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TENNESSEE VALLEY AUTHORITY

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DIVISION OF ENVIRONMENTAL PLANNING

RH-79-4-SQ1

ENVIRONMENTAL RADIOACTIVITY LEVELS
SEQUOYAH NUCLEAR PLANT
ANNUAL REPORT

1978

August 1979

CONTENTS

ENVIRONMENTAL RADIOACTIVITY LEVELS

SEQUOYAH NUCLEAR PLANT

1978

Introduction

The Sequoyah Nuclear Plant (SQN), being constructed by the Tennessee Valley Authority, is located on a site owned by TVA containing 525 acres of land in Hamilton County, Tennessee, bounded on the east by Chickamauga Reservoir. See figure 1. The site is 12 miles (19.3 kilometers) northeast of Chattanooga, Tennessee, and 11 miles (17.7 kilometers) west-northwest of Cleveland, Tennessee. The plant will consist of two pressurized water reactors; each unit is rated at 3,423 MWt and 1,171 MWe. Fuel load in unit 1 is scheduled for October 1979.

The preoperational environmental monitoring program has the objective of establishing a baseline of data on the distribution of natural and manmade radioactivity in the environment near the plant site.

TVA has collected data in this preoperational environmental monitoring program since 1971. Since the operation of the plant has been delayed, the program was reduced as of November 1, 1973. All continuous collections (air and charcoal filters) were discontinued as were milk and monthly river water samples. Only quarterly samples of soil, vegetation, well water, public water, river water, plankton, Asiatic clams, sediment, and fish, and annual samples of food products were collected. The full sampling program was reinstated in February 1976. The program outlined herein describes the sampling program as conducted in 1978.

Field staffs in the Division of Occupational Health and Safety, the Division of Water Resources, and the Division of Natural Resources Services carried out the sampling program outlined in tables 1 and 17. Sampling locations are shown in figures 2, 3, 4, and 5. All the radiochemical and instrumental analyses were conducted in a central laboratory at Muscle Shoals, Alabama. Alpha and beta analyses were performed on Beckman Low Beta II and Beckman Wide Beta II low-background proportional counters. Gross alpha and beta analyses are performed by counting an aliquot of prepared sample directly for alpha or beta. A total alpha concentration is reported when heavy metals separated as a part of the ^{89}Sr-^{90}Sr separation process are precipitated, filtered, and counted for alpha. Two Nuclear Data Model 100 multichannel analyzer systems employing sodium iodide, NaI(Tℓ) detectors and one Nuclear Data Model 4420 in conjunction with germanium, Ge(Li) detection systems, were used to analyze the samples for specific gamma-emitting radionuclides. Samples

of water, vegetation, air particulates, food crops, and charcoal (specific analysis for ^{131}I) are routinely counted with NaI(Tℓ) detection systems. If significant concentrations of radioisotopes are identified, or if there is a reasonable expectation of increased radioactivity levels (such as during periods of increased fallout), these samples are counted on the Ge(Li) system. Identification of gamma-emitting radionuclides in all other types of samples is routinely performed by analysis on the Ge(Li) system. TVA fabricated beta-gamma coincidence counting systems are utilized for the determination of ^{131}I concentrations in milk.

Data were entered in computer storage for processing specific to the analysis conducted. An IBM 370 Model 165 computer, employing an ALPHA-M least-squares code, was used to solve multimatrix problems associated with estimating the activities of the gamma-emitting nuclides analyzed by NaI(Tℓ). The data obtained by Ge(Li) detectors were resolved by the ND-4420 software.

The detection capabilities for environmental sample analysis given as the nominal lower limits of detection (LLD) are listed in Table 2. Samples processed by NaI(Tℓ) gamma spectroscopy were analyzed for 13 specific gamma-emitting radionuclides and radionuclide combinations*. For these analyses, radionuclide combinations such as $^{103,106}Ru$ and ^{95}Zr-Nb are analyzed as one radionuclide. All photopeaks found in Ge(Li) spectra were identified and quantified. Many of the isotopes identified by Ge(Li) spectral analysis are naturally occurring or naturally produced radioisotopes, such as ^{7}Be, ^{40}K, ^{212}Bi, ^{214}Bi, ^{212}Pb, ^{214}Pb, ^{226}Ra, etc. LLD's for the analysis of the radionuclides listed below* are given in Table 2B. LLD's for additional radionuclides identified by Ge(Li) analysis were calculated for each analysis and nominal values are listed in the appropriate data tables. In the instance where an LLD has not been established, an LLD value of zero was assumed. A notation in a table of "__ values <LLD" for an isotope with no established LLD does not imply a value less than 0; rather it indicates that the isotope was not identified in that specific group of samples. For each sample type, only the radionuclides for which values greater than the LLD were reported are listed in the data tables.

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*The following radionuclides and radionuclide combinations are quantified by the ALPHA-M least-squares computer code: $^{141,144}Ce$; ^{51}Cr; ^{131}I; $^{103,106}Ru$; ^{134}Cs; ^{137}Cs; ^{95}Zr-Nb; ^{58}Co; ^{54}Mn; ^{65}Zn; ^{60}Co; ^{40}K; and ^{140}Ba-La.

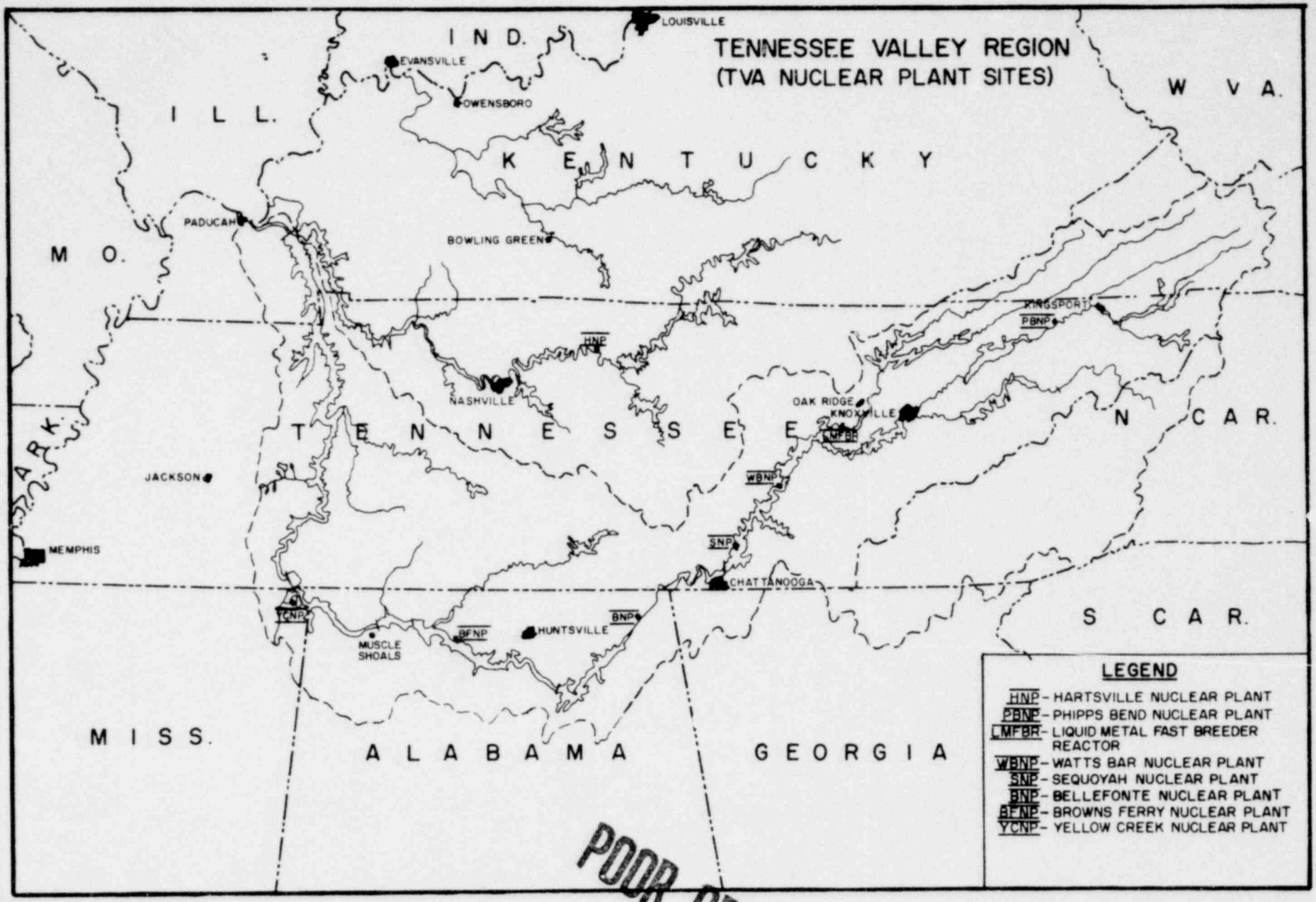


Figure 1

Table 1

ENVIRONMENTAL RADIOACTIVITY SAMPLING SCHEDULE

Station Location	Air Filter	Charcoal Filter	Rain-water	Heavy Particle Fallout	Atmospheric Moisture	Soil	Vegetation	Milk	River Water	Well Water	Public Water	Aquatic Life and Sediment
Chattanooga	W	W	M	M		S	Q				M	
Dayton	W	W	M	M	BW	S	Q				M	
Sale Creek	W	W	M	M		S	Q					
Daisy	W	W	M	M		S	Q				Q	
Red Bank	W	W	M	M		S	Q					
Volunteer Ordinance Works (Harrison)	W	W	M	M		S	Q					
Harrison Bay	W	W	M	M		S	Q					
Georgetown	W	W	M	M		S	Q					
Hamilton County Park	W	W	M	M		S	Q					
Work	W	W	M	M		S	Q					
Site N	W	W	M	M	BW	S	Q					
Site S	W	W	M	M	BW	S	Q					
Farm L							Q	M		M		
Farm N*							Q	M		M		
Farm M*								M		M		
Control Farm							Q	M		M		
Sequoyah Discharge TRM 483.7									M			
South Chicamauga Creek									M			
Chicamauga Reservoir									M			S
E. I. Dupont											Q	
Cleveland, TN											Q	
C. F. Industries											M	
On Site Wells (4)										M		
Mays Farm										Q		
Burris Farm										Q		
Walker Farm										Q		
McCamish Farm										Q		

W - Weekly BW - Biweekly M - Monthly Q - Quarterly S - Semiannually

*Farm N went out of the dairy business in May 1978; therefore milk samples are no longer available. Farm M was substituted for Farm N in July 1978.

Atmospheric Monitoring

The atmospheric monitoring network is divided into three subgroups. Two local air monitors are located within the plant boundary. Eight perimeter air monitors are located at distances out to 11 miles (17.7 kilometers) from the plant in the towns of Sale Creek, Daisy, Red Bank, Harrison, and four other densely populated areas. The remote air monitors are located at distances out to 19 miles (30.6 kilometers) from the plant in the town of Dayton and the city of Chattanooga. See Figures 2, 3, and 4.

At each monitor, air is continuously pulled through a Hollingsworth and Voss HV-70 particulate filter at a regulated flow of 3 ft^3/min (0.085 m^3/min). In series with, but downstream of, the particulate filter, is a charcoal filter used to collect iodine. Each monitor has a collection tray and storage container to collect rainwater on a continuous basis, and a horizontal platform covered with gummed acetate to catch and hold heavy particle fallout. Moisture is collected from the atmosphere at each local monitor and at one remote monitor and analyzed for tritium. Thermoluminescent dosimeters are used to record gamma radiation levels at each remote and perimeter station.

Each of the local and perimeter air monitors is fitted with a GM tube that continuously scans the particulate filter. The disintegration rate of the atmospheric radioactivity is continuously recorded at each station. These stations will detect any significant airborne release from SQN.

Air filters are collected weekly and analyzed for gross beta activity. During this period eighteen samples were not obtained because of equipment malfunction and six samples were not obtained because of severe weather. No analyses are performed until three days after sample collection. The samples are composited monthly for analysis of specific gamma-emitting radionuclides and quarterly for ^{89}Sr. ^{90}Sr analysis. The results are presented in Table 4.

With reference to Table 3, which contains the maximum permissible concentrations (MPC) recommended by 10 CFR 20 for nonoccupational exposure, it is seen that the maximum beta concentration is 2.34 percent MPC. This concentration occurred during a period of fallout from atmospheric nuclear weapons testing.

Rainwater is collected and analyzed for gross beta activity, specific gamma-emitting isotopes, and radiostrontium. During this period thirteen samples were not obtained because of sample unavailability, two contained insufficient quantities, and two were unobtainable because of severe weather. For the gross beta analysis, a maximum of 500 ml of

the sample is boiled to dryness and counted. A gamma scan is performed on a 3.5-liter monthly sample. The strontium isotopes are separated chemically and counted in a low background system. An aliquot of the quarterly composite is distilled and analyzed by liquid scintillation for tritium. The results are shown in Table 5. The highest value reported for beta activity is 3.88 percent of the MPC for drinking water. This concentration occurred during a period of fallout from atmospheric nuclear weapons testing.

The gummed acetate that is used to collect heavy particle fallout is changed monthly. Three samples were lost or damaged to the extent that insufficient material remained for analysis and two were not obtained because of severe weather. The sample is ashed and counted for gross beta activity. The results are given in Table 6.

Charcoal filters are collected and analyzed for radioiodine. During this period one sample was lost, eighteen were not obtained because of equipment malfunction, and six were unobtainable because of severe weather. The filter is counted in a single channel analyzer system. The data are shown in Table 7, where the highest value reported is 0.08 percent MPC for ^{131}I.

An atmospheric moisture collection device containing molecular sieve is located at each local monitor and at one remote monitor. Samples are taken every other week, the moisture driven off the molecular sieve, collected in a cold trap, distilled, and counted for tritium content. The results are shown in Table 8, where the highest value reported is 0.005 percent MPC for ^{3}H in air. In this reporting period, insufficient material for analysis was available in four samples, flow data was unavailable for six samples, and two samples were not collected because of equipment malfunction.

ATMOSPHERIC AND TERRESTRIAL MONITORING NETWORK

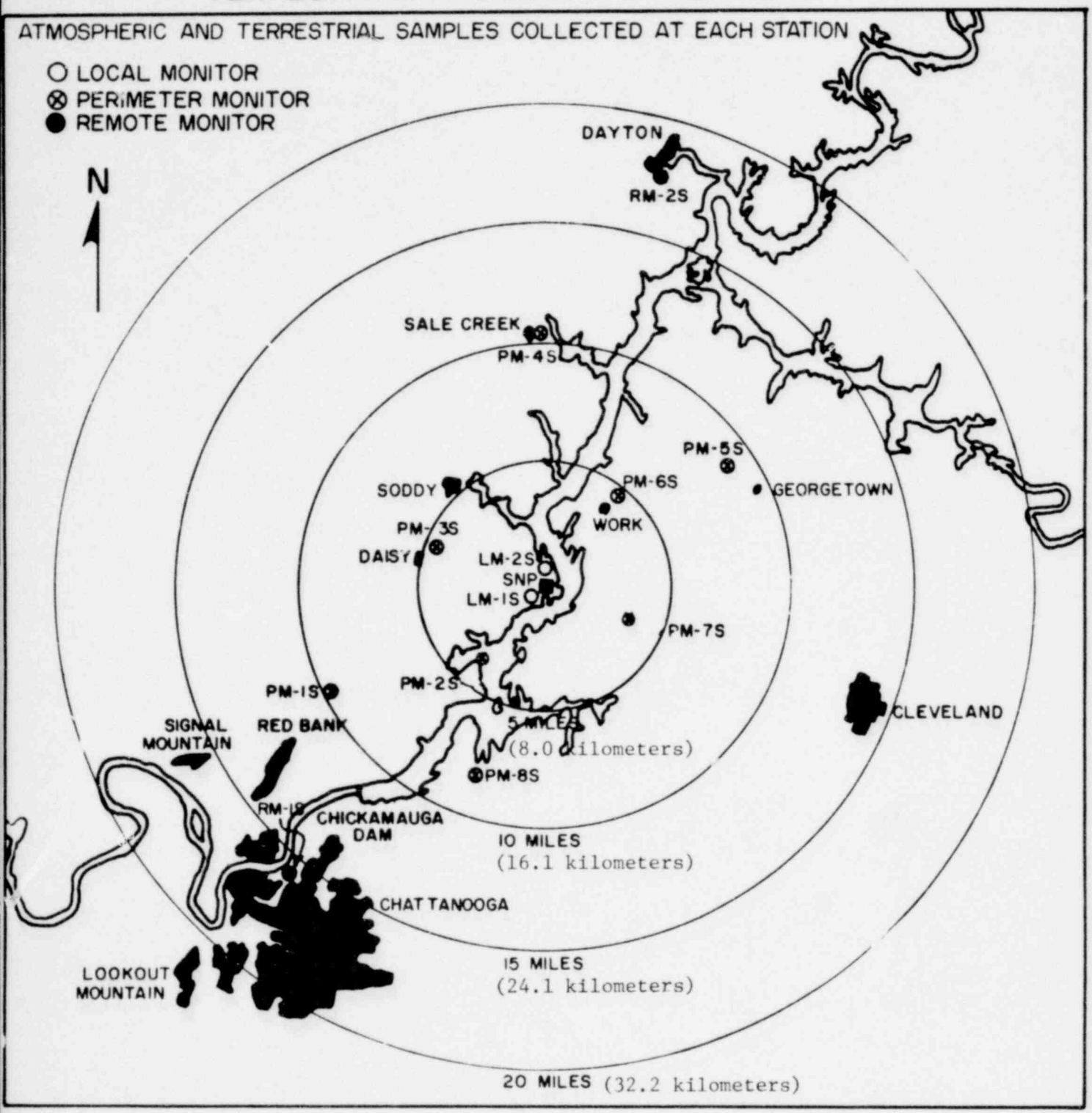
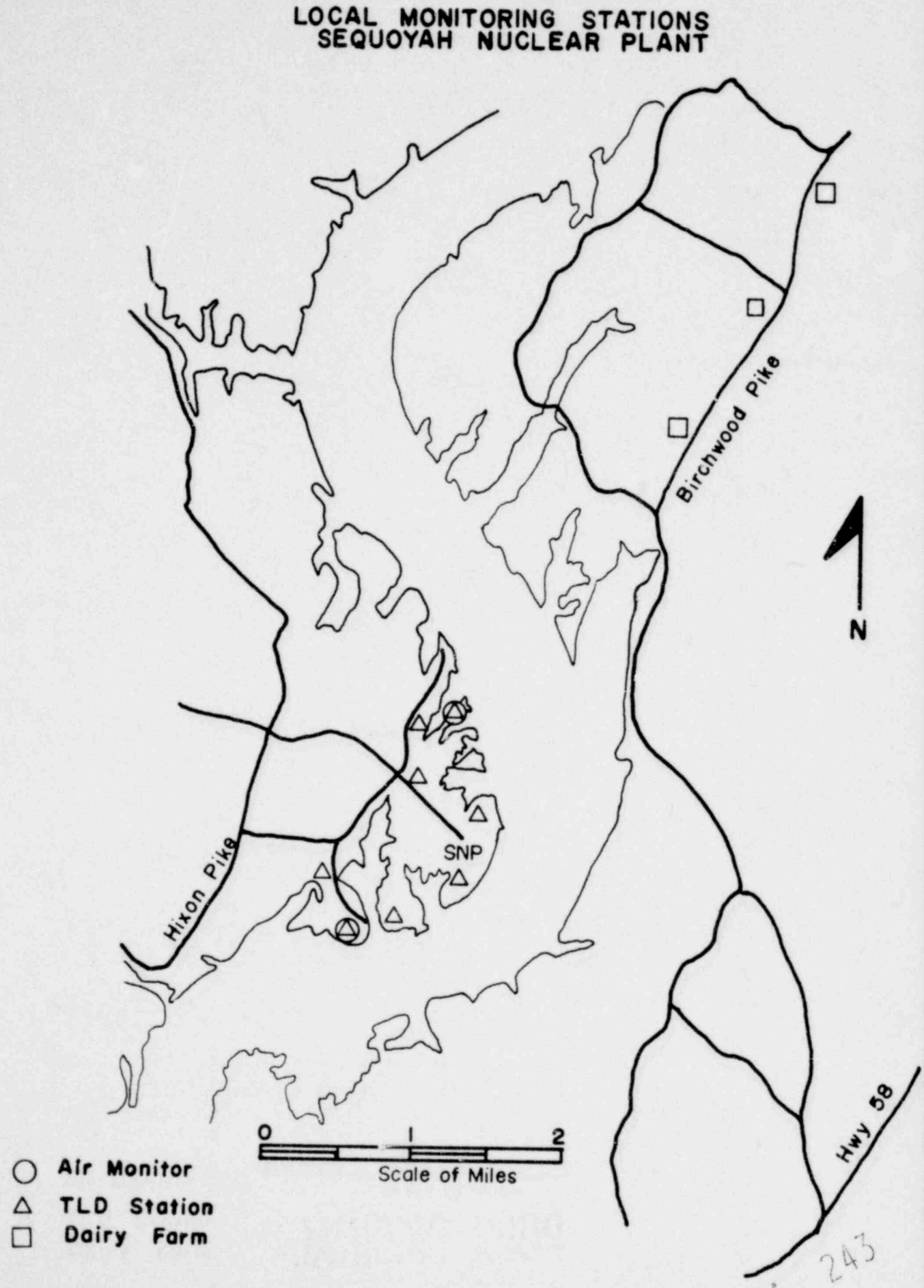
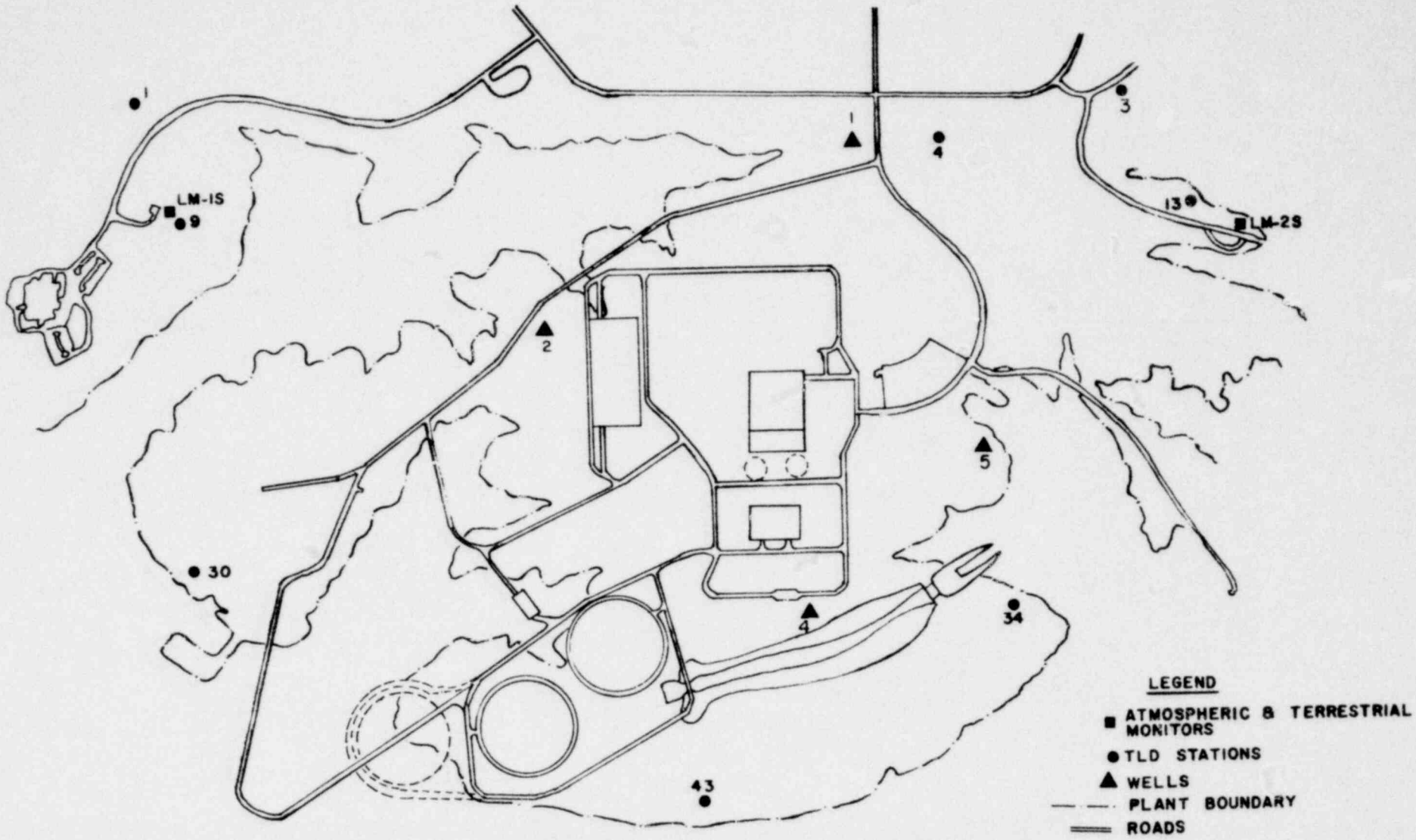


Figure 3





SEQUOYAH NUCLEAR PLANT

SITE MONITORING STATIONS

Figure 4

Table 2

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS

A. Specific Analyses

NOMINAL LOWER LIMIT OF DETECTION (LLD)*

	Air Particulates pCi/m^3	Charcoal pCi/m^3	Fallout mCi/Km^2	Water pCi/l	Vegetation and grain pCi/g, dry	Soil and Sediment pCi/g, dry	Fish, clam flesh, plankton, pCi/g, dry	Clam shells pCi/g, dry	Foods, meat, poultry, pCi/Kgm, wet	Milk pCi/l
Total α				0.4	0.01				1.5	
Gross α	0.005		0.05	2.0	0.05	0.35	0.1	0.7		
Gross β	0.01			2.4	0.20	0.70	0.1	0.7	25	
^{3}H				330						0.5
^{131}I		0.01								10
^{89}Sr	0.005			10	0.25	1.5	0.5	5.0	40	2
^{90}Sr	0.001			2	0.05	0.3	0.1	1.0	8	

*All LLD values for isotopic separations are calculated by the method developed by Pasternack and Harley as described in HASL-300. Factors such as sample size, decay time, chemical yield, and counting efficiency may vary for a given sample; these variations may change the LLD value for the given sample. The assumption is made that all samples are analyzed within one week of the collection date. Conversion factors: 1 pCi = 3.7×10^{-2} Bq; 1 mCi = 3.7×10^{7} Bq.

Table 2

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS

B. Gamma Analyses

NOMINAL LOWER LIMIT OF DETECTION (LLD)

	Air particulates pCi/m³		Water and milk pCi/l		Vegetation and grain pCi/g, dry		Soil and sediment pCi/g, dry		Fish pCi/g, dry		Clam flesh and plankton pCi/g, dry		Clam shells pCi/g, dry		Foods, tomatoes potatoes, etc.) pCi/Kg, wet		Meat and poultry pCi/Kg, wet	
	NaI*	Ge(Li)**	NaI	Ge(Li)	NaI	Ge(Li)	NaI	Ge(Li)	NaI	Ge(Li)	NaI	Ge(Li)	NaI	Ge(Li)	NaI	Ge(Li)	NaI	Ge(Li)
^{141,144}Ce	0.03		38		0.55		0.35		0.35				0.35		38		90	
^{144}Ce		0.02		33		0.22		0.06		0.06	0.35			0.06		33		40
^{51}Cr	0.07	0.03	60	44	1.10	0.47	0.60	0.10	0.60	0.10	0.56		0.60	0.10	60	44	200	90
^{131}I	0.01	0.01	15	8	0.35	0.09	0.20	0.02	0.20	0.02	0.07		0.20	0.02	15	8	50	20
^{103,106}Ru	0.04		40		0.65		0.45		0.45				0.45		40		150	
^{106}Ru		0.03		40		0.51		0.11		0.11	0.74			0.11		40		90
^{134}Cs	0.01	0.02	10	26	0.20	0.33	0.12	0.08	0.12	0.08	0.48		0.12	0.08	10	26	40	50
^{137}Cs	0.01	0.01	10	5	0.20	0.06	0.12	0.02	0.12	0.02	0.08		0.12	0.02	10	5	40	15
^{95}Zr-Nb	0.01		10		0.20		0.12		0.12				0.12		10		40	
^{95}Zr		0.01		10		0.11		0.03		0.03	0.15			0.03		10		20
^{95}Nb		0.01		5		0.05		0.01		0.01	0.07			0.01		5		15
^{58}Co	0.02	0.01	15	5	0.23	0.05	0.20	0.01	0.20	0.01	0.07		0.20	0.01	15	5	55	15
^{54}Mn	0.02	0.01	10	5	0.20	0.05	0.15	0.01	0.15	0.01	0.08		0.15	0.01	10	5	40	15
^{65}Zn	0.02	0.01	15	9	0.25	0.11	0.23	0.02	0.23	0.02	0.17		0.23	0.02	15	9	70	20
^{60}Co	0.01	0.01	10	5	0.17	0.06	0.11	0.01	0.11	0.01	0.08		0.11	0.01	10	5	30	15
^{40}K	0.10		150		2.50		0.90		0.90				0.90		150		400	
^{140}Ba-La	0.02		15		0.68		0.15		0.15				0.15		15		50	
^{140}Ba		0.02		25		0.34		0.07		0.07	0.30			0.07		25		50
^{140}La		0.01		7		0.08		0.02		0.02	0.10			0.02		7		15

*The NaI(Tl) LLD values are calculated by the method developed by Pasternack and Harley as described in HASL-300 and Nucl. Instr. Methods 91, 533-40 (1971). These LLD values are expected to vary depending on the activities of the components in the samples. These figures do not represent the LLD values achievable on a given sample. Water is counted in a 3.5-L Marinelli beaker. Vegetation, fish, soil, and sediment are counted in a 1-pint container as dry weight. The average dry weight is 120 grams for vegetation and 400-500 grams for soil sediment and fish. Meat and poultry are counted in a 1-pint container as dry weight, then corrected to wet weight using an average moisture content of 70%. Average dry weight is 250 grams. Air particulates are counted in a well crystal. The counting system consists of a multichannel analyzer and either a 4" x 4" solid or 4" x 5" well NaI(Tl) crystal. The counting time is 4000 seconds. All calculations are performed by the least-squares computer program ALPHA-M. The assumption is made that all samples are analyzed within one week of the collection date.

**The Ge(Li) LLD values are calculated by the method developed by Pasternack and Harley as described in HASL-300. These LLD values are expected to vary depending on the activities of the components in the samples. These figures do not represent the LLD values achievable on given samples. Water is counted in either a 0.5-L or 3.5-L Marinelli beaker. Solid samples such as soil, sediment, and clam shells are counted in a 0.5-L Marinelli beaker as dry weight. The average dry weight is 400-500 grams. Air filters and very small volume samples are counted in petrie dishes centered on the detector endcap. The counting system consists of a ND-4420 multichannel analyzer and either a 25%, 14%, 16%, or 29% Ge(Li) detector. The counting time is normally 8 hours. All spectral analysis is performed using the software provided with the ND-4420. The assumption is made that all samples are analyzed within one week of the collection date.

Conversion factor: 1 pCi = 3.7×10^{-2} Bq.

Table 3

MAXIMUM PERMISSIBLE CONCENTRATIONS

FOR NONOCCUPATIONAL EXPOSURE

	MPC	
	In Water pCi/l*	In Air pCi/m³*
Alpha	30	
Nonvolatile beta	3,000	100
Tritium	3,000,000	200,000
^{137}Cs	20,000	500
$^{103,106}Ru$	10,000	200
^{144}Ce	10,000	200
^{95}Zr-^{95}Nb	60,000	1,000
^{140}Ba-^{140}La	20,000	1,000
^{131}I	300	100
^{65}Zn	100,000	2,000
^{54}Mn	100,000	1,000
^{60}Co	30,000	300
^{89}Sr	3,000	300
^{90}Sr	300	30
^{51}Cr	2,000,000	80,000
^{134}Cs	9,000	400
^{58}Co	90,000	2,000

*1 pCi = 3.7×10^{-2} Bq.

RADIOACTIVITY IN AIR FILTER

PCI/M(3) - 0.037 BQ/M(3)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-SU1

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1976

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION a (LLD)	ALL INDICATOR LOCATIONS MEAN (F) b RANGE b	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F) b RANGE b	CONTROL LOCATIONS MEAN (F) b RANGE b	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS BETA 600	0.010	0.10(504/ 504)	LM1 SOUTHWEST	0.12(51/ 51)	0.08(96/ 96)	
		0.01- 2.34	0.75 MILES SW	0.02- 2.16	0.02- 1.29	
GAMMA (NAI) 125						
CE-141,144	0.030	0.04(15/ 105)	HARRISON, TN	0.07(1/ 11)	0.04(4/ 20)	
		0.03- 0.07	8.75 MILES SSW	0.07- 0.07	0.03- 0.06	
BA-140,LA-140	0.020	0.03(5/ 105)	HARRISON, TN	0.03(1/ 11)	20 VALUES <LLD	
		0.02- 0.03	8.75 MILES SSW	0.03- 0.03		
RU-103,106	0.040	0.07(5/ 105)	HARRISON BAY, TN	0.09(1/ 10)	20 VALUES <LLD	
		0.05- 0.09	3.5 MILES SE	0.09- 0.09		
CS-134	0.010	105 VALUES <LLD			0.01(1/ 20)	
					0.01- 0.01	
ZR-95,NB-95	0.010	0.01(6/ 105)	HARRISON BAY, TN	0.02(1/ 10)	0.01(2/ 20)	
		0.01- 0.02	3.5 MILES SE	0.02- 0.02	0.01- 0.02	
ZN-65	0.020	105 VALUES <LLD			0.02(1/ 20)	
					0.02- 0.02	
I-131	0.010	0.04(9/ 105)	SALE CREEK, TN	0.04(1/ 11)	0.01(2/ 20)	
		0.01- 0.06	10.5 MILES N	0.04- 0.04	0.01- 0.02	
BE-7	NOT ESTAB	0.12(105/ 105)	#ORK, TN	0.14(10/ 10)	0.14(19/ 20)	
		0.02- 0.29	4.5 MILES NNE	0.08- 0.29	0.10- 0.27	
GAMMA (GELI) 19						
CE-141	0.010	0.04(10/ 15)	LM1 SOUTHWEST	0.07(1/ 1)	0.05(1/ 4)	
		0.02- 0.07	0.75 MILES SW	0.07- 0.07	0.05- 0.05	
CE-144	0.020	0.03(5/ 15)	HARRISON, TN	0.03(1/ 1)	0.03(1/ 4)	
		0.02- 0.03	8.75 MILES SSW	0.03- 0.03	0.03- 0.03	
BA-140	0.020	0.14(10/ 15)	NORTHWOODS, TN	0.19(1/ 1)	0.17(1/ 4)	
		0.07- 0.19	10.5 MILES WSW	0.19- 0.19	0.17- 0.17	
LA-140	0.010	0.13(10/ 15)	HARRISON, TN	0.20(1/ 1)	0.27(1/ 4)	
		0.07- 0.20	8.75 MILES SSW	0.20- 0.20	0.27- 0.27	
RU-103	NOT ESTAB	0.07(9/ 15)	HARRISON, TN	0.10(1/ 1)	0.09(1/ 4)	
		0.01- 0.10	8.75 MILES SSW	0.10- 0.10	0.09- 0.09	
ZR-95	0.010	0.02(2/ 15)	COUNTY PARK, TN	0.03(1/ 2)	4 VALUES <LLD	
		0.01- 0.03	3.75 MILES SW	0.03- 0.03		
NB-95	0.010	0.01(3/ 15)	HARRISON, TN	0.01(1/ 1)	0.01(1/ 4)	
		0.01- 0.01	8.75 MILES SSW	0.01- 0.01	0.01- 0.01	
K-40	NOT ESTAB	0.07(7/ 15)	LM1 SOUTHWEST	0.10(1/ 1)	0.09(3/ 4)	
		0.04- 0.10	0.75 MILES SW	0.10- 0.10	0.07- 0.13	
I-131	0.010	0.11(10/ 15)	NORTHWOODS, TN	0.17(1/ 1)	0.15(1/ 4)	
		0.06- 0.17	10.5 MILES WSW	0.17- 0.17	0.15- 0.15	
BI-214	0.020	0.03(7/ 15)	COUNTY PARK, TN	0.04(1/ 2)	0.03(3/ 4)	
		0.02- 0.04	3.75 MILES SW	0.04- 0.04	0.02- 0.03	
BI-212	NOT ESTAB	15 VALUES <LLD			0.01(1/ 4)	
					0.01- 0.01	
PB-21[illegible]	0.020	0.03(6/ 15)	COUNTY PARK, TN	0.03(2/ 2)	0.03(2/ 4)	
		0.02- 0.04	3.75 MILES SW	0.03- 0.04	0.02- 0.03	

TABLE 4 (Contd)

RADIOACTIVITY IN AIR FILTER

PCI/M(3) - 0.037 BQ/M(3)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-SWJ

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
PB-212	NOT ESTAB	0.01(1/ 15)	COUNTY PARK, TN	0.01(1/ 2)	4 VALUES <LLD	
		0.01- 0.01	3.75 MILES S*	0.01- 0.01		
BE-7	0.050	0.09(10/ 15)	GEORGETOWN, TN	0.11(1/ 2)	0.09(2/ 4)	
		0.06- 0.11	9.0 MILES ENE	0.11- 0.11	0.08- 0.10	
TE-132	NOT ESTAB	0.14(5/ 15)	NORTHWOODS, TN	0.23(1/ 1)	0.18(1/ 4)	
		0.10- 0.23	10.5 MILES *SW	0.23- 0.23	0.18- 0.18	
AC-228	NOT ESTAB	15 VALUES <LLD			0.01(1/ 4)	
					0.01- 0.01	
SR-89	0.005	0.02(10/ 40)	HARRISON, TN	0.02(1/ 4)	0.02(2/ 8)	
48		0.01- 0.02	8.75 MILES SSW	0.02- 0.02	0.01- 0.02	
SR-90	0.001	0.00(16/ 40)	LMI SOUTHWEST	0.00(2/ 4)	0.00(4/ 8)	
48		0.00- 0.00	0.75 MILES S*	0.00- 0.00	0.00- 0.00	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 5

RADIOACTIVITY IN RAINWATER

PCI/L - 0.037 BQ/L

NAME OF FACILITY SEQUOYAH — DOCKET NO. 50-327
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b]	RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS BETA 127	2.400	16.19(101/ 107) 2.74- 116.42	HARRISON, TN 8.75 MILES SSW	35.09(9/ 10) 2.74- 116.42		17.65(20/ 20) 3.11- 86.28	
GAMMA (NAI) 103							
CE-141,144	38.000	84 VALUES <LLD				44.93(1/ 19) 44.93- 44.93	
BA-140,LA-140	15.000	23.99(12/ 84) 16.38- 32.43	HARRISON BAY, TN 3.5 MILES SE	31.43(2/ 9) 30.42- 32.43		18.77(1/ 19) 18.77- 18.77	
RU-103,106	40.000	46.72(2/ 84) 46.56- 46.88	DAISY, TN 5.5 MILES W	46.88(1/ 8) 46.88- 46.88		19 VALUES <LLD	
CS-134	10.000	11.42(1/ 84) 11.42- 11.42	COUNTY PARK, TN 3.75 MILES SW	11.42(1/ 9) 11.42- 11.42		19 VALUES <LLD	
CS-137	10.000	12.60(2/ 84) 12.02- 13.18	HARRISON, TN 8.75 MILES SSW	13.18(1/ 9) 13.18- 13.18		19 VALUES <LLD	
ZR-95,NB-95	10.000	20.76(3/ 84) 15.22- 25.07	DAISY, TN 5.5 MILES W	25.07(1/ 8) 25.07- 25.07		19 VALUES <LLD	
I-131	15.000	24.02(6/ 84) 17.09- 32.74	DAISY, TN 5.5 MILES W	32.74(1/ 8) 32.74- 32.74		19 VALUES <LLD	
BE-7	NOT ESTAB	37.07(36/ 84) 10.12- 140.05	1.41 SOUTHWEST 0.75 MILES SW	69.25(5/ 9) 26.71- 140.05		36.71(9/ 19) 20.21- 67.53	
GAMMA (GELI) 26							
K-40	NOT ESTAB	133.36(12/ 25) 58.48- 332.60	NORTHWOODS, TN 10.5 MILES WSW	332.60(1/ 1) 332.60- 332.60		108.20(1/ 1) 108.20- 108.20	
BI-214	NOT ESTAB	16.78(17/ 25) 9.36- 29.48	NORTHWOODS, TN 10.5 MILES WSW	29.48(1/ 1) 29.48- 29.48		1 VALUES <LLD	
PB-214	NOT ESTAB	14.91(11/ 25) 7.83- 28.77	NORTHWOODS, TN 10.5 MILES WSW	20.40(1/ 1) 20.40- 20.40		1 VALUES <LLD	
PB-212	NOT ESTAB	10.12(5/ 25) 7.56- 16.03	DAISY, TN 5.5 MILES W	12.41(2/ 3) 8.79- 16.03		1 VALUES <LLD	
BE-7	NOT ESTAB	85.57(11/ 25) 13.03- 220.50	COUNTY PARK, TN 3.75 MILES SW	220.50(1/ 2) 220.50- 220.50		1 VALUES <LLD	
AC-228	15.000	41.07(1/ 25) 41.07- 41.07	DAISY, TN 5.5 MILES W	41.07(1/ 3) 41.07- 41.07		1 VALUES <LLD	
SR-89	10.000	15.11(3/ 108) 12.08- 19.04	WORK, TN 4.5 MILES NNE	19.04(1/ 11) 19.04- 19.04		20 VALUES <LLD	
SR-90 128	2.060	3.02(10/ 108) 2.05- 5.39	HARRISON, TN 8.75 MILES SSW	5.39(1/ 10) 5.39- 5.39		2.48(2/ 20) 2.29- 2.67	
TRITIUM 33	330.000	388.00(3/ 22) 375.00- 399.00	PERIMETER MONTH. COMPOSITES	388.00(3/ 11) 375.00- 399.00		488.00(2/ 11) 433.00- 543.00	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 6

RADIOACTIVITY IN HEAVY PARTICLE FALLOUT

MCI/KM(2) - 37000000.00 BQ/KM(2)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-SW1

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS BETA	0.050	0.85(118/ 118)	BORK. TN	0.98(12/ 12)	0.81(21/ 21)	
139		0.09- 3.54	4.5 MILES NNE	0.11- 3.22	0.09- 2.43	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.

b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 7

RADIOACTIVITY IN CHARCOAL FILTERS

PCI/M(3) - 0.037 BQ/M(3)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-001

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
IODINE IN AIR 599	0.010	0.02(312/ 504) 0.01- 0.08	LMI SOUTHWEST 0.75 MILES SW	0.02(32/ 51) 0.01- 0.07	0.02(55/ 95) 0.01- 0.06	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.

b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 8

RADIOACTIVITY IN ATMOSPHERIC MOISTURE

PCI/M(3) - 0.037 BQ/M(3)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RH-79-A-SU1
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1976

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION (LLD) [a]	ALL INDICATOR LOCATIONS MEAN (F) [b] RANGE [b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F) [b] RANGE [b]	CONTROL LOCATIONS MEAN (F) [b] RANGE [b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
TRITIUM	NOT ESTAB	3.27(41/ 41)	LM2 NORTHEAST	3.52(21/ 21)	3.95(19/ 19)	
60		0.00- 8.00	0.75 MILES N	1.00- 6.00	1.00- 9.00	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

Terrestrial Monitoring

Milk

Milk is collected from two farms within a 10-mile radius of the plant (see figure 3), and from one control farm. Raw milk is analyzed monthly for ^{131}I, gamma-emitting isotopes, and for radiostrontium. The results are shown in Table 9. Two samples were unavailable during this reporting period. The operator of the farm located approximately 4.5 miles NNE of the plant went out of the dairy business in May 1978. A dairy farm located approximately 3.5 miles NNE was added to the monitoring program in July 1978.

Vegetation

Vegetation samples were collected near each monitoring station in the network and from each dairy farm to determine possible plant uptake of radioactive materials from the soil or from foliar deposition. Table 10 gives the results obtained from the laboratory analyses.

Soil

Soil samples were collected near each monitoring station in order that any relationship between the amount of radioactive material found in vegetation and that in soil might be established. The results are given in Table 11.

Ground Water

Well water was obtained monthly from the dairy farms from which milk was sampled and from four onsite wells. In addition, samples were taken quarterly from four other farms located within 5 miles of the plant. Four scheduled samples were not collected during this period. All samples were analyzed for gross beta and for gamma-emitting radionuclides. A quarterly composite was analyzed for tritium. The results are shown in Table 12 and indicate the maximum beta concentration with reference to Table 3, is 0.44 percent MPC.

Public Water

Potable water supplies taken from the Tennessee River in the vicinity of Sequoyah Nuclear Plant are sampled and analyzed for gross beta, gamma-emitting radionuclides, $^{89,90}Sr$, and tritium. The first potable water supply downstream from the plant is equipped with an automatic sampler with composite samples analyzed monthly. Two additional water supplies are sampled monthly and three other potable water

supplies are sampled quarterly. During this period, three additional drinking water samples were collected, while one sample was lost, and one was lost in the laboratory before strontium and tritium analyses were performed. The results, shown in Table 13, indicate that the maximum beta concentration is 0.29 percent MPC.

Environmental Gamma Radiation Levels

Thermoluminescent dosimeters (TLD's) are placed at eight stations around the plant near the site boundary (see Figures 3 and 4) and at the perimeter and remote monitors to determine the gamma exposure rates at these locations. The TLD's are changed every three months. The quarterly gamma radiation levels determined from these TLD's are given in Table 14. It should be noted that, even though the plant has not achieved criticality, the average radiation levels onsite are generally 3-5 mR/quarter higher than the levels offsite. This may be attributable to natural variations in environmental radiation levels, earth moving activities onsite, the mass of concrete employed in the construction of the plant, or other influences.

Poultry and Food Crops

Food crops and poultry raised in the vicinity of Sequoyah Nuclear Plant are sampled annually as they become available during the growing season. During this sampling period, samples of corn, green beans, lettuce, potatoes, and tomatoes were collected and analyzed for gross beta, specific gamma-emitting radionuclides, ^{89}Sr, and ^{90}Sr. The results are given in Tables 15 and 16. No sample of lettuce or poultry was taken from a control location.

TABLE 9

RADIOACTIVITY IN MILK

PCI/L - 0.037 BQ/L

NAME OF FACILITY SEQUOYAH — DOCKET NO. RH-79-4-SQ1

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GAMMA (NAI)						
34						
CS-137	10.000	10.92(5/ 23)	NORMAN FARM	12.52(1/ 5)	11.56(3/ 11)	
		10.19- 12.52	4.5 MILES NNE	12.52- 12.52	10.39- 12.27	
K-40	150.000	1251.49(23/ 23)	LOVELL FARM	1277.44(12/ 12)	1343.29(11/ 11)	
		1169.03- 1400.34	2.75 MILES NNE	1182.92- 1400.34	1242.03- 1441.54	
IODINE IN MILK	0.500	2.66(2/ 23)	NORMAN FARM	2.85(1/ 5)	1.00(1/ 11)	
34		2.46- 2.85	4.5 MILES NNE	2.85- 2.85	1.00- 1.00	
SR 89	10.000	23 VALUES <LLD			11 VALUES <LLD	
34		ANALYSIS PERFORMED				
SR 90	2.000	5.94(23/ 23)	LOVELL FARM	6.94(12/ 12)	4.57(10/ 11)	
34		2.58- 8.95	2.75 MILES NNE	4.91 8.95	3.49- 5.67	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.

b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 10

RADIOACTIVITY IN VEGETATION

PCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-SW1
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b]	RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS BETA	0.200	43.04(48/ 48)	NORMAN FARM	56.20(2/ 2)		43.14(11/ 11)	
59		17.07- 109.10	4.5 MILES NNE	53.26- 59.14		16.30- 78.59	
TOTAL ALPHA	0.010	0.11(47/ 47)	MALONE FARM	0.58(2/ 2)		0.08(11/ 11)	
58		0.01- 1.09	3.5 MILES NNE	0.06- 1.09		0.01- 0.30	
GAMMA (NAI)							
9							
CE-141,144	0.550	1.59(7/ 7)	NORTHWOODS, TN	4.65(1/ 1)		1.90(2/ 2)	
		0.71- 4.65	10.5 MILES WSW	4.65- 4.65		1.73- 2.07	
CO-60	0.170	7 VALUES <LLD				0.19(1/ 2)	
						0.19- 0.19	
RU-103,106	0.650	1.39(5/ 7)	NORTHWOODS, TN	2.17(1/ 1)		0.84(2/ 2)	
		0.80- 2.17	10.5 MILES WSW	2.17- 2.17		0.73- 0.95	
CS-134	0.200	7 VALUES <LLD				0.22(1/ 2)	
						0.22- 0.22	
CS-137	0.200	0.38(3/ 7)	COUNTY PARK, TN	0.55(1/ 1)		0.28(1/ 2)	
		0.26- 0.55	3.75 MILES SW	0.55- 0.55		0.28- 0.28	
ZR-95,NB-95	0.200	0.40(3/ 7)	NORTHWOODS, TN	0.50(1/ 1)		0.23(1/ 2)	
		0.28- 0.50	10.5 MILES WSW	0.50- 0.50		0.23- 0.23	
CR-51	1.100	1.17(1/ 7)	SALE CREEK, TN	1.17(1/ 1)		2 VALUES <LLD	
		1.17- 1.17	10.5 MILES N	1.17- 1.17			
K-40	2.500	18.34(7/ 7)	HARRISON BAY, TN	21.94(1/ 1)		22.20(2/ 2)	
		11.03- 21.94	3.5 MILES SE	21.94- 21.94		20.55- 23.86	
I-131	0.350	0.38(1/ 7)	SALE CREEK, TN	0.38(1/ 1)		2 VALUES <LLD	
		0.38- 0.38	10.5 MILES N	0.38- 0.38			
BE-7	NOT ESTAB	4.26(7/ 7)	COUNTY PARK, TN	8.91(1/ 1)		4.00(2/ 2)	
		1.59- 8.91	3.75 MILES SW	8.91- 8.91		2.93- 5.06	
GAMMA (GELI)							
52							
CE-141	0.200	0.40(10/ 43)	NORTHWOODS, TN	0.55(1/ 4)		0.57(2/ 9)	
		0.28- 0.55	10.5 MILES WSW	0.55- 0.55		0.52- 0.62	
CE-144	0.220	3.82(37/ 43)	NORMAN FARM	7.65(1/ 1)		3.22(8/ 9)	
		0.27- 12.15	4.5 MILES NNE	7.65- 7.65		0.27- 9.75	
PR-144	NOT ESTAB	11.37(6/ 43)	NORTHWOODS, TN	15.32(1/ 4)		12.34(1/ 9)	
		7.78- 15.32	10.5 MILES WSW	15.32- 15.32		12.34- 12.34	
RU-103	0.200	0.67(7/ 43)	LM1 SOUTHWEST	2.98(1/ 4)		0.28(1/ 9)	
		0.21- 2.98	0.75 MILES SW	2.98- 2.98		0.28- 0.28	
RU-106	0.510	2.13(13/ 43)	HARRISON, TN	3.63(1/ 3)		1.63(4/ 9)	
		0.55- 3.63	6.75 MILES SSW	3.63- 3.63		0.56- 2.90	
CS-137	0.060	0.60(35/ 43)	NORTHWOODS, TN	1.29(4/ 4)		0.40(6/ 9)	
		0.07- 3.96	10.5 MILES WSW	0.10- 3.96		0.09- 1.06	
ZR-95	0.110	1.55(12/ 43)	DAISY, TN	1.97(1/ 4)		1.90(2/ 9)	
		1.15- 1.97	5.5 MILES W	1.97- 1.97		1.68- 2.12	
NB-95	0.050	2.48(16/ 43)	NORMAN FARM	4.27(1/ 1)		3.19(3/ 9)	
		0.15- 4.55	4.5 MILES NNE	4.27- 4.27		0.35- 5.01	
K-40	NOT ESTAB	13.32(43/ 43)	LOVELL FARM	18.48(4/ 4)		13.80(9/ 9)	
		3.00- 63.10	2.5 MILES NNE	11.34- 22.85		6.40- 31.48	

TABLE 10 (CONTD)

RADIOACTIVITY IN VEGETATION

MCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-SW1
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED		LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME, DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
MN-54		0.050	0.13(27/ 43) 0.12- 0.15	NORTHWOODS, TN 10.5 MILES WSW	0.15(1/ 4) 0.15- 0.15	0.12(1/ 9) 0.12- 0.12	
BI-214		0.100	0.28(23/ 43) 0.10- 0.71	LOVELL FARM 2.75 MILES NNE	0.38(2/ 4) 0.29- 0.48	0.29(5/ 9) 0.15- 0.54	
BI-212		NOT ESTAB	0.15(2/ 43) 0.14- 0.16	COUNTY PARK, TN 3.75 MILES SW	0.16(1/ 4) 0.16- 0.16	9 VALUES <LLD	
PB-214		NOT ESTAB	0.23(21/ 43) 0.01- 0.56	NORTHWOODS, TN 10.5 MILES WSW	0.38(1/ 4) 0.38- 0.38	0.23(4/ 9) 0.18- 0.28	
PB-212		NOT ESTAB	0.15(21/ 43) 0.01- 0.49	HARRISON, TN 8.75 MILES SSW	0.49(1/ 3) 0.49- 0.49	0.10(3/ 9) 0.04- 0.16	
RA-223		NOT ESTAB	43 VALUES <LLD			0.54(1/ 9) 0.54- 0.54	
BE-7		NOT ESTAB	11.[illegible](43/ 43) 1.[illegible]- 37.38	NORMAN FARM 4.5 MILES NNE	21.90(1/ 1) 21.90- 21.90	11.01(9/ 9) 2.21- 33.59	
TL-208		NOT ESTAB	0.05(5/ 43) 0.00- 0.11	YORK, TN 4.5 MILES NNE	0.11(1/ 3) 0.11- 0.11	0.09(1/ 9) 0.09- 0.09	
AC-228		NOT ESTAB	0.33(4/ 43) 0.10- 0.42	EMI SOUTHEAST 0.75 MILES SW	0.42(1/ 4) 0.42- 0.42	0.37(1/ 9) 0.37- 0.37	
SR 89	58	0.250	0.50(12/ 47) 0.26- 1.01	GEORGETOWN, TN 9.0 MILES ENE	0.79(2/ 4) 0.58- 1.00	0.71(1/ 11) 0.71- 0.71	
SR 90	58	0.050	0.62(45/ 47) 0.15- 1.54	COUNTY PARK, TN 3.75 MILES SW	1.20(4/ 4) 0.58- 1.54	0.52(11/ 11) 0.18- 1.56	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 11

RADIOACTIVITY IN SOIL

PCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RH-79-4-SW1

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1976

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS BETA 24	0.700	31.37(20/ 20) 20.28- 61.17	GEORGETOWN, TN 9.0 MILES ENE	55.07(2/ 2) 48.96- 61.17	27.49(4/ 4) 14.97- 40.31	
GAMMA (GELI) 24						
CE-144	0.060	0.46(1/ 20) 0.46- 0.46	NORTHWOODS, TN 10.5 MILES WSW	0.46(1/ 2) 0.46- 0.46	0.12(2/ 4) 0.09- 0.15	
RU-103	NOT ESTAB	0.37(1/ 20) 0.37- 0.37	NORTHWOODS, TN 10.5 MILES WSW	0.37(1/ 2) 0.37- 0.37	4 VALUES <LLD	
RU-106	0.110	0.24(1/ 20) 0.24- 0.24	NORTHWOODS, TN 10.5 MILES WSW	0.24(1/ 2) 0.24- 0.24	4 VALUES <LLD	
CS-137	0.020	0.49(20/ 20) 0.13- 1.03	WORK, TN 4.5 MILES NNE	1.08(2/ 2) 0.51- 1.65	0.62(4/ 4) 0.32- 0.93	
NB-95	0.010	0.04(1/ 20) 0.04- 0.04	NORTHWOODS, TN 10.5 MILES WSW	0.04(1/ 2) 0.04- 0.04	4 VALUES <LLD	
K-40	0.250	7.34(20/ 20) 2.50- 13.26	GEORGETOWN, TN 9.0 MILES ENE	17.96(2/ 2) 16.66- 19.26	5.32(4/ 4) 2.17- 8.84	
BI-214	0.050	0.97(20/ 20) 0.52- 3.51	WORK, TN 4.5 MILES NNE	2.09(2/ 2) 0.67- 3.51	0.71(4/ 4) 0.57- 0.82	
BI-212	0.100	0.73(20/ 20) 0.46- 1.89	WORK, TN 4.5 MILES NNE	1.28(2/ 2) 0.67- 1.89	0.55(4/ 4) 0.31- 0.96	
PB-214	0.050	1.01(20/ 20) 0.55- 3.58	WORK, TN 4.5 MILES NNE	2.14(2/ 2) 0.70- 3.58	0.73(4/ 4) 0.62- 0.90	
PB-212	NOT ESTAB	1.13(20/ 20) 0.64- 3.37	WORK, TN 4.5 MILES NNE	2.21(2/ 2) 1.05- 3.37	0.75(4/ 4) 0.48- 1.05	
RA-226	0.050	0.97(20/ 20) 0.52- 3.51	WORK, TN 4.5 MILES NNE	2.09(2/ 2) 0.67- 3.51	0.71(4/ 4) 0.57- 0.82	
RA-223	NOT ESTAB	0.51(7/ 20) 0.33- 1.34	WORK, TN 4.5 MILES NNE	1.34(1/ 2) 1.34- 1.34	0.41(1/ 4) 0.41- 0.41	
BE-7	0.160	0.67(1/ 20) 0.67- 0.67	NORTHWOODS, TN 10.5 MILES WSW	0.67(1/ 2) 0.67- 0.67	4 VALUES <LLD	
TL-208	0.020	0.41(20/ 20) 0.24- 1.20	WORK, TN 4.5 MILES NNE	0.79(2/ 2) 0.37- 1.20	0.27(4/ 4) 0.15- 0.37	
AC-228	0.060	1.19(20/ 20) 0.75- 3.56	WORK, TN 4.5 MILES NNE	2.32(2/ 2) 1.08- 3.56	0.80(4/ 4) 0.48- 1.13	
PA-234M	NOT ESTAB	2.37(3/ 20) 1.51- 3.65	DAISY, TN 5.5 MILES W	3.65(1/ 2) 3.65- 3.65	4 VALUES <LLD	
PA-228	NOT ESTAB	0.04(2/ 20) 0.03- 0.05	NORTHWOODS, TN 10.5 MILES WSW	0.04(2/ 2) 0.03- 0.05	4 VALUES <LLD	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 12

RADIOACTIVITY IN WELL WATER

PCI/L - 0.037 BQ/L

NAME OF FACILITY SEQUOYAH — DOCKET NO. 50-327-OL

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS BETA	2.400	5.08(45/ 69)	SQN WELL #1	7.31(12/ 12)	4.34(24/ 27)	
96		2.41- 13.05	ONSITE NW	5.03- 13.05	2.47- 6.77	
GAMMA (NAI)						
92						
CS-134	10.000	67 VALUES <LLD			10.33(1/ 25)	
					10.33- 10.33	
I-131	15.000	24.51(1/ 67)	SQN WELL #2	24.51(1/ 12)	25 VALUES <LLD	
		24.51- 24.51	ONSITE SW	24.51- 24.51		
GAMMA (GELI)						
4						
K-40	NOT ESTAB	62.48(1/ 2)	SQN WELL #4	62.48(1/ 1)	2 VALUES <LLD	
		62.48- 62.48	ONSITE EST	62.48- 62.48		
BI-214	NOT ESTAB	15.56(1/ 2)	MAYS FARM	15.56(1/ 1)	13.34(1/ 2)	
		15.56- 15.56	0.75 MILES W	15.56- 15.56	13.34- 13.34	
PB-214	NOT ESTAB	9.21(1/ 2)	MAYS FARM	9.21(1/ 1)	2 VALUES <LLD	
		9.21- 9.21	0.75 MILES W	9.21- 9.21		
PB-212	NOT ESTAB	6.78(1/ 2)	MAYS FARM	6.78(1/ 1)	2 VALUES <LLD	
		6.78- 6.78	0.75 MILES W	6.78- 6.78		
TRITIUM	330.000	397.57(7/ 35)	MCCAMISH FARM	466.00(1/ 4)	411.00(1/ 10)	
45		338.00- 466.00	2.0 MILES NW	466.00- 466.00	411.00- 411.00	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.

b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 13

RADIOACTIVITY IN PUBLIC WATER SUPPLY

PCI/L - 0.037 BQ/L

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-SW1

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS BETA	2.400	3.91(247 34)	CF INDUSTRIES	4.84(11/ 13)	3.49(12/ 16)	
50		2.55- 8.80	TRM 473.0	2.55- 8.80	2.49- 5.54	
GAMMA (NAI)						
49						
I-131	15.000	17.74(1/ 34)	DAISY, TN	17.74(1/ 5)	15 VALUES <LLD	
		17.74- 17.74	5.5 MILES *	17.74- 17.74		
GAMMA (GELI)						
1		0 VALUES <LLD			1 VALUES <LLD	
		ANALYSIS PERFORMED				
SR 89	10.000	33 VALUES <LLD			16 VALUES <LLD	
49		ANALYSIS PERFORMED				
SR 90	2.000	33 VALUES <LLD			16 VALUES <LLD	
49		ANALYSIS PERFORMED				
TRITIUM	330.000	447.37(19/ 33)	CF INDUSTRIES	463.44(9/ 12)	459.63(8/ 16)	
49		337.00- 822.00	TRM 473.0	337.00- 822.00	350.00- 675.00	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

Table 14

ENVIRONMENTAL GAMMA RADIATION LEVELS

Quarter	Location	Environmental Gamma Radiation Levels μR/Hour	Environmental Gamma Radiation Levels mR/Quarter
November 1977 - January 1978	On-Site (7)*		
	Maximum	11.1	24.4
	Minimum	3.7	8.1
	Average**	8.1±5.5	17.7±12.8
	Off-Site (10)		
	Maximum	9.7	21.3
	Minimum	5.3	11.7
	Average	7.9±2.4	17.3±5.2
February-April 1978	On-Site (7)		
	Maximum	9.1	20.0
	Minimum	6.9	15.2
	Average	8.6±1.9	18.9±4.2
	Off-Site (10)		
	Maximum	7.3	15.9
	Minimum	4.0	8.8
	Average	6.0±2.3	13.1±5.0
May-July 1978	On-Site (8)		
	Maximum	11.0	24.0
	Minimum	8.3	18.1
	Average	9.7±1.7	21.2±3.8
	Off-Site (10)		
	Maximum	9.2	20.1
	Minimum	6.3	13.9
	Average	7.4±1.8	16.2±4.0
August-October 1978	On-Site (8)		
	Maximum	10.7	23.5
	Minimum	7.9	17.3
	Average	9.5±2.5	20.9±5.4
	Off-Site (10)		
	Maximum	9.5	20.7
	Minimum	6.3	13.9
	Average	7.9±2.2	17.3±4.8

*Number of stations (normally three TLD's at each station)
**All averages reported ±2σ

TABLE 15

RADIOACTIVITY IN FOOD CROPS

PCI/KG - 0.037 MG/KG (WET WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RH-79-4-SW1
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
RADIOACTIVITY IN CORN						
GROSS BETA	25.000	6342.99(1/ 1)	1 MILES *	6342.99(1/ 1)	2843.31(1/ 1)	
2		6342.99- 6342.99		6342.99- 6342.99	2843.31- 2843.31	
GAMMA (GELI)						
2						
CS-137	5.000	6.14(1/ 1)	1 MILES *	6.14(1/ 1)	1 VALUES <LLD	
		6.14- 6.14		6.14- 6.14		
K-40	NOT ESTAB	3169.00(1/ 1)	1 MILES *	3169.00(1/ 1)	1417.00(1/ 1)	
		3169.00- 3169.00		3169.00- 3169.00	1417.00- 1417.00	
SR 89	40.000	1 VALUES <LLD			1 VALUES <LLD	
2		ANALYSIS PERFORMED				
SR 90	8.000	11.67(1/ 1)	1 MILES *	11.67(1/ 1)	1 VALUES <LLD	
2		11.67- 11.67		11.67- 11.67		
RADIOACTIVITY IN GREEN BEANS						
GROSS BETA	25.000	5913.63(1/ 1)	1 MILES *	5913.63(1/ 1)	2881.59(1/ 1)	
2		5913.63- 5913.63		5913.63- 5913.63	2881.59- 2881.59	
GAMMA (GELI)						
2						
K-40	NOT ESTAB	2832.00(1/ 1)	1 MILES *	2832.00(1/ 1)	1169.00(1/ 1)	
		2832.00- 2832.00		2832.00- 2832.00	1169.00- 1169.00	
BI-214	NOT ESTAB	22.35(1/ 1)	1 MILES *	22.35(1/ 1)	1 VALUES <LLD	
		22.35- 22.35		22.35- 22.35		
SR 89	40.000	1 VALUES <LLD			1 VALUES <LLD	
2		ANALYSIS PERFORMED				
SR 90	8.000	73.14(1/ 1)	1 MILES *	73.14(1/ 1)	33.56(1/ 1)	
2		73.14- 73.14		73.14- 73.14	33.56- 33.56	

RADIOACTIVITY IN FOOD CROPS

PCI/KG - 0.037 BQ/KG (WET WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-SQ1
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
RADIOACTIVITY IN LETTUCE						
GROSS BETA	25.000	2691.14(1/ 1)	1 MILES *	2691.14(1/ 1)		
1		2691.14- 2691.14		2691.14- 2691.14		
GAMMA (GELI)						
1						
CS-137	5.000	10.16(1/ 1)	1 MILES *	10.16(1/ 1)		
		10.16- 10.16		10.16- 10.16		
K-40	NOT ESTAB	1723.00(1/ 1)	1 MILES *	1723.00(1/ 1)		
		1723.00- 1723.00		1723.00- 1723.00		
PB-212	NOT ESTAB	13.65(1/ 1)	1 MILES *	13.65(1/ 1)		
		13.65- 13.65		13.65- 13.65		
BE-7	NOT ESTAB	85.00(1/ 1)	1 MILES *	85.00(1/ 1)		
		85.00- 85.00		85.00- 85.00		
SR 89	40.000	1 VALUES <LLD			0 VALUES <LLD	
1		ANALYSIS PERFORMED				
SR 90	8.000	43.06(1/ 1)	1 MILES *	43.06(1)		
1		43.06- 43.06		43.06- 43.06		
RADIOACTIVITY IN POTATOES						
GROSS BETA	25.000	279.27(1/ 1)	1 MILES *	279.27(1/ 1)	8287.10(1/ 1)	
2		279.27- 279.27		279.27- 279.27	8287.10- 8287.10	
GAMMA (GELI)						
2						
K-40	NOT ESTAB	3956.00(1/ 1)	1 MILES *	3956.00(1/ 1)	3671.00(1/ 1)	
		3956.00- 3956.00		3956.00- 3956.00	3671.00- 3671.00	
BI-214	NOT ESTAB	8.87(1/ 1)	1 MILES *	8.87(1/ 1)	1 VALUES <LLD	
		8.87- 8.87		8.87- 8.87		
SR 89	40.000	1 VALUES <LLD			1 VALUES <LLD	
2		ANALYSIS PERFORMED				
SR 90	8.000	1 VALUES <LLD			1 VALUES <LLD	
2		ANALYSIS PERFORMED				
RADIOACTIVITY IN TOMATOES						
GROSS BETA	25.000	3723.57(1/ 1)	1 MILES *	3723.57(1/ 1)	3805.13(1/ 1)	
2		3723.57- 3723.57		3723.57- 3723.57	3805.13- 3805.13	
GAMMA (GELI)						
2						
K-40	NOT ESTAB	2189.00(1/ 1)	1 MILES *	2189.00(1/ 1)	1998.00(1/ 1)	
		2189.00- 2189.00		2189.00- 2189.00	1998.00- 1998.00	
SR 89	40.000	1 VALUES <LLD			1 VALUES <LLD	
2		ANALYSIS PERFORMED				
SR 90	8.000	1 VALUES <LLD			1 VALUES <LLD	
2		ANALYSIS PERFORMED				

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 16

RADIOACTIVITY IN POULTRY

PCI/KG - 0.037 BQ/KG (WET WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-SQ1

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS BETA	25.000	13833.96(1/ 1)	1 MILES *	13833.96(1/ 1)		
1		13833.96-13833.96		13833.96-13833.96		
GAMMA (GELI)						
1						
K-40	NOT ESTAB	1535.95(1/ 1)	1 MILES *	1535.95(1/ 1)		
		1535.95- 1535.95		1535.95- 1535.95		
BI-214	NOT ESTAB	8.41(1/ 1)	1 MILES *	8.41(1/ 1)		
		8.41- 8.41		8.41- 8.41		
PB-214	NOT ESTAB	12.39(1/ 1)	1 MILES *	12.39(1/ 1)		
		12.39- 12.39		12.39- 12.39		
SR 89	40.000	1 VALUES <LLD			0 VALUES <LLD	
1		ANALYSIS PERFORMED				
SR 90	8.000	1 VALUES <LLD			0 VALUES <LLD	
1		ANALYSIS PERFORMED				
1		ANALYSIS PERFORMED				

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

Reservoir Monitoring

Samples of aquatic media are collected quarterly along four river stations in Chickamauga Reservoir--at Tennessee River miles (TRM) 496.5, 483.4, 480.8, and 472.8. In addition, water samples were collected by automatic samplers installed at TRM's 473.2, 483.4, and 497.0. Samples collected for radiological analyses include sediment from four stations; water, plankton, and Asiatic clams from three of these stations; and fish from Watts Bar, Chickamauga and Nickajack Reservoirs (see Table 17). The locations of these stations are shown on the accompanying map (figure 5) and conform to sediment and special ranges established and surveyed by the Data Services Branch, TVA. River station 496.5, the control station, is 12.7 miles (20.4 kilometers) upstream from the Sequoyah plant outfall diffuser.

Samples of water, net plankton, sediment, and Asiatic clams were collected quarterly (plankton only during the two quarters of maximum abundance) and analyzed for radioactivity. Three species of fish were collected and analyzed semiannually. Gamma, gross alpha, and gross beta activity were determined in water, net plankton, sediment, shells, and flesh of clams, flesh of two commercial and one game fish species, and the whole body of one commercial fish species. In addition to the above, tritium concentrations were determined in river water samples. Except in the flesh of clams, white crappie, and channel catfish, ^{89}Sr and ^{90}Sr content was determined in all samples by appropriate radiochemical techniques. The activity of 13 gamma-emitting radionuclides was determined with a multichannel gamma spectrometer.

Water

Automatic sequential-type water samplers were installed at the three cross sections indicated above and shown in Table 17, with composite samples analyzed monthly. Grab water samples were also collected monthly at the point of plant discharge to the Tennessee River (TRM 483.6), and at a point on Chickamauga Creek. During this period three extra samples were collected. Results are displayed in Table 18.

Fish

Radiological monitoring for fish was accomplished by analyses of composite samples of adult fish taken from each of three contiguous reservoirs--Watts Bar, Chickamauga, and Nickajack. No permanent sampling stations have been established within each reservoir; this reflects the movement of fish species within reservoirs as determined by TVA data from the Browns Ferry Nuclear Plant preoperational monitoring program.

Three species, white crappie, channel catfish, and smallmouth buffalo, are collected representing both commercial and game species. Insufficient quantities of smallmouth buffalo were available from Nickajack Reservoir during one sampling period for analyses of both flesh and whole body, therefore only the whole body sample was analyzed. Sufficient fish are collected in each reservoir to yield 250 or 300 grams oven-dry weight for analytical purposes. All samples were analyzed for gamma, gross alpha, and gross beta activity. Concentrations of ^{89}Sr and ^{90}Sr were determined on the whole fish and flesh of the smallmouth buffalo. The composite samples contained approximately the same quantity of flesh from each fish. For each composite a subsample of material was drawn for counting. Results are given in Tables 19, 20, 21, and 22.

Plankton

As indicated in Table 17, net plankton was collected for radiological analyses at three stations by vertical tows with a one-half meter, 100 micro-mesh net. For analytical accuracy, at least 50 grams (wet weight) of material is required; and collection of such amounts is usually practical only during the period April to September because of seasonal variability in plankton abundance. Samples were analyzed for gross alpha and gross beta activity. Sample quantities were not sufficient for the analysis of specific gamma-emitting radionuclides, ^{89}Sr and ^{90}Sr, and six samples yielded insufficient quantities for gross alpha and gross beta analyses. Sample results are given in Table 23.

Sediment

Sediment samples were collected from dredge hauls made for bottom fauna. Gamma, gross alpha, and gross beta activity and ^{89}Sr and ^{90}Sr content were determined in samples collected from points in four cross sections. Each sample was a composite obtained by combining equal volumes of sediment from each of three dredge hauls at a point in the cross section. Results are given in Table 24.

Asiatic Clams

Samples of Asiatic clams were collected with a Ponar dredge from three stations and analyzed for gamma, gross alpha, and gross beta activity. The ^{89}Sr and ^{90}Sr content was determined in the shells. Results are given in Tables 25 and 26.

Table 17

SAMPLING SCHEDULE - RESERVOIR MONITORING

Tennessee River (Mile)	Biological Samples: Zooplankton, Chlorophyll, Phytoplankton*	Benthic Fauna*	Sediment*	Fish**	Water Samples
472.8	****		2		
473.2					Automatic sampler***
480.8	2	1	2		
483.4	2	1	2		Automatic sampler***
483.6					Grab sample
496.5	2	1	2		
497.0					Automatic sampler***

*Replicate samples.
**Fish samples are taken from Watts Bar, Chickamauga, and Jickajack Reservoirs.
***Composite sample analyzed monthly.
****Samples taken during one sampling period only.

Figure 5

RESERVOIR MONITORING NETWORK
SEQUOYAH NUCLEAR PLANT

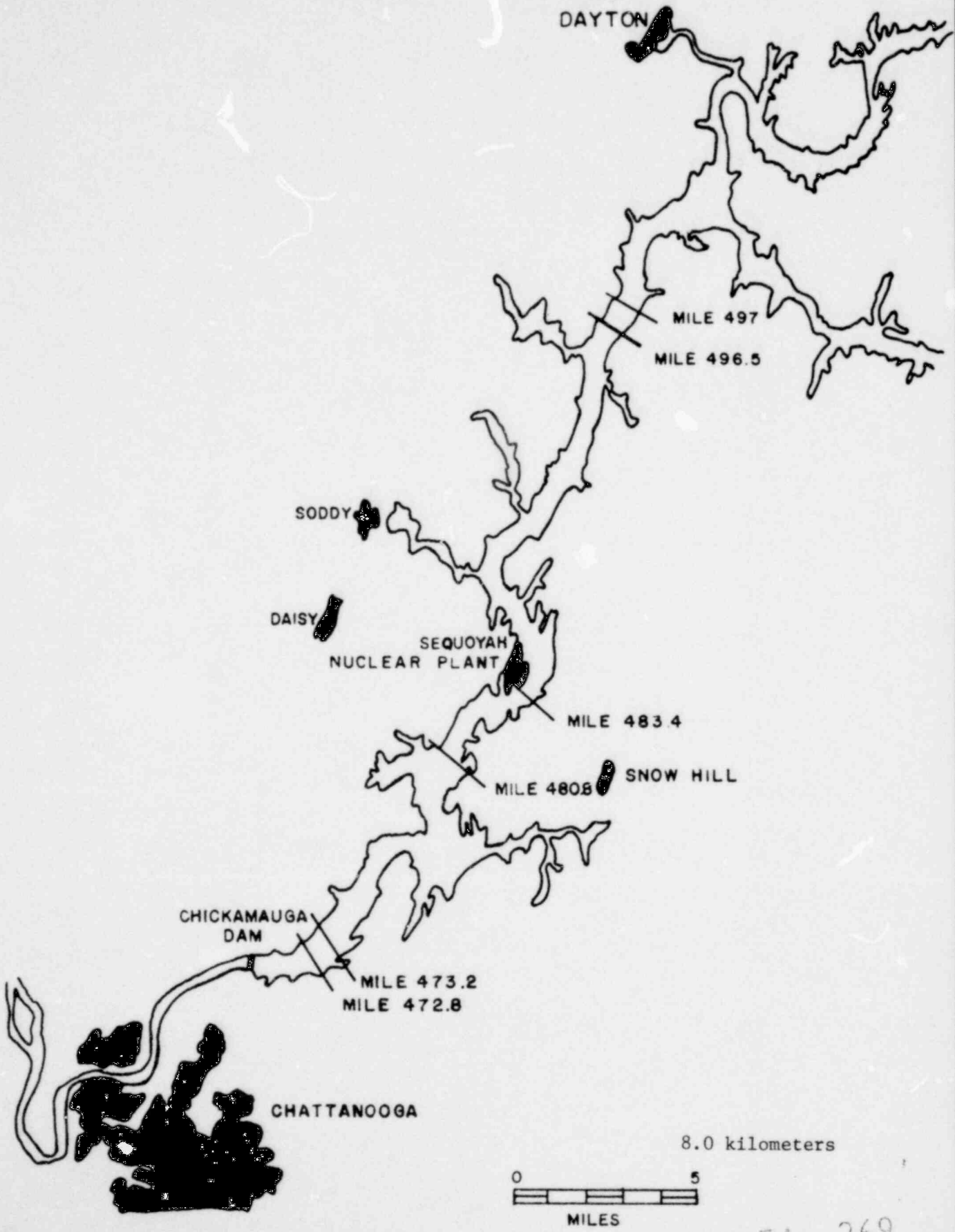


TABLE 18

RADIOACTIVITY IN SURFACE WATER (TOTAL)

PCI/L - 0.037 BQ/L

NAME OF FACILITY SEQUOYAH — DOCKET NO. 50-79-4-SW1
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1979

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS ALPHA	2.000	2.99(1/ 37)	THM 473.2	2.99(1/ 13)	2.55(2/ 24)	
61		2.99- 2.99		2.99- 2.99	2.18- 2.91	
GROSS BETA	2.400	4.72(30/ 38)	THM 473.2	6.94(8/ 13)	4.30(19/ 25)	
63		2.41- 14.33		2.41- 14.33	2.48- 7.67	
TOTAL ALPHA	0.400	0.50(1/ 1)	THM 483.6	0.50(1/ 1)	0.82(1/ 1)	
2		0.50- 0.50	SW DISCHARGE	0.50- 0.50	0.82- 0.82	
GAMMA (NAI)						
59		35 VALUES <LLD ANALYSIS PERFORMED			24 VALUES <LLD	
GAMMA (GELI)						
4						
BI-214	NOT ESTAB	24.01(2/ 3)	THM 483.4	25.50(1/ 1)	40.00(1/ 1)	
		22.52- 25.50		25.50- 25.50	40.00- 40.00	
PB-214	NOT ESTAB	16.56(2/ 3)	THM 473.2	19.35(1/ 2)	25.32(1/ 1)	
		13.78- 19.35		19.35- 19.35	25.32- 25.32	
SR 89	10.000	13 VALUES <LLD ANALYSIS PERFORMED			9 VALUES <LLD	
22						
SR 90	2.000	13 VALUES <LLD ANALYSIS PERFORMED			9 VALUES <LLD	
22						
TRITIUM	330.000	539.30(10/ 13)	THM 473.2	583.67(3/ 4)	535.00(4/ 9)	
22		334.00- 745.00		541.00- 644.00	331.00- 744.00	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 19

RADIOACTIVITY IN CHANNEL CATFISH (FLESH)

PCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. 50-79-4-SQ1
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS ALPHA	0.100	0.12(2/ 4)	CHICKAMAUGA RES	0.14(1/ 2)	2 VALUES <LLD	
6		0.10- 0.14	TRM 471-530	0.14- 0.14		
GROSS BETA	0.100	33.88(4/ 4)	CHICKAMAUGA RES	39.45(2/ 2)	30.46(2/ 2)	
6		26.63- 41.22	TRM 471-530	37.67- 41.22	26.23- 34.69	
GAMMA (NAI)						
3						
CS-137	0.120	0.12(1/ 2)	CHICKAMAUGA RES	0.12(1/ 1)	0.16(1/ 1)	
		0.12- 0.12	TRM 471-530	0.12- 0.12	0.16- 0.16	
K-40	0.900	15.41(2/ 2)	CHICKAMAUGA RES	16.42(1/ 1)	13.75(1/ 1)	
		14.39- 16.42	TRM 471-530	16.42- 16.42	13.75- 13.75	
GAMMA (GELI)						
3						
CS-137	0.020	0.08(2/ 2)	CHICKAMAUGA RES	0.11(1/ 1)	0.24(1/ 1)	
		0.05- 0.11	TRM 471-530	0.11- 0.11	0.24- 0.24	
K-40	NOT ESTAB	14.70(2/ 2)	CHICKAMAUGA RES	16.62(1/ 1)	16.40(1/ 1)	
		12.77- 16.62	TRM 471-530	16.62- 16.62	16.40- 16.40	
BI-214	0.020	0.14(2/ 2)	CHICKAMAUGA RES	0.16(1/ 1)	0.11(1/ 1)	
		0.13- 0.16	TRM 471-530	0.16- 0.16	0.11- 0.11	
PB-214	NOT ESTAB	0.13(2/ 2)	CHICKAMAUGA RES	0.20(1/ 1)	0.07(1/ 1)	
		0.06- 0.20	TRM 471-530	0.20- 0.20	0.07- 0.07	
SR 89	0.500	2 VALUES <LLD			1 VALUES <LLD	
3		ANALYSIS PERFORMED				
SR 90	0.100	2 VALUES <LLD			1 VALUES <LLD	
3		ANALYSIS PERFORMED				

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 20

RADIOACTIVITY IN WHITE CRAPPIE (FLESH)

PCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RH-79-4-501

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]		LOCATION WITH HIGHEST ANNUAL MEAN NAME, DISTANCE AND DIRECTION	MEAN (F)[b]	RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]		NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS ALPHA	0.100	0.18(1/ 4)		NICKAJACK RES	0.18(1/ 2)		0.32(1/ 2)		
6		0.18-	0.18	TRM 425-471	0.18-	0.18	0.32-	0.32	
GROSS BETA	0.100	37.49(4/ 4)		CHICKAMAUGA RES	41.30(2/ 2)		38.37(2/ 2)		
6		31.22-	43.13	TRM 471-530	39.46-	43.13	37.13-	39.60	
GAMMA (NAI)									
3									
CS-137	0.120	0.15(2/ 2)		CHICKAMAUGA RES	0.17(1/ 1)		0.37(1/ 1)		
		0.13-	0.17	TRM 471-530	0.17-	0.17	0.37-	0.37	
K-40	0.900	14.18(2/ 2)		NICKAJACK RES	14.86(1/ 1)		16.67(1/ 1)		
		13.49-	14.86	TRM 425-471	14.86-	14.86	16.67-	16.67	
GAMMA (GELI)									
3									
CS-137	0.020	0.12(2/ 2)		CHICKAMAUGA RES	0.14(1/ 1)		0.22(1/ 1)		
		0.10-	0.14	TRM 471-530	0.14-	0.14	0.22-	0.22	
K-40	NOT ESTAB	16.70(2/ 2)		NICKAJACK RES	17.12(1/ 1)		17.95(1/ 1)		
		16.27-	17.12	TRM 425-471	17.12-	17.12	17.95-	17.95	
BI-214	0.020	0.09(2/ 2)		CHICKAMAUGA RES	0.12(1/ 1)		0.13(1/ 1)		
		0.07-	0.12	TRM 471-530	0.12-	0.12	0.13-	0.13	
PB-214	NOT ESTAB	0.08(2/ 2)		CHICKAMAUGA RES	0.09(1/ 1)		0.09(1/ 1)		
		0.06-	0.09	TRM 471-530	0.09-	0.09	0.09-	0.09	
PB-212	NOT ESTAB	0.03(1/ 2)		CHICKAMAUGA RES	0.03(1/ 1)		1 VALUES <LLD		
		0.03-	0.03	TRM 471-530	0.03-	0.03			
SR 89	0.500	2 VALUES <LLD					1 VALUES <LLD		
3		ANALYSIS PERFORMED							
SR 90	0.100	2 VALUES <LLD					1 VALUES <LLD		
3		ANALYSIS PERFORMED							

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.

b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 21

RADIOACTIVITY IN SMALLMOUTH BUFFALO (FLESH)

PCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RH-79-4-501
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS ALPHA	0.100	3 VALUES <LLD			2 VALUES <LLD	
5		ANALYSIS PERFORMED				
GROSS BETA	0.100	25.75(3/ 3)	CHICKAMAUGA RES	30.23(2/ 2)	31.01(2/ 2)	
5		24.68- 35.78	TRM 471-530	24.68- 35.78	27.83- 34.19	
GAMMA (NAI)						
2						
CS-137	0.120	0.15(1/ 1)	CHICKAMAUGA RES	0.15(1/ 1)	1 VALUES <LLD	
		0.15- 0.15	TRM 471-530	0.15- 0.15		
K-40	0.900	15.04(1/ 1)	CHICKAMAUGA RES	15.04(1/ 1)	12.08(1/ 1)	
		15.04- 15.04	TRM 471-530	15.04- 15.04	12.08- 12.08	
GAMMA (GELI)						
3						
CS-137	0.020	0.09(2/ 2)	NICKAJACK RES	0.09(1/ 1)	0.25(1/ 1)	
		0.09- 0.09	TRM 425-471	0.09- 0.09	0.25- 0.25	
K-40	NOT ESTAB	13.51(2/ 2)	CHICKAMAUGA RES	13.64(1/ 1)	13.02(1/ 1)	
		13.37- 13.64	TRM 471-530	13.64- 13.64	13.02- 13.02	
BI-214	0.020	0.05(2/ 2)	NICKAJACK RES	0.06(1/ 1)	1 VALUES <LLD	
		0.05- 0.06	TRM 425-471	0.06- 0.06		
PB-214	NOT ESTAB	0.04(2/ 2)	CHICKAMAUGA RES	0.04(1/ 1)	0.10(1/ 1)	
		0.03- 0.04	TRM 471-530	0.04- 0.04	0.10- 0.10	
PB-212	NOT ESTAB	2 VALUES <LLD			0.04(1/ 1)	
					0.04- 0.04	
SR 89	0.500	3 VALUES <LLD			2 VALUES <LLD	
5		ANALYSIS PERFORMED				
SR 90	0.100	3 VALUES <LLD			2 VALUES <LLD	
5		ANALYSIS PERFORMED				

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 22

RADIOACTIVITY IN SMALLMOUTH BUFFALO (WHOLE)

PCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-501
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1976

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b]	RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS ALPHA	0.100	0.19(2/ 4)	CHICKAMAUGA RES	0.19(	1/ 2)	0.13(1/ 2)	
6		0.18- 0.19	TRM 471-530	0.19-	0.19	0.13- 0.13	
GROSS BETA	0.100	19.93(4/ 4)	CHICKAMAUGA RES	22.74(	2/ 2)	19.93(2/ 2)	
6		16.72- 25.02	TRM 471-530	20.46-	25.02	17.20- 22.65	
GAMMA (NAI)							
3							
K-40	0.900	7.60(2/ 2)	CHICKAMAUGA RES	9.31(	1/ 1)	7.37(1/ 1)	
		5.89- 9.31	TRM 471-530	9.31-	9.31	7.37- 7.37	
GAMMA (GELI)							
3							
CO-60	0.010	2 VALUES <LLD				0.04(1/ 1)	
						0.04- 0.04	
CS-137	0.020	0.06(2/ 2)	NICKAJACK RES	0.06(	1/ 1)	0.17(1/ 1)	
		0.05- 0.06	TRM 425-471	0.06-	0.06	0.17- 0.17	
K-40	NOT ESTAB	9.03(2/ 2)	CHICKAMAUGA RES	9.31(	1/ 1)	7.53(1/ 1)	
		8.75- 9.31	TRM 471-530	9.31-	9.31	7.53- 7.53	
BI-214	0.020	0.08(1/ 2)	NICKAJACK RES	0.08(	1/ 1)	0.07(1/ 1)	
		0.08- 0.08	TRM 425-471	0.08-	0.08	0.07- 0.07	
PB-214	NOT ESTAB	0.06(1/ 2)	NICKAJACK RES	0.06(	1/ 1)	0.03(1/ 1)	
		0.06- 0.06	TRM 425-471	0.06-	0.06	0.03- 0.03	
PB-212	NOT ESTAB	0.03(1/ 2)	NICKAJACK RES	0.03(	1/ 1)	0.03(1/ 1)	
		0.03- 0.03	TRM 425-471	0.03-	0.03	0.03- 0.03	
SR 89	0.500	4 VALUES <LLD				2 VALUES <LLD	
6		ANALYSIS PERFORMED					
SR 90	0.100	0.19(2/ 4)	CHICKAMAUGA RES	0.19(	2/ 2)	0.41(2/ 2)	
6		0.18- 0.19	TRM 471-530	0.18-	0.19	0.34- 0.47	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 23

RADIOACTIVITY IN PLANKTON

PCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH
LOCATION OF FACILITY HAMILTON TENNESSEE

DOCKET NO. RM-79-4-SW1
REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS ALPHA	0.100	3.09(14/ 14)	TRM 472.80	4.22(2/ 2)	3.23(6/ 6)	
20		0.29- 12.43		4.14- 4.29	0.86- 7.51	
GROSS BETA	0.100	9.40(14/ 14)	TRM 483.4	10.83(6/ 6)	16.87(6/ 6)	
20		2.54- 16.54		7.99- 16.54	9.19- 28.99	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 24

RADIOACTIVITY IN SEDIMENT

pCi/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-74-4-SQ1

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS ALPHA	0.350	14.09(12/ 12)	THM 472.80	16.85(4/ 4)	14.11(4/ 4)	
16		7.07- 20.07		13.98- 18.75	12.38- 17.08	
GROSS BETA	0.700	56.46(12/ 12)	THM 480.82	64.00(4/ 4)	52.30(4/ 4)	
16		32.39- 89.28		60.43- 67.77	44.96- 58.96	
GAMMA (GELI)						
16						
CE-144	0.060	0.49(5/ 12)	THM 472.80	0.64(2/ 4)	0.27(2/ 4)	
		0.24- 1.03		0.24- 1.03	0.20- 0.33	
CO-60	0.010	0.28(9/ 12)	THM 472.80	0.33(4/ 4)	0.21(4/ 4)	
		0.04- 0.37		0.29- 0.35	0.09- 0.31	
CS-137	0.020	3.03(12/ 12)	THM 472.80	5.03(4/ 4)	2.24(4/ 4)	
		0.08- 6.27		4.08- 6.27	1.04- 3.18	
ZR-95	0.030	0.08(1/ 12)	THM 472.80	0.08(1/ 4)	0.10(1/ 4)	
		0.08- 0.08		0.08- 0.08	0.10- 0.10	
NB-95	0.010	0.20(1/ 12)	THM 472.80	0.20(1/ 4)	0.26(1/ 4)	
		0.20- 0.20		0.20- 0.20	0.26- 0.26	
K-40	NOT ESTAB	16.46(12/ 12)	THM 480.82	17.83(4/ 4)	15.25(4/ 4)	
		12.30- 20.05		17.26- 18.26	12.64- 17.57	
BI-214	0.020	1.33(12/ 12)	THM 472.80	1.49(4/ 4)	1.12(4/ 4)	
		0.91- 1.91		1.26- 1.91	0.88- 1.36	
BI-212	0.100	1.18(12/ 12)	THM 480.82	1.36(4/ 4)	1.01(4/ 4)	
		0.82- 2.16		0.97- 2.16	0.80- 1.17	
PB-214	NOT ESTAB	1.40(12/ 12)	THM 472.80	1.60(4/ 4)	1.18(4/ 4)	
		0.87- 1.93		1.47- 1.93	0.87- 1.39	
PB-212	NOT ESTAB	1.65(12/ 12)	THM 472.80	1.85(4/ 4)	1.45(4/ 4)	
		0.97- 2.13		1.67- 2.07	1.05- 1.73	
RA-226	NOT ESTAB	1.33(12/ 12)	THM 472.80	1.49(4/ 4)	1.12(4/ 4)	
		0.91- 1.91		1.26- 1.91	0.88- 1.36	
RA-223	NOT ESTAB	0.59(4/ 12)	THM 480.82	0.60(3/ 4)	4 VALUES <LLD	
		0.54- 0.70		0.54- 0.70		
BE-7	NOT ESTAB	1.80(1/ 12)	THM 472.80	1.80(1/ 4)	4 VALUES <LLD	
		1.80- 1.80		1.80- 1.80		
TL-208	0.020	0.57(12/ 12)	THM 480.82	0.64(4/ 4)	0.48(4/ 4)	
		0.33- 0.78		0.58- 0.70	0.34- 0.58	
AC-228	0.060	1.79(12/ 12)	THM 472.80	2.02(4/ 4)	1.54(4/ 4)	
		1.27- 2.88		1.69- 2.88	1.26- 1.81	
PA-228	NOT ESTAB	0.07(2/ 12)	THM 480.82	0.09(1/ 4)	4 VALUES <LLD	
		0.04- 0.09		0.09- 0.09		
SR 89	1.500	12 VALUES <LLD			4 VALUES <LLD	
16		ANALYSIS PERFORMED				
SR 90	0.300	0.40(3/ 12)	THM 480.82	0.41(1/ 4)	4 VALUES <LLD	
16		0.35- 0.45		0.41- 0.41		

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.

b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 25

RADIOACTIVITY IN CLAM FLESH

PCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. RM-79-4-SQ1
LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1976

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION (LLD) [a]	ALL INDIC TON LOCATIONS MEAN (F) RANGE [b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F) [b] RANGE [b]	CONTROL LOCATIONS MEAN (F) [b] RANGE [b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS ALPHA	0.100	0.64(7/ 8)	THM 480.82	0.84(4/ 4)	0.80(4/ 4)	
12		0.31- 1.39		0.33- 1.38	0.38- 1.56	
GROSS BETA	0.100	10.23(8/ 8)	THM 480.82	13.66(4/ 4)	12.09(4/ 4)	
12		6.64- 28.29		6.79- 28.29	3.95- 28.09	
GAMMA (GELI)						
12						
CE-144	0.350	0.72(1/ 8)	THM 480.82	0.72(1/ 4)	4 VALUES <LLD	
		0.72- 0.72		0.72- 0.72		
CS-137	0.080	1.12(1/ 8)	THM 480.82	1.12(1/ 4)	1.26(1/ 4)	
		1.12- 1.12		1.12- 1.12	1.26- 1.26	
K-40	NOT ESTAB	7.19(7/ 8)	THM 480.82	8.34(3/ 4)	7.93(3/ 4)	
		3.98- 11.13		6.45- 11.12	5.19- 10.35	
BI-214	NOT ESTAB	0.99(7/ 8)	THM 480.82	1.01(3/ 4)	1.98(4/ 4)	
		0.34- 2.25		0.82- 1.15	0.34- 5.85	
PB-214	NOT ESTAB	0.86(8/ 8)	THM 483.4	0.[illegible](4/ 4)	2.10(4/ 4)	
		0.24- 2.15		0.24- 2.15	0.45- 6.05	
PB-212	NOT ESTAB	0.42(7/ 8)	THM 480.82	0.66(3/ 4)	0.66(3/ 4)	
		0.17- 1.07		0.43- 1.07	0.22- 1.16	
TL-208	NOT ESTAB	0.24(3/ 8)	THM 480.82	0.29(2/ 4)	0.27(1/ 4)	
		0.14- 0.32		0.26- 0.32	0.27- 0.27	
AC-228	NOT ESTAB	0.87(4/ 8)	THM 480.82	0.97(3/ 4)	4 VALUES <LLD	
		0.56- 1.42		0.73- 1.42		

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

TABLE 26

RADIOACTIVITY IN CLAM SHELL

PCI/G - 0.037 BQ/G (DRY WEIGHT)

NAME OF FACILITY SEQUOYAH — DOCKET NO. 50-327 50-328

LOCATION OF FACILITY HAMILTON TENNESSEE — REPORTING PERIOD 1978

TYPE AND TOTAL NUMBER OF ANALYSIS PERFORMED	LOWER LIMIT OF DETECTION[a] (LLD)	ALL INDICATOR LOCATIONS MEAN (F)[b] RANGE[b]	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (F)[b] RANGE[b]	CONTROL LOCATIONS MEAN (F)[b] RANGE[b]	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROSS ALPHA	0.700	2.10(5/ 8)	TRM 480.82	2.44(4/ 4)	1.50(3/ 4)	
12		0.72- 3.84		1.26- 3.84	0.99- 2.17	
GROSS BETA	0.700	5.39(8/ 8)	TRM 480.82	7.44(4/ 4)	7.99(4/ 4)	
12		2.56- 10.16		5.34- 10.16	6.97- 9.53	
GAMMA (GELI)						
12						
CO-60	0.010	0.03(3/ 8)	TRM 480.82	0.03(3/ 4)	4 VALUES <LLD	
		0.03- 0.03		0.03- 0.03		
CS-137	0.020	0.04(4/ 8)	TRM 480.82	0.04(4/ 4)	0.03(1/ 4)	
		0.02- 0.07		0.02- 0.07	0.03- 0.03	
K-40	0.250	0.50(4/ 8)	TRM 480.82	0.60(4/ 4)	0.52(3/ 4)	
		0.36- 0.66		0.54- 0.66	0.36- 0.64	
BI-214	0.050	0.17(7/ 8)	TRM 480.82	0.23(4/ 4)	0.15(4/ 4)	
		0.08- 0.26		0.20- 0.26	0.13- 0.17	
BI-212	0.100	0.24(1/ 8)	TRM 480.82	0.24(1/ 4)	4 VALUES <LLD	
		0.24- 0.24		0.24- 0.24		
PB-214	0.050	0.16(6/ 8)	TRM 480.82	0.23(4/ 4)	0.14(4/ 4)	
		0.08- 0.24		0.21- 0.24	0.11- 0.16	
PB-212	NOT ESTAB	0.14(7/ 8)	TRM 480.82	0.24(3/ 4)	0.13(4/ 4)	
		0.04- 0.27		0.23- 0.27	0.10- 0.17	
TL-208	0.020	0.07(6/ 8)	TRM 480.82	0.09(4/ 4)	0.04(4/ 4)	
		0.02- 0.11		0.08- 0.11	0.03- 0.05	
AC-228	0.060	0.28(7/ 8)	TRM 480.82	0.41(4/ 4)	0.19(3/ 4)	
		0.09- 0.49		0.33- 0.49	0.13- 0.23	
SR 89	5.000	4 VALUES <LLD			4 VALUES <LLD	
12		ANALYSIS PERFORMED				
SR 90	1.000	1.77(8/ 8)	TRM 480.82	1.92(3/ 4)	1.58(3/ 4)	
12		1.08- 2.21		1.88- 1.95	1.41- 1.80	

a. Nominal Lower Limit of Detection (LLD) as described in Table 2.
b. Mean and range based upon detectable measurements only. Fraction of detectable measurements of specified locations is indicated in parentheses (F).

Quality Control

A quality control program has been established with the Tennessee Department of Public Health Radiological Laboratory and the Eastern Environmental Radiation Facility, Environmental Protection Agency, Montgomery, Alabama. Samples of air, water, milk, fish, and soil collected around nuclear plants re forwarded to these laboratories for analysis, and results are exchanged for comparison.

Conclusions

Since Sequoyah Nuclear Plant has not achieved criticality, there has been no contribution of radioactivity from the plant to the environment. The levels of radioactivity being reported in this document are due to natural background radiation, nuclear weapons testing, or other nuclear operations in the area.

Increased levels of radioactivity were observed in milk, rainwater, air particulates, heavy particle fallout, vegetation, and in atmospheric radioiodine in March and April following the atmospheric nuclear weapons testing conducted by the Republic of China. This increase was widely reported in the eastern portion of the United States. Levels of ^{131}I in milk as high as 2.85 pCi/l were observed. The primary radioisotopes identified in the atmospheric media were ^{144}Ce, ^{95}Zr, ^{95}Nb, ^{103}Ru, ^{131}I, ^{140}Ba, and ^{140}La.