
	Ra-226	0.2	0.25(2/3) (0.16-0.34)		DC 0.6 miles WNW	0.25(2/3) (0.16-0.34)		--	--	0
	Th-228	0.02	0.18(1/3)		DC 0.6 miles WNW	0.18(1/3)		--	--	0

\* Nominal Lower Limit of Detection (LLD)

\*\* Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)



ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

Name of Facility Wolf Creek Nuclear Docket No. STN 50-482

Location of Facility Coffey County, Kansas Reporting Period Annual 1993  
(County, State)

Medium of Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analysis Performed	Lower Limit of Detection (LLD)	All Indicator Locations ** Mean (f) ** Range	Location with Highest Name Distance and Directions	Annual Mean ** Mean (f) ** Range	Control Locations ** Mean (f) ** Range	Number of Nonroutine Reported Measurements**
<b>BW-15</b>							
Water Drinking (pCi/l)	I-131 (23)	0.5	-(0/12)	NA	NA	-(0/11)	0
	Gross (23) Beta	2	6.9(12/12) (2.3-13)	BW15 3.9 miles SW	7.0(11/11) (5.0-9.4)	7.0(11/11) (5.0-9.4)	0
	Gamma (23)	--	-(0/12)	NA	NA	-(0/11)	0
	Tritium (8)	1000	-(0/4) --	NA	NA --	-(0/4) --	0
<b>B-12</b>							
Water, Ground (pCi/l)	I-131 (16)	0.5	-(0/12) --	NA	NA	-(0/4) --	0
	Gamma (16)						
	K-40	100	-(0/12) --	NA	NA	-(0/4) --	0
	Tritium (16)	1000	-(0/12) --	NA	NA	-(0/4) --	0

\* Nominal Lower Limit of Detection (LLD)

\*\* Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

Name of Facility Wolf Creek Nuclear Docket No. STN 50-482

Location of Facility Coffey County, Kansas Reporting Period Annual 1993  
(County, State)

Medium of Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analysis Performed	Lower Limit of Detection (LLD)	All Indicator Locations ** Mean (f) **Range	Location with Highest Name Distance and Directions	Annual Mean **Mean (f) **Range	Control Locations **Mean (f) **Range	Number of Nonroutine Reported Measurements**
						Mush	
Water Surface (pCi/l)	Gamma (36)						
	K-40	60	136(1/24) --	DC	136(1/12) --	-(0/12) --	0
	Tritium (36)	1000	6950(24/24) (5600-8900)	SP	6967(12/12) (5600-8900)	-(0/12) --	0

\* Nominal Lower Limit of Detection (LLD)

\*\* Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

Appendix B

1993 Individual Sample Results

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**AIR PARTICULATE AND CHARCOAL FILTERS**  
**STATION NUMBER 02**

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
12/29	01/05	3.13E 08	CC	01/15	3.4 ± 0.3 E-02	01/13	L.T. 3. E-02
01/05	01/12	3.25E 08	CC	01/22	3.3 ± 0.3 E-02	01/19	L.T. 3. E-02
01/12	01/19	3.08E 08	CC	01/28	4.6 ± 0.4 E-02	01/26	L.T. 3. E-02
01/19	01/26	3.28E 08	CC	02/05	2.3 ± 0.3 E-02	01/30	L.T. 2. E-02
01/26	02/02	3.08E 08	CC	02/10	2.9 ± 0.3 E-02	02/05	L.T. 2. E-02
02/02	02/09	3.24E 08	CC	02/19	2.9 ± 0.3 E-02	02/13	L.T. 2. E-02
02/09	02/16	3.10E 08	CC	02/23	2.7 ± 0.3 E-02	02/19	L.T. 2. E-02
02/16	02/23	3.27E 08	CC	03/03	3.1 ± 0.3 E-02	02/27	L.T. 1. E-02
02/16*	02/23	3.27E 08	CC	03/03	3.2 ± 0.3 E-02	03/02	L.T. 2. E-02
02/23	03/02	3.04E 08	CC	03/12	3.5 ± 0.4 E-02	03/09	L.T. 2. E-02
03/02	03/09	3.02E 08	CC	03/18	2.5 ± 0.3 E-02	03/12	L.T. 1. E-02
03/09	03/16	3.08E 08	CC	03/24	1.6 ± 0.3 E-02	03/20	L.T. 2. E-02
03/16	03/23	2.92E 08	CC	04/01	2.3 ± 0.3 E-02	03/27	L.T. 2. E-02
03/23	03/30	2.92E 08	CC	04/08	1.7 ± 0.3 E-02	04/03	L.T. 2. E-02
03/30	04/06	2.91E 08	CC	04/15	1.5 ± 0.3 E-02	04/10	L.T. 2. E-02
04/06	04/13	3.08E 08	CC	04/23	1.7 ± 0.3 E-02	04/17	L.T. 2. E-02
04/13	04/20	2.90E 08	CC	04/28	1.6 ± 0.3 E-02	04/24	L.T. 2. E-02

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE AND CHARCOAL FILTERS

STATION NUMBER 02

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
04/20	04/27	2.91E 08	CC	05/04	2.7 ± 0.3 E-02	05/01	L.T. 1. E-02
04/27	05/04	2.83E 08	CC	05/11	1.9 ± 0.3 E-02	05/08	L.T. 3. E-02
05/04	05/11	2.92E 08	CC	05/24	2.1 ± 0.3 E-02	05/15	L.T. 2. E-02
05/11	05/18	2.92E 08	CC	05/25	1.5 ± 0.3 E-02	05/25	L.T. 3. E-02
05/18	05/25	2.93E 08	CC	06/02	1.6 ± 0.3 E-02	05/29	L.T. 2. E-02
05/25	06/01	2.84E 08	CC	06/08	1.9 ± 0.4 E-02	06/05	L.T. 2. E-02
06/01	06/08	2.85E 08	CC	06/16	1.9 ± 0.3 E-02	06/11	L.T. 3. E-02
06/08	06/15	2.87E 08	CC	06/29	2.2 ± 0.3 E-02	06/19	L.T. 2. E-02
06/15	06/22	2.87E 08	CC	06/30	1.8 ± 0.3 E-02	06/26	L.T. 2. E-02
06/22	06/29	2.87E 08	CC	07/08	1.5 ± 0.3 E-02	07/03	L.T. 2. E-02
06/29	07/06	2.86E 08	CC	07/16	2.4 ± 0.3 E-02	07/11	L.T. 1. E-02
07/06	07/13	2.88E 08	CC	07/21	2.0 ± 0.3 E-02	07/18	L.T. 2. E-02
07/13	07/20	3.06E 08	CC	07/27	1.7 ± 0.3 E-02	07/24	L.T. 2. E-02
07/20	07/27	2.90E 08	CC	08/06	2.2 ± 0.3 E-02	07/30	L.T. 1. E-02
07/27	08/03	2.80E 08	CC	08/12	2.2 ± 0.3 E-02	08/07	L.T. 2. E-02
08/03	08/10	2.80E 08	CC	08/19	2.4 ± 0.3 E-02	*	
08/10	08/17	2.90E 08	CC	08/26	2.7 ± 0.3 E-02	08/22	L.T. 2. E-02
08/17	08/24	3.10E 08	CC	08/30	2.3 ± 0.3 E-02	08/28	L.T. 2. E-02
08/24	08/31	2.90E 08	CC	09/10	2.8 ± 0.3 E-02	09/04	L.T. 2. E-02
08/31	09/07	3.00E 08	CC	09/15	2.0 ± 0.3 E-02	09/11	L.T. 1. E-02

\*Sample not received.

WOLF CREEK NUCLEAR OPERATING CORPORATION  
AIR PARTICULATE AND CHARCOAL FILTERS  
STATION NUMBER 02

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
09/07	09/14	3.00E 08	CC	09/22	2.0 ± 0.3 E-02	09/18	L.T. 2. E-02
09/14	09/21	3.00E 08	CC	09/29	2.4 ± 0.3 E-02	09/25	L.T. 3. E-02
09/21	09/28	3.00E 08	CC	10/07	2.0 ± 0.3 E-02	10/02	L.T. 2. E-02
09/28	10/05	2.90E 08	CC	10/18	2.5 ± 0.3 E-02	10/09	L.T. 3. E-02
10/05	10/12	2.90E 08	CC	10/22	2.6 ± 0.3 E-02	10/18	L.T. 3. E-02
10/12	10/19	3.00E 08	CC	10/29	1.9 ± 0.3 E-02	10/23	L.T. 2. E-02
10/19	10/26	2.90E 08	CC	11/05	2.2 ± 0.3 E-02	10/30	L.T. 3. E-02
10/26	11/02	2.90E 08	CC	11/15	1.9 ± 0.3 E-02	11/07	L.T. 1. E-02
11/02	11/09	2.90E 08	CC	11/19	2.4 ± 0.3 E-02	11/13	L.T. 3. E-02
11/09	11/16	3.00E 08	CC	11/24	2.2 ± 0.3 E-02	11/20	L.T. 2. E-02
11/16	11/23	3.10E 08	CC	12/02	2.8 ± 0.3 E-02	12/01	L.T. 3. E-02
11/23	11/30	3.10E 08	CC	12/10	3.1 ± 0.3 E-02	12/05	L.T. 2. E-02
11/30	12/07	2.70E 08	CC	12/16	2.9 ± 0.3 E-02	12/11	L.T. 2. E-02
12/07	12/14	3.20E 08	CC	12/23	3.2 ± 0.3 E-02	12/18	L.T. 2. E-02
12/14	12/21	3.30E 08	CC	01/04	2.9 ± 0.3 E-02	12/27	L.T. 2. E-02
12/21	12/28	3.30E 08	CC	01/08	2.4 ± 0.3 E-02	01/01	L.T. 2. E-02



WOLF CREEK NUCLEAR OPERATING CORPORATION  
AIR PARTICULATE AND CHARCOAL FILTERS  
STATION NUMBER 03

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
12/29	01/05	2.88E 08	CC	01/15	3.1 ± 0.3 E-02	01/13	L.T. 3. E-02
01/05	01/12	3.05E 08	CC	01/22	3.6 ± 0.3 E-02	01/19	L.T. 3. F-02
01/12	01/19	2.94E 08	CC	01/28	5.9 ± 0.4 E-02	01/26	L.T. 3. E-02
01/19	01/26	3.12E 08	CC	02/05	3.5 ± 0.4 E-02	01/30	L.T. 2. E-02
01/26	02/02	3.08E 08	CC	02/10	3.0 ± 0.3 E-02	02/05	L.T. 2. E-02
02/02	02/09	3.29E 08	CC	02/19	3.5 ± 0.3 E-02	02/13	L.T. 2. E-02
02/09	02/16	3.45E 08	CC	02/23	1.7 ± 0.2 E-02	02/19	L.T. 2. E-02
02/16	02/23	3.00E 08	CC	03/03	3.2 ± 0.3 E-02	02/27	L.T. 2. E-02
02/23	03/02	2.85E 08	CC	03/12	2.8 ± 0.3 E-02	03/09	L.T. 2. E-02
03/02	03/09	3.02E 08	CC	03/18	2.3 ± 0.3 E-02	03/12	L.T. 1. E-02
03/09	03/16	2.88E 08	CC	03/24	1.2 ± 0.3 E-02	03/20	L.T. 2. E-02
03/16	03/23	3.12E 08	CC	04/01	1.8 ± 0.3 E-02	03/27	L.T. 2. E-02
03/16*	03/22	3.12E 08	CC	04/01	1.9 ± 0.3 E-02	03/30	L.T. 1. E-02
03/23	03/30	3.09E 08	CC	04/08	1.2 ± 0.2 E-02	04/03	L.T. 2. E-02
03/30	04/06	2.96E 08	CC	04/15	1.5 ± 0.2 E-02	04/10	L.T. 2. E-02
04/06	04/13	3.07E 08	CC	04/23	1.8 ± 0.3 E-02	04/17	L.T. 2. E-02
04/13	04/20	2.96E 08	CC	04/28	1.7 ± 0.3 E-02	04/24	L.T. 2. E-02

\*Duplicate Analysis

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**AIR PARTICULATE AND CHARCOAL FILTERS**

STATION NUMBER 03

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA [pCi/Cu.M.]	MID COUNT TIME DATE	CHARCOAL FILTER I-131 [pCi/Cu.M.]
04/20	04/27	2.85E 08	CC	05/04	2.8 ± 0.3 E-02	05/01	L.T. 1. E-02
04/27	05/04	3.00E 08	CC	05/11	1.4 ± 0.2 E-02	05/08	L.T. 3. E-02
05/04	05/11	3.03E 08	CC	05/24	1.4 ± 0.2 E-02	05/15	L.T. 2. E-02
05/11	05/18	3.13E 08	CC	05/25	1.5 ± 0.2 E-02	05/25	L.T. 2. E-02
05/18	05/25	3.12E 08	CC	06/02	1.5 ± 0.3 E-02	05/29	L.T. 1. E-02
05/25	06/01	3.14E 08	CC	06/08	1.6 ± 0.3 E-02	06/05	L.T. 2. E-02
06/01	06/08	2.90E 08	CC	06/16	1.7 ± 0.3 E-02	06/11	L.T. 3. E-02
06/08	06/15	2.92E 08	CC	06/29	1.8 ± 0.3 E-02	06/19	L.T. 2. E-02
06/15	06/22	3.18E 08	CC	06/30	1.5 ± 0.2 E-02	06/26	L.T. 2. E-02
06/22	06/29	2.87E 08	CC	07/08	1.3 ± 0.2 E-02	07/03	L.T. 2. E-02
06/29	07/06	2.86E 08	CC	07/16	2.0 ± 0.3 E-02	07/11	L.T. 1. E-02
07/06	07/13	2.88E 08	CC	07/21	1.8 ± 0.3 E-02	07/18	L.T. 2. E-02
07/13	07/20	3.06E 08	CC	07/27	1.9 ± 0.3 E-02	07/24	L.T. 2. E-02
07/20	07/27	2.90E 08	CC	08/06	1.9 ± 0.3 E-02	07/30	L.T. 1. E-02
07/27	08/03	2.90E 08	CC	08/12	2.3 ± 0.3 E-02	08/07	L.T. 2. E-02
08/03	08/10	3.00E 08	CC	08/19	2.1 ± 0.3 E-02	08/15	L.T. 2. E-02
08/10	08/17	3.00E 08	CC	08/26	2.8 ± 0.3 E-02	08/22	L.T. 2. E-02
08/17	08/24	3.10E 08	CC	08/30	2.1 ± 0.3 E-02	08/28	L.T. 2. E-02
08/24	08/31	3.00E 08	CC	09/10	2.9 ± 0.3 E-02	09/04	L.T. 2. E-02
08/31	09/07	3.00E 08	CC	09/15	2.1 ± 0.3 E-02	09/11	L.T. 1. E-02

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**AIR PARTICULATE AND CHARCOAL FILTERS**

STATION NUMBER 03

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
08/31*	09/07	3.00E 08	CC	09/15	2.5 ± 0.3 E-02	09/17	L.T. 3. E-02
09/07	09/14	2.96E 08	CC	09/22	1.7 ± 0.3 E-02	09/18	L.T. 2. E-02
09/14	09/21	2.90E 08	CC	09/29	2.1 ± 0.3 E-02	09/25	L.T. 3. E-02
09/21	09/28	3.00E 08	CC	10/07	1.8 ± 0.3 E-02	10/02	L.T. 2. E-02
09/28	10/05	2.90E 08	CC	10/18	2.7 ± 0.3 E-02	10/09	L.T. 3. E-02
10/05	10/12	3.20E 08	CC	10/22	2.7 ± 0.3 E-02	10/18	L.T. 3. E-02
10/12	10/19	3.20E 08	CC	10/29	2.5 ± 0.3 E-02	10/23	L.T. 2. E-02
10/19	10/26	3.20E 08	CC	11/05	2.3 ± 0.3 E-02	10/30	L.T. 2. E-02
10/26	11/02	3.30E 08	CC	11/15	2.0 ± 0.3 E-02	11/07	L.T. 1. E-02
11/02	11/09	3.30E 08	CC	11/19	2.0 ± 0.3 E-02	11/13	L.T. 2. E-02
11/09	11/16	3.20E 08	CC	11/24	1.6 ± 0.2 E-02	11/20	L.T. 2. E-02
11/16	11/23	3.20E 08	CC	12/02	2.4 ± 0.3 E-02	12/01	L.T. 3. E-02
11/23	11/30	3.30E 08	CC	12/10	2.8 ± 0.3 E-02	12/05	L.T. 2. E-02
11/30	12/07	3.30E 08	CC	12/16	3.6 ± 0.3 E-02	12/11	L.T. 2. E-02
12/07	12/14	3.20E 08	CC	12/23	3.0 ± 0.3 E-02	12/18	L.T. 2. E-02
12/07*	12/14	3.20E 08	CC	12/23	3.0 ± 0.3 E-02	12/21	L.T. 2. E-02
12/14	12/21	3.30E 08	CC	01/04	2.6 ± 0.3 E-02	12/27	L.T. 2. E-02
12/21	12/28	3.10E 08	CC	01/08	2.4 ± 0.3 E-02	01/01	L.T. 2. E-02

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE AND CHARCOAL FILTERS

STATION NUMBER 32

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
12/29	01/05	3.07E 08	CC	01/15	3.4 ± 0.3 E-02	01/13	L.T. 3. E-02
01/05	01/12	3.01E 08	CC	01/22	4.0 ± 0.4 E-02	01/19	L.T. 3. E-02
01/12	01/19	3.16E 08	CC	01/28	4.8 ± 0.4 E-02	01/26	L.T. 3. E-02
01/19	01/26	3.09E 08	CC	02/05	2.3 ± 0.3 E-02	01/30	L.T. 2. E-02
01/26	02/02	3.12E 08	CC	02/10	2.6 ± 0.3 E-02	02/05	L.T. 2. E-02
02/02	02/09	3.09E 08	CC	02/19	2.4 ± 0.3 E-02	02/13	L.T. 2. E-02
02/09	02/16	3.05E 08	CC	02/23	2.7 ± 0.3 E-02	02/19	L.T. 2. E-02
02/16	02/23	3.05E 08	CC	03/03	3.1 ± 0.3 E-02	02/27	L.T. 2. E-02
02/23	03/02	3.05E 08	CC	03/12	2.5 ± 0.3 E-02	03/09	L.T. 2. E-02
03/02	03/09	3.12E 08	CC	03/18	2.2 ± 0.3 E-02	03/12	L.T. 1. E-02
03/09	03/16	2.98E 08	CC	03/24	1.3 ± 0.3 E-02	03/20	L.T. 2. E-02
03/16	03/23	3.07E 08	CC	04/01	2.4 ± 0.3 E-02	03/27	L.T. 2. E-02
03/23	03/30	3.35E 08	CC	04/08	1.7 ± 0.2 E-02	04/03	L.T. 2. E-02
03/30	04/06	3.29E 08	CC	04/15	1.4 ± 0.2 E-02	04/10	L.T. 2. E-02
04/06	04/13	3.44E 08	CC	04/23	1.4 ± 0.2 E-02	04/17	L.T. 2. E-02
04/13	04/20	3.40E 08	CC	04/28	1.5 ± 0.2 E-02	04/24	L.T. 2. E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE AND CHARCOAL FILTERS

STATION NUMBER 32

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
04/20	04/27	3.55E 08	CC	05/04	3.0 ± 0.3 E-02	05/01	L.T. 1. E-02
04/27	05/04	3.39E 08	CC	05/11	1.4 ± 0.2 E-02	05/08	L.T. 2. E-02
04/27*	05/04	3.39E 08	CC	05/11	1.3 ± 0.2 E-02	05/11	L.T. 2. E-02
05/04	05/11	3.48E 08	CC	05/24	1.5 ± 0.2 E-02	05/15	L.T. 1. E-02
05/11	05/18	3.49E 08	CC	05/25	1.7 ± 0.2 E-02	05/25	L.T. 2. E-02
05/11*	05/18	3.49E 08	CC	05/25	1.9 ± 0.3 E-02	05/22	L.T. 9. E-03
05/18	05/25	3.31E 08	CC	06/02	1.8 ± 0.3 E-02	05/29	L.T. 1. E-02
05/25	06/01	3.40E 08	CC	06/08	1.6 ± 0.3 E-02	06/05	L.T. 2. E-02
06/01	06/08	3.38E 08	CC	06/16	1.7 ± 0.2 E-02	06/11	L.T. 3. E-02
06/08	06/15	3.65E 08	CC	06/29	1.8 ± 0.2 E-02	06/19	L.T. 2. E-02
06/15	06/22	3.72E 08	CC	06/30	1.7 ± 0.2 E-02	06/26	L.T. 2. E-02
06/22	06/29	3.54E 08	CC	07/08	1.6 ± 0.2 E-02	07/03	L.T. 2. E-02
06/29	07/06	3.05E 08	CC	07/16	2.2 ± 0.3 E-02	07/11	L.T. 1. E-02
07/06	07/13	3.00E 08	CC	07/21	2.0 ± 0.3 E-02	07/18	L.T. 2. E-02
07/13	07/20	3.19E 08	CC	07/27	2.0 ± 0.3 E-02	07/24	L.T. 2. E-02
07/20	07/27	3.10E 08	CC	08/06	1.9 ± 0.3 E-02	07/30	L.T. 1. E-02
07/27	08/03	3.10E 08	CC	08/12	2.2 ± 0.3 E-02	08/07	L.T. 2. E-02
08/03	08/10	3.10E 08	CC	08/19	2.4 ± 0.3 E-02	08/15	L.T. 2. E-02

\*Duplicate Analysis

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**AIR PARTICULATE AND CHARCOAL FILTERS**

STATION NUMBER 32

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
08/10	08/17				**	08/22	L.T. 2. E-02
08/17	08/24	3.00E 08	CC	08/30	2.4 ± 0.3 E-02	08/28	L.T. 2. E-02
08/24	08/31	3.00E 08	CC	09/10	2.6 ± 0.3 E-02	09/04	L.T. 2. E-02
08/31	09/07	3.00E 08	CC	09/15	2.4 ± 0.3 E-02	09/11	L.T. 1. E-02
09/07	09/14	3.00E 08	CC	09/22	1.9 ± 0.3 E-02	09/18	L.T. 2. E-02
09/14	09/21	3.00E 08	CC	09/29	2.3 ± 0.3 E-02	09/25	L.T. 3. E-02
09/14*	09/21	3.00E 08	CC	09/29	2.1 ± 0.3 E-02	09/28	L.T. 1. E-02
09/21	09/28	3.00E 08	CC	10/07	1.9 ± 0.3 E-02	10/02	L.T. 2. E-02
09/28	10/05	3.30E 08	CC	10/18	2.5 ± 0.3 E-02	10/09	L.T. 2. E-02
10/05	10/12	3.50E 08	CC	10/22	2.8 ± 0.3 E-02	10/18	L.T. 3. E-02
10/12	10/19	2.80E 08	CC	10/29	2.7 ± 0.3 E-02	10/23	L.T. 2. E-02
10/19	10/26	3.00E 08	CC	11/05	2.9 ± 0.3 E-02	10/30	L.T. 3. E-02
10/26	11/02	3.30E 08	CC	11/15	2.3 ± 0.3 E-02	11/07	L.T. 1. E-02
11/02	11/09	3.30E 08	CC	11/19	2.1 ± 0.3 E-02	11/13	L.T. 2. E-02
11/09	11/16	3.30E 08	CC	11/24	2.5 ± 0.3 E-02	11/20	L.T. 2. E-02
11/09*	11/16	2.30E 08	CC	11/24	2.3 ± 0.3 E-02	12/02	L.T. 3. E-02
11/16	11/23	3.20E 08	CC	12/02	2.6 ± 0.3 E-02	12/01	L.T. 3. E-02
11/23	11/30	3.20E 08	CC	12/10	2.8 ± 0.3 E-02	12/05	L.T. 2. E-02

\* Duplicate Analysis  
\*\*Sample not collected.



WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE AND CHARCOAL FILTERS

STATION NUMBER 32

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu M)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu M)
11/30	12/07	3.30E 08	CC	12/16	3.6 ± 0.3 E-02	12/11	L.T. 2. E-02
12/07	12/14	3.10E 08	CC	12/23	3.5 ± 0.3 E-02	12/18	L.T. 2. E-02
12/14	12/21	3.30E 08	CC	01/04	3.0 ± 0.3 E-02	12/27	L.T. 2. E-02
12/21	12/28	3.30E 08	CC	01/08	2.5 ± 0.3 E-02	01/01	L.T. 2. E-02

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**AIR PARTICULATE AND CHARCOAL FILTERS**

STATION NUMBER 37

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER 1-131 (pCi/Cu.M.)
12/29	01/05	3.39E 08	CC	01/15	3.1 ± 0.3 E-02	01/13	L.T. 3. E-02
01/05	01/12	3.34E 08	CC	01/22	3.7 ± 0.3 E-02	01/19	L.T. 3. E-02
01/05*	01/12	3.34E 08	CC	01/22	3.8 ± 0.3 E-02	01/20	L.T. 1. E-02
01/12	01/19	3.24E 08	CC	01/28	5.6 ± 0.4 E-02	01/26	L.T. 3. E-02
01/19	01/26	3.33E 08	CC	02/05	2.5 ± 0.3 E-02	01/30	L.T. 2. E-02
01/26	02/02	3.18E 08	CC	02/10	2.8 ± 0.3 E-02	02/05	L.T. 2. E-02
02/02	02/09	3.28E 08	CC	02/19	3.1 ± 0.3 E-02	02/13	L.T. 2. E-02
02/09	02/16	3.27E 08	CC	02/23	3.2 ± 0.3 E-02	02/19	L.T. 2. E-02
02/16	02/23	3.36E 08	CC	03/03	2.9 ± 0.3 E-02	02/27	L.T. 1. E-02
02/23	03/02	3.25E 08	CC	03/12	3.1 ± 0.3 E-02	03/09	L.T. 2. E-02
03/02	03/09	3.22E 08	CC	03/18	2.7 ± 0.3 E-02	03/12	L.T. 1. E-02
03/09	03/16	3.27E 08	CC	03/24	1.4 ± 0.3 E-02	03/20	L.T. 2. E-02
03/16	03/23	2.97E 08	CC	04/01	2.2 ± 0.3 E-02	03/27	L.T. 2. E-02
03/23	03/30	2.92E 08	CC	04/08	1.5 ± 0.2 E-02	04/03	L.T. 2. E-02
03/30	04/06	2.97E 08	CC	04/15	1.9 ± 0.3 E-02	04/10	L.T. 2. E-02
04/06	04/13	3.02E 08	CC	04/23	1.7 ± 0.3 E-02	04/17	L.T. 2. E-02
04/13	04/20	2.99E 08	CC	04/28	1.6 ± 0.3 E-02	04/24	L.T. 2. E-02

\*Duplicate Analysis

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**AIR PARTICULATE AND CHARCOAL FILTERS**

STATION NUMBER 37

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
04/20	04/27	2.90E 08	CC	05/04	2.9 ± 0.3 E-02	05/01	L.T. 1. E-02
04/27	05/04	2.96E 08	CC	05/11	1.8 ± 0.3 E-02	05/08	L.T. 3. E-02
05/04	05/11	2.97E 08	CC	05/24	1.4 ± 0.3 E-02	05/15	L.T. 2. E-02
05/11	05/18	3.13E 08	CC	05/25	1.3 ± 0.2 E-02	05/25	L.T. 2. E-02
05/18	05/25	3.02E 08	CC	06/02	1.6 ± 0.3 E-02	05/29	L.T. 2. E-02
05/25	06/01	3.08E 08	CC	06/08	1.8 ± 0.3 E-02	06/05	L.T. 2. E-02
06/01	06/08	3.05E 08	CC	06/16	2.1 ± 0.3 E-02	06/11	L.T. 3. E-02
06/08	06/15	3.03E 08	CC	06/29	1.9 ± 0.3 E-02	06/19	L.T. 2. E-02
06/15	06/22	3.11E 08	CC	06/30	1.6 ± 0.3 E-02	06/26	L.T. 2. E-02
06/22	06/29	2.93E 08	CC	07/08	1.7 ± 0.3 E-02	07/03	L.T. 2. E-02
06/29	07/06	3.12E 08	CC	07/16	1.9 ± 0.3 E-02	07/11	L.T. 1. E-02
06/29*	07/06	3.12E 08	CC	07/16	2.1 ± 0.3 E-02	07/13	L.T. 2. E-02
07/06	07/13	2.97E 08	CC	07/21	2.1 ± 0.3 E-02	07/18	L.T. 2. E-02
07/13	07/20	3.21E 08	CC	07/27	1.8 ± 0.3 E-02	07/24	L.T. 2. E-02
07/20	07/27	3.08E 08	CC	08/06	2.4 ± 0.3 E-02	07/30	L.T. 1. E-02
07/27	08/03	2.90E 08	CC	08/12	2.7 ± 0.3 E-02	08/07	L.T. 2. E-02
08/03	08/10**						
08/10	08/17	3.00E 08	CC	08/26	3.2 ± 0.3 E-02	08/22	L.T. 2. E-02

\*Duplicate Analysis

\*\*Sample not collected.

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**AIR PARTICULATE AND CHARCOAL FILTERS**  
**STATION NUMBER 37**

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
08/17	08/24	3.10E 08	CC	08/30	2.4 ± 0.3 E-02	08/28	L.T. 2. E-02
08/24	08/31	3.10E 08	CC	09/10	2.8 ± 0.3 E-02	09/04	L.T. 2. E-02
08/31	09/07	3.10E 08	CC	09/15	2.2 ± 0.3 E-02	09/11	L.T. 1. E-02
09/07	09/14	3.10E 08	CC	09/22	3.2 ± 0.4 E-02	09/18	L.T. 2. E-02
09/14	09/21	3.10E 08	CC	09/29	2.5 ± 0.3 E-02	09/25	L.T. 2. E-02
09/21	09/28	3.10E 08	CC	10/07	2.0 ± 0.3 E-02	10/02	L.T. 2. E-02
09/28	10/05	3.10E 08	CC	10/18	2.5 ± 0.3 E-02	10/09	L.T. 2. E-02
10/05	10/12	3.10E 08	CC	10/22	3.1 ± 0.3 E-02	10/18	L.T. 3. E-02
10/12	10/19	3.20E 08	CC	10/29	2.9 ± 0.3 E-02	10/23	L.T. 2. E-02
10/19	10/26	3.10E 08	CC	11/05	2.5 ± 0.3 E-02	10/30	L.T. 2. E-02
10/26	11/02	3.20E 08	CC	11/15	2.5 ± 0.3 E-02	11/07	L.T. 1. E-02
11/02	11/09	3.20E 08	CC	11/19	2.3 ± 0.3 E-02	11/13	L.T. 2. E-02
11/09	11/16	3.20E 08	CC	11/24	2.2 ± 0.3 E-02	11/20	L.T. 2. E-02
11/16	11/23	3.10E 08	CC	12/02	2.7 ± 0.3 E-02	12/01	L.T. 3. E-02
11/23	11/30	3.00E 08	CC	12/10	2.3 ± 0.3 E-02	12/05	L.T. 2. E-02
11/30	12/07	3.10E 08	CC	12/16	3.5 ± 0.3 E-02	12/11	L.T. 2. E-02
12/07	12/14	3.00E 08	CC	12/23	3.1 ± 0.3 E-02	12/18	L.T. 2. E-02
12/14	12/21	3.10E 08	CC	01/04	3.0 ± 0.3 E-02	12/27	L.T. 3. E-02
12/21	12/28	3.10E 08	CC	01/08	1.9 ± 0.3 E-02	01/01	L.T. 2. E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE AND CHARCOAL FILTERS

STATION NUMBER 40

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
04/26	04/27	3.11E 08	CC	05/04	2.3 ± 0.3 E-02	05/01	L.T. 7. E-03
04/27	05/04	2.91E 08	CC	05/11	1.6 ± 0.3 E-02	05/08	L.T. 2. E-02
05/04	05/11	2.96E 08	CC	05/24	1.4 ± 0.3 E-02	05/15	L.T. 1. E-02
05/11	05/18	3.05E 08	CC	05/25	1.4 ± 0.2 E-02	05/25	L.T. 2. E-02
05/18	05/25	3.02E 08	CC	06/02	1.4 ± 0.3 E-02	05/29	L.T. 1. E-02
05/25	06/01	3.07E 08	CC	06/08	2.2 ± 0.3 E-02	06/05	L.T. 8. E-03
06/01	06/08	2.91E 08	CC	06/16	2.0 ± 0.3 E-02	06/11	L.T. 1. E-02
06/01*	06/08	2.91E 08	CC	06/16	1.6 ± 0.3 E-02	06/12	L.T. 1. E-02
06/08	06/15	2.98E 08	CC	06/29	1.8 ± 0.3 E-02	06/19	L.T. 9. E-03
06/15	06/22	3.02E 08	CC	06/30	1.4 ± 0.2 E-02	06/26	L.T. 9. E-03
06/22	06/29	2.84E 08	CC	07/08	1.6 ± 0.3 E-02	07/03	L.T. 9. E-03
06/29	07/06	3.04E 08	CC	07/16	2.0 ± 0.3 E-02	07/11	L.T. 9. E-03
07/06	07/13	3.08E 08	CC	07/21	1.9 ± 0.3 E-02	07/18	L.T. 9. E-03
07/13	07/20	3.20E 08	CC	07/27	1.5 ± 0.2 E-02	07/24	L.T. 9. E-03
07/20	07/27	3.16E 08	CC	08/06	2.0 ± 0.3 E-02	07/30	L.T. 9. E-03
07/27	08/03	3.10E 08	CC	08/12	2.5 ± 0.3 E-02	08/07	L.T. 9. E-03
08/03	08/10	3.10E 08	CC	08/19	2.4 ± 0.3 E-02	08/15	L.T. 2. E-02
08/03*	08/10	3.10E 08	CC	08/19	2.5 ± 0.3 E-02	08/18	L.T. 3. E-02
08/10	08/17	3.10E 08	CC	08/26	2.8 ± 0.3 E-02	08/22	L.T. 9. E-03

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE AND CHARCOAL FILTERS

STATION NUMBER 40

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
12/29	01/05	3.04E 08	CC	01/15	3.1 ± 0.3 E-02	01/13	LT. 1. E-02
01/05	01/12	3.09E 08	CC	01/22	2.7 ± 0.3 E-02	01/19	LT. 2. E-02
01/12	01/19	3.21E 08	CC	01/28	4.8 ± 0.4 E-02	01/26	LT. 1. E-02
01/19	01/26	3.10E 08	CC	02/05	2.1 ± 0.3 E-02	01/30	LT. 8. E-03
01/26	02/02	3.09E 08	CC	02/10	2.7 ± 0.3 E-02	02/05	LT. 1. E-02
02/02	02/09	3.18E 08	CC	02/19	2.2 ± 0.3 E-02	02/13	LT. 9. E-03
02/09	02/16	3.02E 08	CC	02/23	2.7 ± 0.3 E-02	02/19	LT. 1. E-02
02/16	02/23	3.26E 08	CC	03/03	3.1 ± 0.3 E-02	02/27	LT. 9. E-03
02/23	03/02	3.09E 08	CC	03/12	2.4 ± 0.3 E-02	03/09	LT. 1. E-02
03/02	03/09	3.12E 08	CC	03/18	2.2 ± 0.3 E-02	03/12	LT. 1. E-02
03/09	03/16	3.09E 08	CC	03/24	1.1 ± 0.3 E-02	03/20	LT. 9. E-03
03/16	03/23	2.98E 08	CC	04/01	1.8 ± 0.3 E-02	03/27	LT. 1. E-02
03/23	03/30	3.09E 08	CC	04/08	1.4 ± 0.2 E-02	04/03	LT. 9. E-03
03/30	04/06	3.01E 08	CC	04/15	1.5 ± 0.2 E-02	04/10	LT. 8. E-03
04/06	04/13	3.13E 08	CC	04/23	1.5 ± 0.2 E-02	04/17	LT. 9. E-03
04/13	04/20	3.02E 08	CC	04/28	1.4 ± 0.2 E-02	04/24	LT. 1. E-02



**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**AIR PARTICULATE AND CHARCOAL FILTERS**

STATION NUMBER 40

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER 1-131 (pCi/Cu.M.)
08/17	08/24	3.20E 08	CC	08/30	2.1 ± 0.3 E-02	08/28	L.T. 1. E-02
08/24	08/31	3.00E 08	CC	09/10	2.6 ± 0.3 E-02	09/04	L.T. 1. E-02
08/31	09/07	3.00E 08	CC	09/15	2.4 ± 0.3 E-02	09/11	L.T. 8. E-03
09/07	09/14	3.00E 08	CC	09/22	2.1 ± 0.3 E-02	09/18	L.T. 2. E-02
09/14	09/21	3.00E 08	CC	09/29	1.9 ± 0.3 E-02	09/25	L.T. 2. E-02
09/21	09/28	3.20E 08	CC	10/07	1.6 ± 0.2 E-02	10/02	L.T. 9. E-03
09/28	10/05	3.50E 08	CC	10/18	1.8 ± 0.2 E-02	10/09	L.T. 1. E-02
10/05	10/12	3.40E 08	CC	10/22	3.1 ± 0.3 E-02	10/18	L.T. 2. E-02
10/12	10/19	3.60E 08	CC	10/29	2.4 ± 0.3 E-02	10/23	L.T. 1. E-02
10/19	10/26	3.60E 08	CC	11/05	2.3 ± 0.3 E-02	10/30	L.T. 1. E-02
10/19*	10/26	3.60E 08	CC	11/05	2.3 ± 0.3 E-02	10/30	L.T. 1. E-02
10/26	11/02	3.50E 08	CC	11/15	2.1 ± 0.3 E-02	11/07	L.T. 7. E-03
11/02	11/09	3.50E 08	CC	11/19	2.1 ± 0.3 E-02	11/13	L.T. 1. E-02
11/09	11/16	3.60E 08	CC	11/24	2.4 ± 0.3 E-02	11/20	L.T. 9. E-03
11/16	11/23	3.40E 08	CC	12/02	2.4 ± 0.3 E-02	12/01	L.T. 2. E-02
11/23	11/30	3.00E 08	CC	12/10	2.6 ± 0.3 E-02	12/05	L.T. 1. E-01
11/30	12/07	3.40E 08	CC	12/16	2.8 ± 0.3 E-02	12/11	L.T. 9. E-03
12/07	12/14	2.60E 08	CC	12/23	2.8 ± 0.3 E-02	12/18	L.T. 1. E-02

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE AND CHARCOAL FILTERS

STATION NUMBER 40

COLLECTION START DATE	DATE STOP DATE	VOLUME	UNITS	MID COUNT TIME DATE	A P FILTER GROSS BETA (pCi/Cu.M.)	MID COUNT TIME DATE	CHARCOAL FILTER I-131 (pCi/Cu.M.)
12/14	12/21	3.30E 08	CC	01/04	2.7 ± 0.3 E-02	12/27	LT. 1. E-02
12/21	12/28	3.60E 08	CC	01/08	2.5 ± 0.3 E-02	01/01	LT. 9. E-03

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE FILTERS  
EXPOSURE PATHWAY - AIRBORNE

ISOTOPIC ANALYSIS ON QUARTERLY COMPOSITE

(pCi/Cu.M.)

STATION NUMBER 02

DATE COLLECTED:	12/29-03/30	03/30-06/29	06/29-09/28	09/28-12/28
GAMMA SPECTRUM ANALYSIS:				
BE-7	5.80±0.73 E-02	7.50±0.75 E-02	7.33±0.77 E-02	5.97±0.60 E-02
K-40	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03
MN-54	L.T. 6. E-04	L.T. 5. E-04	L.T. 4. E-04	L.T. 3. E-04
CO-58	L.T. 5. E-04	L.T. 5. E-04	L.T. 5. E-04	L.T. 5. E-04
FE-59	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
CO-60	L.T. 5. E-04	L.T. 5. E-04	L.T. 6. E-04	L.T. 4. E-04
ZN-65	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03	L.T. 8. E-04
NB-95/ZR-95	L.T. 6. E-04	L.T. 6. E-04	L.T. 6. E-04	L.T. 5. E-04
RU-103	L.T. 6. E-04	L.T. 6. E-04	L.T. 6. E-04	L.T. 5. E-04
RU-106	L.T. 4. E-03	L.T. 4. E-03	L.T. 4. E-03	L.T. 3. E-03
I-131	L.T. 2. E-03	L.T. 3. E-03	L.T. 2. E-03	L.T. 2. E-03
CS-134	L.T. 6. E-04	L.T. 5. E-04	L.T. 4. E-04	L.T. 3. E-04
CS-137	L.T. 6. E-04	L.T. 5. E-04	L.T. 5. E-04	L.T. 6. E-04
LA-140/BA-14C	L.T. 1. E-03	L.T. 2. E-03	L.T. 1. E-03	L.T. 1. E-03
CE-141	L.T. 1. E-03	L.T. 7. E-04	L.T. 1. E-03	L.T. 7. E-04
CE-144	L.T. 5. E-03	L.T. 2. E-03	L.T. 3. E-03	L.T. 2. E-03
RA-226	L.T. 1. E-02	L.T. 7. E-03	L.T. 9. E-03	L.T. 7. E-03
TH-228	L.T. 1. E-03	L.T. 6. E-04	L.T. 9. E-04	L.T. 6. E-04

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE FILTERS  
EXPOSURE PATHWAY - AIRBORNE

ISOTOPIC ANALYSIS ON QUARTERLY COMPOSITE

(pCi/Cu.M.)

STATION NUMBER 03

DATE COLLECTED:	12/29-03/30	03/30-06/29	06/29-09/28	09/28-12/28
GAMMA SPECTRUM ANALYSIS:				
BE-7	3.94±0.53 E-02	6.39±0.64 E-02	6.20±0.62 E-02	5.88±0.64 E-02
K-40	L.T. 9. E-03	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02
MN-54	L.T. 4. E-04	L.T. 6. E-04	L.T. 5. E-04	L.T. 5. E-04
CO-58	L.T. 5. E-04	L.T. 7. E-04	L.T. 6. E-04	L.T. 6. E-04
FE-59	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03	L.T. 2. E-03
CO-60	L.T. 5. E-04	L.T. 6. E-04	L.T. 5. E-04	L.T. 5. E-04
ZN-65	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
NB-95/ZR-95	L.T. 6. E-04	L.T. 7. E-04	L.T. 5. E-04	L.T. 7. E-04
RU-103	L.T. 6. E-04	L.T. 7. E-04	L.T. 6. E-04	L.T. 7. E-04
RU-106	L.T. 4. E-03	L.T. 5. E-03	L.T. 4. E-03	L.T. 6. E-03
I-131	L.T. 2. E-03	L.T. 3. E-03	L.T. 2. E-03	L.T. 3. E-03
CS-134	L.T. 5. E-04	L.T. 6. E-04	L.T. 5. E-04	L.T. 6. E-04
CS-137	L.T. 6. E-04	L.T. 6. E-04	L.T. 5. E-04	L.T. 6. E-04
LA-140/BA-140	L.T. 2. E-03	L.T. 2. E-03	L.T. 1. E-03	L.T. 2. E-03
CE-141	L.T. 8. E-04	L.T. 1. E-03	L.T. 7. E-04	L.T. 9. E-04
CE-144	L.T. 2. E-03	L.T. 3. E-03	L.T. 2. E-03	L.T. 3. E-03
RA-226	L.T. 8. E-03	L.T. 9. E-03	L.T. 7. E-03	L.T. 8. E-03
TH-228	L.T. 8. E-04	L.T. 8. E-04	L.T. 6. E-04	L.T. 8. E-04

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE FILTERS  
EXPOSURE PATHWAY - AIRBORNE

ISOTOPIC ANALYSIS ON QUARTERLY COMPOSITE

(pCi/Cu.M.)

STATION NUMBER 32

DATE COLLECTED:	12/29-03/30	03/30-06/29	06/29-09/28	09/28/12/28
GAMMA SPECTRUM ANALYSIS:				
BE-7	4.75±0.53 E-02	8.07±0.81 E-02	8.31±0.83 E-02	7.03±0.72 E-02
K-40	L.T. 8. E-03	6.01±3.03 E-03	7.94±4.02 E-03	L.T. 9. E-03
MN-54	L.T. 5. E-04	L.T. 3. E-04	L.T. 5. E-04	L.T. 4. E-04
CO-58	L.T. 4. E-04	L.T. 4. E-04	L.T. 5. E-04	L.T. 4. E-04
FE-59	L.T. 1. E-03	L.T. 9. E-04	L.T. 1. E-03	L.T. 1. E-03
CO-60	L.T. 6. E-04	L.T. 4. E-04	L.T. 6. E-04	L.T. 5. E-04
ZN-65	L.T. 1. E-03	L.T. 8. E-04	L.T. 8. E-04	L.T. 1. E-03
NB-95/ZR-95	L.T. 4. E-04	L.T. 4. E-04	L.T. 5. E-04	L.T. 5. E-04
RU-103	L.T. 5. E-04	L.T. 4. E-04	L.T. 5. E-04	L.T. 5. E-04
RU-106	L.T. 4. E-03	L.T. 3. E-03	L.T. 4. E-03	L.T. 4. E-03
I-131	L.T. 2. E-03	L.T. 2. E-03	L.T. 2. E-03	L.T. 3. E-03
CS-134	L.T. 5. E-04	L.T. 4. E-04	L.T. 5. E-04	L.T. 5. E-04
CS-137	L.T. 6. E-04	L.T. 4. E-04	L.T. 5. E-04	L.T. 5. E-04
LA-140/BA-140	L.T. 1. E-03	L.T. 1. E-03	L.T. 2. E-03	L.T. 4. E-04
CE-141	L.T. 7. E-04	L.T. 7. E-04	L.T. 1. E-03	L.T. 1. E-03
CE-144	L.T. 2. E-03	L.T. 2. E-03	L.T. 3. E-03	L.T. 9. E-04
RA-226	L.T. 7. E-03	L.T. 6. E-03	L.T. 9. E-03	L.T. 3. E-03
TH-228	L.T. 7. E-04	L.T. 6. E-04	L.T. 9. E-04	L.T. 8. E-03
				L.T. 8. E-04

WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE FILTERS  
EXPOSURE PATHWAY - AIRBORNE

ISOTOPIC ANALYSIS ON QUARTERLY COMPOSITE

(pCi/Cu.M.)

STATION NUMBER 37

DATE COLLECTED:	12/29-03/30	03/30-06/29	06/29-09/28	09/28-12/28
GAMMA SPECTRUM ANALYSIS:				
BE-7	5.15±0.63 E-02	7.39±0.74 E-02	7.86±0.79 E-02	5.96±0.60 E-02
K-40	L.T. 2. E-02	8.72±4.08 E-03	L.T. 7. E-03	1.04±0.48 E-02
MN-54	L.T. 6. E-04	L.T. 5. E-04	L.T. 5. E-04	L.T. 5. E-04
CO-58	L.T. 6. E-04	L.T. 6. E-04	L.T. 4. E-04	L.T. 5. E-04
FE-59	L.T. 1. E-03	L.T. 1. E-03	L.T. . E-03	L.T. 1. E-03
CO-60	L.T. 6. E-04	L.T. 6. E-04	L.T. 6. E-04	L.T. 5. E-04
ZN-65	L.T. 1. E-03	L.T. 1. E-03	L.T. 9. E-04	L.T. 1. E-03
NB-95/ZR-95	L.T. 6. E-04	L.T. 6. E-04	L.T. 5. E-04	L.T. 5. E-04
RU-103	L.T. 7. E-04	L.T. 6. E-04	L.T. 6. E-04	L.T. 6. E-04
U-106	L.T. 5. E-03	L.T. 4. E-03	L.T. 4. E-03	L.T. 4. E-03
I-131	L.T. 2. E-03	L.T. 3. E-03	L.T. 2. E-03	L.T. 2. E-03
CS-134	L.T. 6. E-04	L.T. 5. E-04	L.T. 5. E-04	L.T. 5. E-04
CS-137	L.T. 6. E-04	L.T. 5. E-04	L.T. 5. E-04	L.T. 5. E-04
LA-140/BA-140	L.T. 1. E-03	L.T. 2. E-03	L.T. 2. E-03	L.T. 1. E-03
CE-141	L.T. 8. E-04	L.T. 7. E-04	L.T. 9. E-04	L.T. 7. E-04
CE-144	L.T. 3. E-03	L.T. 2. E-03	L.T. 3. E-03	L.T. 2. E-03
RA-226	L.T. 8. E-03	L.T. 7. E-03	L.T. 9. E-03	L.T. 7. E-03
TH-228	L.T. 8. E-04	L.T. 7. E-04	L.T. 9. E-04	L.T. 6. E-04



WOLF CREEK NUCLEAR OPERATING CORPORATION

AIR PARTICULATE FILTERS  
EXPOSURE PATHWAY - AIRBORNE

ISOTOPIC ANALYSIS ON QUARTERLY COMPOSITE

(pCi/Cu.M.)

STATION NUMBER 40

DATE COLLECTED:	12/29-03/30	03/30-05/29	06/29-09/28	09/28-12/28
GAMMA SPECTRUM ANALYSIS:				
BE-7	4.82±0.59 E-02	7.67±0.77 E-02	6.33±0.63 E-02	6.02±0.60 E-02
K-40	LT. 1. E-02	6.63±3.47 E-03	5.97±3.12 E-03	LT. 7. E-03
MN-54	LT. 5. E-04	LT. 6. E-04	LT. 3. E-04	LT. 4. E-04
CO-58	LT. 4. E-04	LT. 5. E-04	LT. 3. E-04	LT. 3. E-04
FE-59	LT. 9. E-04	LT. 1. E-03	LT. 8. E-04	LT. 9. E-04
CO-60	LT. 5. E-04	LT. 5. E-04	LT. 5. E-04	LT. 4. E-04
ZN-65	LT. 1. E-03	LT. 1. E-03	LT. 9. E-04	LT. 1. E-03
NB-95/ZR-95	LT. 5. E-04	LT. 7. E-04	LT. 3. E-04	LT. 4. E-04
RU-103	LT. 5. E-04	LT. 7. E-04	LT. 4. E-04	LT. 5. E-04
RU-106	LT. 4. E-03	LT. 5. E-03	LT. 3. E-03	LT. 3. E-03
I-131	LT. 2. E-03	LT. 3. E-03	LT. 1. E-03	LT. 2. E-03
CS-134	LT. 5. E-04	LT. 5. E-04	LT. 4. E-04	LT. 4. E-04
CS-137	LT. 5. E-04	LT. 5. E-04	LT. 3. E-04	LT. 4. E-04
LA-140 BA-140	LT. 2. E-03	LT. 1. E-03	LT. 1. E-03	LT. 1. E-03
CE-141	LT. 9. E-04	LT. 1. E-03	LT. 4. E-04	LT. 9. E-04
CE-144	LT. 3. E-03	LT. 3. E-03	LT. 1. E-03	LT. 3. E-03
RA-226	LT. 9. E-03	LT. 9. E-03	LT. 5. E-03	LT. 8. E-03
TH-228	LT. 9. E-04	LT. 9. E-04	LT. 5. E-04	LT. 7. E-04

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AIRBORNE  
THERMOLUMINESCENT DOSIMETERS (TLD-1 at each location)  
(net mR/day)

STATION NUMBER	FIRST QUARTER 01/06/93-04/07/93	SECOND QUARTER 04/07/93-07/08/93	THIRD QUARTER	FOURTH QUARTER 10/13/93-01/04/94
STA-01	0.152±0.008	0.171±0.018	.	0.167 ± 0.015
STA-02	0.158±0.003	0.185±0.030		0.164 ± 0.029
STA-03	0.147±0.008	0.160±0.004		0.161 ± 0.022
STA-04	0.149±0.002	0.166±0.016		0.177 ± 0.060
STA-05	0.139±0.009	0.157±0.009		0.151 ± 0.009
STA-06	0.148±0.015	0.154±0.011		0.170 ± 0.025
STA-07	0.134±0.005	0.168±0.007		0.150 ± 0.015
STA-08	0.150±0.016	0.171±0.009		0.174 ± 0.014
STA-09	0.146±0.015	0.148±0.007		0.158 ± 0.012
STA-10	0.151±0.009	0.164±0.010		0.174 ± 0.030
STA-11	0.139±0.004	0.179±0.007		0.175 ± 0.022
STA-12	0.147±0.011	0.166±0.007		0.175 ±0.018
STA-13	0.157±0.023	0.164±0.012		0.161 ± 0.015
STA-14	0.147±0.013	0.169±0.013		0.169 ± 0.013
STA-15	0.151±0.007	0.162±0.009		0.177 ± 0.012
STA-16	0.141±0.005	0.157±0.015		0.186 ± 0.019
STA-17	0.148±0.009	0.160±0.018		0.166 ± 0.009
STA-18	0.158±0.008	0.160±0.013		0.186 ± 0.014
STA-19	0.158±0.007	0.168±0.018		0.182 ± 0.013
STA-20	0.143±0.015	0.167±0.013		0.177 ± 0.018
STA-21	0.143±0.007	0.141±0.010		0.181 ± 0.022
STA-22	0.146±0.011	0.149±0.016		0.177 ± 0.015
STA-23	0.159±0.002	0.162±0.018		0.172 ± 0.012
STA-24	0.156±0.007	0.158±0.015		0.178 ± 0.005

\*The third quarter TLD results were unusable because they may have received spurious doses from an unknown source.

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AIRBORNE  
THERMOLUMINESCENT DOSIMETERS

(net mR/day)

STATION NUMBER	FIRST QUARTER 01/06/93-04/07/93	SECOND QUARTER 04/07/93-07/08/93	THIRD QUARTER	FOURTH QUARTER 10/13/93-01/04/94
STA-25	0.113±0.011	0.128±0.005	*	0.141 ± 0.038
STA-26	0.137±0.008	0.154±0.007		0.159 ± 0.002
STA-27	0.185±0.011	0.166±0.011		0.168 ± 0.011
STA-28	0.132±0.010	0.139±0.011		0.189 ± 0.014
STA-29	0.118±0.005	0.129±0.016		0.146 ± 0.015
STA-30	0.143±0.005	0.155±0.012		0.167 ± 0.009
STA-31	0.146±0.014	0.155±0.009		0.171 ± 0.015
STA-32	0.141±0.015	0.152±0.008		0.167 ± 0.007
STA-33	0.166±0.011	0.164±0.011		0.181 ± 0.029
STA-34	0.174±0.007	0.164±0.015		0.180 ± 0.016
STA-35	0.149±0.012	0.166±0.014		0.161 ± 0.012
STA-36	0.141±0.021	0.158±0.007		0.173 ± 0.027
STA-37	0.134±0.012	0.169±0.023		0.167 ± 0.013
STA-38	0.156±0.009	0.172±0.013		0.179 ± 0.020
STA-39	0.150±0.007	0.159±0.016		0.152 ± 0.039
STA-40	0.155±0.023	0.126±0.015		0.152 ± 0.011
STA-41	0.135±0.011	0.132±0.007		0.164 ± 0.016
STA-42	0.112±0.004	0.100±0.019		0.121 ± 0.002
STA-43	0.113±0.011	0.110±0.012		0.114 ± 0.009

\*The third quarter TLD results were unusable because they may have received spurious doses from an unknown source.

WOLF CREEK NUCLEAR OPERATING CORPORATION

EXPOSURE PATHWAY - AIRBORNE  
THERMOLUMINESCENT DOSIMETERS

(net mR/day)

STATION NUMBER	FIRST QUARTER 01/06/93-04/07/93	SECOND QUARTER 04/07/93-07/08/93	THIRD QUARTER	FOURTH QUARTER 10/13/93-01/04/94
STA-25	0.121±0.003	0.134±0.008	.	0.149 ± 0.012
STA-26	0.139±0.011	0.151±0.013		0.149 ± 0.014
STA-27	0.155±0.016	0.161±0.008		0.178 ± 0.011
STA-28	0.138±0.009	0.141±0.016		0.178 ± 0.012
STA-29	0.129±0.004	0.134±0.010		0.164 ± 0.020
STA-30	0.148±0.009	0.147±0.011		0.173 ± 0.023
STA-31	0.149±0.009	0.158±0.010		0.178 ± 0.013
STA-32	0.144±0.011	0.144±0.009		0.174 ± 0.010
STA-33	0.170±0.020	0.162±0.008		0.179 ± 0.016
STA-34	0.154±0.011	0.166±0.013		0.183 ± 0.010
STA-35	0.168±0.009	0.170±0.016		0.177 ± 0.008
STA-36	0.136±0.004	0.160±0.007		0.162 ± 0.013
STA-37	0.140±0.004	0.152±0.011		0.177 ± 0.008
STA-38	0.160±0.009	0.169±0.030		0.193 ± 0.015
STA-39	0.151±0.008	0.151±0.005		0.172 ± 0.018
STA-40	0.132±0.008	0.159±0.031		0.161 ± 0.011
STA-41	0.127±0.007	0.138±0.009		0.171 ± 0.010
STA-42	0.099±0.007	0.096±0.003		0.127 ± 0.011
STA-43	0.118±0.025	0.109±0.007		0.113 ± 0.002

\*The third quarter TLD results were unusable because they may have received spurious doses from an unknown source.

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

ANIMALS/GAME

(pCi/GM WET)

STATION NUMBER NESR

DATE COLLECTED:	10/14 WHITE TAIL DEER	10/14 WHITE TAIL DEER*
GAMMA SPECTRUM ANALYSIS:		
BE-7	LT. 8. E-02	LT. 9. E-02
K-40	4.03±0.40 E-02	3.75±0.38 E-02
MN-54	LT. 5. E-03	LT. 6. E-03
CO-58	LT. 8. E-03	LT. 9. E-03
FE-59	LT. 2. E-02	LT. 3. E-02
CO-60	LT. 5. E-03	LT. 6. E-03
ZN-65	LT. 1. E-02	LT. 1. E-02
NB-95/ZR-95	LT. 8. E-03	LT. 9. E-03
RU-103	LT. 1. E-02	LT. 1. E-02
RU-106	LT. 5. E-02	LT. 5. E-02
I-131	LT. 5. E-01	LT. 6. E-01
CS-134	LT. 5. E-03	LT. 6. E-03
CS-137	LT. 5. E-03	LT. 6. E-03
LA-140/BA-140	LT. 8. E-02	LT. 1. E-01
CE-141	LT. 2. E-02	LT. 2. E-02
CE-144	LT. 4. E-02	LT. 4. E-02
RA-226	LT. 9. E-02	LT. 1. E-01
TH-228	LT. 1. E-02	LT. 1. E-02

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION  
 EXPOSURE PATHWAY - INGESTION

ANIMALS/GAME

(pCi/GM WET)

STATION NUMBER CTRL

DATE COLLECTED:	QUAIL
	11/18
GAMMA SPECTRUM ANALYSIS:	
BE-7	L.T. 1. E-01
K-40	3.15±0.31 E 00
MN-54	L.T. 1. E-02
CO-58	L.T. 1. E-02
FE-59	L.T. 3. E-02
CO-60	L.T. 9. E-03
ZN-65	L.T. 2. E-02
NB-95/ZR-95	L.T. 1. E-02
RU-103	L.T. 2. E-02
RU-106	L.T. 9. E-02
I-131	L.T. 2. E-01
CS-134	L.T. 1. E-02
CS-137	L.T. 1. E-02
LA-140/BA-140	L.T. 6. E-02
CE-141	L.T. 2. E-02
CE-144	L.T. 6. E-02
RA-226	L.T. 2. E-01
TH-228	L.T. 2. E-02



WOLF CREEK NUCLEAR OPERATING CORPORATION  
 EXPOSURE PATHWAY - INGESTION

ANIMALS/GAME

(pCi/GM WET)

STATION NUMBER SCTG

DATE COLLECTED:	12/08
GAMMA SPECTRUM ANALYSIS:	QUAIL
BE-7	L.T. 2. E-01
K-40	2.99±0.30 E 00
MN-54	L.T. 2. E-02
CO-58	L.T. 2. E-02
FE-59	L.T. 4. E-02
CO-60	L.T. 2. E-02
ZN-65	L.T. 4. E-02
NB-95/ZR-95	L.T. 2. E-02
RU-103	L.T. 2. E-02
RU-106	L.T. 2. E-01
I-131	L.T. 8. E-02
CS-134	L.T. 2. E-02
CS-137	L.T. 2. E-02
LA-140/BA-140	L.T. 4. E-02
CE-141	L.T. 3. E-02
CE-144	L.T. 9. E-02
RA-226	L.T. 3. E-01
TH-228	L.T. 3. E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
 EXPOSURE PATHWAY - INGESTION

ANIMALS/GAME

(pCi/GM WET)

STATION NUMBER SCTR

DATE COLLECTED:	12/08
	QUAIL
GAMMA SPECTRUM ANALYSIS:	
BE-7	LT. 2 E-01
K-40	4.08±0.41 E 00
MN-54	LT. 2 E-02
CO-58	LT. 2 E-02
FE-59	LT. 5 E-02
CO-60	LT. 2 E-02
ZN-65	LT. 5 E-02
NB-95/ZR-95	LT. 2 E-02
RU-103	LT. 2 E-02
RU-106	LT. 2 E-01
I-131	LT. 6 E-02
CS-134	LT. 2 E-02
CS-137	LT. 2 E-02
LA-140/BA-140	LT. 4 E-02
CE-141	LT. 3 E-02
CE-144	LT. 1 E-01
RA-226	LT. 3 E-01
TH-228	LT. 3 E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

FISH

(pCi/GM WET)

STATION NUMBER WCCL

DATE COLLECTED:

04/30  
CATFISH (GAME)

04/30  
WIPER

04/30  
CARP (ROUGH)

GAMMA SPECTRUM ANALYSIS:

BE-7	L.T. 1. E-01	L.T. 1. E-01	L.T. 1. E-01
K-40	3.59±0.36 E 00	3.71±0.37 E 00	3.07±0.31 E 00
MN-54	L.T. 1. E-02	L.T. 1. E-02	L.T. 2. E-02
CO-58	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
FE-59	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02
CO-60	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02
ZN-65	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02
NB-95/ZR-95	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
RU-103	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
RU-106	L.T. 1. E-01	L.T. 1. E-01	L.T. 1. E-01
I-131	L.T. 3. E-02	L.T. 4. E-02	L.T. 4. E-02
CS-134	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
CS-137	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
LA-140/BA-140	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02
CE-141	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
CE-144	L.T. 7. E-02	L.T. 7. E-02	L.T. 8. E-02
RA-226	L.T. 2. E-01	L.T. 3. E-01	L.T. 3. E-01
TH-228	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION  
 EXPOSURE PATHWAY - INGESTION

FISH

(pCi/GM WET)

STATION NUMBER WCCL

DATE COLLECTED:	10/05	10/05	10/05
GAMMA SPECTRUM ANALYSIS:	SM MOUTH BASS/WIPER	CHANNEL CATFISH	COMMON CARP
BE-7	L.T. 1. E-01	L.T. 2. E-01	L.T. 2. E-01
K-40	2.70±0.27 E 00	2.80±0.28 E 00	3.23±0.32 E 00
MN-54	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
CO-58	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
FE-59	L.T. 3. E-02	L.T. 5. E-02	L.T. 4. E-02
CO-60	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
ZN-65	L.T. 3. E-02	L.T. 4. E-02	L.T. 4. E-02
NB-95/ZR-95	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02
RU-103	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
RU-106	L.T. 1. E-01	L.T. 2. E-01	L.T. 1. E-01
I-131	L.T. 3. E-02	L.T. 5. E-02	L.T. 4. E-02
CS-134	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
CS-137	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
LA-140/BA-140	L.T. 2. E-02	L.T. 4. E-02	L.T. 3. E-02
CE-141	L.T. 2. E-02	L.T. 4. E-02	L.T. 3. E-02
CE-144	L.T. 7. E-02	L.T. 1. E-01	L.T. 1. E-01
RA-226	L.T. 2. E-01	L.T. 4. E-01	L.T. 3. E-01
TH-228	L.T. 2. E-02	L.T. 4. E-02	L.T. 4. E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

FISH

(pCi/GM WET)

STATION NUMBER JRR

DATE COLLECTED:	05/18	05/18	11/09
GAMMA SPECTRUM ANALYSIS:	WH BASS	ROUGH FISH COM CARP	CARP
BE-7	L.T. 2. E-01	L.T. 2. E-01	L.T. 1. E-01
K-40	3.57±0.47 E 00	3.27±0.44 E 00	3.28±0.33 E 00
MN-54	L.T. 3. E-02	L.T. 3. E-02	L.T. 1. E-02
CO-58	L.T. 3. E-02	L.T. 2. E-02	L.T. 1. E-02
FE-59	L.T. 6. E-02	L.T. 6. E-02	L.T. 3. E-02
CO-60	L.T. 3. E-02	L.T. 3. E-02	L.T. 1. E-02
ZN-65	L.T. 5. E-02	L.T. 5. E-02	L.T. 3. E-02
NB-95/ZR-95	L.T. 3. E-02	L.T. 3. E-02	L.T. 1. E-02
RU-103	L.T. 3. E-02	L.T. 3. E-02	L.T. 1. E-02
RU-106	L.T. 2. E-01	L.T. 2. E-01	L.T. 1. E-01
I-131	L.T. 6. E-02	L.T. 5. E-02	L.T. 5. E-02
CS-134	L.T. 3. E-02	L.T. 3. E-02	L.T. 1. E-02
CS-137	L.T. 3. E-02	L.T. 2. E-02	L.T. 1. E-02
LA-140/BA-140	L.T. 5. E-02	L.T. 4. E-02	L.T. 3. E-02
CE-141	L.T. 6. E-02	L.T. 3. E-02	L.T. 2. E-02
CE-144	L.T. 2. E-01	L.T. 1. E-01	L.T. 6. E-02
RA-226	L.T. 6. E-01	L.T. 4. E-01	L.T. 2. E-01
TH-228	L.T. 6. E-02	L.T. 4. E-02	L.T. 2. E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
 EXPOSURE PATHWAY - INGESTION

FEED & FORAGE

(pCi/GM DRY)

STATION NUMBER EA-1

DATE COLLECTED:	09/21
	MILO
GAMMA SPECTRUM ANALYSIS:	
BE-7	4.96±0.56 E-01
K-40	2.49±0.25 E-00
MN-54	L.T. 6. E-03
CO-58	L.T. 7. E-03
FE-59	L.T. 2. E-02
CO-60	L.T. 7. E-03
ZN-65	L.T. 2. E-02
NB-95/ZR-95	L.T. 7. E-03
RU-103	L.T. 7. E-03
RU-106	L.T. 6. E-02
I-131	L.T. 1. E-02
CS-134	L.T. 7. E-03
CS-137	L.T. 7. E-03
LA-140/BA-140	L.T. 9. E-03
CE-141	L.T. 1. E-02
CE-144	L.T. 4. E-02
RA-226	L.T. 1. E-01
TH-228	L.T. 1. E-02



WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

FEED & FORAGE

(pCi/GM DRY)

STATION NUMBER NR-U1

DATE COLLECTED:	10/19 SOYBEANS	10/19 CORN
GAMMA SPECTRUM ANALYSIS:		
BE-7	L.T. 6. E-02	L.T. 8. E-02
K-40	1.31±0.13 E 01	2.72±0.27 E 00
MN-54	L.T. 8. E-03	L.T. 9. E-03
CO-58	L.T. 8. E-03	L.T. 9. E-03
FE-59	L.T. 2. E-02	L.T. 2. E-02
CO-60	L.T. 1. E-02	L.T. 1. E-02
ZN-65	L.T. 3. E-02	L.T. 2. E-02
NB-95/ZR-95	L.T. 8. E-03	L.T. 9. E-03
RU-103	L.T. 8. E-03	L.T. 1. E-02
RU-106	L.T. 8. E-02	L.T. 7. E-02
I-131	L.T. 9. E-03	L.T. 1. E-02
CS-134	L.T. 9. E-03	L.T. 1. E-02
CS-137	L.T. 9. E-03	L.T. 1. E-02
LA-140/BA-140	L.T. 6. E-03	L.T. 1. E-02
CE-141	L.T. 1. E-02	L.T. 2. E-02
CE-144	L.T. 5. E-02	L.T. 7. E-02
RA-226	L.T. 1. E-C1	L.T. 2. E-01
TH-228	L.T. 1. E-02	L.T. 2. E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

FEED & FORAGE

(pCi/GM DRY)

STATION NUMBER NR-D1

DATE COLLECTED:	10/19
	SOYBEANS
GAMMA SPECTRUM ANALYSIS:	
BE-7	L.T. 9. E-02
K-40	1.47±0.15 E 01
MN-54	L.T. 1. E-02
CO-58	L.T. 1. E-02
FE-59	L.T. 3. E-02
CO-60	L.T. 1. E-02
ZN-65	L.T. 3. E-02
NB-95/ZR-95	L.T. 1. E-02
RU-103	L.T. 1. E-02
RU-106	L.T. 1. E-01
I-131	L.T. 2. E-02
CS-134	L.T. 1. E-02
CS-137	L.T. 1. E-02
LA-140/BA-140	L.T. 1. E-02
CE-141	L.T. 2. E-02
CE-144	L.T. 6. E-02
RA-226	L.T. 2. E-01
TH-228	L.T. 2. E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
 EXPOSURE PATHWAY - INGESTION

FEED & FORAGE

(pCi/GM DRY)

STATION NUMBER NR-D2

DATE COLLECTED:	10/19	
	CORN	
GAMMA SPECTRUM ANALYSIS:		
BE-7	L.T. 6.	E-02
K-40	2.90±0.29	E 00
MN-54	L.T. 7.	E-03
CO-58	L.T. 7.	E-03
FE-59	L.T. 2.	E-02
CO-60	L.T. 8.	E-03
ZN-65	L.T. 2.	E-02
NB-95/ZR-95	L.T. 8.	E-03
RU-103	L.T. 7.	E-03
RU-106	L.T. 7.	E-02
I-131	L.f. 1.	E-02
CS-134	L.T. 8.	E-03
CS-137	L.T. 8.	E-03
LA-140/BA-140	L.T. 1.	E-02
CE-141	L.T. 1.	E-02
CE-144	L.T. 4.	E-02
RA-226	L.T. 1.	E-01
TH-228	L.T. 1.	E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

FOOD/GARDEN CROPS

(PCI/GM WET)

STATION NUMBER A-1

DATE COLLECTED:	07/27 SWISS CHARD	08/17 SWISS CHARD	08/17* SWISS CHARD	09/21 SWISS CHARD	10/26 SWISS CHARD
GAMMA SPECTRUM ANALYSIS:					
BE-7	6.89±0.99 E-01	2.42±0.58 E-01	3.10±0.67 E-01	5.27±0.84 E-01	5.57±0.72 E-01
K-40	4.24±0.42 E-00	6.28±0.63 E-00	6.19±0.62 E-00	3.89±0.39 E-00	2.67±0.27 E-00
MN-54	L.T. 1. E-02	L.T. 8. E-03	L.T. 8. E-03	L.T. 9. E-03	L.T. 8. E-03
CO-58	L.T. 1. E-02	L.T. 8. E-03	L.T. 9. E-03	L.T. 9. E-03	L.T. 8. E-03
FE-59	L.T. 3. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
CO-60	L.T. 1. E-02	L.T. 9. E-03	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03
ZN-65	L.T. 3. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
NB-95/ZR-95	L.T. 1. E-02	L.T. 8. E-03	L.T. 9. E-03	L.T. 9. E-03	L.T. 9. E-03
RU-103	L.T. 1. E-02	L.T. 8. E-03	L.T. 9. E-03	L.T. 1. E-02	L.T. 9. E-03
RU-106	L.T. 1. E-01	L.T. 8. E-02	L.T. 8. E-02	L.T. 8. E-02	L.T. 7. E-02
I-131	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
CS-134	L.T. 1. E-02	L.T. 9. E-03	L.T. 1. E-02	L.T. 1. E-02	L.T. 9. E-03
CS-137	L.T. 1. E-02	L.T. 1. E-02	L.T. 9. E-03	L.T. 1. E-02	L.T. 9. E-03
LA-140/BA-140	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02
CE-141	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02
CE-144	L.T. 7. E-02	L.T. 5. E-02	L.T. 5. E-02	L.T. 8. E-02	L.T. 5. E-02
RA-226	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01
TH-228	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02	6.06±1.09 E-02	L.T. 1. E-02

\*Duplicate analysis.

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

FOOD/GARDEN CROPS

(PCI/GM WET)

STATION NUMBER R-1

DATE COLLECTED:	05/25 LETTUCE	06/29 LETTUCE	07/27 CABBAGE
GAMMA SPECTRUM ANALYSIS:			
BE-7	9.31±1.15 E-01	8.52±0.85 E-01	1.10±0.11 E 00
K-40	5.46±0.55 E 00	8.48±0.85 E 00	3.40±0.34 E 00
MN-54	L.T. 1. E-02	L.T. 8. E-03	L.T. 1. E-02
CO-58	L.T. 1. E-02	L.T. 8. E-03	L.T. 1. E-02
FE-59	L.T. 3. E-02	L.T. 2. E-02	L.T. 2. E-02
CO-60	L.T. 1. E-02	L.T. 9. E-03	L.T. 1. E-02
ZN-65	L.T. 3. E-02	L.T. 2. E-02	L.T. 2. E-02
NB-95/ZR-95	L.T. 1. E-02	L.T. 8. E-03	L.T. 1. E-02
RU-103	L.T. 1. E-02	L.T. 8. E-03	L.T. 1. E-02
RU-106	L.T. 1. E-01	L.T. 7. E-02	L.T. 9. E-02
I-131	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02
CS-134	L.T. 1. E-02	L.T. 8. E-03	L.T. 1. E-02
CS-137	L.T. 1. E-02	L.T. 9. E-03	L.T. 1. E-02
LA-140/BA-140	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02
CE-141	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02
CE-144	L.T. 8. E-02	L.T. 4. E-02	L.T. 6. E-02
RA-226	L.T. 2. E-01	L.T. 1. E-01	L.T. 2. E-01
TH-228	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**EXPOSURE PATHWAY - INGESTION**

**FOOD/GARDEN CROPS**

(PCI/GM WET)

STATION NUMBER S-4

DATE COLLECTED:	05/27 LETTUCE	06/22 CABBAGE	07/27 CABBAGE	08/24 CABBAGE	09/21 CABBAGE
GAMMA SPECTRUM ANALYSIS:					
BE-7	5.70±1.16 E-01	3.67±0.66 E-01	1.49±0.15 E-00	3.30±0.88 E-01	6.26±1.00 E-01
K-40	5.40±0.54 E-00	3.45±0.34 E-00	3.75±0.37 E-00	3.96±0.40 E-00	4.15±0.41 E-00
MN-54	L.T. 1. E-02	L.T. 9. E-03	L.T. 8. E-03	L.T. 1. E-02	L.T. 1. E-02
CO-58	L.T. 1. E-02	L.T. 8. E-03	L.T. 8. E-03	L.T. 1. E-02	L.T. 1. E-02
FE-59	L.T. 3. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02
CO-60	L.T. 2. E-02	L.T. 8. E-03	L.T. 8. E-03	L.T. 1. E-02	L.T. 1. E-02
ZN-65	L.T. 3. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02
NB-95/ZR-95	L.T. 2. E-02	L.T. 9. E-03	L.T. 9. E-03	L.T. 1. E-02	L.T. 2. E-02
RU-103	L.T. 1. E-02	L.T. 9. E-03	L.T. 1. E-02	L.T. 1. E-02	L.T. 2. E-02
RU-106	L.T. 1. E-01	L.T. 8. E-02	L.T. 7. E-02	L.T. 1. E-01	L.T. 1. E-01
I-131	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02
CS-134	L.T. 2. E-02	L.T. 9. E-03	L.T. 9. E-03	L.T. 1. E-02	L.T. 1. E-02
CS-137	L.T. 2. E-02	L.T. 9. E-03	L.T. 9. E-03	L.T. 1. E-02	L.T. 1. E-02
LA-140/BA-140	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
CE-141	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
CE-144	L.T. 8. E-02	L.T. 5. E-02	L.T. 6. E-02	L.T. 6. E-02	L.T. 8. E-02
RA-226	L.T. 3. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01
TH-228	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

MILK

(PCI/LITER)

STATION NUMBER S-3

DATE COLLECTED:	01/12		01/12*		02/10		02/10*		03/09	
RADIOCHEMICAL ANALYSIS:										
I-131	L.T. 2	E-01	L.T. 2	E-01	L.T. 4.	E-01	L.T. 4.	E-01	L.T. 2.	E-01
GAMMA SPECTRUM ANALYSIS:										
BE-7	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 4.	E 01	L.T. 5.	E 01	L.T. 3.	E 01
K-40	1.35±0.14 E 03		1.39±0.14 E 03		1.34±0.13 E 03		1.51±0.15 E 03		1.39±0.14 E 03	
MN-54	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 5.	E 00	L.T. 3.	E 00
CO-58	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 5.	E 00	L.T. 3.	E 00
FE-59	L.T. 8.	E 00	L.T. 9.	E 00	L.T. 9.	E 00	L.T. 1.	E 01	L.T. 8.	E 00
CO-60	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 5.	E 00	L.T. 4.	E 00
ZN-65	L.T. 9.	E 00	L.T. 9.	E 00	L.T. 9.	E 00	L.T. 1.	E 01	L.T. 8.	E 00
NB-95/ZR-95	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 5.	E 00	L.T. 4.	E 00
RU-103	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 5.	E 00	L.T. 6.	E 00	L.T. 4.	E 00
RU-106	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 4.	E 01	L.T. 4.	E 01	L.T. 3.	E 01
I-131	L.T. 7.	E 00	L.T. 7.	E 00	L.T. 9.	E 00	L.T. 1.	E 01	L.T. 6.	E 00
CS-134	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 5.	E 00	L.T. 4.	E 00
CS-137	L.T. 4.	E 00	L.T. 5.	E 00	L.T. 5.	E 00	L.T. 5.	E 00	L.T. 5.	E 00
LA-140/BA-140	L.T. 6.	E 00	L.T. 6.	E 00	L.T. 7.	E 00	L.T. 7.	E 00	L.T. 5.	E 00
CE-141	L.T. 7.	E 00	L.T. 7.	E 00	L.T. 9.	E 00	L.T. 8.	E 00	L.T. 6.	E 00
CE-144	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 4.	E 01	L.T. 3.	E 01	L.T. 2.	E 01
RA-226	L.T. 8.	E 01	L.T. 7.	E 01	L.T. 1.	E 02	L.T. 1.	E 02	L.T. 7.	E 01
TH-228	L.T. 7.	E 00	L.T. 6.	E 00	L.T. 9.	E 00	L.T. 9.	E 00	L.T. 6.	E 00

\*Duplicate Analysis



**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**EXPOSURE PATHWAY - INGESTION**

MILK  
 (PCI/LITER)

STATION NUMBER S-3

DATE COLLECTED:	04/13	04/28	05/11	05/25	06/08
RADIOCHEMICAL ANALYSIS:					
I-131	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 1. E-01	L.T. 1. E-01
GAMMA SPECTRUM ANALYSIS:					
BE-7	L.T. 3. E-01	L.T. 3. E-01	L.T. 4. E-01	L.T. 3. E-01	L.T. 3. E-01
K-40	1.37±0.14 E-03	1.47±0.15 E-03	1.36±0.14 E-03	1.40±0.14 E-03	1.41±0.14 E-03
MN-54	L.T. 4. E-00	L.T. 3. E-00	L.T. 4. E-00	L.T. 4. E-00	L.T. 3. E-00
CO-58	L.T. 4. E-00	L.T. 3. E-00	L.T. 4. E-00	L.T. 4. E-00	L.T. 4. E-00
FE-59	L.T. 9. E-00	L.T. 7. E-00	L.T. 9. E-00	L.T. 9. E-00	L.T. 8. E-00
CO-60	L.T. 4. E-00	L.T. 3. E-00	L.T. 4. E-00	L.T. 5. E-00	L.T. 4. E-00
ZN-65	L.T. 8. E-00	L.T. 7. E-00	L.T. 9. E-00	L.T. 9. E-00	L.T. 9. E-00
NB-95/ZR-95	L.T. 4. E-00	L.T. 3. E-00	L.T. 4. E-00	L.T. 4. E-00	L.T. 4. E-00
RU-103	L.T. 4. E-00	L.T. 3. E-00	L.T. 4. E-00	L.T. 4. E-00	L.T. 4. E-00
RU-106	L.T. 3. E-01	L.T. 2. E-01	L.T. 4. E-01	L.T. 3. E-01	L.T. 3. E-01
I-131	L.T. 6. E-00	L.T. 5. E-00	L.T. 7. E-00	L.T. 7. E-00	L.T. 5. E-00
CS-134	L.T. 4. E-00	L.T. 3. E-00	L.T. 4. E-00	L.T. 4. E-00	L.T. 4. E-00
CS-137	L.T. 5. E-00	L.T. 3. E-00	L.T. 4. E-00	L.T. 4. E-00	L.T. 4. E-00
LA-140/BA-140	L.T. 5. E-00	L.T. 4. E-00	L.T. 5. E-00	L.T. 6. E-00	L.T. 4. E-00
CE-141	L.T. 6. E-00	L.T. 6. E-00	L.T. 6. E-00	L.T. 7. E-00	L.T. 4. E-00
CE-144	L.T. 3. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 7. E-00
RA-226	L.T. 7. E-01	L.T. 6. E-01	L.T. 7. E-01	L.T. 8. E-01	L.T. 3. E-01
TH-228	L.T. 6. E-00	L.T. 6. E-00	L.T. 6. E-00	L.T. 7. E-00	L.T. 9. E-01
					L.T. 8. E-00

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

MILK  
(PCI/LITER)

STATION NUMBER S-3

DATE COLLECTED:	06/22		07/13		07/27		08/10		08/24	
RADIOCHEMICAL ANALYSIS:										
I-131	LT. 2.	E-01	LT. 2.	E-01	LT. 2.	E-01	LT. 3.	E-01	LT. 2.	E-01
GAMMA SPECTRUM ANALYSIS:										
BE-7	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01
K-40	1.40±0.14	E 03	1.27±0.13	E 03	1.39±0.14	E 03	1.48±0.15	E 03	LT. 1.	E 02
MN-54	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00
CO-58	LT. 4.	E 00	LT. 4.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 4.	E 00
FE-59	LT. 9.	E 00	LT. 9.	E 00	LT. 9.	E 00	LT. 9.	E 00	LT. 9.	E 00
CO-60	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00
ZN-65	LT. 9.	E 00	LT. 1.	E 01	LT. 9.	E 00	LT. 9.	E 00	LT. 9.	E 00
NB-95/ZR-95	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00
RU-103	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00
RU-106	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01
I-131	LT. 6.	E 00	LT. 7.	E 00	LT. 7.	E 00	LT. 8.	E 00	LT. 7.	E 00
CS-134	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00
CS-137	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00
LA-140/BA-140	LT. 4.	E 00	LT. 6.	E 00	LT. 5.	E 00	LT. 7.	E 00	LT. 5.	E 00
CE-141	LT. 7.	E 00	LT. 7.	E 00	LT. 7.	E 00	LT. 8.	E 00	LT. 6.	E 00
CE-144	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 2.	E 01
RA-226	LT. 8.	E 01	LT. 8.	E 01	LT. 8.	E 01	LT. 8.	E 01	LT. 7.	E 01
TH-228	LT. 7.	E 00	LT. 7.	E 00	LT. 7.	E 00	LT. 7.	E 00	LT. 7.	E 00

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

MILK  
(PCI/LITER)

STATION NUMBER S-3

DATE COLLECTED:	09/07		09/21		10/12		10/26		11/09	
RADIOCHEMICAL ANALYSIS:										
I-131	LT. 2.	E-01	LT. 3.	E-01	LT. 3.	E-01	LT. 7.	E-01	LT. 2.	E-01
GAMMA SPECTRUM ANALYSIS:										
BE-7	LT. 4.	E 01	LT. 3.	E 01	LT. 4.	E 01	LT. 4.	E 01	LT. 4.	E 01
K-40	1.36±0.14	E 03	1.32±0.13	E 03	1.42±0.14	E 03	1.54±0.15	E 03	1.37±0.14	E 03
MN-54	LT. 4.	E 00	LT. 4.	E 00	LT. 3.	E 00	LT. 4.	E 00	LT. 5.	E 00
CO-58	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 5.	E 00
FE-59	LT. 9.	E 00	LT. 9.	E 00	LT. 1.	E 01	LT. 9.	E 00	LT. 1.	E 01
CO-60	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 5.	E 00
ZN-65	LT. 1.	E 01	LT. 1.	E 01	LT. 9.	E 00	LT. 9.	E 00	LT. 1.	E 01
NB-95/ZR-95	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 5.	E 00
RU-103	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 5.	E 00
RU-106	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 4.	E 01
I-131	LT. 8.	E 00	LT. 7.	E 00	LT. 1.	E 01	LT. 9.	E 00	LT. 8.	E 00
CS-134	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 5.	E 00
CS-137	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 5.	E 00
LA-140/BA-140	LT. 6.	E 00	LT. 6.	E 00	LT. 7.	E 00	LT. 6.	E 00	LT. 6.	E 00
CE-141	LT. 6.	E 00	LT. 6.	E 00	LT. 7.	E 00	LT. 8.	E 00	LT. 8.	E 00
CE-144	LT. 2.	E 01	LT. 2.	E 01	LT. 2.	E 01	LT. 3.	E 01	LT. 3.	E 01
RA-226	LT. 7.	E 01	LT. 7.	E 01	LT. 7.	E 01	LT. 9.	E 01	LT. 9.	E 01
TH-228	LT. 7.	E 00	LT. 7.	E 00	LT. 7.	E 00	LT. 7.	E 00	LT. 8.	E 00

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - INGESTION

MILK

(PCI/LITER)

STATION NUMBER S-3

DATE COLLECTED:	11/23	12/07
RADIOCHEMICAL ANALYSIS:		
I-131	L.T. 3. E-01	L.T. 2. E-01
GAMMA SPECTRUM ANALYSIS:		
BE-7	L.T. 4. E 01	L.T. 3. E 01
K-40	1.39±0.14 E 03	1.41±0.14 E 03
MN-54	L.T. 4. E 00	L.T. 3. E 00
CO-58	L.T. 5. E 00	L.T. 3. E 00
FE-59	L.T. 1. E 01	L.T. 7. E 00
CO-60	L.T. 4. E 00	L.T. 3. E 00
ZN-65	L.T. 1. E 01	L.T. 7. E 00
NB-95/ZR-95	L.T. 5. E 00	L.T. 3. E 00
RU-103	L.T. 5. E 00	L.T. 3. E 00
RU-106	L.T. 4. E 01	L.T. 3. E 01
I-131	L.T. 1. E 01	L.T. 5. E 00
CS-134	L.T. 5. E 00	L.T. 3. E 00
CS-137	L.T. 5. E 00	L.T. 4. E 00
LA-140/BA-140	L.T. 6. E 00	L.T. 5. E 00
CE-141	L.T. 8. E 00	L.T. 6. E 00
CE-144	L.T. 3. E 01	L.T. 3. E 01
RA-226	L.T. 9. E 01	L.T. 7. E 01
TH-228	L.T. 8. E 00	L.T. 6. E 00

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

SEDIMENT/SILT

(pCi/GM DRY)

STATION NUMBER DC

DATE COLLECTED:	06/29	09/28
GAMMA SPECTRUM ANALYSIS:		
BE-7	L.T. 5. E-01	L.T. 4. E-01
K-40	1.41±0.14 E 01	1.20±0.12 E 01
MN-54	L.T. 6. E-02	5.68±3.25 E-02
CO-58	L.T. 5. E-02	L.T. 5. E-02
FE-59	L.T. 1. E-01	L.T. 1. E-01
CO-60	1.18±0.12 E 00	1.08±0.11 E 00
ZN-65	L.T. 1. E-01	L.T. 1. E-01
NB-95/ZR-95	L.T. 6. E-02	L.T. 5. E-02
RU-103	L.T. 7. E-02	L.T. 5. E-02
RU-106	L.T. 4. E-01	L.T. 4. E-01
I-131	L.T. 2. E-01	L.T. 2. E-01
CS-134	2.71±0.57 E-01	3.22±0.46 E-01
CS-137	8.93±0.89 E-01	6.47±0.65 E-01
LA-140/BA-140	L.T. 1. E-01	L.T. 1. E-01
CE-141	L.T. 1. E-01	L.T. 8. E-02
CE-144	L.T. 3. E-01	L.T. 3. E-01
RA-226	3.29±0.83 E 00	2.12±0.59 E 00
TH-228	1.33±0.13 E 00	1.24±0.12 E 00

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

SEDIMENT/SILT

(pCi/GM DRY)

STATION NUMBER DC-1

DATE COLLECTED: 05/25

GAMMA SPECTRUM ANALYSIS:

BE-7	L.T. 4.	E-01
K-40	1.28±0.13	E 01
MN-54	L.T. 5.	E-02
CO-58	L.T. 5.	E-02
FE-59	L.T. 1.	E-01
CO-60	1.37±0.14	E 00
ZN-65	L.T. 1.	E-01
NB-95/ZR-95	L.T. 5.	E-02
RU-103	L.T. 5.	E-02
RU-106	L.T. 4.	E-01
I-131	L.T. 9.	E-02
CS-134	1.85±0.50	E-01
CS-137	7.26±0.73	E-01
LA-140/BA-140	L.T. 8.	E-02
CE-141	L.T. 7.	E-02
CE-144	L.T. 3.	E-01
RA-226	3.04±0.70	E 00
TH-228	1.23±0.12	E 00

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

SEDIMENT/SILT

(pCi/GM DRY)

STATION NUMBER DC-2

DATE COLLECTED: 05/25

GAMMA SPECTRUM ANALYSIS:

BE-7	L.T. 4.	E-01
K-40	4.25±0.50	E-00
MN-54	L.T. 4.	E-02
CO-58	L.T. 5.	E-02
FE-59	L.T. 9.	E-02
CO-60	4.74±0.54	E-01
ZN-65	L.T. 8.	E-02
NB-95/ZR-95	L.T. 5.	E-02
RU-103	L.T. 4.	E-02
RU-106	L.T. 4.	E-01
I-131	L.T. 9.	E-02
CS-134	L.T. 6.	E-02
CS-137	4.08±0.47	E-01
LA-140/BA-140	L.T. 8.	E-02
CE-141	L.T. 9.	E-02
CE-144	L.T. 3.	E-01
RA-226	1.77±0.75	E-00
TH-228	6.11±0.61	E-01



WOLF CREEK NUCLEAR OPERATING CORPORATION  
 EXPOSURE PATHWAY - AQUATIC

SEDIMENT/SILT

(pCi/GM DRY)

STATION NUMBER DC-3

DATE COLLECTED: 05/25

GAMMA SPECTRUM ANALYSIS:

BE-7	4.54±2.39 E-01
K-40	4.87±0.49 E 00
MN-54	7.68±2.80 E-02
CO-58	3.24±0.39 E-01
FE-59	L.T. 8. E-02
CO-60	7.93±0.79 E-01
ZN-65	L.T. 7. E-02
NB-95/ZR-95	L.T. 4. E-02
RU-103	L.T. 4. E-02
RU-106	L.T. 3. E-01
I-131	L.T. 7. E-02
CS-134	1.39±0.30 E-01
CS-137	2.22±0.36 E-01
LA-140/BA-140	L.T. 5. E-02
CE-141	L.T. 5. E-02
CE-144	L.T. 2. E-01
RA-226	1.66±0.45 E 00
TH-228	5.86±0.59 E-01

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

SEDIMENT/SILT

(pCi/GM DRY)

STATION NUMBER DC-4

DATE COLLECTED: 05/25

GAMMA SPECTRUM ANALYSIS:

BE-7	L.T. 4. E-01
K-40	1.32±0.13 E 01
MN-54	L.T. 6. E-02
CO-58	L.T. 5. E-02
FE-59	L.T. 1. E-01
CO-60	1.43±0.14 E 00
ZN-65	L.T. 1. E-01
NB-95/ZR-95	L.T. 6. E-02
RU-103	L.T. 5. E-02
RU-106	L.T. 4. E-01
I-131	L.T. 1. E-01
CS-134	3.61±0.56 E-01
CS-137	9.42±0.94 E-01
LA-140/BA-140	L.T. 9. E-02
CE-141	L.T. 7. E-02
CE-144	L.T. 3. E-01
RA-226	2.15±0.70 E 00
TH-228	1.43±0.14 E 00

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

SEDIMENT/SILT

(pCi/GM DRY)

STATION NUMBER DC-5

DATE COLLECTED: 05/25

GAMMA SPECTRUM ANALYSIS:

BE-7	L.T. 4.	E-01
K-40	1.31±0.13	E 01
MN-54	L.T. 6.	E-02
CO-58	L.T. 5.	E-02
FE-59	L.T. 1.	E-01
CO-60	2.34±0.23	E 00
ZN-65	L.T. 1.	E-01
NB-95/ZR-95	L.T. 5.	E-02
RU-103	L.T. 5.	E-02
RU-106	L.T. 4.	E-01
I-131	L.T. 9.	E-02
CS-134	2.93±0.49	E-01
CS-137	8.40±0.84	E-01
LA-140/BA-140	L.T. 7.	E-02
CE-141	L.T. 7.	E-02
CE-144	L.T. 3.	E-01
RA-226	2.53±0.68	E 00
TH-228	1.53±0.15	E 00

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

SEDIMENT SILT

(pCi/GM DRY)

STATION NUMBER UHS

DATE COLLECTED: 07/02

GAMMA SPECTRUM ANALYSIS:

BE-7	L.T. 4.	E-01
K-40	1.37±0.14	E-01
MN-54	L.T. 4.	E-02
CO-58	L.T. 4.	E-02
FE-59	L.T. 9.	E-02
CO-60	L.T. 5.	E-02
ZN-65	L.T. 1.	E-01
NB-95/ZR-95	L.T. 5.	E-02
RU-103	L.T. 5.	E-02
RU-106	L.T. 3.	E-01
I-131	L.T. 1.	E-01
CS-134	L.T. 5.	E-02
CS-137	3.68±0.48	E-01
LA-140/BA-140	L.T. 7.	E-02
CE-141	L.T. 8.	E-02
CE-144	L.T. 3.	E-01
RA-226	2.49±0.60	E-00
TH-228	1.31±0.13	E-00

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

SEDIMENT SILT

(pCi/GM DRY)

STATION NUMBER JRR

DATE COLLECTED: 07/02

11/09

GAMMA SPECTRUM ANALYSIS:

BE-7	L.T. 4. E-01	L.T. 4. E-01
K-40	1.71±0.17 E 01	1.09±0.11 E 01
MN-54	L.T. 4. E-02	L.T. 4. E-02
CO-58	L.T. 3. E-02	L.T. 3. E-02
FE-59	L.T. 9. E-02	L.T. 9. E-02
CO-60	L.T. 3. E-02	L.T. 4. E-02
ZN-65	L.T. 9. E-02	L.T. 9. E-02
NB-95/ZR-95	L.T. 4. E-02	L.T. 5. E-02
RU-103	L.T. 4. E-02	L.T. 4. E-02
RU-106	L.T. 3. E-01	L.T. 3. E-01
I-131	L.T. 1. E-01	L.T. 1. E-01
CS-134	L.T. 5. E-02	L.T. 4. E-02
CS-137	2.25±0.38 E-01	2.16±0.30 E-01
LA-140/BA-140	L.T. 8. E-02	L.T. 6. E-02
CE-141	L.T. 6. E-02	L.T. 7. E-02
CE-144	L.T. 2. E-01	L.T. 2. E-01
RA-226	2.42±0.54 E 00	1.59±0.54 E 00
TH-228	1.39±0.14 E 00	1.10±0.11 E 00

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

SHORELINE SOIL

(pCi/GM DRY)

STATION NUMBER DC

DATE COLLECTED:	04/20	09/28
GAMMA SPECTRUM ANALYSIS:		
BE-7	L.T. 5. E-01	L.T. 3. E-01
K-40	9.77±0.98 E 00	7.50±0.75 E 00
MN-54	L.T. 4. E-02	L.T. 2. E-02
CO-58	L.T. 5. E-02	L.T. 3. E-02
FE-59	L.T. 1. E-01	L.T. 6. E-02
CO-60	9.28±3.47 E-02	L.T. 3. E-02
ZN-65	L.T. 9. E-02	L.T. 5. E-02
NB-95/ZR-95	L.T. 5. E-02	L.T. 3. E-02
RU-103	L.T. 6. E-02	L.T. 3. E-02
RU-106	L.T. 4. E-01	L.T. 2. E-01
I-131	L.T. 3. E-01	L.T. 1. E-01
CS-134	L.T. 6. E-02	L.T. 4. E-02
CS-137	1.74±0.40 E-01	7.31±2.51 E-02
LA-140/BA-140	L.T. 2. E-01	L.T. 6. E-02
CE-141	L.T. 1. E-01	L.T. 5. E-02
CE-144	L.T. 4. E-01	L.T. 2. E-01
RA-226	1.91±0.68 E 00	7.38±3.41 E-01
TH-228	1.09±0.11 E 00	6.90±0.69 E-01

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

SHORELINE SOIL

(pCi/GM DRY)

STATION NUMBER JRR

DATE COLLECTED:	04/20	11/09	11/09*
GAMMA SPECTRUM ANALYSIS:			
BE-7	LT. 4. E-01	LT. 3. E-01	LT. 4. E-01
K-40	1.08±0.11 E 01	8.77±0.88 E 00	8.70±0.87 E 00
MN-54	LT. 3. E-02	LT. 3. E-02	LT. 4. E-02
CO-58	LT. 3. E-02	LT. 3. E-02	LT. 4. E-02
FE-59	LT. 8. E-02	LT. 6. E-02	LT. 1. E-01
CO-60	LT. 3. E-02	LT. 3. E-02	LT. 3. E-02
ZN-65	LT. 7. E-02	LT. 7. E-02	LT. 9. E-02
NB-95/ZR-95	LT. 4. E-02	LT. 4. E-02	LT. 5. E-02
RU-103	LT. 4. E-02	LT. 4. E-02	LT. 5. E-02
RU-106	LT. 3. E-01	LT. 3. E-01	LT. 3. E-01
I-131	LT. 2. E-01	LT. 9. E-02	LT. 3. E-01
CS-134	LT. 5. E-02	LT. 4. E-02	LT. 5. E-02
CS-137	LT. 4. E-02	1.08±0.29 E-01	1.39±0.35 E-01
LA-140/BA-140	LT. 1. E-01	LT. 7. E-02	LT. 1. E-01
CE-141	LT. 8. E-02	LT. 6. E-02	LT. 9. E-02
CE-144	LT. 2. E-01	LT. 2. E-01	LT. 2. E-01
RA-226	2.32±0.58 E 00	1.55±0.47 E 00	2.36±0.58 E 00
TH-228	1.71±0.17 E 00	1.01±0.10 E 00	1.16±0.12 E 00



WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - TERRESTRIAL

SOIL

(pCi/GM DRY)

STATION NUMBER A-1

DATE COLLECTED: 06/15

GAMMA SPECTRUM ANALYSIS:

BE-7	5.52±2.41 E-01
K-40	8.95±0.90 E 00
MN-54	L.T. 3. E-02
CO-58	L.T. 3. E-02
FE-59	L.T. 8. E-02
CO-60	L.T. 4. E-02
ZN-65	L.T. 7. E-02
NB-95/ZR-95	L.T. 4. E-02
RU-103	L.T. 4. E-02
RU-106	L.T. 3. E-01
I-131	L.T. 7. E-02
CS-134	L.T. 4. E-02
CS-137	9.49±3.25 E-02
LA-140/BA-140	L.T. 6. E-02
CE-141	L.T. 6. E-02
CE-144	L.T. 2. E-01
RA-226	1.64±0.48 E 00
TH-228	7.97±0.80 E-01

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - AQUATIC

VEGETATION - AQUATIC

(pCi/GM WET)

STATION NUMBER DC

DATE COLLECTED:

06/29  
ALGAE

06/29  
ROOTED AQUATICS

09/28  
POND WEED ROOTED

GAMMA SPECTRUM ANALYSIS:

BE-7	6.19±0.62 E-01	8.81±3.79 E-02	3.01±0.43 E-01
K-40	1.30±0.13 E 00	1.91±0.19 E 00	2.60±0.26 E 00
MN-54	6.78±0.68 E-02	L.T. 6. E-03	L.T. 5. E-03
CO-58	9.18±0.92 E-01	6.47±0.65 E-02	L.T. 6. E-03
FE-59	2.86±1.00 E-02	L.T. 1. E-02	L.T. 1. E-02
CO-60	6.58±0.66 E-01	2.61±0.53 E-02	L.T. 7. E-03
ZN-65	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02
NB-95/ZR-95	6.32±0.91 E-02	L.T. 6. E-03	L.T. 6. E-03
RU-103	1.22±0.53 E-02	L.T. 6. E-03	L.T. 6. E-03
RU-106	1.53±0.48 E-02	L.T. 5. E-02	L.T. 4. E-02
I-131	L.T. 1. E-02	L.T. 1. E-02	L.T. 2. E-02
CS-134	7.39±0.74 E-02	L.T. 6. E-03	L.T. 6. E-03
CS-137	1.06±0.11 E-01	L.T. 6. E-03	7.28±3.72 E-03
LA-140/BA-140	L.T. 8. E-03	L.T. 8. E-03	L.T. 9. E-03
CE-141	L.T. 1. E-02	L.T. 9. E-03	L.T. 9. E-03
CE-144	L.T. 4. E-02	L.T. 4. E-02	L.T. 3. E-02
RA-226	3.44±0.90 E-01	1.63±0.80 E-01	1.62±0.67 E-01
TH-228	1.81±0.18 E-01	L.T. 1. E-02	L.T. 9. E-03
CR-51	2.35±0.45 E-01		
SB-125	4.59±1.38 E-02		
NB-95	1.21±0.12 E-01		

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
EXPOSURE PATHWAY - WATERBORNE

DRINKING WATER

(PC1/LITER)

STATION NUMBER BW15

DATE COLLECTED:	01/05-02/02	02/02-03/02	02/02-03/02*	03/02-04/06	04/06-05/04
<b>RADIOCHEMICAL ANALYSIS:</b>					
GRB	7.2 ± 1.4 E 00	5.0 ± 1.8 E 00	5.1 ± 1.8 E 00	6.8 ± 1.3 E 00	7.9 ± 1.4 E 00
I-131	L.T. 2. E-01	L.T. 1. E 00	L.T. 1. E 00	L.T. 2. E-01	L.T. 5. E-01
<b>GAMMA SPECTRUM ANALYSIS:</b>					
BE-7	L.T. 3. E 01	L.T. 3. E 01	L.T. 2. E 01	L.T. 3. E 01	L.T. 3. E 01
K-40	L.T. 7. E 01	L.T. 9. E 01	L.T. 7. E 01	L.T. 5. E 01	L.T. 6. E 01
MN-54	L.T. 3. E 00	L.T. 3. E 00	L.T. 2. E 00	L.T. 2. E 00	L.T. 3. E 00
CO-58	L.T. 3. E 00	L.T. 3. E 00	L.T. 2. E 00	L.T. 3. E 00	L.T. 3. E 00
FE-59	L.T. 7. E 00	L.T. 6. E 00	L.T. 5. E 00	L.T. 6. E 00	L.T. 7. E 00
CO-60	L.T. 3. E 00	L.T. 3. E 00	L.T. 2. E 00	L.T. 3. E 00	L.T. 4. E 00
ZN-65	L.T. 6. E 00	L.T. 7. E 00	L.T. 5. E 00	L.T. 6. E 00	L.T. 6. E 00
NB-95/ZR-95	L.T. 3. E 00	L.T. 3. E 00	L.T. 2. E 00	L.T. 3. E 00	L.T. 3. E 00
RU-103	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00
RU-106	L.T. 3. E 01	L.T. 3. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 3. E 01
I-131	L.T. 6. E 00	L.T. 5. E 00	L.T. 3. E 00	L.T. 7. E 00	L.T. 6. E 00
CS-134	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00
CS-137	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00
LA-140/BA-140	L.T. 5. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 6. E 00	L.T. 6. E 00
CE-141	L.T. 5. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 6. E 00	L.T. 7. E 00
CE-144	L.T. 2. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 3. E 01
RA-226	L.T. 6. E 01	L.T. 6. E 01	L.T. 5. E 01	L.T. 6. E 01	L.T. 8. E 01
TH-228	L.T. 5. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 5. E 00	L.T. 7. E 00

TRITIUM ANALYSIS: 01/05-04/06

H-3 L.T. 2. E 02

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

DRINKING WATER

(PCI/LITER)

STATION NUMBER BW15

DATE COLLECTED:	05/04-06/01	06/01-07/06	07/06-08/03	08/03-08/31	08/31-10/05
RADIOCHEMICAL ANALYSIS:					
GR-B	5.9 ± 1.1 E 00	9.4 ± 1.7 E 00	6.8 ± 1.2 E 00	6.2 ± 1.3 E 00	7.1 ± 3.5 E 00
I-131	L.T. 2. E-01	L.T. 2. E-01	L.T. 5. E-01	L.T. 4. E-01	L.T. 9. E-01
GAMMA SPECTRUM ANALYSIS:					
BE-7	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 3. E 01
K-40	L.T. 6. E 01	L.T. 6. E 01	L.T. 6. E 01	L.T. 7. E 01	L.T. 7. E 01
MN-54	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00
CO-58	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00
FE-59	L.T. 6. E 00	L.T. 7. E 00	L.T. 6. E 00	L.T. 7. E 00	L.T. 6. E 00
CO-60	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00
ZN-65	L.T. 7. E 00	L.T. 7. E 00	L.T. 7. E 00	L.T. 9. E 00	L.T. 6. E 00
NB-95/ZR-95	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
RU-103	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
RU-106	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 3. E 01
I-131	L.T. 7. E 00	L.T. 7. E 00	L.T. 6. E 00	L.T. 7. E 00	L.T. 6. E 00
CS-134	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
LA-140/BA-140	L.T. 6. E 00	L.T. 6. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 5. E 00
CE-141	L.T. 7. E 00	L.T. 7. E 00	L.T. 7. E 00	L.T. 1. E 01	L.T. 6. E 00
CE-144	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 2. E 01
RA-226	L.T. 8. E 01	L.T. 8. E 01	L.T. 8. E 01	L.T. 1. E 02	L.T. 6. E 01
TH-228	L.T. 7. E 00	L.T. 7. E 00	L.T. 7. E 00	L.T. 1. E 01	L.T. 5. E 00

TRITIUM ANALYSIS: 04/06-07/07

H-3 L.T. 6. E 02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

DRINKING WATER

(pCi/LITER)

STATION NUMBER BW15

DATE COLLECTED: 10/05-11/02\* 11/30 11/30-01/04

RADIOCHEMICAL ANALYSIS:

GR-B 6.4 ± 1.4 E-00 7.9 ± 1.5 E-00  
I-131 L.T. 2. E-01 L.T. 1. E-01

GAMMA SPECTRUM ANALYSIS:

BE-7	L.T. 3.	E-01	L.T. 3.	E-01
K-40	L.T. 7.	E-01	L.T. 5.	E-01
MN-54	L.T. 3.	E-00	L.T. 3.	E-00
CO-58	L.T. 3.	E-00	L.T. 3.	E-00
FE-59	L.T. 6.	E-00	L.T. 6.	E-00
CO-60	L.T. 3.	E-00	L.T. 4.	E-00
ZN-65	L.T. 7.	E-00	L.T. 6.	E-00
NB-95/ZR-95	L.T. 3.	E-00	L.T. 3.	E-00
RU-103	L.T. 4.	E-00	L.T. 3.	E-00
RU-106	L.T. 3.	E-01	L.T. 3.	E-01
I-131	L.T. 6.	E-00	L.T. 5.	E-00
CS-134	L.T. 3.	E-00	L.T. 3.	E-00
CS-137	L.T. 3.	E-00	L.T. 3.	E-00
LA-140/BA-140	L.T. 5.	E-00	L.T. 5.	E-00
CE-141	L.T. 6.	E-00	L.T. 7.	E-00
CE-144	L.T. 2.	E-01	L.T. 3.	E-01
RA-226	L.T. 6.	E-01	L.T. 7.	E-01
TH-228	L.T. 5.	E-00	L.T. 6.	E-00

TRITIUM ANALYSIS: 07/06-10/05 11/30-01/04

H-3

L.T. 4. E-02 L.T. 4. E-02

\*Sample not collected.

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
**EXPOSURE PATHWAY - WATERBORNE**

**DRINKING WATER**

(PCI/LITER)

STATION NUMBER LW40

DATE COLLECTED:	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01
<b>RADIOCHEMICAL ANALYSIS:</b>					
GR-8	7.1 ± 1.4 E 00	6.7 ± 1.4 E 00	6.2 ± 1.4 E 00	8.5 ± 1.5 E 00	6.4 ± 1.3 E 00
I-131	L.T. 2. E-01	L.T. 6. E-01	L.T. 1. E-01	L.T. 5. E-01	L.T. 2. E-01
<b>GAMMA SPECTRUM ANALYSIS:</b>					
BE-7	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 4. E 01
K-40	L.T. 6. E 01	L.T. 5. E 01	L.T. 5. E 01	L.T. 1. E 02	L.T. 6. E 01
MN-54	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00
CO-58	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00
FE-59	L.T. 8. E 00	L.T. 7. E 00	L.T. 6. E 00	L.T. 9. E 00	L.T. 8. E 00
CO-60	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00
ZN-65	L.T. 8. E 00	L.T. 8. E 00	L.T. 6. E 00	L.T. 1. E 01	L.T. 8. E 00
NB-95/ZR-95	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 4. E 00
RU-103	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 4. E 00
RU-106	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 3. E 01
I-131	L.T. 7. E 00	L.T. 6. E 00	L.T. 7. E 00	L.T. 8. E 00	L.T. 8. E 00
CS-134	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 4. E 00
CS-137	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 5. E 00	L.T. 4. E 00
LA-140/BA-140	L.T. 6. E 00	L.T. 6. E 00	L.T. 6. E 00	L.T. 6. E 00	L.T. 7. E 00
CE-141	L.T. 7. E 00	L.T. 6. E 00	L.T. 5. E 00	L.T. 7. E 00	L.T. 8. E 00
CE-144	L.T. 3. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 3. E 01	L.T. 3. E 01
RA-226	L.T. 8. E 01	L.T. 7. E 01	L.T. 6. E 01	L.T. 8. E 01	L.T. 9. E 01
TH-228	L.T. 7. E 00	L.T. 7. E 00	L.T. 5. E 00	L.T. 8. E 00	L.T. 8. E 00
<b>TRITIUM ANALYSIS:</b>	01/05-04/06				
H-3	L.T. 2. E 02				

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

DRINKING WATER

(PCI/LITER)

STATION NUMBER LW40

DATE COLLECTED:	06/01-07/06	06/01-07/06*	07/06-08/03	08/03-08/31	08/31-10/05
RADIOCHEMICAL ANALYSIS:					
GR-B	6.7 ± 2.2 E 00	1.2 ± 0.3 E 01	6.0 ± 1.3 E 00	5.3 ± 1.4 E 00	1.3 ± 0.4 E 01
I-131	L.T. 5. E-01	L.T. 6. E-01	L.T. 4. E-01	L.T. 4. E-01	L.T. 8. E-01
GAMMA SPECTRUM ANALYSIS:					
BE-7	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 4. E 01	L.T. 3. E 01
K-40	L.T. 5. E 01	L.T. 7. E 01	L.T. 1. E 02	L.T. 6. E 01	L.T. 6. E 01
MN-54	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
CO-58	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00
FE-59	L.T. 6. E 00	L.T. 7. E 00	L.T. 9. E 00	L.T. 7. E 00	L.T. 6. E 00
CO-60	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
ZN-65	L.T. 6. E 00	L.T. 7. E 00	L.T. 9. E 00	L.T. 8. E 00	L.T. 7. E 00
NB-95/ZR-95	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
RU-103	L.T. 3. E 00	L.T. 4. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 4. E 00
RU-106	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 3. E 01	L.T. 3. E 01
I-131	L.T. 6. E 00	L.T. 6. E 00	L.T. 8. E 00	L.T. 6. E 00	L.T. 7. E 00
CS-134	L.T. 3. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 4. E 00
LA-140/BA-140	L.T. 5. E 00	L.T. 4. E 00	L.T. 6. E 00	L.T. 5. E 00	L.T. 6. E 00
CE-141	L.T. 6. E 00	L.T. 5. E 00	L.T. 8. E 00	L.T. 9. E 00	L.T. 7. E 00
CE-144	L.T. 2. E 01	L.T. 2. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 3. E 01
RA-226	L.T. 7. E 01	L.T. 6. E 00	L.T. 8. E 01	L.T. 1. E 02	L.T. 8. E 01
TH-228	L.T. 6. E 00	L.T. 5. E 00	L.T. 7. E 00	L.T. 9. E 00	L.T. 6. E 00
TRITIUM ANALYSIS:					
	04/06-07/06				
H-3	L.T. 6. E 02				

\*Duplicate Analyses



WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

DRINKING WATER

(PCI/LITER)

STATION NUMBER LW40

DATE COLLECTED:	10/05-11/02	11/30	11/30-01/04
RADIOCHEMICAL ANALYSIS:			
GR-B	2.3 ± 1.3 E 00	7.4 ± 1.5 E 00	6.7 ± 1.5 E 00
I-131	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01
GAMMA SPECTRUM ANALYSIS:			
BE-7	L.T. 4. E 01	L.T. 3. E 01	L.T. 4. E 01
K-40	L.T. 6. E 01	L.T. 5. E 01	L.T. 8. E 01
MN-54	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00
CO-58	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00
FE-59	L.T. 8. E 00	L.T. 7. E 00	L.T. 9. E 00
CO-60	L.T. 4. E 00	L.T. 3. E 00	L.T. 5. E 00
ZN-65	L.T. 8. E 00	L.T. 8. E 00	L.T. 8. E 00
NB-95/ZR-95	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
RU-103	L.T. 5. E 00	L.T. 4. E 00	L.T. 5. E 00
RU-106	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01
I-131	L.T. 9. E 00	L.T. 7. E 00	L.T. 9. E 00
CS-134	L.T. 4. E 00	L.T. 3. E 00	L.T. 5. E 00
CS-137	L.T. 4. E 00	L.T. 4. E 00	L.T. 5. E 00
LA-140/BA-140	L.T. 7. E 00	L.T. 5. E 00	L.T. 7. E 00
CE-141	L.T. 8. E 00	L.T. 7. E 00	L.T. 1. E 01
CE-144	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01
RA-226	L.T. 9. E 01	L.T. 8. E 01	L.T. 1. E 02
TH-228	L.T. 7. E 00	L.T. 7. E 00	L.T. 1. E 01
TRITIUM ANALYSIS:	07/06-10/05	10/05-01/04	
H-3	L.T. 4. E 02	L.T. 4. E 02	

**WOLF CREEK NUCLEAR OPERATING CORPORATION**  
EXPOSURE PATHWAY - WATERBORNE

GROUND WATER

(PCI/LITER)

STATION NUMBER B-12

DATE COLLECTED:	02/23	05/18	08/17	11/16
RADIOCHEMICAL ANALYSIS:				
I-131	L.T. 3. E-01	L.T. 1. E-01	L.T. 1. E-01	L.T. 2. E-01
GAMMA SPECTRUM ANALYSIS:				
BE-7	L.T. 3. E-01	L.T. 3. E-01	L.T. 3. E-01	L.T. 4. E-01
K-40	L.T. 9. E-01	L.T. 5. E-01	L.T. 6. E-01	L.T. 6. E-01
MN-54	L.T. 3. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 3. E-00
CO-58	L.T. 3. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 4. E-00
FE-59	L.T. 8. E-00	L.T. 5. E-00	L.T. 7. E-00	L.T. 8. E-00
CO-60	L.T. 4. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 4. E-00
ZN-65	L.T. 8. E-00	L.T. 6. E-00	L.T. 6. E-00	L.T. 7. E-00
NB-95/ZR-95	L.T. 4. E-00	L.T. 3. E-00	L.T. 4. E-00	L.T. 4. E-00
RU-103	L.T. 4. E-00	L.T. 3. E-00	L.T. 4. E-00	L.T. 5. E-00
RU-106	L.T. 3. E-01	L.T. 3. E-01	L.T. 3. E-01	L.T. 3. E-01
I-131	L.T. 1. E-01	L.T. 4. E-00	L.T. 8. E-00	L.T. 2. E-01
CS-134	L.T. 4. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 4. E-00
CS-137	L.T. 4. E-00	L.T. 3. E-00	L.T. 5. E-00	L.T. 4. E-00
LA-140/BA-140	L.T. 8. E-00	L.T. 4. E-00	L.T. 7. E-00	L.T. 1. E-01
CE-141	L.T. 6. E-00	L.T. 6. E-00	L.T. 6. E-00	L.T. 8. E-00
CE-144	L.T. 2. E-01	L.T. 3. E-01	L.T. 2. E-01	L.T. 2. E-01
RA-226	L.T. 7. E-01	L.T. 7. E-01	L.T. 7. E-01	L.T. 7. E-01
TH-228	L.T. 6. E-00	L.T. 6. E-00	L.T. 6. E-00	L.T. 6. E-00
TRITIUM ANALYSIS:				
H-3	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 4. E-02

**WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE**

GROUND WATER

(PC1/LITER)

STATION NUMBER C-10

DATE COLLECTED:	02/23	05/18	05/18*	08/17	11/16
RADIOCHEMICAL ANALYSIS:					
I-131	LT. 3. E-01	LT. 3. E-01	LT. 3. E-01	LT. 2. E-01	LT. 2. E-01
GAMMA SPECTRUM ANALYSIS:					
BE-7	LT. 5. E-01	LT. 3. E-01	LT. 3. E-01	LT. 5. E-01	LT. 3. E-01
K-40	LT. 1. E-02	LT. 6. E-01	LT. 6. E-01	LT. 1. E-02	LT. 5. E-01
MN-54	LT. 5. E-00	LT. 3. E-00	LT. 4. E-00	LT. 5. E-00	LT. 3. E-00
CO-58	LT. 5. E-00	LT. 3. E-00	LT. 4. E-00	LT. 5. E-00	LT. 3. E-00
FE-59	LT. 1. E-01	LT. 6. E-00	LT. 7. E-00	LT. 1. E-01	LT. 8. E-00
CO-60	LT. 5. E-00	LT. 3. E-00	LT. 4. E-00	LT. 5. E-00	LT. 4. E-00
ZN-65	LT. 1. E-01	LT. 6. E-00	LT. 7. E-00	LT. 1. E-01	LT. 6. E-00
NB-95/ZR-95	LT. 5. E-00	LT. 3. E-00	LT. 4. E-00	LT. 6. E-00	LT. 3. E-00
RU-103	LT. 6. E-00	LT. 3. E-00	LT. 4. E-00	LT. 7. E-00	LT. 4. E-00
RU-106	LT. 4. E-01	LT. 3. E-01	LT. 3. E-01	LT. 5. E-01	LT. 3. E-01
I-131	LT. 1. E-01	LT. 4. E-00	LT. 7. E-00	LT. 1. E-01	LT. 1. E-01
CS-134	LT. 5. E-00	LT. 3. E-00	LT. 4. E-00	LT. 6. E-00	LT. 3. E-00
CS-137	LT. 5. E-00	LT. 3. E-00	LT. 4. E-00	LT. 6. E-00	LT. 3. E-00
IA-140/BA-140	LT. 9. E-00	LT. 4. E-00	LT. 6. E-00	LT. 9. E-00	LT. 8. E-00
CE-141	LT. 9. E-00	LT. 7. E-00	LT. 7. E-00	LT. 1. E-01	LT. 8. E-00
CE-144	LT. 3. E-01	LT. 3. E-01	LT. 3. E-01	LT. 5. E-01	LT. 3. E-01
RA-226	LT. 9. E-01	LT. 9. E-01	LT. 8. E-01	LT. 2. E-02	LT. 7. E-01
TH-228	LT. 8. E-00	LT. 7. E-00	LT. 8. E-00	LT. 1. E-01	LT. 7. E-00

TRITIUM ANALYSIS:

H-3	LT. 1. E-02	LT. 2. E-02	LT. 2. E-02	LT. 2. E-02	LT. 4. E-02
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\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

GROUND WATER

(PCI/LITER)

STATION NUMBER C-49

DATE COLLECTED:	02/23	05/18	08/17	11/16
RADIOCHEMICAL ANALYSIS:				
I-131	L.T. 2. E-01	L.T. 1. E-01	L.T. 1. E-01	L.T. 2. E-01
GAMMA SPECTRUM ANALYSIS:				
BE-7	L.T. 4. E-01	L.T. 3. E-01	L.T. 3. E-01	L.T. 3. E-01
K-40	L.T. 9. E-01	L.T. 8. E-01	L.T. 5. E-01	L.T. 7. E-01
MN-54	L.T. 4. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 3. E-00
CO-58	L.T. 4. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 3. E-00
FE-59	L.T. 8. E-00	L.T. 7. E-00	L.T. 6. E-00	L.T. 7. E-00
CO-60	L.T. 4. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 3. E-00
ZN-65	L.T. 8. E-00	L.T. 7. E-00	L.T. 5. E-00	L.T. 7. E-00
NB-95/ZR-95	L.T. 4. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 3. E-00
RU-103	L.T. 5. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 4. E-00
RU-106	L.T. 3. E-01	L.T. 3. E-01	L.T. 3. E-01	L.T. 3. E-01
I-131	L.T. 1. E-01	L.T. 4. E-00	L.T. 7. E-00	L.T. 1. E-01
CS-134	L.T. 4. E-00	L.T. 3. E-00	L.T. 3. E-00	L.T. 3. E-00
CS-137	L.T. 4. E-00	L.T. 4. E-00	L.T. 4. E-00	L.T. 3. E-00
LA-140/BA-140	L.T. 7. E-00	L.T. 5. E-00	L.T. 5. E-00	L.T. 7. E-00
CE-141	L.T. 7. E-00	L.T. 5. E-00	L.T. 6. E-00	L.T. 6. E-00
CE-144	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01
RA-226	L.T. 7. E-01	L.T. 7. E-01	L.T. 7. E-01	L.T. 6. E-01
TH-228	L.T. 6. E-00	L.T. 6. E-00	L.T. 6. E-00	L.T. 6. E-00
TRITIUM ANALYSIS:				
H-3	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 4. E-02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

GROUND WATER

(PCI/LITER)

STATION NUMBER D-65

DATE COLLECTED:	02/23		05/18		08/17		11/16	
RADIOCHEMICAL ANALYSIS:								
I-131	L.T. 3.	E-01	L.T. 2.	E-01	L.T. 1.	E-01	L.T. 2.	E-01
GAMMA SPECTRUM ANALYSIS:								
BE-7	L.T. 4.	E 01	L.T. 2.	E 01	L.T. 3.	E 01	L.T. 4.	E 01
K-40	L.T. 5.	E 01	L.T. 5.	E 01	L.T. 9.	E 01	L.T. 6.	E 01
MN-54	L.T. 4.	E 00	L.T. 2.	E 00	L.T. 3.	E 00	L.T. 3.	E 00
CO-58	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 3.	E 00
FE-59	L.T. 1.	E 01	L.T. 5.	E 00	L.T. 7.	E 00	L.T. 8.	E 00
CO-60	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 4.	E 00
ZN-65	L.T. 9.	E 00	L.T. 6.	E 00	L.T. 7.	E 00	L.T. 8.	E 00
NB-95/ZR-95	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 4.	E 00
RU-103	L.T. 5.	E 00	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 5.	E 00
RU-106	L.T. 4.	E 01	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 3.	E 01
I-131	L.T. 1.	E 01	L.T. 4.	E 00	L.T. 8.	E 00	L.T. 2.	E 01
CS-134	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 3.	E 00
CS-137	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00
LA-140/BA-140	L.T. 8.	E 00	L.T. 4.	E 00	L.T. 6.	E 00	L.T. 1.	E 01
CE-141	L.T. 9.	E 00	L.T. 5.	E 00	L.T. 6.	E 00	L.T. 9.	E 00
CE-144	L.T. 3.	E 01	L.T. 2.	E 01	L.T. 2.	E 01	L.T. 3.	E 01
RA-226	L.T. 9.	E 01	L.T. 6.	E 01	L.T. 7.	E 01	L.T. 8.	E 01
TH-228	L.T. 8.	E 00	L.T. 5.	E 00	L.T. 7.	E 00	L.T. 7.	E 00
TRITIUM ANALYSIS:								
H-3	L.T. 1.	E 02	L.T. 2.	E 02	L.T. 2.	E 02	L.T. 4.	E 02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

SURFACE WATER

(PCI/LITER)

STATION NUMBER MUSH

DATE COLLECTED:	01/19	02/25	03/16	04/20	05/18
GAMMA SPECTRUM ANALYSIS:					
BE-7	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01	LT. 4. E 01	LT. 3. E 01
K-40	LT. 6. E 01	LT. 6. E 01	LT. 5. E 01	LT. 6. E 01	LT. 8. E 01
MN-54	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00	LT. 4. E 00	LT. 3. E 00
CO-58	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00	LT. 4. E 00	LT. 3. E 00
FE-59	LT. 7. E 00	LT. 8. E 00	LT. 6. E 00	LT. 9. E 00	LT. 6. E 00
CO-60	LT. 4. E 00	LT. 3. E 00	LT. 4. E 00	LT. 4. E 00	LT. 3. E 00
ZN-65	LT. 7. E 00	LT. 7. E 00	LT. 7. E 00	LT. 8. E 00	LT. 6. E 00
NB-95/ZR-95	LT. 4. E 00	LT. 3. E 00	LT. 3. E 00	LT. 4. E 00	LT. 3. E 00
RU-103	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 3. E 00
RU-106	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01
I-131	LT. 6. E 00	LT. 1. E 01	LT. 6. E 00	LT. 7. E 00	LT. 4. E 00
CS-134	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00	LT. 4. E 00	LT. 3. E 00
CS-137	LT. 5. E 00	LT. 5. E 00	LT. 5. E 00	LT. 4. E 00	LT. 3. E 00
LA-140/BA-140	LT. 5. E 00	LT. 7. E 00	LT. 5. E 00	LT. 6. E 00	LT. 4. E 00
CE-141	LT. 6. E 00	LT. 7. E 00	LT. 6. E 00	LT. 8. E 00	LT. 4. E 00
CE-144	LT. 2. E 01	LT. 2. E 01	LT. 2. E 01	LT. 3. E 01	LT. 2. E 01
RA-226	LT. 7. E 01	LT. 7. E 01	LT. 7. E 01	LT. 9. E 01	LT. 6. E 01
TH-228	LT. 6. E 00	LT. 6. E 00	LT. 6. E 00	LT. 7. E 00	LT. 6. E 00
TRITIUM ANALYSIS:					
H-3	LT. 6. E 02	LT. 1. E 02	LT. 6. E 02	LT. 4. E 02	LT. 6. E 02

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

SURFACE WATER

(PCI/LITER)

STATION NUMBER MUSH

DATE COLLECTED:	06/15		07/20		08/17		09/21		10/19	
GAMMA SPECTRUM ANALYSIS:										
BE-7	L.T. 4.	E 01	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 3.	E 01
K-40	L.T. 7.	E 01	L.T. 5.	E 01	L.T. 6.	E 01	L.T. 6.	E 01	L.T. 5.	E 01
MN-54	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 3.	E 00
CO-58	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 4.	E 00
FE-59	L.T. 9.	E 00	L.T. 6.	E 00	L.T. 7.	E 00	L.T. 7.	E 00	L.T. 8.	E 00
CO-60	L.T. 5.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 4.	E 00
ZN-65	L.T. 1.	E 01	L.T. 7.	E 00	L.T. 7.	E 00	L.T. 7.	E 00	L.T. 7.	E 00
NB-95/ZR-95	L.T. 5.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 3.	E 00
RU-103	L.T. 5.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00
RU-106	L.T. 4.	E 01	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 3.	E 01
I-131	L.T. 1.	E 01	L.T. 6.	E 00	L.T. 8.	E 00	L.T. 7.	E 00	L.T. 1.	E 01
CS-134	L.T. 5.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 4.	E 00
CS-137	L.T. 5.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00
LA-140/BA-140	L.T. 7.	E 00	L.T. 4.	E 00	L.T. 6.	E 00	L.T. 6.	E 00	L.T. 9.	E 00
CE-141	L.T. 1.	E 01	L.T. 7.	E 00	L.T. 7.	E 00	L.T. 6.	E 00	L.T. 7.	E 00
CE-144	L.T. 5.	E 01	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 2.	E 01	L.T. 2.	E 01
RA-226	L.T. 1.	E 02	L.T. 8.	E 01	L.T. 8.	E 01	L.T. 7.	E 01	L.T. 7.	E 01
TH-228	L.T. 1.	E 01	L.T. 7.	E 00	L.T. 7.	E 00	L.T. 6.	E 00	L.T. 6.	E 00
TRITIUM ANALYSIS:										
H-3	L.T. 6.	E 02	L.T. 7.	E 02	L.T. 7.	E 02	L.T. 5.	E 02	L.T. 4.	E 02



WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

SURFACE WATER

(PCI/LITER)

STATION NUMBER MUSH

DATE COLLECTED:	11/16	12/21
GAMMA SPECTRUM ANALYSIS:		
BE-7	LT. 3. E 01	LT. 3. E 01
K-40	LT. 5. E 01	LT. 6. E 01
MN-54	LT. 3. E 00	LT. 3. E 00
CO-58	LT. 3. E 00	LT. 3. E 00
FE-59	LT. 7. E 00	LT. 7. E 00
CO-60	LT. 3. E 00	LT. 3. E 00
ZN-65	LT. 6. E 00	LT. 7. E 00
NB-95/ZR-95	LT. 3. E 00	LT. 4. E 00
RU-103	LT. 4. E 00	LT. 4. E 00
RU-106	LT. 3. E 01	LT. 3. E 01
I-131	LT. 2. E 01	LT. 8. E 00
CS-134	LT. 3. E 00	LT. 3. E 00
CS-137	LT. 3. E 00	LT. 4. E 00
LA-140/BA-140	LT. 9. E 00	LT. 8. E 00
CE-141	LT. 8. E 00	LT. 8. E 00
CE-144	LT. 3. E 01	LT. 3. E 01
RA-226	LT. 7. E 01	LT. 1. E 02
TH-228	LT. 6. E 00	LT. 8. E 00

TRITIUM ANALYSIS:

H-3	LT. 4. E 02	LT. 3. E 02
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WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

SURFACE WATER

(PCI/LITER)

STATION NUMBER SP

DATE COLLECTED:	01/19		02/23		03/16		04/20		05/18	
GAMMA SPECTRUM ANALYSIS:										
BE-7	LT. 3.	E 01	LT. 4.	E 01	LT. 3.	E 01	LT. 4.	E 01	LT. 3.	E 01
K-40	LT. 6.	E 01	LT. 6.	E 01	LT. 6.	E 01	LT. 6.	E 01	LT. 9.	E 01
MN-54	LT. 3.	E 00	LT. 4.	E 00	LT. 3.	E 00	LT. 4.	E 00	LT. 3.	E 00
CO-58	LT. 3.	E 00	LT. 4.	E 00	LT. 3.	E 00	LT. 4.	E 00	LT. 4.	E 00
FE-59	LT. 6.	E 00	LT. 8.	E 00	LT. 6.	E 00	LT. 8.	E 00	LT. 7.	E 00
CO-60	LT. 4.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 4.	E 00	LT. 4.	E 00
ZN-65	LT. 7.	E 00	LT. 7.	E 00	LT. 7.	E 00	LT. 8.	E 00	LT. 8.	E 00
NB-95/ZR-95	LT. 3.	E 00	LT. 4.	E 00	LT. 3.	E 00	LT. 4.	E 00	LT. 4.	E 00
RU-103	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 5.	E 00	LT. 4.	E 00
RU-106	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 4.	E 01	LT. 3.	E 01
I-131	LT. 6.	E 00	LT. 1.	E 01	LT. 6.	E 00	LT. 8.	E 00	LT. 6.	E 00
CS-134	LT. 4.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 4.	E 00	LT. 4.	E 00
CS-137	LT. 5.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00
LA-140/BA-140	LT. 6.	E 00	LT. 8.	E 00	LT. 5.	E 00	LT. 7.	E 00	LT. 6.	E 00
CE-141	LT. 6.	E 00	LT. 9.	E 00	LT. 6.	E 00	LT. 9.	E 00	LT. 6.	E 00
CE-144	LT. 2.	E 01	LT. 3.	E 01	LT. 2.	E 01	LT. 4.	E 01	LT. 2.	E 01
RA-226	LT. 7.	E 01	LT. 8.	E 01	LT. 7.	E 01	LT. 9.	E 01	LT. 7.	E 01
TH-228	LT. 6.	E 00	LT. 7.	E 00	LT. 5.	E 00	LT. 9.	E 00	LT. 6.	E 00
TRITIUM ANALYSIS:										
H-3	6.4 ± 0.5	E 03	7.0 ± 0.2	E 03	8.4 ± 0.6	E 03	8.9 ± 0.5	E 03	7.4 ± 0.6	E 03

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

SURFACE WATER

(PCI/LITER)

STATION NUMBER SP

DATE COLLECTED:	06/15		07/20		08/17		09/21		10/19	
GAMMA SPECTRUM ANALYSIS:										
BE-7	LT. 4.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 4.	E 01
K-40	LT. 1.	E 02	LT. 6.	E 01	LT. 9.	E 01	LT. 6.	E 01	LT. 6.	E 01
MN-54	LT. 4.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 4.	E 00
CC-58	LT. 5.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 4.	E 00
FE-59	LT. 1.	E 01	LT. 7.	E 00	LT. 7.	E 00	LT. 7.	E 00	LT. 1.	E 01
CO-60	LT. 5.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 4.	E 00	LT. 4.	E 00
ZN-65	LT. 1.	E 01	LT. 6.	E 00	LT. 7.	E 00	LT. 6.	E 00	LT. 8.	E 00
NB-95/ZR-95	LT. 5.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 4.	E 00
RU-103	LT. 5.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 5.	E 00
RU-106	LT. 4.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01	LT. 3.	E 01
I-131	LT. 8.	E 00	LT. 7.	E 00	LT. 8.	E 00	LT. 7.	E 00	LT. 2.	E 01
CS-134	LT. 5.	E 00	LT. 4.	E 00	LT. 3.	E 00	LT. 3.	E 00	LT. 4.	E 00
CS-137	LT. 5.	E 00	LT. 4.	E 00	LT. 4.	E 00	LT. 3.	E 00	LT. 4.	E 00
LA-140/BA-140	LT. 6.	E 00	LT. 6.	E 00	LT. 6.	E 00	LT. 6.	E 00	LT. 1.	E 01
CE-141	LT. 8.	E 00	LT. 7.	E 00	LT. 6.	E 00	LT. 7.	E 00	LT. 9.	E 00
CE-144	LT. 3.	E 01	LT. 3.	E 01	LT. 2.	E 01	LT. 3.	E 01	LT. 3.	E 01
RA-226	LT. 8.	E 01	LT. 8.	E 01	LT. 6.	E 01	LT. 7.	E 01	LT. 8.	E 01
TH-228	LT. 8.	E 00	LT. 7.	E 00	LT. 6.	E 00	LT. 6.	E 00	LT. 7.	E 00
TRITIUM ANALYSIS:										
H-3	7.5 ± 0.6 E 03		6.0 ± 0.6 E 03		5.6 ± 0.6 E 03		6.5 ± 0.5 E 03		7.1 ± 0.4 E 03	

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

SURFACE WATER

(PCI/LITER)

STATION NUMBER SP

DATE COLLECTED:	11/16	12/21
GAMMA SPECTRUM ANALYSIS:		
BE-7	LT. 3. E 01	LT. 2. E 01
K-40	LT. 8. E 01	LT. 5. E 01
MN-54	LT. 3. E 00	LT. 2. E 00
CO-58	LT. 3. E 00	LT. 3. E 00
FE-59	LT. 8. E 00	LT. 6. E 00
CO-60	LT. 3. E 00	LT. 3. E 00
ZN-65	LT. 7. E 00	LT. 5. E 00
NB-95/ZR-95	LT. 4. E 00	LT. 3. E 00
RU-103	LT. 4. E 00	LT. 3. E 00
RU-106	LT. 3. E 01	LT. 2. E 01
I-131	LT. 1. E 01	LT. 6. E 00
CS-134	LT. 3. E 00	LT. 3. E 00
CS-137	LT. 3. E 00	LT. 4. E 00
LA-140/BA-140	LT. 9. E 00	LT. 5. E 00
CE-141	LT. 7. E 00	LT. 6. E 00
CE-144	LT. 2. E 01	LT. 2. E 01
RA-226	LT. 6. E 01	LT. 6. E 01
TH-228	LT. 6. E 00	LT. 5. E 00

TRITIUM ANALYSIS:

H-3	6.3 ± 0.4 E 03	6.5 ± 0.4 E 03
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WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

SURFACE WATER

(PCI/LITER)

STATION NUMBER DC

DATE COLLECTED:	01/19	02/23	02/23*	03/16	04/20
GAMMA SPECTRUM ANALYSIS:					
BE-7	LT. 3. E 01	LT. 4. E 01	LT. 3. E 01	LT. 4. E 01	LT. 3. E 01
K-40	1.36±0.27 E 02	LT. 7. E 01	LT. 6. E 01	LT. 1. E 02	LT. 8. E 01
MN-54	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00	LT. 4. E 00	LT. 3. E 00
CO-58	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00	LT. 4. E 00	LT. 3. E 00
FE-59	LT. 7. E 00	LT. 8. E 00	LT. 8. E 00	LT. 1. E 01	LT. 6. E 00
CO-60	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 5. E 00	LT. 3. E 00
ZN-65	LT. 8. E 00	LT. 7. E 00	LT. 7. E 00	LT. 1. E 01	LT. 6. E 00
NB-95/ZR-95	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 5. E 00	LT. 3. E 00
RU-103	LT. 4. E 00	LT. 5. E 00	LT. 4. E 00	LT. 5. E 00	LT. 3. E 00
RU-106	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01	LT. 4. E 01	LT. 3. E 01
I-131	LT. 6. E 00	LT. 1. E 01	LT. 1. E 01	LT. 8. E 00	LT. 5. E 00
CS-134	LT. 4. E 00	LT. 4. E 00	LT. 3. E 00	LT. 5. E 00	LT. 3. E 00
CS-137	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 5. E 00	LT. 3. E 00
LA-140/BA-140	LT. 5. E 00	LT. 9. E 00	LT. 7. E 00	LT. 6. E 00	LT. 4. E 00
CE-141	LT. 6. E 00	LT. 1. E 01	LT. 7. E 00	LT. 8. E 00	LT. 5. E 00
CE-144	LT. 2. E 01	LT. 4. E 01	LT. 3. E 01	LT. 3. E 01	LT. 2. E 01
RA-226	LT. 7. E 01	LT. 1. E 02	LT. 7. E 01	LT. 8. E 01	LT. 6. E 01
TH-228	LT. 6. E 00	LT. 9. E 00	LT. 6. E 00	LT. 8. E 00	LT. 5. E 00
TRITIUM ANALYSIS:					
H-3	6.3 ± 0.5 E 03	6.4 ± 0.2 E 03	6.6 ± 0.2 E 03	7.8 ± 0.6 E 03	8.9 ± 0.5 E 03

\*Duplicate Analysis

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

SURFACE WATER

(PCI/LITER)

STATION NUMBER DC

DATE COLLECTED:	05/18	06/15	07/20	08/17	08/17*
GAMMA SPECTRUM ANALYSIS:					
BE-7	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01
K-40	LT. 9. E 01	LT. 1. E 02	LT. 7. E 01	LT. 8. E 01	LT. 5. E 01
MN-54	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00
CO-58	LT. 3. E 00	LT. 4. E 00	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00
FE-59	LT. 7. E 00	LT. 7. E 00	LT. 7. E 00	LT. 7. E 00	LT. 6. E 00
CO-60	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 3. E 00	LT. 3. E 00
ZN-65	LT. 7. E 00	LT. 8. E 00	LT. 6. E 00	LT. 6. E 00	LT. 5. E 00
NB-95/ZR-95	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 3. E 00	LT. 3. E 00
RU-103	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 3. E 00
RU-106	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01	LT. 3. E 01	LT. 2. E 01
I-131	LT. 7. E 00	LT. 6. E 00	LT. 6. E 00	LT. 7. E 00	LT. 7. E 00
CS-134	LT. 4. E 00	LT. 4. E 00	LT. 3. E 00	LT. 3. E 00	LT. 3. E 00
CS-137	LT. 4. E 00	LT. 4. E 00	LT. 4. E 00	LT. 3. E 00	LT. 4. E 00
LA-140/BA-140	LT. 6. E 00	LT. 5. E 00	LT. 5. E 00	LT. 5. E 00	LT. 7. E 00
CE-141	LT. 6. E 00	LT. 6. E 00	LT. 8. E 00	LT. 6. E 00	LT. 6. E 00
CE-144	LT. 2. E 01	LT. 2. E 01	LT. 3. E 01	LT. 2. E 01	LT. 2. E 01
RA-226	LT. 7. E 01	LT. 7. E 01	LT. 9. E 01	LT. 6. E 01	LT. 6. E 01
TH-228	LT. 6. E 00	LT. 7. E 00	LT. 8. E 00	LT. 5. E 00	LT. 5. E 00
TRITIUM ANALYSIS:					
H-3	7.3 ± 0.6 E 03	7.3 ± 0.6 E 03	5.9 ± 0.6 E 03	6.5 ± 0.6 E 03	6.8 ± 0.6 E 03

\*Duplicate analysis.

WOLF CREEK NUCLEAR OPERATING CORPORATION  
EXPOSURE PATHWAY - WATERBORNE

SURFACE WATER

(PCI/LITER)

STATION NUMBER DC

DATE COLLECTED:	09/21	10/19	11/16	12/21
GAMMA SPECTRUM ANALYSIS:				
BE-7	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01
K-40	L.T. 6. E 01	L.T. 4. E 01	L.T. 6. E 01	L.T. 5. E 01
MN-54	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
CO-58	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
FE-59	L.T. 8. E 00	L.T. 7. E 00	L.T. 8. E 00	L.T. 7. E 00
CO-60	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
ZN-65	L.T. 8. E 00	L.T. 7. E 00	L.T. 6. E 00	L. E 00
NB-95/ZR-95	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L. E 00
RU-103	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
RU-106	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01
I-131	L.T. 8. E 00	L. E 01	L.T. 2. E 01	L.T. 7. E 00
CS-134	L.T. 4. E 00	L. E 00	L.T. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L. E 00	L.T. E 00	L.T. 4. E 00
LA-140/BA-140	L.T. 7. E 00	L.T. 1. E 01	L.T. E 00	L.T. 6. E 00
CE-141	L.T. 8. E 00	L.T. 8. E 00	L.T. 9. E 00	L.T. 6. E 00
CE-144	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 2. E 01
RA-226	L.T. 9. E 01	L.T. 7. E 01	L.T. 8. E 01	L.T. 7. E 01
TH-228	L.T. 7. E 00	L.T. 6. E 00	L.T. 7. E 00	L.T. 6. E 00
TRITIUM ANALYSIS:				
H-3	6.7 ± 0.5 E 03	6.7 ± 0.4 E 03	6.8 ± 0.4 E 03	6.6 ± 0.4 E 03