

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

UNITS 1 AND 2

JANUARY 1, 1987 - DECEMBER 31, 1987

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SECTION 1

EXECUTIVE SUMMARY

This Annual Radiological Environmental Operating Report describes the Catawba Nuclear Station Radiological Environmental Monitoring Program and the results of the program for the 1987 calendar year.

Included in the report are identification of sampling locations, descriptions of environmental sampling and analysis procedures, comparisons of present environmental radioactivity levels and preoperational environmental data, analysis of trends in the environmental radioactivity levels since the beginning of station operation, comparisons of doses calculated from environmental measurements and doses calculated from effluent data, the results of the 1987 program, a summary of these results, discussion of the results, and discussion of the quality assurance activities associated with the program. Deviations from program requirements are also included.

Sampling activities were conducted as prescribed by Technical Specifications. Required analyses were performed and detection capabilities met Technical Specification requirements.

Radioactivity clearly attributable to the operation of Catawba was detected in the following media, all at the discharge canal:

Surface water:	H-3 increasing
Fish:	Co-58 decreasing Co-60 steady Cs-137 decreasing
Shoreline Sediment:	Mn-54 steady Co-58 steady Co-60 steady Cs-134 steady Cs-137 steady
Bottom Sediment:	Mn-54 increasing Co-58 steady Co-60 increasing Cs-134 steady Cs-137 steady

No other significant trends were evident in the sampling results.

Catawba's contribution to environmental radioactivity is small. All positive indications of radioactivity due to plant operations were less than the reporting levels imposed by Technical Specifications. Operation of the Station has had no significant radiological impact upon the health and safety of the general public.

Doses calculated from environmental measurements and doses calculated from effluent data were compared. In some cases agreement was good. In others the doses disagreed by two orders of magnitude. This disagreement is discussed in this report. We consider this disagreement to be acceptable considering the low activity levels involved.

SECTION 2

INTRODUCTION

2.1 SITE DESCRIPTION AND SAMPLE LOCATIONS

Duke Power Company's Catawba Nuclear Station (CNS) is a two-unit facility located on the shore of Lake Wylie in York County, South Carolina. Each of the two essentially identical units employs a pressurized water reactor Nuclear Steam Supply System furnished by Westinghouse Electric Corporation. Each generating unit is designed to produce a net electrical output of approximately 1145 MWe. Units 1 and 2 achieved initial criticality on January 7, 1985 and May 8, 1986, respectively. During 1987, Units 1 and 2 attained net capacity factors of 64% and 71%, respectively.

Condenser cooling is accomplished utilizing a closed cycle system incorporating cooling towers, instead of utilizing lake water directly. Liquid effluents are released into Lake Wylie via the station discharge canal, and are not accompanied by the large additional dilution water flow associated with "once-through" condenser cooling. This design difference results in greater radionuclide concentrations in the discharge canal given comparable liquid effluent source terms.

A map depicting the site and the area within one mile of CNS can be found in Figure 2.C. An area map encompassing a ten mile radius from the plant can be found in Figure 2.D.

The CNS Radiological Environmental Monitoring Program (REMP) sampling locations are summarized in Tables 2.A and 2.B. Table 2.A lists the environmental Thermoluminescent Dosimeter (TLD) locations. Table 2.B lists all other sampling locations. The REMP sampling and analysis procedures are summarized in Appendix A.

Figures 2.C, 2.D, and 2.E are maps depicting the specific positions of all REMP sampling locations. The location numbers shown on these maps correspond to those listed in Tables 2.A and 2.B. Figure 2.C comprises all sample locations within one mile of CNS. Figure 2.D comprises all remaining locations. Figure 2.E identifies Location 208 (Discharge Canal) shoreline sediment (1S, 2S, and 3S) and bottom sediment (1M, 2M, and 3M) sampling points. Of these six sediment samples, only shoreline sediment at location 208-1S is required by CNS Technical Specifications; the remaining five are supplemental samples first collected during 1986.

2.2 SCOPE AND REQUIREMENTS OF THE ENVIRONMENTAL MONITORING PROGRAM

The Radiological Environmental Monitoring Program required by CNS Technical Specification 3/4.12.1 provides representative measurements of radiation and radioactive materials in those exposure pathways and for those radionuclides that lead to the highest potential radiation exposures of members of the public resulting from plant operation. This monitoring program implements Section IV.B.2 of Appendix I to 10 CFR Part 50 and thereby supplements the Radiological Effluent Monitoring Program by verifying that the measureable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of effluent measurements and modeling of environmental exposure pathways. Guidance for this monitoring program is provided by the Radiological Assessment Branch Technical Position on Environmental Monitoring.

The Annual Land Use Census required by CNS Technical Specification 3/4.12.2 is performed to ensure that changes in the use of areas at or beyond the site boundary are identified and that modifications to the Radiological Environmental Monitoring Program are made if required by changes in land use. This census satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR Part 50. The results of this census are required to be included in this Annual Radiological Environmental Operating Report by Technical Specification Administrative Control 6.9.1.6.

Participation in an approved Interlaboratory Comparison Program as required by CNS Technical Specification 3/4.12.3 provides for independent checks on the precision and accuracy of REMP environmental radionuclide measurements. Such checks shall be performed as part of the quality assurance program for environmental monitoring in order to demonstrate that the results are valid for the purposes of Section IV.B.2 of Appendix I to 10 CFR Part 50.

This Annual Radiological Environmental Operating Report is required by CNS Technical Specification Administrative Control 6.9.1.6. This report adheres to the content specifications of Control 6.9.1.6.

CNS Technical Specification 3.12.1 (Table 3.12-1) specifies the conduct of the Radiological Environmental Monitoring Program. The Duke Power Company Offsite Dose Calculation Manual further defines the specific types, frequencies, and locations of sampling and measurement.

Technical Specification Table 3.12-2 provides reporting levels, as a function of sample type and radionuclide. If sample radionuclide activity exceeds 100% of reporting level (when summed over all detected nuclides having a reporting level for the applicable sample type, and when the sums are averaged by location over the applicable calendar quarter) a special report must be submitted to the Nuclear Regulatory Commission. When radionuclides other than those listed in Table 3.12-2 are detected, they shall be addressed in this annual report. Not all radionuclides have a reporting level for a given sample type. For example, there are no reporting levels for gross beta analysis of any sample type, and sediment samples have no reporting levels for any radionuclides.

Technical Specification Table 4.12-1 lists required Lower Limit of Detection (LLD) capabilities for REMP sample analyses, as a function of sample type and radionuclide. Refer to Section 2.3.2 for the definition of LLD and Minimum Detectable Activity (MDA). Not all radionuclides have a required LLD for a given sample type. Any analyses for which the required LLDs were not achievable shall be discussed in this annual report.

Technical Specification Tables 3.12-2 and 4.12-1 list thirteen radionuclides; H-3, Mn-54, Fe-59, Co-58, Co-60, Zn-65, Zr-95, Nb-95, I-131, Cs-134, Cs-137, Ba-140, and La-140. These thirteen radionuclides are collectively referred to throughout this annual report as "Radionuclides Listed in Technical Specifications".

2.3 STATISTICAL AND CALCULATIONAL METHODOLOGY

2.3.1 ESTIMATION OF THE MEAN VALUE

There was one (1) basic statistical calculation performed on the raw data resulting from the environmental sample analysis program. The calculation involved the determination of the mean value for the indicator and the control samples for each sample medium. The mean (\bar{x}) is a widely used statistic. This value was used in the reduction of the data generated by the sampling and analysis of the various media in the Environmental Monitoring Program. The following equation was used to estimate the mean:

$$\bar{x} = \frac{\sum_{i=1}^N x_i}{N} \quad (\text{eq. 2-1})$$

where, \bar{x} = estimate of the mean,
 i = individual sample,
 N = total number of samples with a net activity (or concentration),
 x_i = net activity (or concentration) for sample i .

NOTE: "Net activity (or concentration)" is the activity (or concentration) determined to be present in the sample. No "Minimum Detectable Activity", "Lower Limit of Detection", "Less Than Level", or negative activities or concentrations are included in the calculation of the mean.

2.3.2 LOWER LEVEL OF DETECTION AND MINIMUM DETECTABLE ACTIVITY

The Lower Level of Detection (LLD) and Minimum Detectable Activity (MDA) are used throughout the Environmental Monitoring Program, both in the Technical Specifications and in the implementation of the specifications.

The LLD, as defined in the Technical Specifications, is the smallest concentration of radioactive material in a sample that will yield a net count, above system background, that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal. The LLD is an a priori lower limit of detection. The actual LLD is dependent upon the standard deviation of the background counting rate, the counting efficiency, the sample size (mass or volume), the radiochemical yield, and the radioactive decay of the sample between sample collection and counting. The "required" LLD's for each sample medium and selected radionuclides are given in the Technical Specifications.

The MDA may be thought of as an "actual" LLD for a particular sample measurement remembering that the MDA is calculated using a sample background instead of a system background. In gamma spectroscopy analyses, the sample background may be elevated above the system background due to the continuum produced by higher energy gammas from other radionuclides (either man-made or naturally produced). The continuum increases the smallest concentration of a particular radionuclide that could be positively identified in the sample. Therefore, to insure that the "required" LLD is not exceeded for any radionuclide in a sample medium, the MDA is calculated based on the actual background in the area of the identifying gamma energy and is compared to the "required" LLD. If the MDA exceeds the "required" LLD, the sample is counted for a longer time period so that the standard deviation of the sample background is minimized. If the "required" LLD exceeds the MDA, then the analysis of the sample meets the requirements for the detection capability for environmental sample analysis.

For "gross" counters (such as alpha/beta proportional counters and liquid scintillation counters), the MDA is calculated using a batch background count. This MDA is then compared to the "required" LLD. If the MDA exceeds the "required" LLD, the sample is counted for a longer time period so that the standard deviation of the batch background is minimized. If the "required" LLD exceeds the MDA, then the analysis of the sample meets the requirements for the detection capability for environmental sample analysis.

2.3.3 TREND IDENTIFICATION

One of the purposes of an environmental monitoring program is to determine if there is a buildup of radionuclides in the environment due to the operation of the nuclear station. This is traditionally done by looking at historical data (including preoperational data) and determining if a trend exists. Trends, if they exist, may be either positive or negative. Since nuclear reactor operations do not normally remove radioactivity from the surrounding environment, a negative trend in a particular radionuclide's concentration in an environmental medium does not indicate that reactor operations are removing radioactivity from the environment but that reactor operations are not adding that radionuclide to the environment in quantities exceeding the preoperational level and that the normal removal processes (radioactive decay, deposition, resuspension, etc.) are influencing the concentration.

In some cases, visual inspection of tabular or graphical presentations of data may be sufficient to determine if a trend exists. In other cases, it may not be so obvious. Therefore, it is desirable to obtain a single numerical value from the data which will permit a meaningful interpretation of the relationship existing between the variations in the data. If it is assumed that a linear relationship exists between the time after startup of the reactor and the amount of radionuclides in a particular environmental medium, the least squares regression method may be used to define the linear relationship. To determine if the data actually correlate to the straight line assumption, the theoretical variance is compared to the actual variance. The numerical value that summarizes this comparison is known as the correlation coefficient. This correlation coefficient, symbolized by "r", is a determination of how closely the data fit a straight line and may be calculated from the following equation:

$$r = \frac{N \sum XY - \sum X \sum Y}{\left[(N \sum X^2 - (\sum X)^2) (N \sum Y^2 - (\sum Y)^2) \right]} \quad (\text{eq. 2-2})$$

where, r = correlation coefficient for the data set of X and Y,
X = the year or point in time,
Y = the radionuclide concentration associated with X,
N = number of observations.

The range of values as calculated by the correlation coefficient lies between positive one (+1) and negative one (-1). The absolute value of the correlation coefficient represents the probability of a trend. Zero (0) represents no indication of either a positive or negative trend. A positive (+) correlation coefficient indicates an increasing trend, and, conversely, a negative (-) correlation coefficient indicates a decreasing trend. The ranges of a correlation coefficient may be summarized as on the next page.

$1 \geq |r| > 0.7$ High to moderate probability of a trend.
 $0.7 \geq |r| > 0.3$ Moderate to poor probability of a trend.
 $0.3 \geq |r| \geq 0$ Poor to no probability of trend.

Identifying a trend by using the correlation coefficient is only useful for the time periods where the discharge from the nuclear plant is relatively stable and no other sources of radioactivity are present. Substantial increases or decreases in the amount of a particular radionuclide's release from the nuclear plant will greatly affect the resulting environmental levels; therefore, a knowledge of the release of a radionuclide from the nuclear plant is necessary to completely interpret the trends, or lack of trends, determined from the environmental data. Other factors that may affect environmental levels of radionuclides include prevailing weather conditions (periods of drought or heavier than normal precipitation), construction in or around either the nuclear plant or the sampling location, addition or deletion of other sources of radioactive materials (such as the Chernobyl accident), etc.. Some of these factors may be obvious while others are sometimes unknown to the plant personnel.

The recent change in the method of calculating the mean (using only net positive results) will also affect the apparent trends.

Because of the above considerations, how trends are identified will depend not only on the least squares regression method, but will include some judgement by plant personnel on the factors affecting environmental levels.

TABLE 2.A

CATAWBA RADIOLOGICAL MONITORING PROGRAM SAMPLING LOCATIONS

(TLD LOCATIONS)

SAMPLING LOCATION DESCRIPTION			SAMPLING LOCATION DESCRIPTION		
200	SITE BOUNDARY	(0.7M NNE)	232	4-5 MILE RADIUS	(4.1M NE)
201	SITE BOUNDARY	(0.5M NE)	233	4-5 MILE RADIUS	(4.0M ENE)
202	SITE BOUNDARY	(0.6M ENE)	234	4-5 MILE RADIUS	(4.5M E)
203	SITE BOUNDARY	(0.5M SE)	235	4-5 MILE RADIUS	(4.0M ESE)
204	SITE BOUNDARY	(0.5M SSW)	236	4-5 MILE RADIUS	(4.2M SE)
205	SITE BOUNDARY	(0.6M SW)	237	4-5 MILE RADIUS	(4.8M SSE)
206	SITE BOUNDARY	(0.7M WNW)	238	4-5 MILE RADIUS	(4.2M S)
207	SITE BOUNDARY	(0.8M NNW)	239	4-5 MILE RADIUS	(4.6M SSW)
212	SPECIAL INTEREST	(2.7M ESE)	240	4-5 MILE RADIUS	(4.1M SW)
217	CONTROL	(10.0M SSE)	241	4-5 MILE RADIUS	(4.7M WSW)
222	SITE BOUNDARY	(0.7M N)	242	4-5 MILE RADIUS	(4.6M W)
223	SITE BOUNDARY	(0.5M E)	243	4-5 MILE RADIUS	(4.6M WNW)
224	SITE BOUNDARY	(0.7M ESE)	244	4-5 MILE RADIUS	(4.1M NW)
225	SITE BOUNDARY	(0.5M SSE)	245	4-5 MILE RADIUS	(4.2M NNW)
226	SITE BOUNDARY	(0.5M S)	246	SPECIAL INTEREST	(8.1M ENE)
227	SITE BOUNDARY	(0.5M WSW)	247	CONTROL	(7.5M ESE)
228	SITE BOUNDARY	(0.6M W)	248	SPECIAL INTEREST	(7.0M SSE)
229	SITE BOUNDARY	(0.9M NW)	249	SPECIAL INTEREST	(8.1M S)
230	4-5 MILE RADIUS	(4.4M N)	250	SPECIAL INTEREST	(10.3M WSW)
231	4-5 MILE RADIUS	(4.2M NNE)	251	CONTROL	(9.8M WNW)

TABLE 2.B

CATAWBA RADIOLOGICAL MONITORING PROGRAM SAMPLING LOCATIONS
(OTHER SAMPLING LOCATIONS)

CODE:

W - Weekly
 BW - Biweekly
 M - Monthly
 SH - Semimonthly
 Q - Quarterly
 SA - Semiannually

Sampling Location	Description	W	Q	Groundwater	Vegetation	Broadleaf	Fish	Milk	Sediment	Shoreline	Water	Drinking	Water	Surface	Particulates	Air	Radio-	Food Products
200	Site Boundary (0.7m NNE)	W			M													
201	Site Boundary (0.5m NE)	W			M													
203	Site Boundary (0.5m SE) Deleted				M													
205	Site Boundary (0.6m SW)	W																
208	Discharge Canal (0.5m S)						SA			SA								
209	Dairy (7.0m SSW)							SM										
210	Ebenezer Access (2.4m SE)									SA								
211	Wylie Dam (4.0m ESE)																	
212	Tega Cay (2.7m ESE)	W																
213	Fort Mill Water Supply (7.5m ESE)						BW											
214	Rock Hill Water Supply (7.3m SSE)						BW											
215	Camp Steere - Hwy 49 (4.1m NNE) Control						BW	SA										
216	Hwy 49 Bridge (4.0m NNE) Control							SA										
217	Rock Hill Substation (10.0m SSE) Control	W				M												
218	Belmont Water Supply (13.5m N) Control						BW											
219	Dairy (6.0m SW)							SM										
220	Dairy (8.0m WSW) Deleted							SM										
221	Dairy (13.0m NW) Control							SM										
226	Site Boundary (0.5m S)																	
252	Residence (0.8m W)																	Q
253	Gardens (5-mile radius)																	M(a)

(a) during harvest season

FIGURE 2.D (Page 1 of 2)

MAP OF RADIOLOGICAL MONITORING PROGRAM SAMPLING LOCATIONS
(DISTANT FROM CATAWBA)

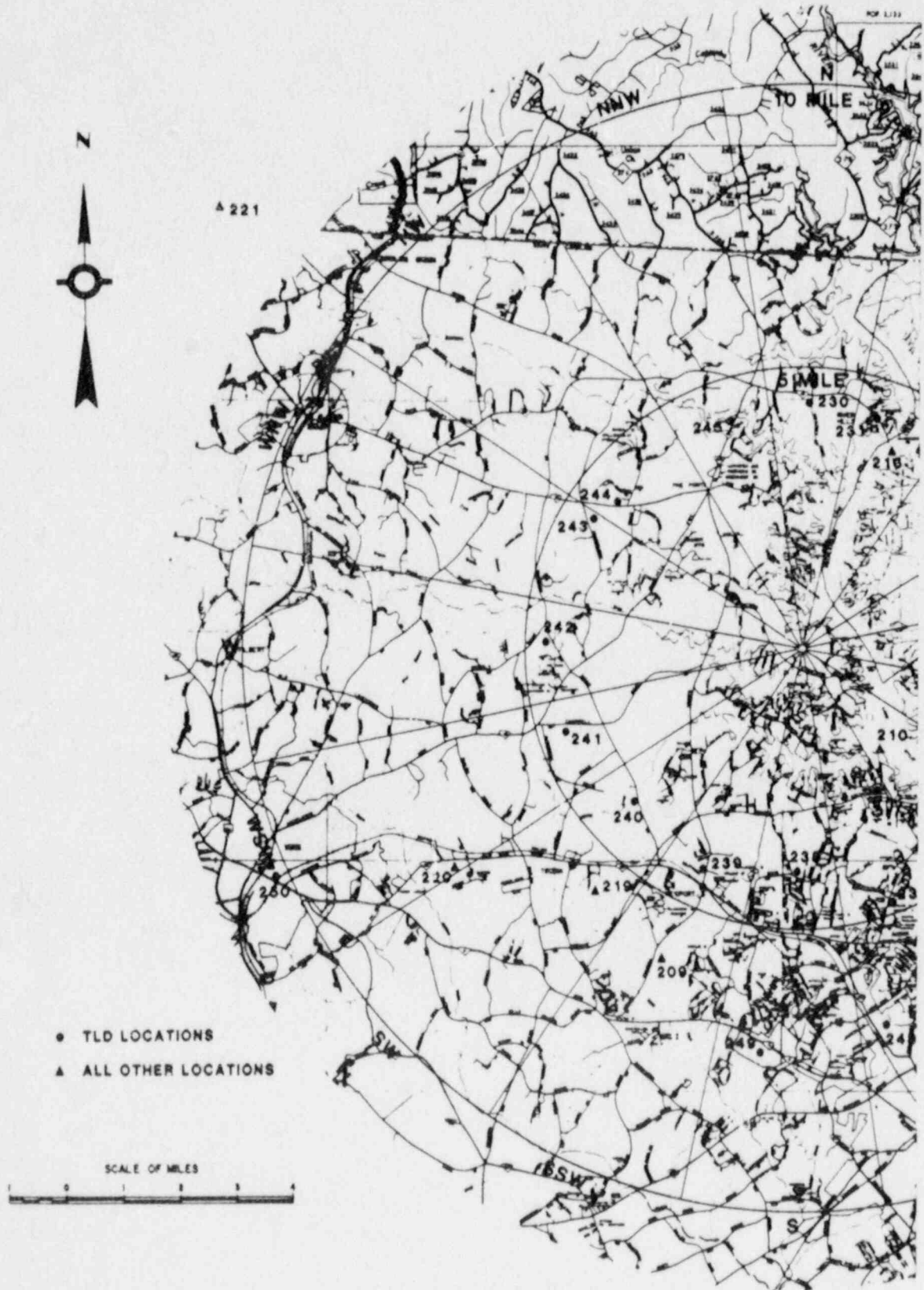


FIGURE 2.D (Page 2 of 2)

MAP OF RADIOLOGICAL MONITORING PROGRAM SAMPLING LOCATIONS
(DISTANT FROM CATAWBA)

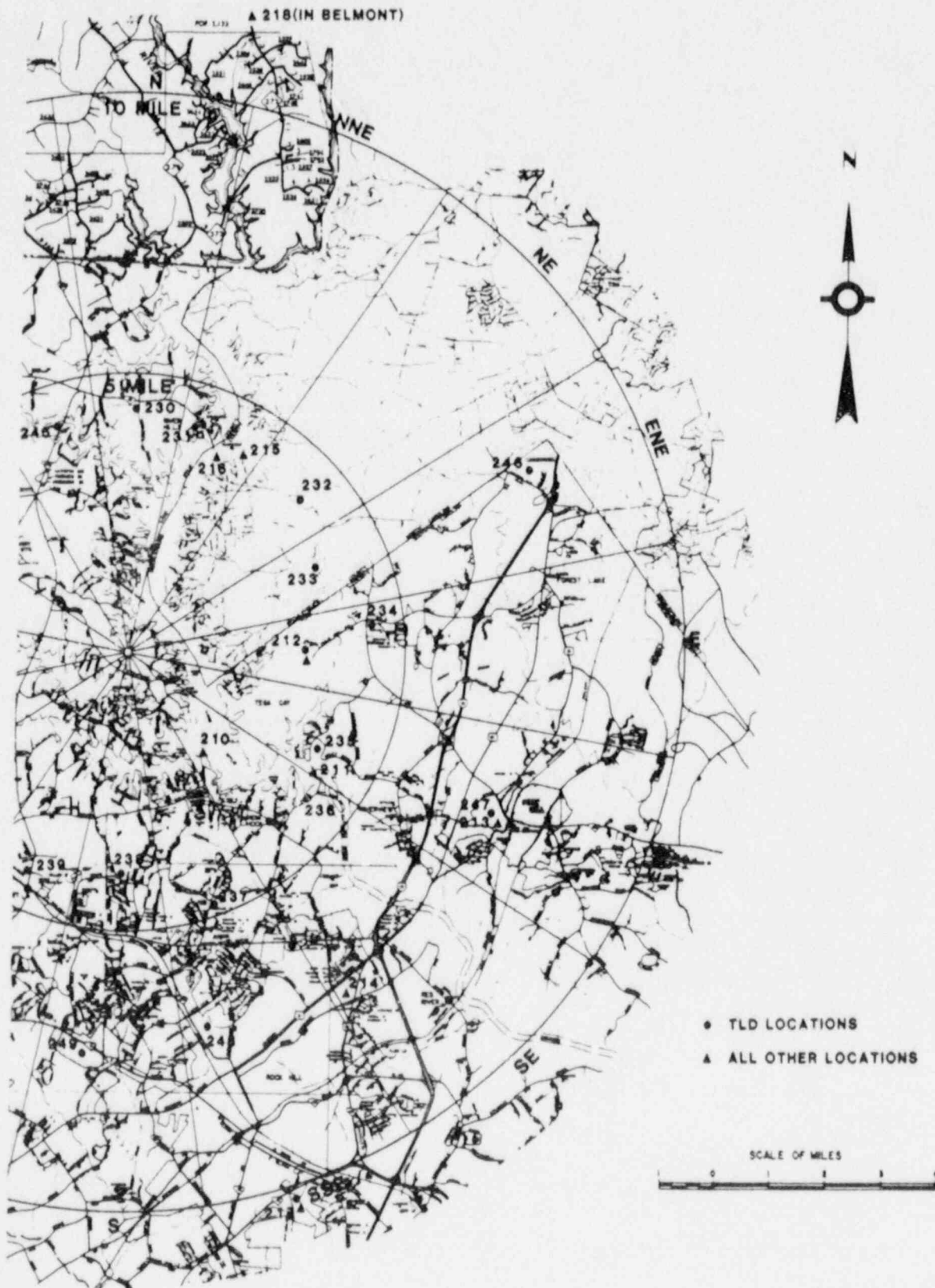
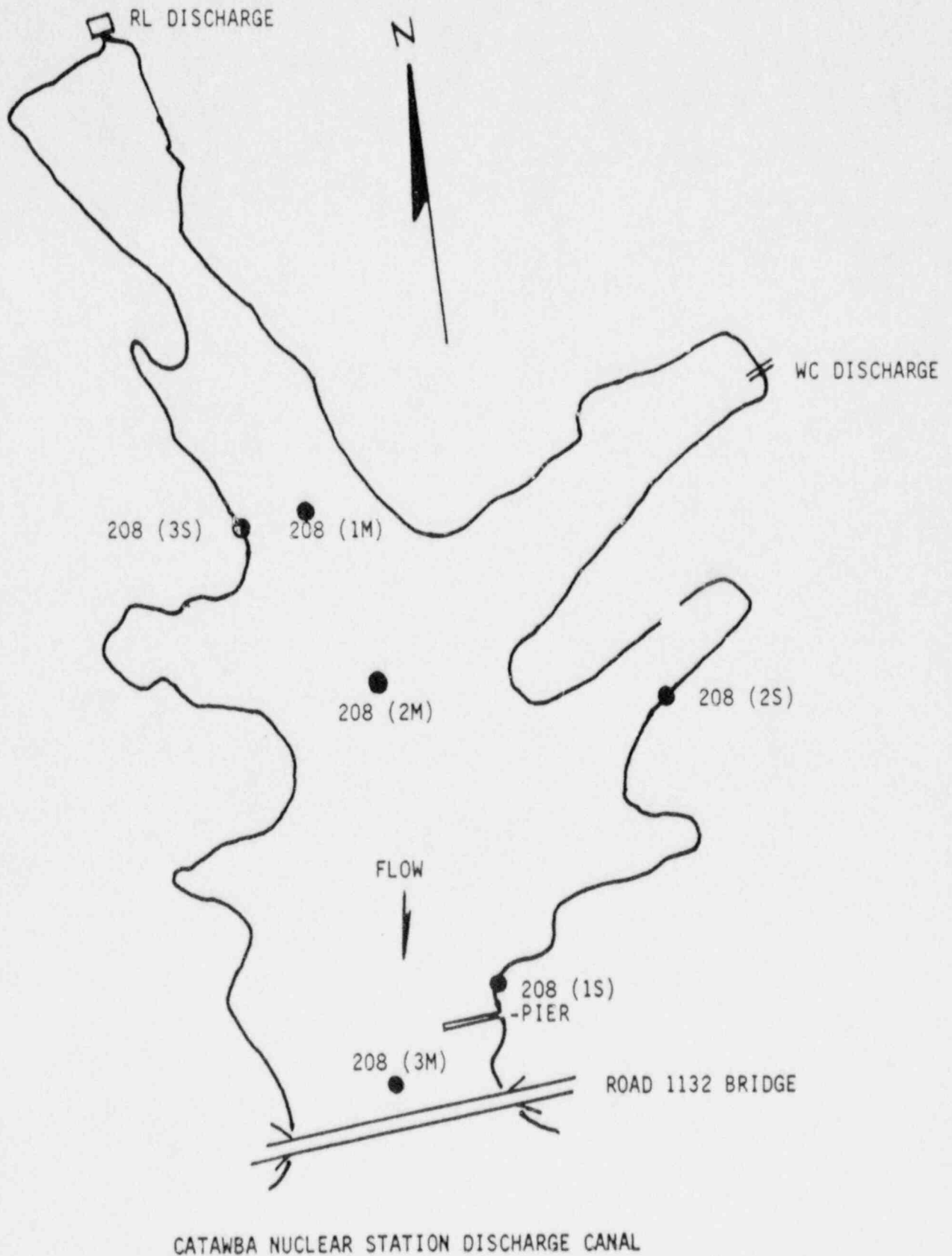


FIGURE 2.E

MAP OF RADIOLOGICAL MONITORING PROGRAM SAMPLING LOCATIONS
(LOCATION 208 SHORELINE AND BOTTOM SEDIMENT SAMPLING POINTS)



SECTION 3

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM - DISCUSSION, INTERPRETATION, AND TRENDING OF RESULTS

GENERAL INFORMATION

Before discussing each sample type specifically in Sections 3.1 - 3.11, the following general information is best discussed separately.

Sections 2.1 and 2.2 describe the CNS site, REMP sample locations, and requirements of the environmental monitoring program. Appendix A summarizes the environmental sampling and analysis procedures, and discusses changes in the procedures occurring during 1987. In addition to the "required" sampling and analyses described in Technical Specification Table 3.12-1, the following "supplemental" measures were taken during 1987. These supplemental measures were first adopted during 1986:

- 1) Shoreline sediment, requiring collection at only one point along the CNS Discharge Canal (Location 208-1S), was collected at three points (Locations 208-1S, 208-2S, and 208-3S).
- 2) Shoreline sediment, requiring collection semiannually, was collected quarterly. The first and third quarter samples from Locations 208-1S, 210, and 215 were considered to be the required samples and all remaining samples were considered supplemental.
- 3) Fish, requiring collection from Locations 208 and 216 semiannually, were collected quarterly. The first and third quarter samples were considered to be the required samples and the second and fourth quarter samples were considered supplemental.
- 4) Bottom sediment, not requiring collection at all, was collected during the first, second, and fourth quarters at CNS Discharge Canal Locations 208-1M, 208-2M, and 208-3M. These were considered to be supplemental samples.

All deviations from the sampling and the analytical requirements of Technical Specification Table 3.12-1 which occurred during 1987 are addressed in Appendices C and D, respectively. For all required 1987 CNS REMP analyses performed, the LLD capability requirements of Technical Specification 4.12.1 were met. For all 1987 CNS REMP samples collected, the reporting level limitations of Technical Specification 3.12.1 were not exceeded.

The quality assurance programs associated with radiological environmental monitoring are summarized in Section 5. Section 5.3 includes the results of Duke Power Company's Environmental Radiological Laboratory's participation in the EPA Interlaboratory Comparison Program.

All 1987 CNS REMP sample analysis results are submitted in Appendix E. These include results for the "supplemental" samples described earlier.

Summary tables covering 1987 for each REMP sample type, containing the information required by CNS Technical Specification Administrative Control 6.9.1.6, can be found in Appendix B. These summary tables are based upon required sample results only, the supplemental sample results are not reflected in these tables. The mean values tabulated in these 1987 summary tables are based upon detectable measurements only, whereas the summaries submitted with all previous CNS Annual Radiological Environmental Operating Reports contain mean values based upon net activities for all measurements, even for negative net activities and non-detectable measurements. A number of additional summaries were generated in order to facilitate thorough evaluation of 1987 REMP data; however, these additional summaries have not been included in this annual report.

Section 4 contains an evaluation of estimated doses to members of the public based upon REMP results as compared to doses based upon effluent release calculations. Doses based upon REMP results were estimated using data from the summary tables of Appendix B. Doses based upon effluent release calculations were taken from 1987 CNS Liquid and Gaseous Effluent Reports.

As mentioned in Appendix A, the Nuclear Data ND6620 gamma spectroscopy system (which was used to analyze CNS REMP samples collected during 1984, 1985, 1986, and most of 1987) was replaced by the Nuclear Data ND9900 gamma spectroscopy system effective September 1, 1987. When the ND6620 system was used to analyze samples prior to September 1, 1987, a small but steady percentage of most activation and fission radionuclide measurements (approximately 5%) yielded detectable low-level activity, even when the presence of such activity was highly unlikely as for control location samples and preoperational samples collected during 1984. This phenomenon has not occurred using the ND9900 system, thus ending this trend and suggesting that the ND6620 system may have been vulnerable to false-positive results, possibly due to the method by which it estimated net activity even when its peak search routine failed to detect a peak. Based on the best available evidence, it appears that the ND6620 system was probably vulnerable to a small but steady percentage of low-level false-positive results, and that the ND9900 system is sufficiently sensitive to meet the LLD capability requirements of CNS Technical Specification 4.12.1.

During 1984, the last completely preoperational year at CNS, H-3 and Cs-137 were detected with sufficient frequency to imply their existence as background radioactivity. Table 3.E summarizes the fraction and percent of nuclide measurements performed during 1984 which yielded detectable activity, as well as the predominant nuclides detected. These figures encompass measurements of the thirteen radionuclides listed in technical specifications, and do not reflect other nuclides which were detected (such as many naturally-occurring nuclides). There appears to be no reliably discernable difference between the control and indicator locations (for a given sample type) in terms of the data incorporated in Table 3.E. Note that for ground water, drinking water, and surface water samples, H-3 was frequently detected (at levels of about 300 pCi/liter), and I-131 was occasionally detected in surface water at all three locations when performing low-level radioiodine analysis (at levels ranging from 0.3 to 1.7 pCi/liter).

For all sample types other than water, Cs-137 was detected occasionally during 1984. Note that for shoreline sediment, Cs-134 was detected at all three locations in four of six samples at levels ranging from 24 to 39 pCi/liter. For the reasons discussed earlier (ND6620 sensitivity phenomenon), the predominant nuclides of Table 3.E are likely to be the only nuclides listed in technical specifications that actually existed in these preoperational samples.

All 1987 REMP analysis results were carefully reviewed in order to detect and identify any significant trends. Many sources of information were examined to accomplish this, and the resultant trending observations were included in Sections 3.1 - 3.11. Quarterly REMP verification reports were generated in order to track technical specification requirements, and these reports were also used to evaluate trends occurring during periods shorter than a year. The 1987 Summary of Analysis Results tables from Appendix B, as well as the analogous tables for 1984, 1985, and 1986, were reviewed.

To aid in trending, additional summaries were generated for each individual location for each sample type, as well as for key groups of locations for each sample type. These additional summaries were not included in this annual report. With exception of certain 1986 results affected by the Chernobyl accident, these summaries incorporated all REMP sample results, required as well as supplemental. These summaries contain the following three parameters for each radionuclide listed in technical specifications: 1) the average nuclide activity for all detectable measurements performed during a year, 2) the average nuclide activity for all measurements performed during a year (with non-detectable measurements being averaged in as zero activity), and 3) the fraction and percentage of all measurements performed during a year that yielded detectable activity. These three parameters were denoted as to whether or not they exceeded the corresponding control location parameter. The highest parameter out of all indicator locations for a given sample type was specially denoted. These parameters were generated for 1986 and 1987 (at a minimum) and parameter ratios between two successive years were calculated. Parameters for 1987 were also compared to the analogous parameters for 1984 (the last preoperational year) for those nuclides predominantly detected during 1984 (see Table 3.E).

Technical Specification 3.12.1 addresses the actions to be taken when nuclides other than the thirteen radionuclides listed in technical specifications are detected in REMP samples. If such nuclides are detected and are not the result of plant effluents, the condition shall be reported and described in this annual report. Table 3.D summarizes all such occurrences during 1987. The naturally occurring radionuclides of Table 3.D were considered to have resulted from natural background radioactivity, not plant effluents. This is supported by the frequency with which they were detected at both indicator and control locations, and during preoperation. Co-57 detected in bottom sediment at the discharge canal is assumed to have resulted from CNS liquid effluents, which often contained Co-57. The remaining six occurrences of detection of Sn-113, Cr-51, Ce-141, Ce-143, and Ce-144 listed in Table 3.D, were not considered to have resulted from CNS effluents, for the following reasons. Sn-113, detected in a Location 201 air filter paper sample, was not an airborne effluent from CNS during 1987.

Cr-51, detected in a Location 215 surface water sample, was listed as a significant liquid effluent; however, Location 215 is a control location situated approximately four miles upstream from CNS. Ce-143 and Ce-141, detected in different broadleaf vegetation samples taken from Location 200, were not airborne effluents. Ce-141, detected in a Location 210 shoreline sediment sample, was not a CNS effluent during 1987. Ce-144, detected in a Location 216 fish sample, was listed as a significant liquid effluent; however, Location 216 is a control location situated approximately four miles upstream from CNS.

An informative first overview of 1987 CNS REMP sample analysis results can be found in Table 3.B. This overview can be compared to the analogous preoperational overview of Table 3.E. For all sample types except ground water, milk (control), broadleaf vegetation, shoreline sediment, and fish, 1987 percent detected values for indicator and control locations were less than 1984 values. Note that for 1987 milk and broadleaf vegetation samples, the percent detected values are less for indicator locations than for control locations. Furthermore, all 1987 percent detected values were less than the corresponding 1986 values, except for fish collected at control location 216. This "apparent" decrease in probability of detection from 1986 to 1987 (41% decrease from 6.1% to 3.6% for all control samples, and 18% decrease from 6.6% to 5.4% for all indicator samples) is probably mainly due to the change of gamma spectroscopy systems and the associated sensitivity difference discussed earlier. Since the ND9900 system was used to analyze approximately one-third of all 1987 samples, one would predict about a 33% decrease in detectable control location measurements based on the postulated sensitivity difference alone. When considering the above summary evidence, it is clear that 1987 shoreline sediment, fish, and bottom sediment samples contain radioactivity resulting from plant operation. In order to specifically determine how these samples were impacted, or if any other sample types were impacted, a more detailed examination of data has been performed and the conclusions submitted in Sections 3.1 - 3.11.

Technical Specification Table 3.12-2 provides reporting levels, as a function of sample type and radionuclide. If sample radionuclide activity exceeds 100% of reporting level (when summed over all detected nuclides having a reporting level for the applicable sample type, and when the sums are averaged by location over the applicable calendar quarter) a special report must be submitted to the Nuclear Regulatory Commission. Table 3.C contains the maximum percent of reporting level (when averaged over a calendar quarter) reached during 1987 for each sample type and location combination. Note that no such values are listed for shoreline sediment or bottom sediment, as there are no corresponding technical specification reporting levels. With one exception, all of these maximum percent of reporting levels were less than 8.3%, well below the 100% action level. By far the highest value reached was 47%, for surface water collected during the third quarter at CNS Discharge Canal Location 208. Tritium accounted for most (30%) of this figure, and two consecutive biweekly low-level I-131 results (7/15 - 8/12/87) accounted for the remainder (17%) of this figure. The percent of reporting level values for surface water at Location 208 for the five calendar "quarters" of 1987 (12/2 - 12/30/87 was composited as the fifth "quarter" to complete the year) were 24%, 26%, 47%, 36%, and 10%, respectively.

The following Sections 3.1 - 3.11 discuss 1987 REMP results for each sample type specifically. Unless otherwise noted, these discussions are based on all REMP sample results, required as well as supplemental (with exception of certain 1986 results affected by the Chernobyl accident). In order to properly interpret the following discussions, the reader must be comfortably familiar with Section 2, the general information of Section 3, and Tables 3.B, 3.C, and 3.E.

3.1 AIRBORNE RADIOIODINES AND PARTICULATES

3.1.1 RADIOIODINES

All radionuclides listed in technical specifications were detected in indicator location air charcoal cartridge samples with frequencies ranging from 0.5% to 8.2%. No single location (including the control location) appeared to have any significantly higher or lower activities or detection frequencies for any nuclide. The maximum quarterly percent of reporting level was 0.15%; this occurred at indicator Location 212 during the first quarter (mainly due to detection of I-131 in one weekly sample).

I-131 was detected with only 0.8% frequency (2/259, both at indicator Location 212) with activities of $1.10E-2$ and $1.66E-2$ pCi/cubic meter. Cs-137 was the predominant nuclide, detected with a frequency of 8.2% (17/207) for all indicator locations and 7.7% (4/52) for control Location 217. These Cs-137 frequencies decreased from the analogous 1986 values of 16.3% and 22.2%, respectively. They are also lower than the 1984 preoperational frequency of 13.8%. For 1984, 1986, and 1987, detectable Cs-137 results for all locations were typically about $9E-3$ pCi/cubic meter.

Due to the ND6620 sensitivity phenomenon, it is questionable whether any of the nuclides listed in technical specifications actually existed in airborne radiiodine samples, with the possible exception of Cs-137. This is further supported by the high probability that the activity (for most all of these nuclides) should have been filtered out by the air filter paper and therefore would not have collected in the charcoal cartridge. It appears that if Cs-137 truly existed in these samples, it originated from background radioactivity, not CNS operation.

3.1.2 PARTICULATES

All radionuclides listed in technical specifications were detected in indicator location air filter paper samples with frequencies ranging from 0.5% to 5.8%. No single location (including the control location) appeared to have any significantly higher or lower activities or detection frequencies for any nuclide. The maximum quarterly percent of reporting level was 0.19%; this occurred at indicator Location 205 during the first quarter (solely due to a $2.21E-2$ pCi/cubic meter I-131 measurement in a single weekly sample).

A predominant nuclide was Zr-95, detected with a frequency of 5.8% (12/207) for all indicator locations and 5.8% (3/52) for control Location 217. These frequencies increased from the analogous 1986 values of 2.8% and 2.2%, respectively. They are also higher than the 1984 preoperational frequency of 5.3%. For 1984, 1986, and 1987, detectable Zr-95 results for all locations were typically about $1E-2$ pCi/cubic meter.

Due to the ND6620 sensitivity phenomenon, it is questionable whether any of the nuclides listed in technical specifications actually existed in airborne particulate samples. If some did, they existed in very low levels comparable to control location levels.

3.2 GROUND WATER

Only two nuclides listed in technical specifications, H-3 and Nb-95, were detected in indicator ground water samples from Locations 200 and 252 (there is no control ground water location). Both were detected with 25% (1/4) frequency, except for Nb-95 at location 200, which was detected with 50% frequency. These frequencies are less than for 1984 and 1986, with exception of Nb-95 which was not detected during 1984.

The average activity of detectable measurements in 1987 was comparable to those for 1986, except for H-3 at Location 200, which increased from 250 pCi/liter to 660 pCi/liter. The average detectable activity for H-3 at Locations 200 (660 pCi/liter) and 252 (480 pCi/liter) exceeded the average 1984 activity of 285 pCi/liter. The maximum quarterly percent of reporting level was 7.53%; this occurred at indicator Location 200 during the second quarter (solely due to a single 30.1 pCi/liter Nb-95 measurement).

3.3 DRINKING WATER

Six of the nuclides listed in technical specifications were infrequently detected in drinking water samples; however, no single nuclide was predominant. The frequencies of detection of these nuclides were significantly lower in 1987 than in 1984 or 1986, but average detectable activities were comparable. Due to the ND6620 sensitivity phenomenon, it is questionable whether these nuclides actually existed in these samples. Tritium, which is not analyzed using the ND6620, was the only such nuclide detected at control Location 218, where it was detected only once of five times with a concentration of 480 pCi/liter. Tritium was detected only one other time, at indicator Location 214, where it was detected only once of five times with a concentration of 780 pCi/liter. These low levels are roughly comparable to each other and to those of 1984; however, in 1984, H-3 was detected with much greater frequency (92%, 11/12). The maximum quarterly percent of reporting level was 3.90%; this occurred at indicator Location 214 during the second quarter (solely due to the single 780 pCi/liter H-3 measurement).

3.4 SURFACE WATER

Seven of the nuclides listed in technical specifications were detected in surface water samples; however, only H-3 and I-131 were detected with significant frequency, and only at CNS Discharge Canal Location 208.

H-3 was detected at Location 208 with a frequency of 100% (5/5) and an average concentration of 4170 pCi/liter. While this frequency was the same as in 1986, the activity was 78% greater than the average 1986 concentration of 2340 pCi/liter. In comparison, H-3 was detected with only 20% frequency (1/5) at control Location 215, with a single 620 pCi/liter measurement. H-3 was detected with 100% frequency (12/12) during 1984, with the highest activity equal to 630 pCi/liter.

I-131 was detected (using low-level radioiodine analysis) at Location 208 with a frequency of 19.2% (5/26) and an average detectable concentration of 0.697 pCi/liter. These values increased sharply from the analogous 1986 values of 12.5% (3/24) and 0.253 pCi/liter. In comparison, I-131 was not detected at control Location 215 during 1987. I-131 was detected with 20.8% frequency (5/24) during 1984, with the highest activity equal to 1.70 pCi/liter. Despite comparable values for 1984 and 1987, 1987 I-131 concentrations are considered to be true activity because of the gamma spectroscopy system difference and because of the significant activity differences between Location 208 and control Location 215 during 1987.

The percent of reporting level values for surface water at Location 208 for the five calendar "quarters" of 1987 (12/2 - 12/30/87 was composited as the fifth "quarter" to complete the year) were 24%, 26%, 47%, 36%, and 10%, respectively. During all quarters, H-3 was responsible for the vast majority of the reporting level activity.

3.5 MILK

Seven of the nuclides listed in technical specifications were detected in milk samples; however, only Cs-137 was detected with significant frequency. Cs-137 was detected during 1987 with frequencies of 30.4% (7/23), 25.0% (6/24), 21.4% (3/14), and 50.0% (12/24) at indicator Locations 209, 219, and 220, and at control Location 221, respectively. The respective average detectable Cs-137 activities were 4.95, 4.67, 3.61, and 5.53 pCi/liter. While these values are roughly comparable to each other and to 1986 values, control Location 221 yielded the highest frequency of detection and activity for Cs-137 during 1987. During 1984, Cs-137 was detected with 15.0% frequency (12/80). Based on this information, Cs-137 activity in milk samples cannot reasonably be attributed to CNS operations. The maximum quarterly percent of reporting level was 8.24%; this occurred at indicator Location 220 during the third quarter.

3.6 BROADLEAF VEGETATION

Eight of the nuclides listed in technical specifications were detected in broadleaf vegetation samples; however, only Cs-137 was detected with significant frequency. Cs-137 was detected during 1987 with frequencies of 0.0% (0/12), 83.3% (10/12), 33.3% (4/12), and 66.7% (8/12) at indicator Locations 200, 201, and 226, and at control Location 217, respectively. The respective average detectable Cs-137 activities were 0.0, 61.1, 31.4, and 51.2 pCi/wet kilogram. During 1984, Cs-137 was detected with 25.0% frequency (9/36). No trend is apparent at any of the locations when comparing 1986 and 1987 values. While indicator Location 201 yielded a slightly higher detection frequency and average detectable concentration for Cs-137 as compared to control Location 217, the difference is not significant enough to reasonably attribute this Cs-137 activity to CNS operations. The maximum quarterly percent of reporting level was 4.33%; this occurred at indicator Location 201 during the third quarter and was due primarily to Cs-137 activities.

3.7 SHORELINE SEDIMENT

Seven of the nuclides listed in technical specifications were detected in shoreline sediment samples; however, only Mn-54, Co-58, Co-60, Cs-134, and Cs-137 were detected with significant frequency, and only at CNS Discharge Canal Locations 208-1S, 208-2S, and 208-3S. No reliably significant differences could be found among the three discharge canal locations, therefore, the following observations are based on the three locations collectively. During 1984, low levels of Cs-134 and Cs-137 were detected with 66.7% (4/6) and 33.3% (2/6) frequency, respectively. Considering the ND6620 sensitivity phenomenon, and the low detection frequencies and levels of the above five significant nuclides at control Location 215, occurrence of these five nuclides (discussed below) at Location 208 is the result of CNS operations. The evidence below shows that concentrations of these five nuclides at Location 208 have leveled off and possibly even decreased slightly from 1986 to 1987.

Mn-54 was detected at Location 208 with a frequency of 66.7% (8/12) and an average detectable concentration of 88.3 pCi/dry kilogram. Respective values for 1986 results were 87.5% (7/8) and 109 pCi/dry kilogram, roughly comparable to 1987.

Co-58 was detected at Location 208 with a frequency of 83.3% (10/12) and an average detectable concentration of 408 pCi/dry kilogram. Respective values for 1986 results were 87.5% (7/8) and 379 pCi/dry kilogram, comparable to 1987.

Co-60 was detected at Location 208 with a frequency of 100.0% (12/12) and an average detectable concentration of 161 pCi/dry kilogram. Respective values for 1986 results were 87.5% (7/8) and 205 pCi/dry kilogram, roughly comparable to 1987.

Cs-134 was detected at Location 208 with a frequency of 66.7% (8/12) and an average detectable concentration of 60.8 pCi/dry kilogram. Respective values for 1986 results were 100.0% (8/8) and 65.0 pCi/dry kilogram, comparable to 1987.

Cs-137 was detected at Location 208 with a frequency of 91.7% (11/12) and an average detectable concentration of 126 pCi/dry kilogram. Respective values for 1986 results were 100.0% (8/8) and 161 pCi/dry kilogram, roughly comparable to 1987.

3.8 FISH

Eight of the nuclides listed in technical specifications were detected in fish samples at the CNS Discharge Canal Location 208. Three of these nuclides, Co-58, Co-60, and Cs-137 were predominant. Of the eight nuclides, only Cs-137 was predominant in control Location 216 fish samples. REMP results were reviewed by type of fish, and no reliable activity trends could be seen except possibly that Location 208 predators (bass) contained more Cs-134 and Cs-137, and that Location 208 foragers (shad) contained more Co-58 and Co-60. In light of this, the following observations are based on all three types of fish collectively. During 1984, only Cs-137 was detected with significant frequency (16.7%, 2/12).

Co-58 was detected at Location 208 with a frequency of 41.7% (5/12) and an average detectable concentration of 182 pCi/wet kilogram. Respective values for 1986 results were 33.3% (3/9) and 558 pCi/wet kilogram. Co-58 was not detected in 1987 control Location 216 fish samples.

Co-60 was detected at Location 208 with a frequency of 41.7% (5/12) and an average detectable concentration of 115 pCi/wet kilogram. Respective values for 1986 results were 33.3% (3/9) and 120 pCi/wet kilogram. Respective values for 1987 control Location 216 results were 8.3% (1/12) and 9.81 pCi/wet kilogram.

Cs-137 was detected at Location 208 with a frequency of 83.3% (10/12) and an average detectable concentration of 51.2 pCi/wet kilogram. Respective values for 1986 results were 100.0% (9/9) and 92.9 pCi/wet kilogram. Respective values for 1987 control Location 216 results were 41.7% (5/12) and 25.9 pCi/wet kilogram.

Comparing 1987 and 1986 results, while detection frequencies for Co-58, Co-60 and Cs-137 were comparable, and activity for Co-60 was comparable, activity for Co-58 and Cs-137 decreased by roughly 50%. For all three nuclides, indicator Location 208 results were significantly higher than control Location 216 results and 1984 preoperational results. Therefore, occurrence of these nuclides at indicator Location 208 is primarily the result of CNS operations. This is further supported by similar occurrences of these nuclides in shoreline and bottom sediment at Location 208. The maximum quarterly percent of reporting level was 7.70%; this occurred at indicator Location 208 for forager (shad) fish during the third quarter.

3.9 DIRECT GAMMA RADIATION (TLD)

Fourty Thermoluminescent Dosimeters (TLDs) are located in the vicinity of CNS in order to monitor direct gamma (whole-body) radiation. The TLD locations can be divided into four major groups; three control locations (217, 247, and 251), sixteen site boundary ring locations (one in each meteorological sector), sixteen 4-5 mile radius ring locations (one in each meteorological sector), and five special interest locations.

Review of 1984 - 1987 TLD results quickly reveals that natural background levels vary considerably from location to location. Furthermore, in order to conclude whether a sufficiently small net dose rate above natural background is significant, average dose rates for groups of TLDs (not single TLDs) must be compared. In other words, the larger the number of locations which are averaged, the smaller the average dose rate difference which can be detected. Therefore, no reliable conclusions could be reached when individual locations were evaluated, but the following observations could be made when comparing groups of TLD locations for 1984, 1985, 1986, and 1987.

When considering all TLD locations collectively, the average annual 1987 exposure was 90.0 mR, 9% higher than for 1984 (preoperation), and 9% lower than for 1986. These percent differences in themselves do not necessarily reflect CNS operations; TLD location subgroups must be compared in order to assess the impact of CNS operations. The difference in annual exposure from year to year is likely due to the same conditions which cause variation in exposure among calendar quarters.

The average annual 1987 exposure for the three control TLD locations was 84.7 mR. The respective values for 1984, 1985, and 1986 were 79.3 mR, 108.9 mR, and 94.4 mR.

The average 1987 exposure for the sixteen site boundary ring TLD locations was 97.0 mR, 14.5% greater than the control average. In comparison, the average site boundary ring location exposure was 10.3%, 7.3%, and 10.5% greater than the control average during 1984, 1985, and 1986, respectively. Using 1984 as a basis, the net average exposure for the site boundary ring was -3.2 mR, 0.2 mR, and 3.6 mR during 1985, 1986, and 1987, respectively. These net average exposures do not differ from zero enough to conclude that a trend exists or that site boundary ring TLDs were affected by CNS operations.

The average annual 1987 exposure for the sixteen 4-5 mile ring TLD locations was 87.4 mR, 3.2% greater than the control average. In comparison, the average 4-5 mile ring location exposure was 4.2%, -0.2%, and 4.3% greater than the control average during 1984, 1985, and 1986, respectively. Using 1984 as a basis, the net average exposure for the 4-5 mile ring was -4.8 mR, 0.1 mR, and -0.9 mR during 1985, 1986, and 1987, respectively. These net average exposures do not differ from zero enough to conclude that 4-5 mile ring TLDs were affected by CNS operations.

The average annual 1987 exposure for the five special interest TLD locations was 78.6 mR, 7.2% less than the control average. In comparison, the average special interest location exposure was 10.2%, 9.5%, and 9.2% less than the control average during 1984, 1985, and 1986, respectively. Using 1984 as a basis, the net average exposure for the special interest locations was 0.8 mR, 0.9 mR, and 2.5 mR during 1985, 1986, and 1987, respectively. These net average exposures do not differ from zero enough to conclude that a trend exists or that special interest TLDs were affected by CNS operations.

During 1984, 1985, 1986, and 1987, 4-5 mile ring TLD Location 237 yielded the highest annual average exposure. During 1987, this average was 117.6 mR, 38.8% higher than the control average. In comparison, the average Location 237 exposure was 59.9%, 29.3%, and 42.4% greater than the control average during 1984, 1985, and 1986, respectively. The 59.9% value for 1984 is considered to be unrealistically high, 40% is more representative for natural background at Location 237. Based upon 40%, the net average exposure for Location 237 was -11.7 mR, 2.2 mR, and -1.0 mR during 1985, 1986, and 1987, respectively. These net average exposures do not differ from zero enough to conclude that Location 237 TLDs were affected by CNS operations.

3.10 LAND USE CENSUS

The 1987 Annual Land Use Census was conducted as described in Section A.10 of Appendix A. Table 3.A summarizes the census results. No changes were required or made in the CNS Radiological Environmental Monitoring Program on the basis of the census results. However, a number of changes in land use were observed during the survey:

1. Most building sites are either already occupied or are owned by Crescent Land and Timber and are not designed for residential use. This has contributed to fewer changes in the location of the nearest residence. In addition, most new homes are permanent year-round residences rather than part-time seasonal homes which were more prevalent at the time the station was constructed.
2. The number of gardens located during this year's census was approximately 1/3 the number of gardens located during the 1986 census. The gardens were also considerably smaller than those located during 1986. None of the gardens are irrigated with lake water.
3. The number of meat/milk animals within a 5-mile radius around the station has decreased from the 1986 census. No dairies were located within a 5-mile radius of the station; therefore, when the census was conducted, it was assumed that a milk animal could also be considered a meat animal.

3.11 BOTTOM SEDIMENT

Five of the nuclides listed in technical specifications were detected in bottom sediment samples with predominant frequency; Mn-54, Co-58, Co-60, Cs-134, and Cs-137. These five nuclides were predominant at all three bottom sediment sampling points (CNS Discharge Canal Locations 208-1M, 208-2M, and 208-3M). These same five nuclides were predominant in shoreline sediment, where average detectable activities were considerably lower. Fe-59, Nb-95, Zr-95, and I-131 were also detected in bottom sediment, but with lower frequencies and not at all three locations. The following observations are based on all three sampling points collectively. Note that there is no bottom sediment control location, and that bottom sediment was first collected during 1986.

Mn-54 was detected with a frequency of 77.8% (7/9) and an average detectable concentration of 723 pCi/dry kilogram. Respective values for 1986 results were 100% (6/6) and 360 pCi/dry kilogram. Thus, detection frequency decreased slightly, but average detectable concentration doubled from 1986 to 1987.

Co-58 was detected with a frequency of 77.8% (7/9) and an average detectable concentration of 1730 pCi/dry kilogram. Respective values for 1986 results were 83.3% (5/6) and 1310 pCi/dry kilogram, roughly comparable to 1987.

Co-60 was detected with a frequency of 88.9% (8/9) and an average detectable concentration of 2460 pCi/dry kilogram. Respective values for 1986 results were 100.0% (6/6) and 964 pCi/dry kilogram. Thus detection frequency decreased slightly, but average detectable concentration increased by 155% from 1986 to 1987.

Cs-134 was detected with a frequency of 66.7% (6/9) and an average detectable concentration of 166 pCi/dry kilogram. Respective values for 1986 results were 100.0% (6/6) and 171 pCi/dry kilogram, roughly comparable to 1987.

Cs-137 was detected with a frequency of 100.0% (9/9) and an average detectable concentration of 403 pCi/dry kilogram. Respective values for 1986 results were 100.0% (6/6) and 348 pCi/dry kilogram, comparable to 1987.

During 1987, bottom sediment detection frequencies and activities for Location 208-1M were very similar to those for Location 208-2M, but were often substantially greater than those for Location 208-3M (the sampling point furthest from CNS).

TABLE 3.A

1987 CATAWBA ANNUAL LAND USE CENSUS RESULTS

Date(s) Performed 6/17/87 - 6/19/87

Sector	Distance (Miles)	
N	Nearest Residence	.7
	Nearest Meat Animal	4.5
	Nearest Garden	2.0
	Nearest Cow	4.5
	Nearest Goat	-
NNE	Nearest Residence	.6
	Nearest Meat Animal	4.5
	Nearest Garden	4.4
	Nearest Cow	4.5
	Nearest Goat	-
NE	Nearest Residence	.5
	Nearest Meat Animal	4.5
	Nearest Garden	2.5
	Nearest Cow	4.5
	Nearest Goat	-
ENE	Nearest Residence	.6
	Nearest Meat Animal	4.5
	Nearest Garden	.6
	Nearest Cow	4.5
	Nearest Goat	-
E	Nearest Residence	1.0
	Nearest Meat Animal	4.2
	Nearest Garden	1.0
	Nearest Cow	4.2
	Nearest Goat	-
ESE	Nearest Residence	.9
	Nearest Meat Animal	3.5
	Nearest Garden	2.3
	Nearest Cow	3.5
	Nearest Goat	-
SE	Nearest Residence	2.0
	Nearest Meat Animal	-
	Nearest Garden	2.0
	Nearest Cow	-
	Nearest Goat	-
SSE	Nearest Residence	.9
	Nearest Meat Animal	-
	Nearest Garden	1.0
	Nearest Cow	-
	Nearest Goat	-

Sector	Distance (Miles)	
S	Nearest Residence	.8
	Nearest Meat Animal	5.0
	Nearest Garden	.8
	Nearest Cow	5.0
	Nearest Goat	-
SSW	Nearest Residence	.8
	Nearest Meat Animal	3.5
	Nearest Garden	1.0
	Nearest Cow	3.5
	Nearest Goat	-
SW	Nearest Residence	.75
	Nearest Meat Animal	2.2
	Nearest Garden	2.2
	Nearest Cow	2.2
	Nearest Goat	-
WSW	Nearest Residence	.9
	Nearest Meat Animal	3.5
	Nearest Garden	2.3
	Nearest Cow	3.5
	Nearest Goat	3.5
W	Nearest Residence	1.0
	Nearest Meat Animal	3.7
	Nearest Garden	1.0
	Nearest Cow	3.7
	Nearest Goat	-
WNW	Nearest Residence	1.0
	Nearest Meat Animal	3.5
	Nearest Garden	1.0
	Nearest Cow	3.5
	Nearest Goat	1.3
NW	Nearest Residence	1.5
	Nearest Meat Animal	1.5
	Nearest Garden	1.4
	Nearest Cow	1.5
	Nearest Goat	-
NNW	Nearest Residence	.8
	Nearest Meat Animal	-
	Nearest Garden	2.8
	Nearest Cow	-
	Nearest Goat	-

Census is completed and is accurate to the best of my knowledge:

Signature of Person Performing Census

Census Reviewed by:

CR/E Supervisor

Census Reviewed by:

Staff Health Physicist

TABLE 3.B

FRACTION AND PERCENT OF 1987 NUCLIDE MEASUREMENTS YIELDING DETECTABLE ACTIVITY

<u>Sample Type</u>	<u>Indicator Locations</u>		<u>Control Locations</u>	
Airborne Radioiodines	67/2277	2.9 %	14/572	2.4 %
Airborne Particulates	76/2277	3.3 %	12/572	2.1 %
Ground Water	5/104	4.8 %	No Control Location	
Drinking Water	10/348	2.9 %	1/174	0.6 %
Surface Water	19/348	5.5 %	4/174	2.3 %
Milk	32/733	4.4 %	17/288	5.9 %
Broadleaf Vegetation	32/396	8.1 %	11/132	8.3 %
Shoreline Sediment	55/176	31.3 %	5/44	11.4 %
Fish	29/132	22.0 %	12/132	9.1 %
Bottom Sediment	47/99	47.5 %	No Control Location	
All Sample Types	372/6890	5.4 %	76/2088	3.6 %

TABLE 3.C

1987 MAXIMUM CALENDAR QUARTER AVERAGE PERCENT OF REPORTING LEVELS

<u>Sample Type</u>	<u>Sample Location</u>	<u>% Rpt. Level</u>	<u>Calendar Quarter Sampling Dates</u>	
Air Radioiodines	200	0.01 %	12/31/86 - 4/1/87	
	201	0.02 %	12/31/86 - 4/1/87	
	205	0.02 %	4/1/87 - 7/1/87	
	212	0.15 %	12/31/86 - 4/1/87	
	217	0.01 %	7/1/87 - 9/30/87	Control
Air Particulates	200	0.15 %	4/1/87 - 7/1/87	
	201	0.14 %	4/1/87 - 7/1/87	
	205	0.19 %	12/31/86 - 4/1/87	
	212	0.06 %	7/1/87 - 9/30/87	
	217	0.01 %	4/1/87 - 7/1/87	Control
Air Radioiodines + Particulates	200	0.15 %	4/1/87 - 7/1/87	
	201	0.14 %	4/1/87 - 7/1/87	
	205	0.20 %	12/31/86 - 4/1/87	
	212	0.16 %	12/31/86 - 4/1/87	
	217	0.01 %	7/1/87 - 9/30/87	Control
Ground Water	200	7.53 %	6/24/87	
	252	2.40 %	9/23/87	
Drinking Water	213	2.46 %	6/17/87 - 9/9/87	
	214	3.90 %	3/25/87 - 6/17/87	
	218	2.40 %	3/25/87 - 6/17/87	Control
Surface Water	208	47.04 %	6/17/87 - 9/9/87	
	211	4.30 %	6/17/87 - 5/9/87	
	215	3.67 %	6/17/87 - 9/9/87	Control
Milk	209	2.95 %	4/15/87 - 6/24/87	
	219	3.64 %	4/15/87 - 6/24/87	
	220	8.24 %	7/15/87 - 7/29/87	
	221	6.79 %	1/14/87 - 3/25/87	Control
Broadleaf Vegetation	200	1.27 %	1/7/87 - 3/4/87	
	201	4.33 %	7/8/87 - 9/2/87	
	217	3.03 %	7/8/87 - 9/2/87	Control
	226	2.24 %	1/7/87 - 3/4/87	
Fish (Predator)	208	6.10 %	10/6/87	
	216	1.64 %	7/8/87	Control
Fish (Forager)	208	7.70 %	7/8/87	
	216	3.97 %	7/8/87	Control
Fish (Bottom Feeder)	208	4.56 %	10/6/87	
	216	1.12 %	7/8/87	Control

TABLE 3.D

RADIONUCLIDES DETECTED DURING 1987 AND NOT LISTED IN TECHNICAL SPECIFICATIONS

Airborne Particulates

Sn-113 6.823E-3 pCi/cubic meter Location 201 9/30/87 - 10/7/87

Surface Water

Cr-51 52.9 pCi/liter Location 215 7/15/87 - 8/12/87

Broadleaf Vegetation

Ce-143 1390.0 pCi/wet kg Location 200 1/7/87

Ce-141 35.2 pCi/wet kg Location 200 5/6/87

Shoreline Sediment

Ce-141 43.9 pCi/dry kg Location 210 6/24/87

Fish (Forager)

Ce-144 193.0 pCi/wet kg Location 216 7/8/87

Bottom Sediment

Co-57 24.5 pCi/dry kg Location 208-1M 2/10/87

All Sample Types and Locations (Naturally Occurring Radionuclides)

K-40

Be-7

Members of the Thorium Series

Members of the Uranium Series

TABLE 3.E

FRACTION AND PERCENT OF 1984 NUCLIDE MEASUREMENTS YIELDING DETECTABLE ACTIVITY

<u>Sample Type</u>	<u>All Locations</u>		<u>Predominant Nuclides</u>		
Airborne Radioiodines	99/2068	4.8 %	Cs-137	26/188	13.8 %
Airborne Particulates	108/2717	4.0 %	Cs-137	22/247	8.9 %
Ground Water	2/52	3.8 %	H-3	2/4	50.0 %
Drinking Water	35/465	7.5 %	H-3	11/12	91.7 %
Surface Water	30/454	6.6 %	H-3	12/12	100.0 %
			I-131/LL	5/24	20.8 %
Milk	43/960	4.5 %	Cs-137	12/80	15.0 %
Broadleaf Vegetation	24/396	6.1 %	Cs-137	9/36	25.0 %
Shoreline Sediment	7/66	10.6 %	Cs-134	4/6	66.7 %
			Cs-137	2/6	33.3 %
Fish	4/132	3.0 %	Cs-137	2/12	16.7 %
All Sample Types	352/7310	4.8 %			

SECTION 4

EVALUATION OF DOSE FROM ENVIRONMENTAL MEASUREMENTS VERSUS ESTIMATED DOSE FROM RELEASES

4.1 DOSE FROM ENVIRONMENTAL MEASUREMENTS

Doses for Catawba Nuclear Station for environmental samples taken during 1987 were calculated by using the methodology presented in NRC Regulatory Guide 1.109 and the measured concentrations of radionuclides in direct pathways to man. The highest annual mean values for each sample type (airborne particulate, airborne radioiodine, broadleaf vegetation, drinking water, fish, milk and shoreline sediment) and radionuclide identified were used for the calculations after the background concentrations, as measured at the control location, had been subtracted. Per NRC Regulatory Guide 4.8, the mean values were calculated using only those samples that had detectable radionuclides; therefore, the maximum doses given below significantly overestimate the true doses that would be received from exposure to the environment since very few radionuclides are identified in every sample and neither "zeros" nor "MDA" values are included in the calculation of the means. The maximum exposed individual's doses are summarized below:

<u>Organ</u>	<u>Critical Age</u>	<u>Critical Pathway</u>	<u>Maximum Dose (mrem/yr)</u>
Skin	Teen	Shoreline Sediment (assuming lake shore)	7.35E-03
Bone	Infant	Drinking Water	0.569
Liver	Infant	Drinking Water	0.799
T. Body	Child	Drinking Water	0.279
Thyroid	Child	Drinking Water	3.11E-02
	Child	Airborne Particulate	0.359
Kidney	Infant	Drinking Water	0.216
Lung	Infant	Drinking Water	0.103
	Teen	Airborne Radioiodine	0.122
GI-LLI	Adult	Drinking Water	0.800

4.2 ESTIMATED DOSE FROM RELEASES

Throughout the year, doses were estimated from the releases that were occurring. These estimated doses are calculated using GASPAR and LADTAP which are computer programs that also use the methodology presented in NRC Regulatory Guide 1.109. The maximum exposed individual's doses estimated by GASPAR and LADTAP were given in the Semi-Annual Radioactive Release Report dated March 1, 1988, and are summarized below.

DOSE ESTIMATES FROM EFFLUENT RELEASES

LIQUID RELEASES

<u>Organ</u>	<u>Critical Age</u>	<u>Critical Pathway</u>	<u>Maximum Dose (mrem/yr)</u>
Skin	Teen	Shoreline Sediment (assuming river shore)	6.68E-02
Bone	Child	Fish	1.046
Liver	Teen	Fish	1.338
T. Body	Adult	Fish	0.912
Thyroid	Child	Fish	0.436
Kidney	Teen	Fish	0.498
Lung	Teen	Fish	0.242
GI-LLI	Adult	Fish	1.850

GASEOUS RELEASES

<u>Organ</u>	<u>Critical Age</u>	<u>Critical Pathway</u>	<u>Maximum Dose (mrem/yr)</u>
Thyroid	Child	Vegetation	0.666
T. Body		Noble Gas Exposure	0.892
Skin		Noble Gas Exposure	2.46

4.3 COMPARISON OF DOSES

Because of the differences in critical pathway between doses calculated using the environmental sample results and the estimates made from effluent releases, both the drinking water pathway and the fish pathway were compared for all age groups. The information for the effluent releases was obtained from a special run of the LADTAP computer program. The doses for the fish pathway differ from the information given above because, in the Semi-Annual Radioactive Release Report, the total liquid pathway dose (dose from fish + dose from drinking water + dose from shoreline sediment) was used with the critical pathway being the largest contributor to the dose. The data is summarized below.

<u>Organ</u>	<u>Infant</u> <u>Drinking Water</u>		<u>Child</u> <u>Drinking Water</u>		<u>Child</u> <u>Fish</u>	
	<u>Env. Dose</u>	<u>Eff. Dose</u>	<u>Env. Dose</u>	<u>Eff. Dose</u>	<u>Env. Dose</u>	<u>Eff. Dose</u>
Bone	0.569	0.00523	0.55	0.00627	0.0294	1.03
Liver	0.799	0.0204	0.638	0.0203	0.0386	1.11
T. Body	0.257	0.0191	0.279	0.0196	0.0181	0.225
Thyroid	0.0305	0.0936	0.0311	0.0665	0.0	0.357
Kidney	0.216	0.019	0.21	0.0194	0.011	0.365
Lung	0.103	0.0185	0.0928	0.0189	0.00329	0.14
GI-LLI	0.254	0.0199	0.426	0.0213	0.0362	0.47

<u>Organ</u>	<u>Teen</u> <u>Drinking Water</u>		<u>Teen</u> <u>Fish</u>	
	<u>Env. Dose</u>	<u>Eff. Dose</u>	<u>Env. Dose</u>	<u>Eff. Dose</u>
Bone	0.189	0.00208	0.0233	0.823
Liver	0.31	0.0106	0.0443	1.27
T. Body	0.173	0.0102	0.024	0.517
Thyroid	0.0162	0.0296	0.0	0.347
Kidney	0.106	0.0101	0.013	0.431
Lung	0.0494	0.00985	0.0041	0.175
GI-LLI	0.509	0.0128	0.104	1.29

<u>Organ</u>	<u>Adult Drinking Water</u>		<u>Adult Fish</u>	
	<u>Env. Dose</u>	<u>Eff. Dose</u>	<u>Env. Dose</u>	<u>Eff. Dose</u>
Bone	0.192	0.00217	0.0218	0.78
Liver	0.333	0.0146	0.0432	1.24
T. Body	0.269	0.0144	0.0324	0.887
Thyroid	0.023	0.037	0.0	0.374
Kidney	0.117	0.0142	0.0126	0.425
Lung	0.0526	0.0139	0.00336	0.152
GI-LLI	0.800	0.0183	0.15	1.82

It is usually expected that the dose estimates from effluent releases will exceed the doses as calculated from environmental samples; however, as seen above, this is not the case for the drinking water pathway for all organs except the thyroid. The difference ranges almost up to two orders of magnitude. While this appears to be large, it is not unreasonable for these low doses and concentrations. These elevated environmental dose calculation results were principally caused by a single finding of Cs-137 for Location 213 at a concentration of 3.34 pCi/liter. This activity was 19% of the technical specification LLD, and only 7% of the technical specification reporting level. Moreover, Cs-137 was detected in only one sample out of thirteen collected at Location 213.

It is questionable whether Cs-137 actually existed in this sample. This is supported by the fact that Cs-137 was found in discharge canal surface water samples only one time out of thirteen and at a concentration of 9.95 pCi/liter. Radioactivity would undergo a great deal of dilution between the discharge canal and the drinking water intake.

Differences between dose estimates based upon effluent releases and doses calculated using environmental sample results will continue to be examined so that it can be assured that doses to the public continue to be maintained within regulatory guidelines.

Although doses from drinking water were higher than expected based on effluent release estimates, all environmental doses were still within the limits specified in Technical Specifications 3.11.1.2, 3.11.2.2, 3.11.2.3, and 3.11.4.

SECTION 5.

QUALITY ASSURANCE

5.1 DUKE POWER COMPANY'S ENVIRONMENTAL LABORATORY

The Environmental Radiological Laboratory (ERL) participates in the EPA Interlaboratory Comparison Program and the Duke Power corporate cross-check program. The EPA sample types include mixed gamma in water (2-3 times per year), mixed gamma in milk (1-2 times per year), low-level iodine in milk (1-2 times per year), tritium in water (3 times per year) and alpha-beta in water (3 times per year). The ERL prepares and analyzes each sample as quickly as possible and performs and documents follow-up investigations should the data obtained by the ERL be out of limits. The ERL code designation in the EPA program is "CP". The corporate cross-check sample types included mixed gamma in many forms (body-burden standards, Marinelli beakers, filters), alpha-beta on filters, and tritium in water. The frequency of each cross-check is variable. As with EPA checks, an investigation is performed and documented should the data not meet the acceptance criteria.

In conjunction with the EPA and corporate quality assurance programs, the ERL has an internal quality assurance program which monitors each type of instrumentation for reliability and accuracy. Daily source checks ensure that the instruments are in proper working order and these checks are used to monitor instrument performance. Additionally, standards are analyzed as unknowns at various frequencies ranging from weekly to annually to verify that efficiency calibrations are valid. The frequency is dependent upon instrument use and performance. Investigations are performed and documented should calibration verification data fall out of limits.

To ensure that ERL data is accurate and reliable, the NRC performed an audit of its operations in 1986. They also visited for an Inspector Follow-up Item in May, 1987. The inspectors found no violations or problems with laboratory operations and the associated data. An in-house assessment was performed in 1987 in order to demonstrate an ability and willingness to perform self-audits and also aid the ERL in performing its duties.

5.2 CONTRACTOR LABORATORY

No contractor laboratories were used.

5.3 EPA INTERLABORATORY COMPARISON PROGRAM

As described in Section 5.1, the ERL participates in the EPA Inter-laboratory Comparison Program. The performance by the Laboratory is documented in Table 5.3-1.

Of the forty analyses performed in 1987, three analyses were out of EPA limits (three normalized deviations). The missed analyses and actions taken are described below.

5.3.1 Gamma in Water (Zn-65 and Ru-106 on 2/6/87; Ru-106 on 6/5/87)

Both of these analyses yielded acceptable results for Cr-51, Co-60, Cs-134 and Cs-137. Daily source checks were reviewed and were acceptable. All calibration verifications also provided acceptable results. An investigation indicated that the erroneous data came from detectors contained in shields manufactured in-house. New low background shields were budgeted in 1986 for 1987 in anticipation of this problem, which was identified in 1986. The new shields were delivered September, 1987 and Zn-65 and Ru-106 values were acceptable in subsequent cross-checks.

5.3.2 Gamma in Water (Cr-51 on 10/9/87)

This cross-check had a Cr-51 normalized deviation that exceeded acceptance limits. Daily source checks and calibration verifications yielded valid results indicating that the existing calibration can be used with confidence. Of the 101 laboratories participating in this cross-check analysis, 42 (41.6%) submitted results outside the EPA acceptance limits. There is no reason to indicate that EPA is correct and 41.6% of the responding laboratories are incorrect, therefore no further action is needed at this time.

5.4 DUKE POWER COMPANY'S DOSIMETRY LABORATORY

Duke Power Company's Dosimetry Laboratory routinely participates in environmental dosimetry measurement programs with the State of North Carolina, and the United States Department of Energy (DOE). The Department of Human Resource's Radiation Protection Section conducts the state programs, while the federal program is conducted by the DOE Environmental Measurements Laboratory. Duke Power participated in both programs during 1987. State program results are found in Table 5.4-1 DOE program results are as yet unavailable due to data analysis. A brief description of the two programs follows:

North Carolina State Program - Conducted by the Radiation Protection Section of the Department of Human Resources every six to eight months for all nuclear facilities within the state. Environmental dosimeters are irradiated by the state, returned, and processed by the nuclear facilities, and results are compared to the estimated delivered exposure.

DOE Program - Sponsored by the DOE Environmental Measurements Laboratory every one to two years. Intercomparison program studies are international in scope, typically attracting 125 participants from thirty countries. The objective of these studies is to assess the state-of-the-art of environmental dosimetry as indicated by statistical analysis of the results. Participants compare their performance with the delivered exposures, and the performance of their counterparts in other laboratories.

TABLE 5.3-1

U.S. ENVIRONMENTAL PROTECTION AGENCY
 INTERLABORATORY COMPARISON PROGRAM
 1987 CROSS-CHECK RESULTS FOR THE ERL

<u>ANALYSIS</u>	<u>DATE</u>	<u>NUCLIDE(S)</u>	<u>KNOWN VALUE</u>	<u>CONTROL LIMITS (3 SIGMA; N=3)</u>	<u>REPORTED VALUE</u>
Gamma in Water	2/06/87	Co-60	50 pCi/l	10.7 pCi/l	48 pCi/l
		Zn-65	91 pCi/l	10.7 pCi/l	79 pCi/l
		Ru-106	100 pCi/l	10.7 pCi/l	91 pCi/l
		Cs-134	59 pCi/l	10.7 pCi/l	55 pCi/l
		Cs-137	87 pCi/l	10.7 pCi/l	87 pCi/l
	6/05/87	Cr-51	41 pCi/l	15 pCi/l	41 pCi/l
		Co-60	64 pCi/l	15 pCi/l	64 pCi/l
		Zn-65	10 pCi/l	15 pCi/l	11 pCi/l
		Ru-106	75 pCi/l	15 pCi/l	58 pCi/l
		Cs-134	40 pCi/l	15 pCi/l	33 pCi/l
		Cs-137	80 pCi/l	15 pCi/l	74 pCi/l
	10/9/87	Cr-51	70 pCi/l	8.7 pCi/l	82 pCi/l
		Co-60	15 pCi/l	8.7 pCi/l	17 pCi/l
		Zn-65	46 pCi/l	8.7 pCi/l	48 pCi/l
		Ru-106	61 pCi/l	8.7 pCi/l	67 pCi/l
		Cs-134	25 pCi/l	8.7 pCi/l	25 pCi/l
		Cs-137	51 pCi/l	8.7 pCi/l	54 pCi/l
	4/3/87	Low-level I-131	7 pCi/l	1.4 pCi/l	8 pCi/l
	8/7/87	I-131	48 pCi/l	18 pCi/l	40 pCi/l

TABLE 5.3-1, cont.

U. S. ENVIRONMENTAL PROTECTION AGENCY
INTERLABORATORY COMPARISON PROGRAM
1987 CROSS-CHECK RESULTS FOR THE ERL

<u>ANALYSIS</u>	<u>DATE</u>	<u>NUCLIDE(S)</u>	<u>KNOWN VALUE</u>	<u>CONTROL LIMITS (3 SIGMA; N=3)</u>	<u>REPORTED VALUE</u>
Air Filter	4/10/87	Cs-137	8 pCi/filter	8.7 pCi/filter	12 pCi/filter
		Gross Alpha	14 pCi/filter	8.7 pCi/filter	15 pCi/filter
		Gross Beta	43 pCi/filter	8.7 pCi/filter	47 pCi/filter
	8/28/87	Cs-137	10 pCi/filter	8.7 pCi/filter	11 pCi/filter
		Gross Alpha	10 pCi/filter	8.7 pCi/filter	12 pCi/filter
		Gross Beta	30 pCi/filter	8.7 pCi/filter	31 pCi/filter
Tritium in Water	2/13/87	H-3	4209 pCi/l	729 pCi/l	3747 pCi/l
	6/12/87	H-3	2895 pCi/l	624 pCi/l	2811 pCi/l
	10/16/87	H-3	4492 pCi/l	1198 pCi/l	4867 pCi/l
Milk	2/27/87	Low-level I-131	9 pCi/l	1.5 pCi/l	9 pCi/l
	6/26/87	I-131	59 pCi/l	18 pCi/l	60 pCi/l
		Cs-137	74 pCi/l	15 pCi/l	69 pCi/l
		K-40	1525 pCi/l	228 pCi/l	1574 pCi/l
Alpha-Beta in Water	1/23/87	Gross Alpha	11 pCi/l	10.7 pCi/l	7 pCi/l
		Gross Beta	10 pCi/l	10.7 pCi/l	11 pCi/l
	3/10/87	Gross Alpha	3 pCi/l	8.7 pCi/l	4 pCi/l
		Gross Beta	13 pCi/l	8.7 pCi/l	16 pCi/l
	7/24/87	Gross Alpha	5 pCi/l	8.7 pCi/l	8 pCi/l
		Gross Beta	5 pCi/l	8.7 pCi/l	6 pCi/l
	9/18/87	Gross Alpha	4 pCi/l	8.7 pCi/l	4 pCi/l
		Gross Beta	12 pCi/l	8.7 pCi/l	13 pCi/l

TABLE 5.4-A

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES
ENVIRONMENTAL DOSIMETER CROSSCHECK 1987

<u>Dosimetry Laboratory Results</u>		<u>Estimated Values</u>	
Exposure ± Estimated Uncertainty		Exposure ± Estimated Uncertainty	
<u>(mR)</u>	<u>(1 S.D.)mR</u>	<u>(mR)</u>	<u>(mR)</u>
49.59	2.33	49.2	2.4

SECTION 6

REFERENCES

- 6.1 Catawba Nuclear Station Units 1 and 2 Technical Specifications.
- 6.2 Duke Power Company Offsite Dose Calculation Manual.
- 6.3 Catawba Nuclear Station Final Safety Analysis Report.
- 6.4 Title 10, Code of Federal Regulations.
- 6.5 Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977.
- 6.6 Kocher, D.C., "Radioactive Decay Data Tables", 1981.
- 6.7 1987 Catawba Nuclear Station Annual Liquid and Gaseous Effluent Report.

APPENDIX A

ENVIRONMENTAL SAMPLING AND ANALYSIS PROCEDURES

Adherence to established procedures for sampling and analysis of all environmental media at Catawba was required to ensure compliance to the Station Technical Specifications. Analytical procedures were employed to ensure that Technical Specification Detection capabilities were achieved.

Environmental sampling and analyses were performed by the Duke Power Environmental Radiological Laboratory group.

Starting at Appendix A.1 the remainder of this Appendix describes the environmental sampling and analysis procedures by media type.

CHANGE OF ANALYSIS METHODS

The Environmental Laboratory placed a new gamma spectroscopy system (Nuclear Data ND9900) into service, effective September 1, 1987. The new system uses more up-to-date software and an energy versus channel slope of 0.5 KeV per channel. Additionally, the database stores activity/concentration values in the form of actual activities (when peaks are found by the software) or MDAs (when peaks are not found by the software), rather than best estimates (whether or not peaks are found by the software), as was done on the system used prior to September 1, 1987 (Nuclear Data ND6620).

Lower Limits of Detection

There were no LLD's missed for any of the analyses performed at the Environmental Radiological Laboratory (ERL) in 1987. This is due to upgrading of existing equipment and improvements in analysis methods made in 1986. The purchase of a new gamma spectroscopy system which became operational September 1, 1987, further enhanced the ERL's capabilities.

CHANGES TO CATAWBA SAMPLING PROGRAM

Broadleaf Vegetation - Effective January 1, 1987 location number 203 was replaced by location number 200. Location number 200 is a higher D/Q area and is co-located with an existing air sampling site. These factors facilitate even better compliance with Technical Specifications.

Milk - Scism's dairy at location number 220 went out of business effective August 12, 1987. No replacement dairy could be identified within a five mile radius of the station. Since the other milk samples collected from area dairies constitute an excess of Technical Specification requirements the lack of a replacement does not cause non compliance.

A.1 AIRBORNE PARTICULATES AND RADIOIODINE

Airborne particulate and radioiodine samples at each of 5 locations were composited continuously by means of continuous air samplers. Air particulates were collected on a particulate filter and radioiodines were collected in a charcoal cartridge situated behind the filter in the sampler. Filters and cartridges were collected weekly. A weekly gamma analysis and gross beta analysis was performed on each filter and a weekly gamma analysis was performed on each charcoal cartridge.

A.2 GROUND WATER

Ground water grab samples were collected quarterly from residential wells at 2 locations. A gamma analysis, low level I-131 analysis and tritium analysis was performed on each sample.

A.3 DRINKING WATER

Drinking water composite samples were collected biweekly from each of 3 Drinking Water Treatment Plants. A low level I-131 analysis was performed on each biweekly sample. Two biweekly samples were composited to form a monthly composite for each location and a gamma analysis and gross beta analysis was performed on each monthly composite. Monthly composites were retained and composited quarterly for tritium analysis.

A.4 SURFACE WATER

Surface water composite samples were collected biweekly from each of 3 locations. A low level I-131 analysis was performed on each biweekly sample. Two biweekly samples were composited to form a monthly composite for each location and a gamma analysis was performed on each monthly composite. Monthly composites were retained and composited quarterly for tritium analysis.

A.5 MILK

Milk grab samples were collected semimonthly from 4 dairies. A low level I-131 analysis and a gamma analysis was performed on each sample. The number of dairies dropped to 3 in August (see above).

A.6 BROADLEAF VEGETATION

Broadleaf vegetation samples were collected monthly from each of 4 locations. A gamma analysis was performed on each sample.

A.7 SHORELINE SEDIMENT

Shoreline sediment samples were collected semiannually from 3 locations. A gamma analysis was performed on each sample.

A.8 FISH

Three types of fish samples were collected semiannually from each of 2 locations. The types of fish collected represented a predatory fish, a forage fish and a bottom feeder fish. A gamma analysis was performed on the edible portions of each sample.

A.9 DIRECT RADIATION (TLD)

Thermoluminescent dosimeters (TLD) were collected quarterly from each of 40 locations. The TLDs were placed surrounding the CNS site as follows: Sixteen TLDs were located in an inner ring, one TLD in each of the meteorological sectors, in the general area of the site boundary. Sixteen TLDs were located in an outer ring, one TLD in each of the meteorological sectors, at approximately 6 to 8 km from the site boundary. The remaining eight TLDs were placed in special interest areas (schools, recreation areas) and control locations. A gamma dose and dose rate were reported quarterly for each location.

A.10 ANNUAL LAND USE CENSUS

The 1987 CNS Annual Land Use Census was conducted on June 17, 18, and 19. The census identified the location, within 8 km of the station in each of the sixteen meteorological sectors, of the nearest residence, meat animal, cow, goat, and garden producing broadleaf vegetation over an area greater than 50 square meters. The census utilized a sector grid having a center of reference located exactly between the two unit vents. The grid was developed from aerial photographs taken in 1985.

The census included a visit to the nearest locations identified during the 1986 census. For each sector, the areas between the 1986 locations and the site boundary were surveyed in order to ensure identification of the nearest current locations. Based upon the above findings for each sector, the entire sector area within 8 km of the station was surveyed whenever necessary.

APPENDIX B

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY OF ANALYSIS RESULTS

INDEX

- B.1 Airborne Radioiodines and Particulates
 - B.1.1 Radioiodines
 - B.1.2 Particulates
- B.2 Ground Water
- B.3 Drinking Water
- B.4 Surface Water
- B.5 Milk
- B.6 Broadleaf Vegetation
- B.7 Shoreline Sediment
- B.8 Fish
- B.9 Direct Gamma Radiation (TLD)

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 11-MAY-1988 09:50:49

Docket Number : 50-413,414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF;1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
AI: RADIOIODINES (pCi/M3)						217 (10.0 mi SSE)	
5 Locations	MN-54	259	0.00E+00	8.00E-03(3/ 207) 6.08E-03-- 1.00E-02	200 (0.7 mi NNE) 1.00E-02(1/ 52) 1.00E-02-- 1.00E-02	7.06E-03(1/ 52) 7.06E-03-- 7.06E-03	0
	CO-58	259	0.00E+00	8.40E-03(2/ 207) 7.44E-03-- 9.36E-03	212 (2.7 mi ESE) 9.36E-03(1/ 52) 9.36E-03-- 9.36E-03	7.83E-03(2/ 52) 7.30E-03-- 8.36E-03	0
	FE-59	259	0.00E+00	1.60E-02(7/ 207) 1.12E-02-- 1.98E-02	205 (0.6 mi SW) 1.83E-02(1/ 51) 1.83E-02-- 1.83E-02	1.46E-02(2/ 52) 1.19E-02-- 1.74E-02	0
	CO-60	259	0.00E+00	7.78E-03(5/ 207) 5.35E-03-- 1.11E-02	205 1.11E-02(1/ 51) 1.11E-02-- 1.11E-02	0.00E+00(0/ 52) 0.00E+00-- 0.00E+00	0
	ZN-65	259	0.00E+00	1.47E-02(1/ 207) 1.47E-02-- 1.47E-02	212 1.47E-02(1/ 52) 1.47E-02-- 1.47E-02	0.00E+00(0/ 52) 0.00E+00-- 0.00E+00	0
	NB-95	259	0.00E+00	9.57E-03(13/ 207) 6.17E-03-- 1.92E-02	201 (0.5 mi NE) 1.12E-02(5/ 52) 6.68E-03-- 1.92E-02	6.39E-03(2/ 52) 5.46E-03-- 7.31E-03	0
	ZR-95	259	0.00E+00	1.22E-02(7/ 207) 8.86E-03-- 1.75E-02	201 1.55E-02(2/ 52) 1.36E-02-- 1.75E-02	1.57E-02(2/ 52) 1.30E-02-- 1.85E-02	0
	I-131	259	7.00E-02	1.38E-02(2/ 207) 1.10E-02-- 1.66E-02	212 1.38E-02(2/ 52) 1.10E-02-- 1.66E-02	0.00E+00(0/ 52) 0.00E+00-- 0.00E+00	0
	CS-134	259	5.00E-02	8.48E-03(7/ 207) 6.72E-03-- 9.84E-03	212 9.77E-03(1/ 52) 9.77E-03-- 9.77E-03	6.77E-03(1/ 52) 6.77E-03-- 6.77E-03	0
	CS-137	259	6.00E-02	7.96E-03(17/ 207) 4.97E-03-- 1.23E-02	200 8.81E-03(3/ 52) 7.51E-03-- 1.08E-02	9.54E-03(4/ 52) 5.83E-03-- 1.79E-02	0
	BALA-140	259	0.00E+00	1.04E-02(3/ 207) 8.09E-03-- 1.27E-02	212 1.27E-02(1/ 52) 1.27E-02-- 1.27E-02	0.00E+00(0/ 52) 0.00E+00-- 0.00E+00	0

Mean and range based upon detectable measurements only
 Fraction of detectable measurements at specified locations is indicated in parentheses. (Fraction)
 Zero range indicates no detectable activity measurements
 If LLD is equal to 0, then LLD is not required by Technical Specifications
 Location 200 = Site Boundary Location 212 = Tega Cay, S.C.
 Location 201 = Site Boundary Location 217 = Rock Hill Substation
 Location 205 = Site Boundary

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 20-APR-1988 08:00:45

Docket Number : 50-413.414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF.1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
GROUND WATER (PCI/LITER)						(No Control Location)	
Z Locations							
	ANAL1-LL 8	1.0	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00	200 (0.7 mi NNE)	0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	H-3 8	2.00E+03	5.70E+02(2/ 8) 4.80E+02-- 6.60E+02	6.60E+02(1/ 4) 5.60E+02-- 6.60E+02		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	MN-54 8	15.	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	CO-58 8	15.	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	FE-59 8	30.	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	CO-60 8	15.	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	ZN-65 8	30.	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	NB-95 8	15.	13. (3/ 8) 3.6 -- 30.	17. (2/ 4) 3.6 -- 30.	200	0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	ZR-95 8	15.	0.00E+00(0/ 3) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	I-131 8	15.	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	CS-134 8	15.	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	CS-137 8	18.	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0
	BALA-140 8	15.	0.00E+00(0/ 8) 0.00E+00-- 0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00		0.00E+00(0/ 0) 0.00E+00-- 0.00E+00	0

Mean and range based upon detectable measurements only
 Fraction of detectable measurements at specified locations is indicated in parentheses. (Fraction)
 Zero range indicates no detectable activity measurements
 If LLD is equal to 0, then LLD is not required by Technical Specifications
 Location 200 = Site Boundary, Bolick's Residence

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 20-APR-1988 08:00:45

Docket Number : 50-413.414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF:1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
DRINKING WATER (PCI/LITER)						218 (13.5 mi N)	
3 Locations	ANAL1-LL 39	1.0	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	ANAL2-LL 39	1.0	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	MN-54 39	15.	4.5 (2/ 26) 4.5 -- 4.6	213 (7.5 mi ESE)	4.6 (1/ 13) 4.6 -- 4.6	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	CO-58 39	15.	7.1 (1/ 26) 7.1 -- 7.1	213	7.1 (1/ 13) 7.1 -- 7.1	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	FE-59 39	30.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	CO-60 39	15.	11. (2/ 26) 4.4 -- 18.	214 (7.3 mi SSE)	18. (1/ 13) 18. -- 18.	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	ZN-65 39	30.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	NB-95 39	15.	4.9 (3/ 26) 1.9 -- 7.7	214	7.7 (1/ 13) 7.7 -- 7.7	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	ZR-95 39	15.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	I-131 39	15.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	CS-134 39	15.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	CS-137 39	18.	3.3 (1/ 26) 3.3 -- 3.3	213	3.3 (1/ 13) 3.3 -- 3.3	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	BALA-140 39	15.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0

Mean and range based upon detectable measurements only

Fraction of detectable measurements at specified locations is indicated in parentheses. (Fraction)

Zero range indicates no detectable activity measurements

If LLD is equal to 0, then LLD is not required by Technical Specifications

Location 213 = Fort Mill Water Supply

Location 218 = Belmont Water Supply

Location 214 = Rock Mill Water Supply

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 20-APR-1988 08:00:45

Docket Number : 50-413.414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF.1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
DRINKING WATER (PCI/LITER)						218 (13.5 mi N)	
3 Locations	BETA-T 39	4.0	2.9 (26/ 26) 1.7 -- 6.4	213 (7.5 mi ESE)	3.1 (13/ 13) 2.1 -- 6.4	2.4 (13/ 13) 1.6 -- 4.6	0
DW YTITUM (PCI/LITER)							
	H-3 15	2.00E+03	7.80E+02(1/ 10) 7.80E+02-- 7.80E+02	214 (7.3 mi SSE)	7.80E+02(1/ 5) 7.80E+02-- 7.80E+02	4.80E+02(1/ 5) 4.80E+02-- 4.80E+02	0

Mean and range based upon detectable measurements only

Fraction of detectable measurements at specified locations is indicated in parentheses. (Fraction)

Zero range indicates no detectable activity measurements

If LLD is equal to 0, then LLD is not required by Technical Specifications

Location 213 = Fort Mill Water Supply

Location 214 = Rock Hill Water Supply

Location 218 = Belmont Water Supply

Environmental Radiological Monitoring Program Summary

Name of Facility : CNS
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 16-MAY-1988 09:23:28

Docket Number : 50-413,414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF;1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
SURFACE WATER (pCi/LITER)						215 (4.1 mi NNE)	
3 Locations	ANAL1-LL 39	1.0	0.92 (1/ 26) 0.92 -- 0.92	208 (0.5 mi S)	0.92 (1/ 13) 0.92 -- 0.92	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	ANAL2-LL 39	1.0	0.60 (5/ 26) 0.32 -- 1.1	208	0.64 (4/ 13) 0.32 -- 1.1	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	MN-54 39	15.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	CO-58 39	15.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	FE-59 39	30.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	CO-60 39	15.	3.1 (1/ 26) 3.1 -- 3.1	208	3.1 (1/ 13) 3.1 -- 3.1	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	ZN-65 39	30.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	NB-95 39	15.	3.9 (5/ 26) 2.1 -- 3.1	211 (4.0 mi ESE)	4.3 (1/ 13) 4.3 -- 4.3	5.7 (2/ 13) 4.6 -- 6.8	0
	ZR-95 39	15.	8.2 (1/ 26) 8.2 -- 8.2	211	8.2 (1/ 13) 8.2 -- 8.2	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	I-131 39	15.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	CS-134 39	15.	1.9 (1/ 26) 1.9 -- 1.9	208	1.9 (1/ 13) 1.9 -- 1.9	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	CS-137 39	18.	9.9 (1/ 26) 9.9 -- 9.9	208	9.9 (1/ 13) 9.9 -- 9.9	0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	0
	BALA-140 39	15.	0.00E+00(0/ 26) 0.00E+00-- 0.00E+00		0.00E+00(0/ 13) 0.00E+00-- 0.00E+00	3.5 (1/ 13) 3.5 -- 3.5	0

Mean and range based upon detectable measurements only
 Fraction of detectable measurements at specified locations is indicated in parentheses, (Fraction)
 Zero range indicates no detectable activity measurements
 If LLD is equal to 0, then LLD is not required by Technical Specifications
 Location 208 = Discharge Canal Location 211 = Lake Wylie Dam Location 215 = Camp Steere

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 20-APR-1988 08:00:45

Docket Number : 50-413.414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF:1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
SW TRITIUM (PCI/LITER)						215 (4.1 mi NNE)	
3 Locations	H-3 15	2.00E+03	3.62E+03(6/ 10) 8.60E+02-- 6.10E+03	208 (0.5 mi S)	4.17E+03(5/ 5) 1.91E+03-- 6.10E+03	6.20E+02(1/ 5) 6.20E+02-- 6.20E+02	0

Mean and range based upon detectable measurements only

Fraction of detectable measurements at specified locations is indicated in parentheses, (Fraction)

Zero range indicates no detectable activity measurements

If LLD is equal to 0, then LLD is not required by Technical Specifications

Location 208 = Discharge Canal

Location 215 = Camp Steere

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 20-APR-1988 08:00:45

Docket Number : 50-413.414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF:1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
MILK (PCI/LITER)						221 (13.0 mi NW)	
4 Locations	MN-54	85	0.00E+00	5.9 (1/ 61) 5.9 -- 5.9	209 (7.0 mi SSW) 5.9 (1/ 23) 5.9 -- 5.9	4.6 (1/ 24) 4.6 -- 4.6	0
	CO-58	85	0.00E+00	0.00E+00(0/ 61) 0.00E+00-- 0.00E+00	0.00E+00(0/ 23) 0.00E+00-- 0.00E+00	0.00E+00(0/ 24) 0.00E+00-- 0.00E+00	0
	FE-59	85	0.00E+00	0.00E+00(0/ 61) 0.00E+00-- 0.00E+00	0.00E+00(0/ 23) 0.00E+00-- 0.00E+00	0.00E+00(0/ 24) 0.00E+00-- 0.00E+00	0
	CO-60	85	0.00E+00	5.5 (3/ 61) 4.2 -- 6.2	209 6.2 (1/ 23) 6.2 -- 6.2	3.8 (1/ 24) 3.8 -- 3.8	0
	ZN-65	85	0.00E+00	0.00E+00(0/ 61) 0.00E+00-- 0.00E+00	0.00E+00(0/ 23) 0.00E+00-- 0.00E+00	0.00E+00(0/ 24) 0.00E+00-- 0.00E+00	0
	NB-95	85	0.00E+00	7.5 (5/ 61) 4.3 -- 16.	209 8.3 (4/ 23) 4.8 -- 16.	4.9 (2/ 24) 4.0 -- 5.9	0
	ZR-95	85	0.00E+00	8.2 (3/ 61) 6.4 -- 10.	209 10. (1/ 23) 10. -- 10.	0.00E+00(0/ 24) 0.00E+00-- 0.00E+00	0
	I-131	85	15.	0.00E+00(0/ 61) 0.00E+00-- 0.00E+00	0.00E+00(0/ 23) 0.00E+00-- 0.00E+00	0.00E+00(0/ 24) 0.00E+00-- 0.00E+00	0
	LLI-131	86	1.0	0.00E+00(0/ 62) 0.00E+00-- 0.00E+00	0.00E+00(0/ 24) 0.00E+00-- 0.00E+00	0.00E+00(0/ 24) 0.00E+00-- 0.00E+00	0
	CS-134	85	15.	4.7 (3/ 61) 4.1 -- 5.1	220 (8.0 mi WSW) 4.9 (2/ 14) 4.7 -- 5.1	5.2 (1/ 24) 5.2 -- 5.2	0
	CS-137	85	18.	4.6 (16/ 61) 2.0 -- 7.2	209 5.0 (7/ 23) 3.1 -- 7.2	5.5 (12/ 24) 2.9 -- 10.	0
	BALA-140	85	15.	4.8 (1/ 61) 4.8 -- 4.8	220 4.8 (1/ 14) 4.8 -- 4.8	0.00E+00(0/ 24) 0.00E+00-- 0.00E+00	0

Mean and range based upon detectable measurements only
 Fraction of detectable measurements at specified locations is indicated in parentheses. (Fraction)
 Zero range indicates no detectable activity measurements
 If LLD is equal to 0, then LLD is not required by Technical Specifications
 Location 209 = Woods' Dairy
 Location 220 = Scism's Dairy
 Location 221 = Oates' Dairy

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 20-APR-1988 08:00:45

Docket Number : 50-413.414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF:1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
BROAD LEAF VEGET (PCI/WET/KG)						217 (10.0 mi SSE)	
4 Locations	MN-54	48	0.00E+00	9.2 (2/ 36) -- 16.	200 (0.7 mi NNE) 16. (1/ 12) -- 16.	0.00E+00 (0/ 12) -- 0.00E+00	0
	CO-58	48	0.00E+00	0.00E+00 (0/ 36) -- 0.00E+00	226 (0.5 mi S) 0.00E+00 (0/ 12) -- 0.00E+00	0.00E+00 (0/ 12) -- 0.00E+00	0
	FE-59	48	0.00E+00	22. (1/ 36) -- 22.	201 (0.5 mi NE) 22. (1/ 12) -- 22.	0.00E+00 (0/ 12) -- 0.00E+00	0
	CO-60	48	0.00E+00	16. (3/ 36) -- 21.	226 18. (1/ 12) -- 18.	0.00E+00 (0/ 12) -- 0.00E+00	0
	ZN-65	48	0.00E+00	0.00E+00 (0/ 36) -- 0.00E+00	201 16. (2/ 12) -- 21.	0.00E+00 (0/ 12) -- 0.00E+00	0
	NB-95	48	0.00E+00	15. (4/ 36) -- 21.	226 15. (1/ 12) -- 15.	0.00E+00 (0/ 12) -- 0.00E+00	0
	ZR-95	48	0.00E+00	32. (2/ 36) -- 36.	201 18. (1/ 12) -- 18.	0.00E+00 (0/ 12) -- 0.00E+00	0
	I-131	48	60.	0.00E+00 (0/ 36) -- 0.00E+00	201 36. (1/ 12) -- 36.	0.00E+00 (0/ 12) -- 0.00E+00	0
	CS-134	48	60.	23. (6/ 36) -- 38.	200 27. (2/ 12) -- 38.	0.00E+00 (0/ 12) -- 0.00E+00	0
	CS-137	48	80.	53. (14/ 36) -- 1.79E+02	201 15. (2/ 12) -- 38.	20. (2/ 12) -- 29.	0
	BALA-140	48	0.00E+00	0.00E+00 (0/ 36) -- 0.00E+00	201 61. (10/ 12) -- 1.79E+02	51. (8/ 12) -- 87.	0
					200 11. (10/ 12) -- 1.79E+02	14. (8/ 12) -- 87.	0
						0.00E+00 (0/ 12) -- 0.00E+00	0

Mean and range based upon detectable measurements only
 Fraction of detectable measurements at specified locations is indicated in parentheses. (Fraction)
 Zero range indicates no detectable activity measurements
 If LLD is equal to 0, then LLD is not required by Technical Specifications

Location 200 = Site Boundary Location 217 = Rock Hill Substation
 Location 201 = Site Boundary Location 226 = Site Boundary

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 20-APR-1988 08:00:45

Docket Number : 50-413.414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS07.SAF;1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
SEDIMENT (PCI/DRY/KG)						215 (4.1 mi NNE)	
3 Locations	MN-54	6	0.00E+00	59. (3/ 4) 16. -- 1.32E+02	208 (0.5 mi S) 80. (2/ 2) 28. -- 1.32E+02	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0
	CO-58	6	0.00E+00	4.53E+02(2/ 4) 24. -- 8.82E+02	208 4.53E+02(2/ 2) 24. -- 8.82E+02	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0
	FE-59	6	0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00	208 0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0
	CO-60	6	0.00E+00	1.81E+02(2/ 4) 89. -- 2.72E+02	208 1.81E+02(2/ 2) 89. -- 2.72E+02	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0
	ZN-65	6	0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00	208 0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0
	NB-95	6	0.00E+00	38. (1/ 4) 38. -- 38.	208 38. (1/ 2) 38. -- 38.	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0
	ZR-95	6	0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00	208 0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0
	I-131	6	0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00	208 0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0
	CS-134	6	1.50E+02	31. (2/ 4) 23. -- 39.	208 39. (1/ 2) 39. -- 39.	18. (1/ 2) 18. -- 18.	0
	CS-137	6	1.80E+02	1.52E+02(2/ 4) 87. -- 2.17E+02	208 1.52E+02(2/ 2) 87. -- 2.17E+02	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0
	BALA-140	6	0.00E+00	0.00E+00(0/ 4) 0.00E+00-- 0.00E+00	208 0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0.00E+00(0/ 2) 0.00E+00-- 0.00E+00	0

Mean and range based upon detectable measurements only
 Fraction of detectable measurements at specified locations is indicated in parentheses, (Fraction)
 Zero range indicates no detectable activity measurements
 If LLD is equal to 0, then LLD is not required by Technical Specifications

Location 208 = Discharge Canal
 Location 215 = Camp Steere

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 20-APR-1988 08:00:45

Docket Number : 50-413.414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF.1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
FISH (PCI/WET/KG)						216 (4.0 mi NNE)	
2 Locations	MN-54	12	1.30E+02	87. (1/ 6) 87. -- 87.	208 (0.5 mi S) 87. (1/ 6) 87. -- 87.	0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	0
	CO-58	12	1.30E+02	67. (2/ 6) 33. -- 1.00E+02	208 67. (2/ 6) 33. -- 1.00E+02	0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	0
	FE-59	12	2.60E+02	0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	208 0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	23. (1/ 6) 23. -- 23.	0
	CO-60	12	1.30E+02	1.00E+02(3/ 6) 17. -- 2.46E+02	208 1.00E+02(3/ 6) 17. -- 2.46E+02	9.8 (1/ 6) 9.8 -- 9.8	0
	ZN-65	12	2.60E+02	0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	208 0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	0
	NB-95	12	0.00E+00	22. (3/ 6) 18. -- 27.	208 22. (3/ 6) 18. -- 27.	20. (2/ 6) 11. -- 29.	0
	ZR-95	12	0.00E+00	40. (1/ 6) 40. -- 40.	208 40. (1/ 6) 40. -- 40.	0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	0
	I-131	12	0.00E+00	95. (1/ 6) 95. -- 95.	208 95. (1/ 6) 95. -- 95.	1.03E+02(1/ 6) 1.03E+02-- 1.03E+02	0
	CS-134	12	1.30E+02	23. (2/ 6) 22. -- 24.	208 23. (2/ 6) 22. -- 24.	29. (1/ 6) 29. -- 29.	0
	CS-137	12	1.50E+02	39. (6/ 6) 21. -- 61.	208 39. (6/ 6) 21. -- 61.	26. (5/ 6) 16. -- 39.	0
	BALA-140	12	0.00E+00	0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	208 0.00E+00(0/ 6) 0.00E+00-- 0.00E+00	33. (1/ 6) 33. -- 33.	0

Mean and range based upon detectable measurements only

Fraction of detectable measurements at specified locations is indicated in parentheses. (Fraction)

Zero range indicates no detectable activity measurements

If LLD is equal to 0, then LLD is not required by Technical Specifications

Location 208 = Discharge Canal

Location 216 = Hwy. 49 Bridge

Environmental Radiological Monitoring Program Summary

Name of Facility : CATAWBA NUCLEAR STATION
 Location of Facility : YORK COUNTY, S.C.
 Time Report Generated : 20-APR-1988 10:28:17

Docket Number : 50-413,414
 Reporting Period : 1-JAN-1987 through 31-DEC-1987
 Database Name : \$DISK1:[USER.ASC]CNS87.SAF:1

Medium or Pathway Sampled (Units)	Type & Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (Fraction) Range	Location with Highest Mean		Control Locations * Mean (Fraction) Range	No. of Non-Routine Report Meas.
				Name, Distance and Direction Location Code	Mean (Fraction) Range		
DIRECT RAD-TLD (mR/hr)				237 (4.8 mi SSE)			
40 Locations	MR/HOUR 152	0.00E+00	1.03E-02(140/ 140) 4.00E-03-- 1.50E-02	1.33E-02(4/ 4) 1.00E-02-- 1.50E-02	9.83E-03(12/ 12) 5.00E-03-- 1.60E-02	0	

Mean and range based upon detectable measurements only

Fraction of detectable measurements at specified locations is indicated in parentheses. (Fraction)

Zero range indicates no detectable activity measurements

If LLD is equal to 0, then LLD is not required by Technical Specifications

* Control Locations = Location 217 (10.0 mi SSE),
 Location 247 (7.5 mi ESE),
 and Location 251 (9.8 mi WNW).

Location 237 = 4-5 mile radius.

APPENDIX C

SAMPLING DEVIATIONS

<u>SAMPLE (LOCATION #) DATE</u>	<u>REASON AND CORRECTIVE ACTION</u>
A. <u>Airborne Radioiodines and Particulates</u>	
1. (205) 1/14-1/21/87 <u>Actual</u> - 1/14-1/18/87	Sampler blew a fuse after running for 86.6 hours. <u>Action:</u> Replaced fuse on 1/21/87.
2. (201) 5/6-5/13/87 <u>Actual</u> - 5/6-5/11/87	Sampler blew a fuse after running for 122.3 hours. <u>Action:</u> Replaced fuse on 5/13/87.
3. (205) 9/16-9/23/87 <u>Actual</u> - 9/16-9/19/87	Sampler blew a fuse after running for 66.6 hours. <u>Action:</u> Replaced fuse on 9/23/87.
4. (205) 9/23-9/30/87 <u>Actual</u> - 9/23/87	Sampler blew a fuse after running for less than two minutes; therefore, the sample was not analyzed. <u>Action:</u> Replaced fuse on 9/30/87.
5. (201) 11/11-11/18/87 <u>Actual</u> - Unknown	Sampler was found to be running, but had run for only 43.1 hours. A power outage was suspected. <u>Action:</u> Sampler and timer verified on 11/18/87 to be operating properly.
B. <u>Drinking Water</u>	
1. (214) 12/31 - 1/28/87 1st biweekly: 12/31-1/14/87 2nd biweekly: 1/14-1/28/87 <u>Actual</u> - 1/21-1/28/87	The intake waterline valve was inadvertently turned off sometime between 1/14-1/21/87. <u>Action:</u> Opened valve on 1/21/87. Posted a sign on the valve as a reminder to keep valve open and included the name and phone number of a contact person in the event of a problem.

<u>SAMPLE (LOCATION #) DATE</u>	<u>REASON AND CORRECTIVE ACTION</u>
2. (213) 1/28-2/25/87 1st biweekly: 1/28-2/11/87 <u>Actual</u> - 2/11/87 (Grab)	City workers placed tools and equipment on top of intake drum tubing which cut off the sample flow. A grab sample was collected on 2/11/87.
2nd biweekly: 2/11-2/25/87 <u>Actual</u> - 2/11-2/20/87 and 2/24-2/25/87	<u>Action:</u> Replaced the tubing on 2/11/87.
	Sampler was turned off between 2/20-2/24/87 for maintenance.
	<u>Action:</u> Maintenance was completed on 2/24/87.
3. (214) 2/25-3/25/87 1st biweekly: 2/25-3/11/87 2nd biweekly: 3/11-3/25/87	Sampler was turned off for five hours on 2/26/87 while piping and barrels were replaced.
4. (218) 2/25-3/25/87 1st biweekly: 2/25-3/11/87 2nd biweekly: 3/11-3/25/87	<u>Action:</u> None required.
	Sampler was turned off for five hours on 2/25/87 while piping and barrels were replaced.
5. (213) 5/20-6/17/87 1st biweekly: 5/20-6/3/87 <u>Actual</u> - 6/3/87 (Grab) 2nd biweekly: 6/3-6/17/87 <u>Actual</u> - 6/12-6/17/87	<u>Action:</u> None required.
	Elbow joint cracked causing sampler barrel to leak and sample was lost. A grab sample was collected on 6/3/87.
6. (214) 12/2-12/30/87 1st biweekly: 12/2-12/16/87 <u>Actual</u> - 12/16/87 (Grab) 2nd biweekly: 12/16-12/30/87	<u>Action:</u> Elbow joint was repaired on 6/12/87.
	Drain valve was left open after barrels were cleaned on 12/2/87.
	<u>Action:</u> Valve was closed on 12/16/87.

<u>SAMPLE (LOCATION #) DATE</u>	<u>REASON AND CORRECTIVE ACTION</u>
C. <u>Surface Water</u>	
1. (208) 2/25-3/25/87 1st biweekly: 2/25-3/11/87 2nd biweekly: 3/11-3/25/87	Sampler was turned off for five hours on 3/2/87 while piping and barrels were replaced. <u>Action:</u> None required.
2. (211) 2/25-3/25/87 1st biweekly: 2/25-3/11/87 <u>Actual</u> - 2/25-3/4/87 2nd biweekly: 3/11-3/25/87 <u>Actual</u> - 3/19-3/25/87	Pump sampled irregularly until it tripped off on 3/4/87 because the foot valve was cluttered with trash and the pump pressure switch was faulty. The resulting abbreviated composite samples were collected on 3/11/87 and 3/25/87. <u>Action:</u> Submitted work request HPS-615. Repairs were completed 3/19/87.
3. (215) 2/25-3/25/87 1st biweekly: 2/25-3/11/87 2nd biweekly: 3/11-3/25/87	Sampler was turned off for five hours on 3/3/87 while piping and barrels were replaced. <u>Action:</u> None required.
4. (208) 3/25-4/22/87 1st biweekly: 3/25-4/8/87 <u>Actual</u> - 4/8/87 (Grab) 2nd biweekly: 4/8-4/22/87	The transfer hose was clogged with dirt which blocked water flow. A grab sample was collected on 4/8/87. <u>Action:</u> Replaced the transfer hose on 4/8/87.
5. (215) 4/22-5/20/87 1st biweekly: 4/22-5/6/87 2nd biweekly: 5/6-5/20/87 <u>Actual</u> - 5/20/87 (Grab)	The interval sampler was out of order. A grab sample was collected on 5/20/87. <u>Action:</u> Replaced the interval sampler on 5/20/87.

<u>SAMPLE (LOCATION #) DATE</u>	<u>REASON AND CORRECTIVE ACTION</u>
6. (211) 8/12-9/9/87 1st biweekly: 8/12-8/26/87 2nd biweekly: 8/26-9/9/87 <u>Actual</u> - 9/9/87 (Grab)	The interval sampler pump head was not adjusted properly causing the tubing to feed out of the intake barrel. A grab sample was collected on 9/9/87. <u>Action:</u> Readjusted the pump head on 9/9/87.
7. (208) 9/9-10/7/87 1st biweekly: 9/9-9/23/87 <u>Actual</u> - 9/23/87 (Grab) 2nd biweekly: 9/23-10/7/87	The interval sampler was out of order. A grab sample was collected on 9/23/87. <u>Action:</u> Replaced the interval sampler on 9/23/87.
8. (215) 12/2-12/30/87 1st biweekly: 12/2-12/16/87 2nd biweekly: 12/16-12/30/87 <u>Actual</u> - Unknown	Water pump on pier lost its prime (suction) sometime between 12/16-12/30/87. The resulting abbreviated composite sample was collected on 12/30/87. <u>Action:</u> Pump was primed on 12/30/87.
D. <u>Milk</u>	
1. (220) 8/12/87	Dairy was found to be out of business on 8/12/87, the routine bimonthly scheduled collection date. <u>Action:</u> A replacement collection location could not be identified and appropriate DPC Personnel were notified to remove Location 220 as a milk collection site from the ODCM. Broadleaf samples are currently collected from the two directions at the site boundary with the highest D/Q, therefore, the unavailability of a replacement milk sample does not affect the Station's compliance with Technical Specification 3/4.12.1.

	<u>SAMPLE (LOCATION #) DATE</u>	<u>REASON AND CORRECTIVE ACTION</u>
E.	<u>TLD's</u>	
1.	(207) 12/18-3/19/87	Missing from collection location.
2.	(223) 12/18-3/19/87	Missing from collection location.
3.	(224) 12/18-3/19/87	Missing from collection location.
4.	(228) 12/18-3/19/87	Missing from collection location.
5.	(201) 3/19-6/18/87	Missing from collection location.
6.	(203) 3/19-6/18/87	Missing from collection location.
7.	(223) 3/19-6/18/87	Missing from collection location.
8.	(249) 9/17-12/17/87	Missing from collection location.

APPENDIX D

ANALYTICAL DEVIATIONS

NOTE: For all 1987 CNS REMP analyses performed, the LLD requirements of CNS Technical Specification Surveillance Requirement 4.12.1 were met.

<u>SAMPLE (LOCATION #) DATE</u>	<u>REASON AND CORRECTIVE ACTION</u>
A. <u>Milk</u>	
1. (209) 1/28/87	Original sample of milk intended for low-level I-131 analysis was lost during preparation due to excessive vacuum in vacuum system. Backup sample was accidentally prepared for low-level I-131 analysis prior to performing normal gamma analysis. Therefore, the low-level I-131 analysis was valid; however, normal gamma analysis could not be performed. <u>Action:</u> Adjusted vacuum system.

APPENDIX E

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS RESULTS

INDEX

E.1 Airborne Radioiodines and Particulates

E.1.1 Radioiodines

E.1.1.1 Location 200

E.1.1.2 Location 201

E.1.1.3 Location 205

E.1.1.4 Location 212

E.1.1.5 Location 217

E.1.2 Particulates

E.1.2.1 Location 200

E.1.2.2 Location 201

E.1.2.3 Location 205

E.1.2.4 Location 212

E.1.2.5 Location 217

E.2 Ground Water

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E.2.2 Location 252

E.3 Drinking Water

E.3.1 Location 213

E.3.2 Location 214

E.3.3 Location 218

E.4 Surface Water

E.4.1 Location 208

E.4.2 Location 211

E.4.3 Location 215

E.5 Milk

E.5.1 Location 209

E.5.2 Location 219

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E.6.3 Location 217

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E.7 Shoreline Sediment

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E.7.3 Location 215

E.8 Fish

E.8.1 Location 208

E.8.2 Location 216

E.9 Direct Gamma Radiation (TL²)

E.10 Bottom Sediment

 16 JAN 1987 3:59:24 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 6.250E 02
 COLLECTION DATE(S): 12/31-1/7/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -4.46E-03	4.5E-03
FE-59	* 5.89E-03	1.0E-02
CO-58	* -3.48E-03	4.5E-03
CO-60	* -1.70E-03	5.1E-03
ZN-65	* -2.96E-03	7.8E-03
ZR-95	* -1.94E-03	8.0E-03
NB-95	* -3.55E-03	5.2E-03
I-131	* -6.39E-03	8.6E-03
CS-134	* 3.66E-03	4.7E-03
CS-137	* -1.95E-03	4.6E-03
BALA-140	* 3.44E-03	7.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *J 202*

REVIEWED BY: *Marcia Stone*

DATE: 1-18-87

16 JAN 1987 11:20:05 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA AIRBORNE RADIOIODINES CMP. - 200
TYPE: CARTRIDGE QUANTITY: 6.250E 02
COLLECTION DATE(S): 1/7-1/14/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -2.79E-03	4.3E-03
FE-59	* 2.25E-03	6.7E-03
CO-58	* 9.16E-04	3.8E-03
CO-60	* -1.52E-03	4.6E-03
ZN-65	* -4.92E-03	9.8E-03
ZR-95	* -1.51E-03	6.2E-03
NB-95	* 4.34E-03	4.5E-03
I-131	* -1.17E-03	3.9E-03
CS-134	* -3.06E-03	4.2E-03
CS-137	* 8.12E-03	3.9E-03
BALA-140	* -2.10E-03	4.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigony

JAN 16 1987

REVIEWED BY:

Marcotano

DATE: 1.20.87

136

26 JAN 1987 5:43:57 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200
TYPE: CARTRIDGE QUANTITY: 6.140E 02
ACTION DATE(S): 1/14-1/21/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 1.90E-03	4.0E-03
FE-59	* -2.39E-03	6.3E-03
CO-58	* 2.88E-03	4.2E-03
CO-60	* 1.55E-03	4.1E-03
ZN-65	* -1.52E-02	1.1E-02
ZR-95	* 1.59E-03	6.5E-03
NB-95	* 9.35E-04	4.5E-03
I-131	* -2.28E-03	5.5E-03
CS-134	* 7.28E-03	5.2E-03
CS-137	* 4.09E-03	4.6E-03
BALA-140	* 0.00E-01	3.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *mm*

REVIEWED BY: *Marcia Lane* DATE: *1/31/87*

2 FEB 1987 12:47:08 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200

T : CARTRIDGE

QUANTITY: 5.880E 02

LECTION DATE(S): 1/21-1/28/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -9.94E-04	3.6E-03
FE-59	* 0.00E-01	7.0E-03
CO-58	* 0.00E-01	4.2E-03
CO-60	* 1.62E-03	4.3E-03
ZN-65	* -5.27E-03	1.3E-02
ZR-95	* 4.96E-03	7.9E-03
NB-95	* -2.92E-03	4.2E-03
I-131	* 1.56E-03	6.0E-03
CS-134	* -1.09E-03	4.7E-03
CS-137	* -8.54E-04	4.1E-03
BALA-140	1.03E-02	6.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigman

FEB 2 1987

REVIEWED BY:

Marcus Lane

DATE: 2/5/87

21

 6 FEB 1987 11:21:27 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C 3WBA AIRBORNE RADIOIODINES CMP. - 200
 1: CARTRIDGE QUANTITY: 6.410E 02
 COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 3.21E-03	4.7E-03
FE-59	* 0.00E-01	6.2E-03
CO-58	* 2.11E-03	3.9E-03
CO-60	* -1.65E-03	4.4E-03
ZN-65	* 2.79E-03	1.1E-02
ZR-95	* -1.75E-03	7.2E-03
NB-95	* 5.99E-03	4.5E-03
I-131	* 1.36E-03	4.2E-03
CS-134	* -1.18E-03	3.5E-03
CS-137	* 3.76E-03	4.6E-03
BALA-140	* 2.28E-03	6.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Siger

FEB 06 1987

REVIEWED BY:

Marcia Lane

DATE: 2/6/87

18 FEB 1987 3:18:43 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200

TYPE: CARTRIDGE

QUANTITY: 6.260E 02

COLLECTION DATE(S): 2/4-2/11/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SFEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.02E-03	3.7E-03
FE-59	1.60E-02	8.4E-03
CO-58	* -2.10E-03	4.4E-03
CO-60	* -4.87E-03	4.9E-03
ZN-65	* -2.75E-03	9.1E-03
ZR-95	* -1.74E-03	5.2E-03
NB-95	* 4.18E-03	4.9E-03
I-131	* 0.00E-01	6.3E-03
CS-134	6.72E-03	4.8E-03
CS-137	* 4.45E-03	4.5E-03
BALA-140	* 2.98E-03	6.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *MH*

REVIEWED BY: *Marcus D. Lane*

DATE: 2-23-87

23 FEB 1987 1:30:25 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATOWBA AIRBORNE RADIOIODINES CMP. - 200

TYPE: CARTRIDGE QUANTITY: 6.470E 02
COLLECTION DATE(S): 2/11-2/18/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 0.00E-01	3.0E-03
FE-59	* -2.52E-03	7.6E-03
CO-58	* 1.05E-03	4.1E-03
CO-60	* 0.00E-01	4.0E-03
ZN-65	* -2.77E-03	8.3E-03
ZR-95	* 5.20E-03	7.5E-03
NB-95	* 0.00E-01	3.7E-03
I-131	* -3.40E-03	4.7E-03
CS-134	* 1.17E-03	4.6E-03
CS-137	* 2.79E-03	4.1E-03
BALA-140	* 0.00E-01	4.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *WAB*

FEB 23 1987

REVIEWED BY: *Marcia Lane*

DATE: *2.24.87*

 27 FEB 1987 8:03:21 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CHAWBA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 6.410E 02
 COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -9.89E-04	3.6E-03
FE-59	* -2.42E-03	8.0E-03
CO-58	* 1.95E-03	4.6E-03
CO-60	* -4.74E-03	4.2E-03
ZN-65	* -2.65E-03	7.0E-03
ZR-95	1.13E-02	6.7E-03 <i>NA</i>
NB-95	* -9.29E-04	2.8E-03
I-131	* -6.12E-04	3.9E-03
CS-134	* -1.09E-03	3.3E-03
CS-137	* -8.69E-04	2.9E-03
BALA-140	* 0.00E-01	3.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for Zr-95 at 756 keV.*

BY: *mmz*

VIEWED BY: *D. S. Hill*

DATE: *3/4/87*

6

 10 MAR 1987 6:36:30 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WSA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 6.330E 02
 COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 4.29E-03	3.7E-03
FE-59	* -2.66E-03	7.0E-03
CO-58	* 0.00E-01	2.6E-03
CO-60	* -1.73E-03	3.9E-03
ZN-65	* -2.80E-03	6.3E-03
ZR-95	* 5.36E-03	6.4E-03
NB-95	* 0.00E-01	2.1E-03
I-131	* 0.00E-01	4.9E-03
CS-134	* 2.34E-03	3.3E-03
CS-137	* -9.20E-04	4.0E-03
BALA-140	* 0.00E-01	3.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigmer* MAR 10 1987

 REVIEWED BY: *De E. Hilde* DATE: 3/12/87

11

 13 MAR 1987 11:28:03 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 200
 E: CARTRIDGE QUANTITY: 5.800E 02
 COLLECTION DATE(S): 3/4- /11/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.00E-03	3.6E-03
FE-59	* -2.41E-03	7.2E-03
CO-58	* -1.97E-03	4.2E-03
CO-60	* 4.91E-03	5.4E-03
ZN-65	* -1.32E-02	1.2E-02
ZR-95	* 1.62E-03	6.7E-03
NB-95	* -9.27E-04	4.0E-03
I-131	* 0.00E-01	3.7E-03
CS-134	* 1.10E-03	4.5E-03
CS-137	* 6.06E-03	5.0E-03
BALA-140	* 2.21E-03	4.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigra

MAR 13 1987

 REVIEWED BY:

Dale G. Felt

DATE:

3/13/87

16

20 MAR 1987 3:49:26 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

WBA AIRBORNE RADIOIODINES CMP. - 200
: CARTRIDGE QUANTITY: 6.410E 02
COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	4.0E-03
FE-59	* 0.00E-01	6.2E-03
CO-58	* -1.06E-03	3.5E-03
CO-60	* 0.00E-01	3.3E-03
ZN-65	* 0.00E-01	6.8E-03
ZR-95	* 0.00E-01	7.4E-03
NB-95	* 0.00E-01	2.4E-03
I-131	* 5.45E-03	5.0E-03
CS-134	* 1.18E-03	4.9E-03
CS-137	* 1.88E-03	4.2E-03
BALA-140	* 0.00E-01	4.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Mg*

REVIEWED BY: *Dale G. Holder*

DATE: *3/23/83*

4 APR 1987 5:54:31 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

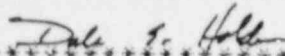
CATAWBA AIRBORNE RADIOIODINES CMP. - 200
TYPE: CARTRIDGE QUANTITY: 6.070E 02
COLLECTION DATE(S): 3/18-3/25/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	2.1E-03
FE-59	1.98E-02	1.0E-02
CO-58	* -3.31E-03	4.3E-03
CO-60	* -3.35E-03	4.1E-03
ZN-65	* -2.85E-03	5.4E-03
ZR-95	* 0.00E-01	6.9E-03
NB-95	* 4.48E-03	4.8E-03
I-131	* -1.16E-03	7.2E-03
CS-134	* 5.78E-03	4.5E-03
CS-137	* 0.00E-01	4.5E-03
BALA-140	* 0.00E-01	8.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Fe-59 at 1099 keV. MDI = 7 net counts.

BY: 

REVIEWED BY: 

DATE: 4-6-87

 9 APR 1987 11:42:39 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 5.690E 02
 COLLECTION DATE(S): 3/25-4/1/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	* -2.26E-03	3.6E-03
FE-59	* -5.94E-03	8.4E-03
CO-58	* -1.16E-03	4.2E-03
CO-60	* 1.79E-03	5.9E-03
ZN-65	* 0.00E-01	1.4E-02
ZR-95	* 1.94E-03	8.0E-03
NB-95	* 0.00E-01	5.0E-03
I-131	* 5.59E-03	7.2E-03
CS-134	* 3.70E-03	4.8E-03
CS-137	* 0.00E-01	3.7E-03
BALA-140	* 0.00E-01	8.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *[Signature]*

 REVIEWED BY: *[Signature]*

DATE: 4-10-87

26

15 APR 1987 7:40:00 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 5.620E 02
 COLLECTION DATE(S): 4/1-4/8/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (FCI/UT)	SIGMA (PCI/UT)
MN-54	* 3.71E-03	5.7E-03
FE-59	* 0.00E-01	7.7E-03
CO-58	* 5.05E-03	4.7E-03
CO-60	* 1.89E-03	5.0E-03
ZN-65	* 0.00E-01	7.9E-03
ZR-95	* 0.00E-01	8.9E-03
NB-95	* 2.51E-03	5.3E-03
I-131	* -1.18E-03	7.0E-03
CS-134	* 0.00E-01	6.0E-03
CS-137	* 4.29E-03	5.9E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	3.07E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigman*

APR 15 1987

REVIEWED BY: *Doc E. Allen*

DATE: *4-15-87*

32 *****
17 APR 1987 2:43:17 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200

TYPE: CARTRIDGE

QUANTITY: 5.780E 02

COLLECTION DATE(S): 4/8-4/15/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	1.00E-02	5.3E-03
FE-59	* -4.84E-03	7.7E-03
CO-58	* -9.87E-04	3.6E-03
CO-60	* 0.00E-01	3.3E-03
ZN-65	* 5.32E-03	1.3E-02
ZR-95	* 1.63E-03	6.3E-03
NB-95	* 2.80E-03	4.8E-03
I-131	* -6.15E-04	4.6E-03
CS-134	* -3.30E-03	5.5E-03
CS-137	* 2.61E-03	4.3E-03
BALA-140	* 2.23E-03	6.7E-03
NPK-40	7.42E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Mn-54 at 835 keV not identified by Peak Search or NID, MOA = 10 net counts
NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *JM*

REVIEWED BY: *Del S. Holder* DATE: *4-21-87*

28 APR 1987 11:33:31 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200

TYPE: CARTRIDGE

QUANTITY: 5.660E 02

SECTION DATE(S): 4/15-4/22/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 2.25E-03	4.2E-03
FE-59	* -5.72E-03	8.1E-03
CO-58	* 0.00E-01	5.3E-03
CO-60	* -5.38E-03	5.4E-03
ZN-65	* -6.05E-03	1.1E-02
ZR-95	* 0.00E-01	6.0E-03
NB-95	* 1.11E-03	4.0E-03
I-131	* 1.78E-03	5.9E-03
CS-134	* 0.00E-01	4.3E-03
CS-137	* -1.97E-03	4.2E-03
BALA-140	* 2.98E-03	7.9E-03
NPK-40	3.79E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *npk-40 at 1961 ker identified by Peak Search and NID.*

BY: *Jim Sigmey*

APR 28 1987

REVIEWED BY: *Dale E. Holt*

DATE: *4/28/87*

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1 MAY 1987 1:22:44 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200
TYPE: CARTRIDGE QUANTITY: 5.870E 02
COLLECTION DATE(S): 4/22-4/29/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.17E-03	4.2E-03
FE-59	* 0.00E-01	7.8E-03
CO-58	* 0.00E-01	4.0E-03
CO-60	* 3.60E-03	4.4E-03
ZN-65	* 0.00E-01	1.1E-02
ZR-95	* -1.91E-03	5.7E-03
NB-95	* -2.18E-03	4.9E-03
I-131	* 5.17E-03	5.1E-03
CS-134	* 3.86E-03	5.0E-03
CS-137	* -2.05E-03	5.2E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	2.74E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigmund* MAY 01 1987

REVIEWED BY: *Dale E. Hold* DATE: 5-1-87

 11 MAY 1987 1:38:08 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINE CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 6.320E 02
 COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 2.02E-03	3.5E-03
FE-59	* -2.56E-03	9.2E-03
CO-58	* -1.02E-03	4.2E-03
CO-60	* -1.61E-03	3.6E-03
ZN-65	* -2.71E-03	8.1E-03
ZR-95	* -3.38E-03	7.6E-03
NB-95	* 0.00E-01	2.0E-03
I-131	* 3.15E-03	5.6E-03
CS-134	* 0.00E-01	3.5E-03
CS-137	* 2.64E-03	4.0E-03
BALA-140	* 5.29E-03	8.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Dale F. Hall*

5-11-87

VIEWED BY: *Mpricic*

DATE: 5-18-87

51

 19 MAY 1987 9:50:35 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 200

E: CARTRIDGE QUANTITY: 6.530E 02
 COLLECTION DATE(S): 5/6-5/13/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.79E-03	3.3E-03
FE-59	1.12E-02	7.4E-03 N/A
CO-58	* -8.99E-04	3.5E-03
CO-60	* 4.36E-03	4.4E-03
ZN-65	* -2.37E-03	9.2E-03
ZR-95	* 4.46E-03	7.4E-03
NB-95	* 3.50E-03	3.9E-03
I-131	* 5.60E-03	5.6E-03
CS-134	* -9.78E-04	4.0E-03
CS-137	* 4.61E-03	3.4E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	4.95E-01	9.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No Peak identified at Fe-59 at 1099 KeV, MDA = 5 net counts.
 NPK-40 at 461 KeV identified by Peak Search and AID.

BY: *J. Sigmund* MAY 19 1987

 REVIEWED BY: *Dee S. Hall* DATE: 5-21-87

56

26 MAY 1987 2:10:35 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200

TYPE: CARTRIDGE

QUANTITY: 5.670E 02

COLLECTION DATE(S): 5/13-5/20/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.12E-03	3.7E-03
FE-59	* 1.09E-02	1.2E-02
CO-58	* 1.10E-03	4.3E-03
CO-60	* -1.79E-03	4.7E-03
ZN-65	* -5.98E-03	9.5E-03
ZR-95	* 5.48E-03	7.5E-03
NB-95	* 2.09E-03	4.2E-03
I-131	* -2.72E-03	4.8E-03
CS-134	* 2.46E-03	4.3E-03
CS-137	1.08E-02	5.1E-03 .05
BALA-140	* 0.00E-01	5.0E-03
NPK-40	3.59E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV not identified by Peak Search or NID, MDA= 11 net counts.
NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigmund*

MAY 26 1987

REVIEWED BY: *Dale E. Holt*

DATE: 5-27-87

61

 1 JUN 1987 3:11:37 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT


 WABA AIRBORNE RADIOIODINES CMP. - 200
 2: CARTRIDGE QUANTITY: 5.990E 02
 COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 1.95E-03	3.9E-03
FE-59	* 2.45E-03	8.8E-03
CO-58	* -1.96E-03	4.4E-03
CO-60	* 3.17E-03	4.5E-03
ZN-65	* -5.17E-03	1.3E-02
ZR-95	* -3.24E-03	7.6E-03
NB-95	* 4.77E-03	4.6E-03
I-131	* -7.67E-04	5.3E-03
CS-134	* 0.00E-01	4.8E-03
CS-137	* 1.68E-03	3.9E-03
BALA-140	* 0.00E-01	5.1E-03
NPK-40	5.91E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID

BY: 

 REVIEWED BY: 

DATE: 6-2-87

 11 JUN 1987 11:47:52 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

WBA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 6.420E 02
 COLLECTION DATE(S): 5/27-6/3/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.83E-03	3.7E-03
FE-59	* 2.36E-03	8.5E-03
CO-58	* -2.80E-03	3.6E-03
CO-60	* 2.96E-03	4.2E-03
ZN-65	* -4.86E-03	1.1E-02
ZR-95	* 4.64E-03	7.1E-03
NB-95	* 9.28E-04	3.8E-03
I-131	* 4.28E-03	7.0E-03
CS-134	* -9.96E-04	4.1E-03
CS-137	* -7.82E-04	3.9E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	4.29E-01	9.4E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *nPk-40 at 1461 keV identified by Peak Search and NID.*

BY: *LJB*

 REVIEWED BY: *Dale J. Kildan* DATE: *6-17-87*

16 JUN 1987 11:02:20 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200

TYPE: CARTRIDGE

QUANTITY: 6.220E 02

COLLECTION DATE(S): 6/3-6/10/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	3.5E-03
FE-59	* -2.79E-03	7.4E-03
CO-58	* 3.39E-03	4.4E-03
CO-60	* 0.00E-01	3.4E-03
ZN-65	* 0.00E-01	8.2E-03
ZR-95	* -1.88E-03	6.2E-03
NB-95	* 1.11E-03	4.9E-03
I-131	* 1.98E-03	6.9E-03
CS-134	* -3.66E-03	5.0E-03
CS-137	* 3.87E-03	4.1E-03
BALA-140	* 5.86E-03	8.3E-03
NPK-40	4.31E-01	1.4E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPK-40 at 1461 keV identified by peak search and NID.*

BY: *mz*

REVIEWED BY:

Dale S. Holden

DATE:

6-17-87

76

22 JUN 1987 2:22:32 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 6.360E 02
 COLLECTION DATE(S): 6/10-6/17/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -9.19E-04	3.8E-03
FE-59	* 6.93E-03	7.7E-03
CO-58	* 9.25E-04	4.4E-03
CO-60	* 0.00E-01	3.7E-03
ZN-65	* -4.88E-03	9.1E-03
ZR-95	* -4.59E-03	6.7E-03
NB-95	* -9.01E-04	4.3E-03
I-131	* 5.86E-03	5.8E-03
CS-134	* -4.02E-03	5.1E-03
CS-137	* 0.00E-01	3.5E-03
BALA-140	* -2.40E-03	6.4E-03
NPK-40	5.39E-01	1.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1961 KeV identified by Peak Search and NID.

BY: *Jim Sigmon* JUN 22 1987
 REVIEWED BY: *Dale F. Holden* DATE: 6-23-87

30 JUN 1987 3:32:16 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

TAWBA AIRBORNE RADIOIODINES CMP. - 200
 E: CARTRIDGE QUANTITY: 5.950E 02
 COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.13E-03	4.1E-03
FE-59	* 5.41E-03	8.6E-03
CO-58	* 1.11E-03	3.3E-03
CO-60	* 0.00E-01	4.5E-03
ZN-65	* -2.97E-03	7.9E-03
ZR-95	* 0.00E-01	5.8E-03
NB-95	* 0.00E-01	3.6E-03
I-131	* 6.80E-04	3.9E-03
CS-134	* 6.20E-03	5.4E-03
CS-137	* 9.86E-04	4.1E-03
BALA-140	* -2.52E-03	4.4E-03
NPK-40	1.83E-01	7.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPK-40 at 1461 identified by Peak Search and NID.*

BY: *MM*

REVIEWED BY: *Dale E. Holden* DATE: *7-1-87*

86

 9 JUL 1987 4:06:00 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE RADIOIODINES CMP. - 200
 PE: CARTRIDGE QUANTITY: 5.750E 02
 COLLECTION DATE(S): 6/24-7/1/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 3.63E-03	5.6E-03
FE-59	* 0.00E-01	9.9E-03
CO-58	* 0.00E-01	3.5E-03
CO-60	* 0.00E-01	2.6E-03
ZN-65	* 0.00E-01	1.0E-02
ZR-95	* -4.16E-03	8.3E-03
NB-95	* 0.00E-01	5.3E-03
I-131	* 1.16E-02	9.2E-03
CS-134	* -2.64E-03	5.6E-03
CS-137	* 0.00E-01	3.6E-03
BALA-140	* -3.56E-03	8.0E-03
NPK-40	4.18E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: *7-13-87*

91 *****
 13 JUL 1987 5:00:49 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 200

TYPE: CARTRIDGE QUANTITY: 5.690E 02
 COLLECTION DATE(S): 7/1-7/8/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.12E-03	4.3E-03
FE-59	* -2.85E-03	4.9E-03
CO-58	* 1.13E-03	4.4E-03
CO-60	* -5.35E-03	5.9E-03
ZN-65	* -3.01E-03	1.2E-02
ZR-95	* 5.64E-03	8.2E-03
NB-95	* -1.11E-03	4.8E-03
I-131	* 8.82E-04	5.8E-03
CS-134	* -2.46E-03	5.2E-03
CS-137	* -9.79E-04	3.2E-03
BALA-140	* 0.00E-01	5.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *mg*

 REVIEWED BY: *Dale E. Holt* DATE: *7-14-87*

20 JUL 1987 3:26:54 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200

TYPE: CARTRIDGE

QUANTITY: 6.190E 02

SECTION DATE(S): 7/8-7/15/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.89E-03	4.2E-03
FE-59	* -2.37E-03	6.3E-03
CO-58	* 2.85E-03	3.9E-03
CO-60	* 3.07E-03	4.3E-03
ZN-65	* -1.00E-02	1.0E-02
ZR-95	* 7.85E-03	7.2E-03
NB-95	* 3.70E-03	3.9E-03
I-131	* 1.49E-03	5.7E-03
CS-134	* 0.00E-01	3.9E-03
CS-137	* 3.24E-03	4.0E-03
BALA-140	* 0.00E-01	3.5E-03
NPK-40	3.48E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1161 keV identified by Peak Search and NID.

BY:

Jim Sigmund

JUL 20 1987

REVIEWED BY:

Dale F. Holt

DATE:

7-21-87

101

 24 JUL 1987 2:16:03 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200

E: CARTRIDGE QUANTITY: 5.870E 02
 COLLECTION DATE(S): 7/15-7/22/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -9.89E-04	3.8E-03
FE-59	* 0.00E-01	1.0E-02
CO-58	* 1.94E-03	4.3E-03
CO-60	* -1.62E-03	4.3E-03
ZN-65	* -7.85E-03	7.9E-03
ZR-95	* 0.00E-01	5.1E-03
NB-95	* 1.84E-03	4.1E-03
I-131	* 1.21E-03	4.2E-03
CS-134	* -1.08E-03	4.2E-03
CS-137	* 0.00E-01	3.0E-03
BALA-140	* 0.00E-01	5.4E-03
NPK-40	4.21E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 kev identified by Peak Search and NID.

BY: *Jim Sigmon*

JUL 24 1987

REVIEWED BY: *Dale S. Alder* DATE: *7-24-87*

 5 AUG 1987 10:29:55 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 6.020E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -1.95E-03	3.9E-03
FE-59	* 4.96E-03	1.1E-02
CO-58	* -3.95E-03	3.9E-03
CO-60	* 1.58E-03	4.2E-03
ZN-65	* -5.17E-03	9.7E-03
ZR-95	* -3.27E-03	6.5E-03
NB-95	* 4.86E-03	5.0E-03
I-131	* 0.00E-01	6.3E-03
CS-134	* 2.12E-03	4.5E-03
CS-137	7.51E-03	4.6E-03
BALA-140	* 2.68E-03	8.0E-03
NPK-40	2.92E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 keV, MDA = 9 net counts, not identified by Peak Search or NID.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY:

[Signature]

VIEWED BY:

[Signature]

DATE: 8-7-87

 11 AUG 1987 12:55:11 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 6.320E 02
 COLLECTION DATE(S): 7/29-8/5/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 4.04E-03	3.6E-03
FE-59	* -2.56E-03	6.8E-03
CO-58	* 4.08E-03	4.6E-03
CO-60	* -4.82E-03	4.8E-03
ZN-65	* -2.71E-03	9.8E-03
ZR-95	* 1.69E-03	6.6E-03
NB-95	* 4.99E-03	4.1E-03
I-131	* 2.39E-03	5.1E-03
CS-134	* 3.32E-03	4.8E-03
CS-137	* 6.17E-03	4.4E-03
BALA-140	* 0.00E-01	5.3E-03
NPK-40	2.45E-01	1.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NLD.*

BY: *MG*

REVIEWED BY: *Dale G. Held*

DATE: *8-13-87*

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 14 AUG 1987 3:11:34 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200
 TYPE: CARTRIDGE QUANTITY: 5.900E 02
 COLLECTION DATE(S): 8/5-8/12/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -2.15E-03	4.3E-03
FE-59	* 7.85E-03	6.9E-03
CO-58	* 3.18E-03	4.1E-03
CO-60	* -6.87E-03	5.4E-03
ZN-65	* -2.88E-03	1.0E-02
ZR-95	* 0.00E-01	6.6E-03
NB-95	* 2.01E-03	4.9E-03
I-131	* -6.55E-04	4.7E-03
CS-134	* 2.36E-03	5.0E-03
CS-137	* 3.78E-03	4.4E-03
BALA-140	* 0.00E-01	3.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *mg*

REVIEWED BY: *Del. E. Hill*

DATE: 8-17-87

121

21 AUG 1987 2:03:01 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 200

TYPE: CARTRIDGE

QUANTITY: 5.990E 02

COLLECTION DATE(S): 8/12-8/19/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	2.7E-03
FE-59	* 0.00E-01	5.7E-03
CO-58	* -1.90E-03	3.6E-03
CO-60	* -1.58E-03	4.2E-03
ZN-65	* -1.03E-02	9.6E-03
ZR-95	* -1.57E-03	4.7E-03
NB-95	6.29E-03	4.1E-03 N/A
I-131	* 1.18E-03	4.0E-03
CS-134	* 1.06E-03	4.6E-03
CS-137	* 2.51E-03	4.0E-03
BALA-140	* 2.14E-03	5.7E-03
NPK-40	3.10E-01	9.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *No peak identified for Nb-95 at 766 keV, MDA: 7 net counts.
NPK-40 at 1161 keV identified by Peak Search and NID.*

BY: *Jim Sigmund*

AUG 21 1987

REVIEWED BY: *John F. Hobb*

DATE: *8-21-87*

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:19:37

Plant Name : CNS
Sample Number : 7
Type/Location : AIR RADIOIODINES / 200
Sample Date : 26-AUG-1987 11:32:00
Acq. Start Time : 9-SEP-1987 09:06:47
Sample Quantity : 602.000 M3
Sample ID : 19AUG TO 26AUG87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.515E-02	0.000E+00		
CO-58	810.76	< 1.197E-02	0.000E+00		
FE-59	1099.22	< 3.133E-02	0.000E+00		
CO-60	1332.47	< 2.029E-02	0.000E+00		
ZN-65	1115.52	< 2.908E-02	0.000E+00		
NB-95	765.78	< 1.817E-02	0.000E+00		
ZR-95	756.72	< 1.180E-02	0.000E+00		
I-131	364.48	< 3.435E-02	0.000E+00		
CS-134	604.66	< 1.348E-02	0.000E+00		
CS-137	661.65	< 2.014E-02	0.000E+00		
BALA-140	537.27	< 0.132	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: [Signature]-----

Date: 4/18/88-----

VAX/VMS Sample Analysis Report generated : 10-SEP-1987 12:34:08

Plant Name : CNS
Sample Number : 12
Type/Location : AIR RADIOIODINES / 200
Sample Date : 2-SEP-1987 08:45:00
Acq. Start Time : 10-SEP-1987 12:03:10
Sample Quantity : 561.000 M3
Sample ID : 26AUG 2SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.457E-02	0.000E+00		
CO-58	810.76	< 7.335E-03	0.000E+00		
FE-59	1099.22	< 1.708E-02	0.000E+00		
CO-60	1332.47	< 1.532E-02	0.000E+00		
ZN-65	1115.52	< 0.000E+00	0.000E+00		
NB-95	765.78	< 1.439E-02	0.000E+00		
ZR-95	756.72	< 2.290E-02	0.000E+00		
I-131	364.48	< 2.281E-02	0.000E+00		
CS-134	604.66	< 1.140E-02	0.000E+00		
CS-137	661.65	< 1.367E-02	0.000E+00		
BALA-140	537.27	< 7.415E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Marcia D. Spivey 9/10/87

Approved by: Pat E. Hall

Date: 9/10/87

Corrected results

Plant Name : CNS
Sample Number : 42
Type/Location : AIR RADIOIODINES / 200
Sample Date : 9-SEP-1987 10:45:00
Acq. Start Time : 14-SEP-1987 01:20:42
Sample Quantity : 577.000 M3
Sample ID : 02SEP TO 09SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.089E-02	0.000E+00		
CO-58	810.76	< 1.073E-02	0.000E+00		
FE-59	1099.22	< 2.223E-02	0.000E+00		
CO-60	1332.47	< 2.502E-02	0.000E+00		
ZN-65	1115.52	< 3.330E-02	0.000E+00		
NB-95	765.78	< 7.431E-03	0.000E+00		
ZR-95	756.72	< 3.030E-02	0.000E+00		
I-131	364.48	< 1.225E-02	0.000E+00		
CS-134	604.66	< 1.082E-02	0.000E+00		
CS-137	661.65	< 9.723E-03	0.000E+00		
BALA-140	537.27	< 7.047E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman 9-14-87

Approved by: Dale E. Hilde Date: 9-14-87

Plant Name : CNS
Sample Number : 61
Type/Location : AIR RADIOIODINES / 200
Sample Date : 16-SEP-1987 09:50:00
Acq. Start Time : 22-SEP-1987 13:55:15
Sample Quantity : 582.000 M3
Sample ID : 9SEP TO 16SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

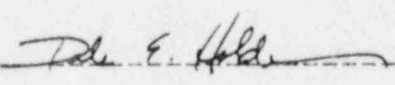
Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.722E-02	0.000E+00		
CO-58	810.76	< 1.404E-02	0.000E+00		
FE-59	1099.22	< 3.208E-02	0.000E+00		
CO-60	1332.47	< 2.079E-02	0.000E+00		
ZN-65	1115.52	< 3.565E-02	0.000E+00		
NB-95	765.78	< 2.060E-02	0.000E+00		
ZR-95	756.72	< 2.245E-02	0.000E+00		
I-131	364.48	< 2.045E-02	0.000E+00		
CS-134	604.66	< 1.202E-02	0.000E+00		
CS-137	661.65	< 1.736E-02	0.000E+00		
BALA-140	537.27	< 7.757E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____



Approved by: _____



Date: 12/18/87

Plant Name : CNS
Sample Number : 82
Type/Location : AIR RADIOIODINES / 200
Sample Date : 23-SEP-1987 10:55:00
Acq. Start Time : 25-SEP-1987 22:12:29
Sample Quantity : 575.000 M3
Sample ID : 16SEP TO 23SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.203E-02	0.000E+00		
CO-58	810.76	< 1.508E-02	0.000E+00		
FE-59	1099.22	< 1.526E-02	0.000E+00		
CO-60	1332.47	< 0.000E+00	0.000E+00		
ZN-65	1115.52	< 3.732E-02	0.000E+00		
NB-95	765.78	< 9.303E-03	0.000E+00		
ZR-95	756.72	< 1.839E-02	0.000E+00		
I-131	364.48	< 1.259E-02	0.000E+00		
CS-134	604.66	< 9.021E-03	0.000E+00		
CS-137	661.65	< 2.173E-02	0.000E+00		
BALA-140	537.27	< 4.661E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 9 / 28 / 87

Corrected results

Plant Name : CNS
Sample Number : 132
Type/Location : AIR RADIOIODINES / 200
Sample Date : 30-SEP-1987 10:25:00
Acq. Start Time : 4-OCT-1987 17:20:24
Sample Quantity : 592.000 M3
Sample ID : 23SEP TO 30SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.455E-02	0.000E+00		
CO-58	810.76	< 1.074E-02	0.000E+00		
FE-59	1099.22	< 1.830E-02	0.000E+00		
CO-60	1332.47	< 1.182E-02	0.000E+00		
ZN-65	1115.52	< 1.384E-02	0.000E+00		
NB-95	765.78	< 9.974E-03	0.000E+00		
ZR-95	756.72	< 1.230E-02	0.000E+00		
I-131	364.48	< 1.041E-02	0.000E+00		
CS-134	604.66	< 1.110E-02	0.000E+00		
CS-137	661.65	< 1.193E-02	0.000E+00		
BALA-140	1596.49	< 2.533E-02	0.000E+00		
K-40	1460.75	0.309	9.014E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: D.H. Spethurst

Approved by: Dale E. Helle

Date: 10/6/87

Plant Name : CNS
Sample Number : 152
Type/Location : AIR RADIOIODINES / 200
Sample Date : 7-OCT-1987 08:57:00
Acq. Start Time : 12-OCT-1987 13:41:49
Sample Quantity : 566.000 M3
Sample ID : 30SEP TO 7OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.019E-02	0.000E+00		
CO-58	810.76	< 1.271E-02	0.000E+00		
FE-59	1099.22	< 3.314E-02	0.000E+00		
CO-60	1332.47	< 8.467E-03	0.000E+00		
ZN-65	1115.52	< 2.883E-02	0.000E+00		
NB-95	765.78	< 1.302E-02	0.000E+00		
ZK-95	756.72	< 2.583E-02	0.000E+00		
I-131	364.48	< 1.253E-02	0.000E+00		
CS-134	604.66	< 1.234E-02	0.000E+00		
CS-137	661.65	< 1.548E-02	0.000E+00		
BALA-140	1596.49	< 1.399E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Michael J.

Approved by: John S. Hill

Date: 12/23/87

VAX/VMS Sample Analysis Report generated : 19-OCT-1987 11:43:44

Plant Name : CNS
Sample Number : 183
Type/Location : AIR RADIOIODINES / 200
Sample Date : 14-OCT-1987 12:20:00
Acq. Start Time : 19-OCT-1987 11:12:34
Sample Quantity : 582.000 M3
Sample ID : 7OCT TO 14OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 6.447E-03	0.000E+00		
CO-58	810.76	< 1.121E-02	0.000E+00		
FE-59	1099.22	< 1.978E-02	0.000E+00		
CO-60	1332.47	< 1.643E-02	0.000E+00		
ZN-65	1115.52	< 2.142E-02	0.000E+00		
NB-95	765.78	< 1.178E-02	0.000E+00		
ZR-95	756.72	< 2.059E-02	0.000E+00		
I-131	364.48	< 1.033E-02	0.000E+00		
CS-134	604.66	< 8.245E-03	0.000E+00		
CS-137	661.65	< 1.283E-02	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
K-40	1460.75	0.224	5.979E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: *J. K. Brotherton* -----

Approved by: *Bob S. Hall* -----


Date: 10/22/87 -----

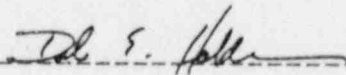
Plant Name : CNS
Sample Number : 204
Type/Location : AIR RADIOIODINES / 200
Sample Date : 21-OCT-1987 10:40:00
Acq. Start Time : 26-OCT-1987 15:02:41
Sample Quantity : 621.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA rec LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.375E-02	0.000E+00		
CO-58	810.76	< 6.833E-03	0.000E+00		
FE-59	1099.22	< 2.481E-02	0.000E+00		
CO-60	1332.47	< 1.798E-02	0.000E+00		
ZN-65	1115.52	< 2.454E-02	0.000E+00		
NB-95	765.78	< 6.843E-03	0.000E+00		
ZR-95	756.72	< 1.441E-02	0.000E+00		
I-131	364.48	< 1.211E-02	0.000E+00		
CS-134	604.66	< 7.132E-03	0.000E+00		
CS-137	661.65	< 1.187E-02	0.000E+00		
BALA-140	1596.49	< 2.230E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 10/26/87

Plant Name : CNS
Sample Number : 220
Type/Location : AIR RADIOIODINES / 200
Sample Date : 28-OCT-1987 11:47:00
Acq. Start Time : 3-NOV-1987 10:11:42
Sample Quantity : 636.000 M3
Sample ID : 21OCT TO 28OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 6.812E-03	0.000E+00		
CO-58	810.76	< 9.546E-03	0.000E+00		
FE-59	1099.22	< 3.183E-02	0.000E+00		
CO-60	1332.47	< 1.348E-02	0.000E+00		
ZN-65	1115.52	< 2.728E-02	0.000E+00		
NB-95	765.78	< 1.269E-02	0.000E+00		
ZR-95	756.72	< 2.166E-02	0.000E+00		
I-131	364.48	< 1.473E-02	0.000E+00		
CS-134	604.66	< 8.248E-03	0.000E+00		
CS-137	661.65	< 9.102E-03	0.000E+00		
BALA-140	1596.49	< 1.309E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: *Michael J*-----

Approved by: *John E. Hill*-----

Date: 11 / 5 / 87-----

Plant Name : CNS
Sample Number : 243
Type/Location : AIR RADIOIODINES / 200
Sample Date : 4-NOV-1987 09:55:00
Acq. Start Time : 6-NOV-1987 16:43:50
Sample Quantity : 607.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.163E-03	0.000E+00		
CO-58	810.76	< 1.389E-02	0.000E+00		
FE-59	1099.22	< 2.674E-02	0.000E+00		
CO-60	1332.47	< 1.625E-02	0.000E+00		
ZN-65	1115.52	< 3.104E-02	0.000E+00		
NB-95	765.78	< 1.594E-02	0.000E+00		
ZR-95	756.72	< 1.569E-02	0.000E+00		
I-131	364.48	< 1.158E-02	0.000E+00		
CS-134	604.66	< 1.330E-02	0.000E+00		
CS-137	661.65	< 1.213E-02	0.000E+00		
BALA-140	1596.49	< 2.246E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman-----

Approved by: Ed E. Kold-----

Date: 11 / 7 / 87-----

VAX/VMS Sample Analysis Report generated : 13-NOV-1987 13:52:34

Plant Name : CNS
Sample Number : 262
Type/Location : AIR RADIOIODINES / 200
Sample Date : 11-NOV-1987 11:20:00
Acq. Start Time : 13-NOV-1987 13:21:14
Sample Quantity : 648.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.325E-02	0.000E+00		
CO-58	810.76	< 1.213E-02	0.000E+00		
FE-59	1099.22	< 2.623E-02	0.000E+00		
CO-60	1332.47	< 1.186E-02	0.000E+00		
ZN-65	1115.52	< 1.969E-02	0.000E+00		
NB-95	765.78	< 1.010E-02	0.000E+00		
ZR-95	756.72	< 4.486E-03	0.000E+00		
I-131	364.48	< 1.149E-02	0.000E+00		
CS-134	604.66	< 6.455E-03	0.000E+00		
CS-137	661.65	< 1.588E-02	0.000E+00		
BALA-140	1596.49	< 1.629E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman-----

Approved by: Dale S. Fuller-----

Date: 11/16/87-----

VAX/VMS Sample Analysis Report generated : 23-NOV-1987 15:52:56

Plant Name : CNS
Sample Number : 281
Type/Location : AIR RADIOIODINES / 200
Sample Date : 18-NOV-1987 09:35:00
Acq. Start Time : 23-NOV-1987 15:21:47
Sample Quantity : 459.000 M3
Sample ID : 11NOV TO 18NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.054E-02	0.000E+00		
CO-58	810.76	< 1.340E-02	0.000E+00		
FE-59	1099.22	< 5.551E-02	0.000E+00		
CO-60	1332.47	< 3.307E-02	0.000E+00		
ZN-65	1115.52	< 3.190E-02	0.000E+00		
NB-95	765.78	< 1.512E-02	0.000E+00		
ZR-95	756.72	< 3.337E-02	0.000E+00		
I-131	364.48	< 1.744E-02	0.000E+00		
CS-134	604.66	< 1.022E-02	0.000E+00		
CS-137	661.65	< 1.740E-02	0.000E+00		
BALA-140	1596.49	< 2.763E-02	0.000E+00		
K-40	1460.75	0.540	0.168		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Lynn L. Brotherton

Approved by: John E. Hall

Date: 11/24/87

VAX/VMS Sample Analysis Report generated : 2-DEC-1987 13:49:45

Plant Name : CNS
Sample Number : 297
Type/Location : AIR RADIOIODINES / 200
Sample Date : 25-NOV-1987 13:55:00
Acq. Start Time : 2-DEC-1987 13:18:41
Sample Quantity : 644.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi /M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.707E-02	0.000E+00		
CO-58	810.76	< 1.126E-02	0.000E+00		
FE-59	1099.22	< 1.942E-02	0.000E+00		
CO-60	1332.47	< 1.486E-02	0.000E+00		
ZN-65	1115.52	< 3.273E-02	0.000E+00		
NB-95	765.78	< 1.811E-02	0.000E+00		
ZR-95	756.72	< 2.327E-02	0.000E+00		
I-131	364.48	< 1.735E-02	0.000E+00		
CS-134	604.66	< 1.515E-02	0.000E+00		
CS-137	661.65	< 1.191E-02	0.000E+00		
BALA-140	1596.49	< 2.141E-02	0.000E+00		
K-40	1460.75	0.228	8.507E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____

Approved by: _____

Date: 12 / 3 / 87

Plant Name : CNS
Sample Number : 323
Type/Location : AIR RADIOIODINES / 200
Sample Date : 2-DEC-1987 10:25:00
Acq. Start Time : 8-DEC-1987 12:53:14
Sample Quantity : 559.000 M3
Sample ID : 25NOV TO 2DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.738E-02	0.000E+00		
CO-58	810.76	< 1.442E-02	0.000E+00		
FE-59	1099.22	< 2.888E-02	0.000E+00		
CO-60	1332.47	< 1.866E-02	0.000E+00		
ZN-65	1115.52	< 2.893E-02	0.000E+00		
NB-95	765.78	< 1.852E-02	0.000E+00		
ZR-95	756.72	< 2.265E-02	0.000E+00		
I-131	364.48	< 1.950E-02	0.000E+00		
CS-134	604.66	< 1.240E-02	0.000E+00		
CS-137	661.65	< 1.406E-02	0.000E+00		
BALA-140	1596.49	< 2.368E-02	0.000E+00		
K-40	1460.75	0.255	0.106		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Bigman

Approved by: Dale E. Holt

Date: 12/10/87

Plant Name : CNS
Sample Number : 339
Type/Location : AIR RADIOIODINES / 200
Sample Date : 9-DEC-1987 11:50:00
Acq. Start Time : 14-DEC-1987 14:10:30
Sample Quantity : 647.000 M3
Sample ID : 2DEC TO 9DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.515E-02	0.000E+00		
CO-58	810.76	< 1.273E-02	0.000E+00		
FE-59	1099.22	< 3.064E-02	0.000E+00		
CO-60	1332.47	< 2.245E-02	0.000E+00		
ZN-65	1115.52	< 3.241E-02	0.000E+00		
NB-95	765.78	< 1.523E-02	0.000E+00		
ZR-95	756.72	< 2.240E-02	0.000E+00		
I-131	364.48	< 1.478E-02	0.000E+00		
CS-134	604.66	< 1.112E-02	0.000E+00		
CS-137	661.65	< 1.518E-02	0.000E+00		
BALA-140	1596.49	< 1.925E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Muchal

Approved by: Dale E. Hilde

Date: 12/23/87

VAX/VMS Sample Analysis Report generated : 22-DEC-1987 16:38:56

Plant Name : CNS
Sample Number : 355
Type/Location : AIR RADIOIODINES / 200
Sample Date : 16-DEC-1987 09:25:00
Acq. Start Time : 22-DEC-1987 16:07:47
Sample Quantity : 591.000 M3
Sample ID : 9DEC TO 16DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.418E-03	0.000E+00		
CO-58	810.76	< 9.114E-03	0.000E+00		
FE-59	1099.22	< 3.234E-02	0.000E+00		
CO-60	1332.47	< 1.869E-02	0.000E+00		
ZN-65	1115.52	< 2.812E-02	0.000E+00		
NB-95	765.78	< 1.041E-02	0.000E+00		
ZR-95	756.72	< 2.281E-02	0.000E+00		
I-131	364.48	< 1.515E-02	0.000E+00		
CS-134	604.66	< 9.674E-03	0.000E+00		
CS-137	661.65	< 1.378E-02	0.000E+00		
BALA-140	1596.49	< 2.474E-02	0.000E+00		
K-40	1460.75	0.393	7.870E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. K. G.

Approved by: D. F. H.

Date: 11/1/88

VAX/VMS Sample Analysis Report generated : 6-JAN-1988 12:36:56

Plant Name : CNS
Sample Number : 391
Type/Location : AIR RADIODIODINES / 200
Sample Date : 23-DEC-1987 11:25:00
Acq. Start Time : 6-JAN-1988 12:05:47
Sample Quantity : 491.000 M3
Sample ID : 16DEC TO 23DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.790E-02	0.000E+00		
CO-58	810.76	< 1.569E-02	0.000E+00		
FE-59	1099.22	< 4.200E-02	0.000E+00		
CO-60	1332.47	< 2.586E-02	0.000E+00		
ZN-65	1115.52	< 3.968E-02	0.000E+00		
NB-95	765.78	< 2.609E-02	0.000E+00		
ZR-95	756.72	< 3.261E-02	0.000E+00		
I-131	364.48	< 3.499E-02	0.000E+00		
CS-134	604.66	< 1.216E-02	0.000E+00		
CS-137	661.65	< 1.627E-02	0.000E+00		
BALA-140	1596.49	< 7.409E-02	0.000E+00		
K-40	1460.75	0.348	0.114		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: L. C. Brotherton

Approved by: D. G. Holt

Date: 1 / 7 / 88

Plant Name : CNS
Sample Number : 396
Type/Location : AIR RADIOIODINES / 200
Sample Date : 30-DEC-1987 10:23:00
Acq. Start Time : 8-JAN-1988 11:21:59
Sample Quantity : 596.000 M3
Sample ID : 23DEC TO 30DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.933E-02	0.000E+00		
CO-58	810.76	< 1.880E-02	0.000E+00		
FE-59	1099.22	< 4.738E-02	0.000E+00		
CO-60	1332.47	< 2.882E-02	0.000E+00		
ZN-65	1115.52	< 5.574E-02	0.000E+00		
NB-95	765.78	< 1.994E-02	0.000E+00		
ZR-95	756.72	< 3.867E-02	0.000E+00		
I-131	364.48	< 2.230E-02	0.000E+00		
CS-134	604.66	< 1.412E-02	0.000E+00		
CS-137	661.65	< 1.792E-02	0.000E+00		
BALA-140	1596.49	< 1.057E-02	0.000E+00		
K-40	1460.75	0.267	0.129		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: LJS.

Approved by: Dale E. Hold

Date: 1/11/88

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 16 JAN 1987 3:59:39 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WATAWBA AIRBORNE RADIOIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 6.060E 02
 COLLECTION DATE(S): 12/31-1/7/87 UNITS: CURIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	4.8E-03
FE-59	* -5.69E-03	1.1E-02
CO-58	* 4.42E-03	5.2E-03
CO-60	* -3.35E-03	4.1E-03
ZN-65	* 2.86E-03	1.0E-02
ZR-95	* 1.84E-03	6.6E-03
NB-95	* 1.12E-03	4.1E-03
I-131	* 5.85E-03	7.1E-03
CS-134	* 1.16E-03	3.8E-03
CS-137	* 9.20E-04	3.8E-03
BALA-140	* 0.00E-01	6.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *LXT*

VIEWED BY: *Marcotone*

DATE: *1-18-87*

 16 JAN 1987 11:20:25 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE RADIOIODINES CMP. - 201
 PE: CARTRIDGE QUANTITY: 6.410E 02
 COLLECTION DATE(S): 1/7-1/14/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.07E-03	4.2E-03
FE-59	* 2.59E-03	8.6E-03
CO-58	* -2.12E-03	4.0E-03
CO-60	* 0.00E-01	2.3E-03
ZN-65	* 5.66E-03	1.1E-02
ZR-95	* 0.00E-01	5.6E-03
NB-95	* 2.02E-03	5.0E-03
I-131	* 6.96E-04	4.5E-03
CS-134	8.27E-03	5.7E-03
CS-137	7.59E-03	4.5E-03
BALA-140	* 2.32E-03	4.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman* JAN 16 1987

 REVIEWED BY: *Marcia Lane* DATE: 1-20-87

137

26 JAN 1987 5:44:17 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201
TYPE: CARTRIDGE QUANTITY: 6.220E 02
ACTION DATE(S): 1/14-1/21/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 5.56E-03	4.3E-03
FE-57	* 0.00E-01	8.7E-03
CO-58	* 1.12E-03	4.6E-03
CO-60	* 0.00E-01	4.2E-03
ZN-65	* -2.91E-03	8.7E-03
ZR-95	* 0.00E-01	5.9E-03
NB-95	* 3.29E-03	4.8E-03
I-131	* -3.72E-03	6.2E-03
CS-134	* 0.00E-01	4.2E-03
CS-137	* 4.84E-03	4.2E-03
BALA-140	* -2.81E-03	7.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *MZ-*

REVIEWED BY: *Marcio* DATE: *1/31/87*

17

2 FEB 1987 12:47:27 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

C:\NWBA AIRBORNE RADIOIODINES CMP. - 201
: CARTRIDGE QUANTITY: 4.870E 02
COLLECTION DATE(S): 1/21-1/28/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	5.7E-03
FE-59	* 0.00E-01	1.1E-02
CU-58	* 2.84E-03	5.7E-03
CO-60	* 0.00E-01	4.3E-03
ZN-65	* 0.00E-01	1.0E-02
ZR-95	* 2.38E-03	8.6E-03
NB-95	* 6.92E-03	6.4E-03
I-131	* -3.50E-03	7.8E-03
CS-134	* -1.56E-03	5.2E-03
CS-137	* -2.47E-03	6.3E-03
BALA-140	* 3.55E-03	7.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

FEB 2 1987

REVIEWED BY: *Mercutio*

DATE: *2/3/87*

6 FEB 1987 11:21:47 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

C WBA AIRBORNE RADIOIODINES CMP. - 201
.: CARTRIDGE QUANTITY: 6.420E 02
COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	2.8E-03
FE-59	* -2.40E-03	4.2E-03
CO-58	* -1.94E-03	2.7E-03
CO-60	* -3.16E-03	3.2E-03
ZN-65	* 0.00E-01	8.4E-03
ZR-95	* 6.44E-03	6.8E-03
NB-95	* 1.84E-03	3.9E-03
I-131	* -2.38E-03	4.4E-03
CS-134	* 0.00E-01	4.6E-03
CS-137	* 3.68E-04	4.3E-03
BALA-140	* -2.20E-03	4.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigmund

FEB 06 1987

REVIEWED BY:

MacAdams

DATE: 2-6-87

 18 FEB 1987 3:18:57 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201
 : CARTRIDGE QUANTITY: 5.090E 02
 COLLECTION DATE(S): 2/4-2/11/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -2.68E-03	3.8E-03
FE-59	* -3.41E-03	5.9E-03
CO-58	* 2.74E-03	5.1E-03
Q-60	* 0.00E-01	0.0E-01
ZN-65	* -3.50E-03	9.3E-03
ZR-95	* 0.00E-01	3.2E-03
NB-95	8.17E-03	5.8E-03 N/A
I-131	* 4.94E-03	7.0E-03
CS-134	* 5.84E-03	6.2E-03
CS-137	* 2.29E-03	4.3E-03
BALA-140	* -3.83E-03	8.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *MM*

REVIEWED BY: *Maria Lane*

DATE: 2-23-87

256

 23 FEB 1987 1:30:44 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 6.470E 02
 COLLECTION DATE(S): 2/11-2/18/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	* -9.79E-04	4.5E-03
FE-59	* -2.39E-03	8.6E-03
CO-58	* 9.66E-04	3.2E-03
CO-60	* -4.70E-03	5.2E-03
ZN-65	* 0.00E-01	1.0E-02
ZR-95	* 0.00E-01	6.4E-03
NB-95	* 1.83E-03	4.1E-03
I-131	* -5.96E-04	2.6E-03
CS-134	* 0.00E-01	4.0E-03
CS-137	* -1.72E-03	3.9E-03
BALA-140	* 0.00E-01	3.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Ld/s..*

FEB 23 1987

REVIEWED BY: *Marcia Lane*

DATE: *2-24-87*

 27 FEB 1987 8:03:39 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CHIAWBA AIRBORNE RADIOIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 6.450E 02
 COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	2.6E-03
FE-59	* 4.99E-03	7.1E-03
CO-58	* 2.06E-03	3.3E-03
CO-60	* 1.69E-03	2.9E-03
ZN-65	* -2.73E-03	9.0E-03
ZR-95	1.36E-02	6.8E-03 NP
NB-95	* 2.93E-03	3.5E-03
I-131	* -1.28E-03	3.6E-03
CS-134	8.03E-03	3.8E-03 NP
CS-137	6.32E-03	3.5E-03 NP
BALA-140	* 4.64E-03	4.6E-03



* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peaks identified for: Zr-95 at 756 keV
 Cs-134 at 795 keV
 Cs-137 at 662 keV

BY: *mmz*

VIEWED BY: *Dale S. Holder*

DATE: 3/4/87

1

10 MAR 1987 8:36:59 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

WBA AIRBORNE RADIOIODINES CMP. - 201
C: CARTRIDGE QUANTITY: 5.630E 02
COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -2.08E-03	4.2E-03
FE-59	* 0.00E-01	8.3E-03
CO-58	* -2.09E-03	5.1E-03
CO-60	* 0.00E-01	2.4E-03
ZN-65	* -8.26E-03	1.3E-02
ZR-93	* -5.19E-03	7.1E-03
NB-95	* 1.02E-03	4.7E-03
I-131	* 4.99E-03	6.1E-03
CS-134	* -4.54E-03	4.8E-03
CS-137	* -1.78E-03	4.0E-03
BALA-140	* 0.00E-01	5.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigman

MAR 10 1987

VIEWED BY:

Dale E. Hilde

DATE:

3/12/87

 13 MAR 1987 11:30:34 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C WBA AIRBORNE RADIOIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 6.470E 02
 COLLECTION DATE(S): 3/4-3/11/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	4.0E-03
FE-59	* 0.00E-01	8.0E-03
CO-58	* -2.09E-03	3.9E-03
CO-60	* -1.63E-03	3.7E-03
ZN-65	* -2.77E-03	1.1E-02
ZR-95	* 1.73E-03	6.7E-03
NB-95	* -3.96E-03	4.6E-03
I-131	* -2.02E-03	4.3E-03
CS-134	* 0.00E-01	2.3E-03
CS-137	* 1.86E-03	3.7E-03
BALA-140	* -2.26E-03	5.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigman

MAR 13 1987

 REVIEWED BY:

Del. F. Holt

DATE:

3/13/87

1102

 20 MAR 1987 3:49:47 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 6.420E 02
 COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 2.14E-03	5.0E-03
FE-59	* 0.00E-01	8.0E-03
CO-58	* -2.11E-03	4.2E-03
CO-60	* 0.00E-01	2.3E-03
ZN-65	* -2.79E-03	7.4E-03
ZR-95	* 1.22E-02	9.1E-03
NB-95	* 0.00E-01	4.5E-03
I-131	* 2.06E-03	5.1E-03
CS-134	* -1.18E-03	3.1E-03
CS-137	* -1.88E-03	4.4E-03
BALA-140	* 0.00E-01	6.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *my*

 REVIEWED BY: *Dale S. Holt*

DATE: *3/23/87*

4 APR 1987 5:55:06 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATOWBA AIRBORNE RADIOIODINES CMP. - 201
 T : CARTRIDGE QUANTITY: 5.690E 02
 COLLECTION DATE(S): 3/18-3/25/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -1.04E-03	4.3E-03
FE-59	* -2.79E-03	8.4E-03
CO-58	* -2.17E-03	4.6E-03
CO-60	* -1.67E-03	5.0E-03
ZN-65	* -8.29E-03	1.0E-02
ZR-95	* 1.08E-02	8.1E-03
NB-95	6.68E-03	4.7E-03
I-131	* 0.00E-01	7.8E-03
CS-134	* -4.51E-03	4.8E-03
CS-137	* 8.83E-04	4.6E-03
BALA-140	* -3.53E-03	7.9E-03
NPK-40	4.25E-01	1.6E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for Nb-95 at 766 keV. MDA = 6 net counts.*

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: *4-6-87*

27

15 APR 1987 7:42:14 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIODINES CMP. - 201

TYPE: CARTRIDGE

QUANTITY: 5.650E 02

SECTION DATE(S): 4/1-4/8/87

UNITS: CUBIC METERS

RADIONUCLIDE
GAMMA SPEC

ACTIVITY (PCI/UT) SIGMA (PCI/UT)

MN-54	* 0.00E-01	5.8E-03
FE-59	* 2.94E-03	9.8E-03
CO-58	* -2.32E-03	4.6E-03
CO-60	* 3.59E-03	6.7E-03
ZN-65	* -6.09E-03	8.6E-03
ZR-95	* 0.00E-01	8.6E-03
NB-95	* -1.15E-03	5.3E-03
I-131	* -5.12E-03	6.9E-03
CS-134	* 0.00E-01	3.9E-03
CS-137	* 4.93E-03	4.9E-03
BALA-140	* -3.25E-03	7.3E-03
NPX-40	3.97E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigman

APR 15 1987

REVIEWED BY:

Dale S. Hall

DATE:

4-15-87

 17 APR 1987 2:43:34 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201
 E: CARTRIDGE QUANTITY: 6.480E 02
 COLLECTION DATE(S): 4/8-4/15/87 UNITS: CUBIC METERS

RADIOISOTOPE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 0.00E-01	3.4E-03
FE-59	* -2.16E-03	6.5E-03
CO-58	* -1.76E-03	3.5E-03
CO-60	* -1.46E-03	3.9E-03
ZN-65	* -1.19E-02	9.8E-03
ZR-95	* 4.36E-03	6.7E-03
NB-95	* 5.83E-03	4.2E-03
I-131	* 0.00E-01	4.1E-03
CS-134	* 1.97E-03	3.9E-03
CS-137	* 0.00E-01	4.1E-03
BALA-140	* 2.00E-03	4.5E-03
NPK-40	5.29E-01	1.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1761 has identified by Rock Search and NID.

BY: *MW*

REVIEWED BY: *Dale E. Holt* DATE: *4-21-87*

37

 28 APR 1987 11:33:44 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201

TYPE: CARTRIDGE QUANTITY: 5.620E 02
 COLLECTION DATE(S): 4/15-4/22/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	* 2.08E-03	4.2E-03
FE-59	* -2.65E-03	9.6E-03
CO-58	* -2.11E-03	4.0E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* -8.30E-03	1.1E-02
ZR-95	* -6.99E-03	7.8E-03
NB-95	* 5.19E-03	5.2E-03
I-131	* 5.36E-03	7.6E-03
CS-134	* -1.14E-03	5.0E-03
CS-137	* -8.93E-04	5.0E-03
BALA-140	* 2.85E-03	7.5E-03
NPK-40	7.79E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *Jim Sigman*

APR 28 1987

REVIEWED BY: *Dale F. Jolly*

DATE: *4/25/87*

44

 1 MAY 1987 1:23:36 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201

TYPE: CARTRIDGE

QUANTITY: 5.760E 02

SECTION DATE(S): 4/22-4/29/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.17E-03	3.5E-03
FE-59	* 1.12E-02	9.7E-03
CO-58	* 1.15E-03	4.1E-03
CO-60	* 1.91E-03	4.3E-03
ZN-65	* -3.06E-03	1.0E-02
ZR-95	* 0.00E-01	3.8E-03
NB-95	* 3.26E-03	3.9E-03
I-131	* -1.40E-03	4.0E-03
CS-134	* 2.56E-03	5.1E-03
CS-137	* 2.04E-03	3.5E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	3.17E-01	9.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigman*

MAY 01 1987

REVIEWED BY: *Dale F. Haller*

DATE: 5-1-87

47

 11 MAY 1987 1:38:25 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA AIRBORNE RADIOIODINES CMF. - 201
 TYPE: CARTRIDGE QUANTITY: 5.680E 02
 COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.03E-03	3.4E-03
FE-59	* 7.75E-03	7.7E-03
CO-58	* -3.10E-03	4.0E-03
CO-60	* -1.67E-03	4.4E-03
ZN-65	* -8.19E-03	9.8E-03
ZR-95	* -6.85E-03	7.7E-03
NB-95	1.21E-02	5.5E-03 N/A
I-131	* 5.70E-03	6.8E-03
CS-134	* 6.75E-03	5.0E-03
CS-137	* -1.77E-03	4.5E-03
BALA-140	* -5.35E-03	7.6E-03
NFK-40	4.31E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Nb-95 not identified by NIO, MDA net counts = 12.
 K-40 identified by NIO

BY: Dale S. Holden

5-11-87

REVIEWED BY: Marcia Jones

DATE: 5-18-87

 19 MAY 1987 9:50:49 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 201
 E: CARTRIDGE QUANTITY: 4.160E 02
 COLLECTION DATE(S): 5/6-5/11/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -3.34E-03	5.8E-03
FE-59	* 0.00E-01	1.0E-02
CO-58	* -1.71E-03	5.1E-03
CO-60	* 2.55E-03	6.7E-03
ZN-65	* -4.37E-03	1.2E-02
ZR-95	* 0.00E-01	1.3E-02
NB-95	* 0.00E-01	6.8E-03
I-131	* -4.83E-03	1.1E-02
CS-134	* 1.83E-03	7.1E-03
CS-137	* -1.45E-03	7.5E-03
BALA-140	* 0.00E-01	9.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *Deviation - sampler blown fuse after 5 days of run time.*

BY: *Jim Sigmon*

MAY 19 1987

REVIEWED BY: *Dale S. Hall*

DATE: *5.31.87*

 4 JUN 1987 9:26:45 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 LAWBA AIRBORNE RADIOIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 5.690E 02
 COLLECTION DATE(S): 5/13-5/20/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.21E-03	4.0E-03
FE-59	* 6.90E-03	9.8E-03
CO-58	* -1.32E-03	4.4E-03
CO-60	* 3.88E-03	5.5E-03
ZN-65	* -3.22E-03	8.5E-03
ZR-95	* 0.00E-01	8.8E-03
NB-95	* -2.84E-03	4.9E-03
I-131	* -6.45E-03	1.0E-02
CS-134	* 0.00E-01	5.3E-03
CS-137	* 2.06E-03	4.1E-03
BALA-140	* 5.29E-03	1.2E-02
NFK-40	1.79E-01	8.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NFK-40 at 461 keV identified by Peak Search and AID.*

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: *6-5-87*

62

 1 JUN 1987 3:11:57 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

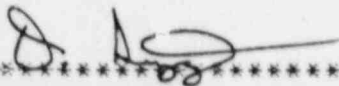
AWBA AIRBORNE RADIOIODINES CMP. - 201
 E: CARTRIDGE QUANTITY: 5.660E 02
 COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 1.22E-03	5.6E-03
FE-59	* 1.21E-02	1.0E-02
CO-58	* -1.23E-03	3.7E-03
CO-60	* 0.00E-01	5.3E-03
ZN-65	* 0.00E-01	7.8E-03
ZR-95	* -4.09E-03	7.6E-03
NB-95	1.92E-02	6.8E-03 N/A
I-131	* 8.02E-03	7.6E-03
CS-134	* 0.00E-01	6.0E-03
CS-137	* 0.00E-01	5.2E-03
BALA-140	* 0.00E-01	4.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Nb-95 at 766 keV, mdf = 16 net counts.

BY:



REVIEWED BY:

Dale S. Holden

DATE:

6-2-87

12

 11 JUN 1987 11:48:05 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 5.680E 02
 COLLECTION DATE(S): 5/27-6/3/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 3.67E-03	5.0E-03
FE-59	* 3.11E-03	1.3E-02
CO-58	* -1.25E-03	2.8E-03
CO-60	* 0.00E-01	2.6E-03
ZN-65	* 6.40E-03	1.3E-02
ZR-95	* 4.17E-03	9.3E-03
NB-95	* -2.50E-03	6.1E-03
I-131	* -5.99E-03	8.4E-03
CS-134	* 4.01E-03	6.4E-03
CS-137	* 2.12E-03	4.7E-03
BALA-140	* -3.41E-03	5.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *YKB*

 VIEWED BY: *D. E. Hall* DATE: *6-17-87*

67 *****
16 JUN 1987 11:02:35 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201

TYPE: CARTRIDGE

QUANTITY: 5.970E 02

SECTION DATE(S): 6/3-6/10/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -2.14E-03	4.0E-03
FE-59	* 0.00E-01	1.0E-02
CO-58	* 2.17E-03	4.3E-03
CO-60	* -1.70E-03	5.1E-03
ZN-65	* -2.87E-03	7.6E-03
ZR-95	* 0.00E-01	5.1E-03
NB-95	* 2.15E-03	4.0E-03
I-131	* 9.05E-04	5.8E-03
CS-134	* -1.17E-03	4.8E-03
CS-137	* -9.33E-04	4.5E-03
BALA-140	* -2.95E-03	5.1E-03
NPK-40	3.52E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *My*

REVIEWED BY: *John G. Holden*

DATE: *6-17-87*

77

22 JUN 1987 2:22:53 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201

TYPE: CARTRIDGE

QUANTITY: 6.420E 02

COLLECTION DATE(S): 6/10-6/17/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -3.23E-03	3.9E-03
FE-59	* 0.00E-01	3.8E-03
CO-58	* 0.00E-01	2.7E-03
CO-60	* 1.65E-03	5.5E-03
ZN-65	* 0.00E-01	6.9E-03
ZR-95	* -3.61E-03	8.1E-03
NB-95	* -2.12E-03	4.2E-03
I-131	* -1.78E-03	6.8E-03
CS-134	* -2.36E-03	4.4E-03
CS-137	* 1.88E-03	4.0E-03
BALA-140	* 2.71E-03	4.7E-03
NPK-40	3.77E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Npk-40 at 1461 has identified by Peak Search and NID.

BY: *Jim Sigmey*

JUN 22 1987

REVIEWED BY: *Dale F. Walter*

DATE: *6-23-87*

82

 30 JUN 1987 3:32:29 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE RADIOIODINES CMP. - 201
 E: CARTRIDGE QUANTITY: 6.360E 02
 COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -9.13E-04	3.0E-03
FE-59	* 0.00E-01	8.2E-03
CO-58	* -1.80E-03	3.1E-03
CO-60	* 0.00E-01	2.1E-03
ZN-65	* -7.25E-03	8.7E-03
ZR-95	* 4.44E-03	6.5E-03
NB-95	* 4.24E-03	3.7E-03
I-131	* 1.69E-03	3.8E-03
CS-134	* -2.00E-03	3.7E-03
CS-137	* 7.89E-04	3.8E-03
BALA-140	* 0.00E-01	2.9E-03
NPK-40	5.69E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *gmg*

 REVIEWED BY: *Dale G. Hobb* DATE: *7-1-87*

 9 JUL 1987 4:06:24 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE RADIOIODINES CMP. - 201
 PE: CARTRIDGE QUANTITY: 6.340E 02
 COLLECTION DATE(S): 6/24-7/1/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	6.08E-03	4.1E-03
FE-59	* -5.35E-03	8.5E-03
CO-58	* -3.14E-03	3.5E-03
CO-60	* -3.20E-03	3.9E-03
ZN-65	* 0.00E-01	1.0E-02
ZR-95	* -6.97E-03	7.0E-03
NB-95	* 1.05E-03	4.3E-03
I-131	* 1.02E-03	6.6E-03
CS-134	* 1.11E-03	4.3E-03
CS-137	* 1.76E-03	3.5E-03
BALA-140	* -3.12E-03	7.0E-03
NPK-40	3.55E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.
 No Peak identified for Mn-54 at 835 keV, MDA = 6 net counts.*

BY:



REVIEWED BY:



DATE:

7-13-87

92

 13 JUL 1987 5:01:06 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 201

TYPE: CASTRIDGE

QUANTITY: 6.250E 02

COLLECTION DATE(S): 7/1-7/8/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.08E-03	3.6E-03
FE-59	* 5.41E-03	7.6E-03
CO-58	* 2.18E-03	3.8E-03
CO-60	* -1.76E-03	3.1E-03
ZN-65	* 0.00E-01	9.0E-03
ZR-95	* 1.81E-03	5.4E-03
NB-95	* 5.33E-03	4.9E-03
I-131	* 4.25E-03	5.0E-03
CS-134	* 0.00E-01	4.1E-03
CS-137	* 0.00E-01	4.4E-03
BALA-140	* -2.85E-03	4.9E-03
NPK-40	1.74E-01	6.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Mhy*

 REVIEWED BY: *Dale S. Hold* DATE: *7-14-87*

97

 20 JUL 1987 3:27:22 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIODIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 6.250E 02
 COLLECTION DATE(S): 7/8-7/15/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	* 1.11E-03	4.6E-03
FE-59	* -2.74E-03	8.2E-03
CO-58	* -1.12E-03	4.3E-03
CO-60	* 0.00E-01	3.4E-03
ZN-65	* -5.78E-03	9.1E-03
ZR-95	* 1.85E-03	7.6E-03
NB-95	9.80E-03	5.0E-03
I-131	* 0.00E-01	4.5E-03
CS-134	* -1.21E-03	4.7E-03
CS-137	* 0.00E-01	3.9E-03
BALA-140	* 0.00E-01	5.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No Peak identified for Nb-95 at 766 keV, MDA = 9 net counts.

BY:

Jim Sigmen

JUL 20 1987

REVIEWED BY:

De S. Hall

DATE:

7-21-87

 24 JUL 1987 2:16:21 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201

E: CARTRIDGE

QUANTITY: 6.290E 02

LECTION DATE(S): 7/15-7/22/87

UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -1.09E-03	4.5E-03
FE-59	* 2.60E-03	5.8E-03
CO-58	* 1.08E-03	4.4E-03
CO-60	* -1.68E-03	4.4E-03
ZN-65	* 0.00E-01	5.7E-03
ZR-95	* 5.34E-03	7.8E-03
NB-95	* 0.00E-01	4.6E-03
I-131	* -6.98E-04	4.6E-03
CS-134	* 1.20E-03	4.3E-03
CS-137	* -9.57E-04	4.2E-03
BALA-140	* 0.00E-01	3.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigmen*

JUL 24 1987

REVIEWED BY: *Dale S. Allen*

DATE: 7-27-87

 5 AUG 1987 10:32:11 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

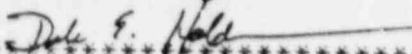
CATAWBA AIRBORNE RADIOIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 5.940E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (FCI/UT)	SIGMA (PCI/UT)
MN-54	* 2.33E-03	3.7E-03
FE-59	* 5.86E-03	9.3E-03
CO-58	* 2.37E-03	5.3E-03
CO-60	* 3.57E-03	5.0E-03
ZN-65	* -3.05E-03	8.1E-03
ZR-95	* -1.97E-03	7.6E-03
NB-95	* 4.68E-03	5.2E-03
I-131	* 1.05E-03	6.2E-03
CS-134	* 0.00E-01	2.6E-03
CS-137	* 2.03E-03	4.5E-03
BALA-140	* 0.00E-01	4.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: 

REVIEWED BY: 

DATE: 8-7-87

112

 11 AUG 1987 12:55:28 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINES CMP. - 201
 TYPE: CARTRIDGE QUANTITY: 6.180E 02
 COLLECTION DATE(S): 7/29-8/5/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.09E-03	2.4E-03
FE-59	* -2.73E-03	6.1E-03
CO-58	* 0.00E-01	2.7E-03
CO-60	5.35E-03	4.0E-03
ZN-65	* 0.00E-01	8.2E-03
ZR-95	* -5.49E-03	6.1E-03
NB-95	* -2.16E-03	3.7E-03
I-131	* 7.72E-03	5.5E-03
CS-134	* -1.20E-03	4.3E-03
CS-137	* 0.00E-01	3.3E-03
BALA-140	* 0.00E-01	4.1E-03
NPK-40	1.76E-01	6.7E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Co-60 at 1332 keV, MDA: 3 net counts.
 NPK-40 at 1461 keV identified by peak search and NID.

BY: *My*

 REVIEWED BY: *Det S. Hold* DATE: *8-13-87*

14 AUG 1987 3:11:50 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201

E: CARTRIDGE

QUANTITY: 6.030E 02

LECTION DATE(S): 8/5-8/12/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.11E-03	2.9E-03
FE-59	* 2.67E-03	7.1E-03
CO-58	* 0.00E-01	2.2E-03
CO-60	* 3.65E-03	4.5E-03
ZN-65	* 0.00E-01	1.0E-02
ZR-95	* 1.81E-03	4.8E-03
NB-95	* -1.04E-03	4.3E-03
I-131	* -1.35E-03	3.7E-03
CS-134	* 6.12E-03	5.3E-03
CS-137	* -9.73E-04	3.2E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	2.36E-01	7.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LYL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *npk-40 at 1461 keV identified by Peak Search and NID.*

BY: *mmf*

REVIEWED BY:

John S. Hall

DATE: 8-17-87

122

 21 AUG 1987 2:03:17 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 201

TYPE: CARTRIDGE

QUANTITY: 5.970E 02

COLLECTION DATE(S): 8/12-8/19/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 6.84E-03	5.3E-03
FE-59	1.36E-02	9.0E-03 N/A
CO-58	* -1.12E-03	4.0E-03
CO-60	7.33E-03	5.2E-03 N/A
ZN-65	* 0.00E-01	7.3E-03
ZR-95	* -3.72E-03	8.7E-03
NB-95	* 0.00E-01	4.0E-03
I-131	* 3.51E-03	4.7E-03
CS-134	* 0.00E-01	5.3E-03
CS-137	* 1.00E-03	5.0E-03
BALA-140	* 2.48E-03	4.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for Fe-59 at 1099 keV, MDA= 5 or Co-60 at 1332 keV, MDA= 4 net counts.*

BY: *Jim Sigman*

AUG 21 1987

REVIEWED BY: *Dale S. Holt*

DATE: *8-21-87*

VAX/VMS Sample Analysis Report generated : 10-SEP-1987 12:08:04

Plant Name : CNS
Sample Number : 10
Type/Location : AIR RADIOIODINES / 201
Sample Date : 26-AUG-1987 11:45:00
Acq. Start Time : 10-SEP-1987 11:37:04
Sample Quantity : 633.000 M3
Sample ID : 19AUG 26AUG87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.167E-02	0.000E+00		
CO-58	810.76	< 9.792E-03	0.000E+00		
FE-59	1099.22	< 1.472E-02	0.000E+00		
CO-60	1332.47	< 1.389E-02	0.000E+00		
ZN-65	1115.52	< 2.099E-02	0.000E+00		
NB-95	765.78	< 1.359E-02	0.000E+00		
ZR-95	756.72	< 2.137E-02	0.000E+00		
I-131	364.48	< 3.286E-02	0.000E+00		
CS-134	604.66	< 9.994E-03	0.000E+00		
CS-137	661.65	1.227E-02	5.790E-03		6.133E-04
BALA-140	537.27	< 6.493E-02	0.000E+00		.062
K-40	1460.75	0.289	7.011E-02		

Total Fraction of Reporting Level 6.133E-04
.062

Analyzed by: Marcus D. Spence 9/10/87

Approved by: Dale E. Hill Date: 9/10/87

K-40 & Cs-137 at 662 keV identified by Peak Search and NID.

VAX/VMS Sample Analysis Report generated : 10-SEP-1987 12:39:07

Plant Name : CNS
Sample Number : 13
Type/Location : AIR RADIOIODINES / 201
Sample Date : 2-SEP-1987 09:02:00
Acq. Start Time : 10-SEP-1987 12:08:13
Sample Quantity : 632.000 M3
Sample ID : 26AUG 2SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.151E-02	0.000E+00		
CO-58	810.76	< 1.016E-02	0.000E+00		
FE-59	1099.22	< 2.650E-02	0.000E+00		
CO-60	1332.47	< 1.566E-02	0.000E+00		
ZN-65	1115.52	< 0.000E+00	0.000E+00		
NB-95	765.78	< 5.312E-03	0.000E+00		
ZR-95	756.72	< 1.777E-02	0.000E+00		
I-131	364.48	< 1.703E-02	0.000E+00		
CS-134	604.66	< 9.547E-03	0.000E+00		
CS-137	661.65	< 1.577E-02	0.000E+00		
BALA-140	537.27	< 3.756E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Spencer Lane 9/10/87

Approved by: Dee S. Hollis

Date: 9/10/87

Corrected results

Plant Name : CNS
Sample Number : 40
Type/Location : AIR RADIOIODINES / 201
Sample Date : 9-SEP-1987 10:25:00
Acq. Start Time : 14-SEP-1987 00:50:24
Sample Quantity : 575.000 M3
Sample ID : 02SEP TO 09SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.523E-02	0.000E+00		
CO-58	810.76	< 2.121E-02	0.000E+00		
FE-59	1099.22	< 2.241E-02	0.000E+00		
CO-60	1332.47	< 1.754E-02	0.000E+00		
ZN-65	1115.52	< 5.026E-02	0.000E+00		
NB-95	765.78	< 1.619E-02	0.000E+00		
ZR-95	756.74	< 2.532E-02	0.000E+00		
I-131	364.48	< 1.907E-02	0.000E+00		
CS-134	604.66	< 1.888E-02	0.000E+00		
CS-137	661.65	< 1.634E-02	0.000E+00		
BALA-140	537.27	< 5.651E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 12/18/87

Plant Name : CNS
Sample Number : 62
Type/Location : AIR RADIOIODINES / 201
Sample Date : 14-SEP-1987 10:40:00
Acq. Start Time : 22-SEP-1987 14:07:05
Sample Quantity : 581.000 M3
Sample ID : 9SEP TO 16SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.246E-02	0.000E+00		
CO-58	810.76	< 7.996E-03	0.000E+00		
FE-59	1099.22	< 2.721E-02	0.000E+00		
CO-60	1332.47	< 3.586E-03	0.000E+00		
ZN-65	1115.52	< 2.402E-02	0.000E+00		
NB-95	765.78	< 1.248E-02	0.000E+00		
ZR-95	756.72	< 1.899E-02	0.000E+00		
I-131	364.48	< 1.144E-02	0.000E+00		
CS-134	604.66	< 1.116E-02	0.000E+00		
CS-137	661.65	< 1.157E-02	0.000E+00		
BALA-140	537.27	< 4.488E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 12/18/87

Plant Name : CNS
Sample Number : 83
Type/Location : AIR RADIOIODINES / 201
Sample Date : 23-SEP-1987 11:25:00
Acq. Start Time : 25-SEP-1987 22:15:09
Sample Quantity : 573,000 M3
Sample ID : 16SEP TO 23SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.466E-02	0.000E+00		
CO-58	310.76	< 6.492E-03	0.000E+00		
FE-59	1099.22	< 2.855E-02	0.000E+00		
CO-60	1332.47	< 1.759E-02	0.000E+00		
ZN-65	1115.52	< 2.373E-02	0.000E+00		
NB-95	765.78	< 1.076E-02	0.000E+00		
ZR-95	756.72	< 3.049E-02	0.000E+00		
I-131	364.48	< 1.892E-02	0.000E+00		
CS-134	604.66	< 1.513E-02	0.000E+00		
CS-137	661.65	< 1.979E-02	0.000E+00		
BALA-140	537.27	< 5.826E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 12/18/87

VAX/VMS Sample Analysis Report generated : 4-OCT-1987 18:15:09

Plant Name : CNS
Sample Number : 133
Type/Location : AIR RADIOIODINES / 201
Sample Date : 30-SEP-1987 10:45:00
Acq. Start Time : 4-OCT-1987 17:44:11
Sample Quantity : 625.000 M3
Sample ID : 23SEP TO 30SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.470E-03	0.000E+00		
CU-58	810.76	< 9.549E-03	0.000E+00		
FE-59	1099.22	< 2.098E-02	0.000E+00		
CO-60	1332.47	< 1.037E-02	0.000E+00		
ZN-65	1115.52	< 2.035E-02	0.000E+00		
NB-95	765.78	< 1.060E-02	0.000E+00		
ZR-95	756.72	< 1.385E-02	0.000E+00		
I-131	364.48	< 9.131E-03	0.000E+00		
CS-134	604.66	< 5.500E-03	0.000E+00		
CS-137	661.65	< 1.149E-02	0.000E+00		
BALA-140	1596.49	< 1.834E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: LDB-----

Approved by: John S. Haldi-----

Date: 10/6/87-----

Plant Name : CNS
Sample Number : 153
Type/Location : AIR RADIOIODINES / 201
Sample Date : 7-OCT-1987 09:35:00
Acq. Start Time : 12-OCT-1987 13:44:07
Sample Quantity : 567.000 M3
Sample ID : 30SEP TO 7OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.863E-03	0.000E+00		
CO-58	810.76	< 8.041E-03	0.000E+00		
FE-59	1099.22	< 2.868E-02	0.000E+00		
CO-60	1332.47	< 1.517E-02	0.000E+00		
ZN-65	1115.52	< 2.101E-02	0.000E+00		
NB-95	765.78	< 1.440E-02	0.000E+00		
ZR-95	756.72	< 2.291E-02	0.000E+00		
I-131	364.48	< 1.642E-02	0.000E+00		
CS-134	604.66	< 1.141E-02	0.000E+00		
CS-137	661.65	< 1.095E-02	0.000E+00		
BALA-140	1596.49	< 2.808E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. M. M. M.

Approved by: J. S. Hall

Date: 12/23/87

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 16:37:24

Plant Name : CNS
Sample Number : 184
Type/Location : AIR RADIOIODINES / 201
Sample Date : 14-OCT-1987 11:23:00
Acq. Start Time : 19-OCT-1987 11:15:11
Sample Quantity : 577.000 M3
Sample ID : 7OCT TO 14OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 5.299E-03	0.000E+00		
CO-58	810.76	< 1.507E-02	0.000E+00		
FE-59	1099.22	< 3.516E-02	0.000E+00		
CO-60	1332.47	< 1.175E-02	0.000E+00		
ZN-65	1115.52	< 1.761E-02	0.000E+00		
NB-95	765.78	< 1.428E-02	0.000E+00		
ZR-95	756.72	< 1.788E-02	0.000E+00		
I-131	364.48	< 1.214E-02	0.000E+00		
CS-134	604.66	< 1.196E-02	0.000E+00		
CS-137	661.65	< 6.510E-03	0.000E+00		
BALA-140	1596.49	< 1.920E-02	0.000E+00		
K-40	1460.75	0.530	0.125		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____

Approved by: _____


Date: 12/17/87

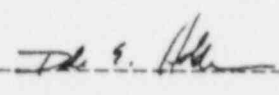
Plant Name : CNS
Sample Number : 205
Type/Location : AIR RADIOIODINES / 201
Sample Date : 21-OCT-1987 11:05:00
Acq. Start Time : 26-OCT-1987 15:07:48
Sample Quantity : 627.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.491E-03	0.000E+00		
CO-58	810.76	< 1.095E-02	0.000E+00		
FE-59	1099.22	< 2.129E-02	0.000E+00		
CO-60	1332.47	< 7.763E-03	0.000E+00		
ZN-65	1115.52	< 1.836E-02	0.000E+00		
NB-95	765.78	< 1.068E-02	0.000E+00		
ZR-95	756.72	< 1.649E-02	0.000E+00		
I-131	364.48	< 1.054E-02	0.000E+00		
CS-134	604.66	< 1.156E-02	0.000E+00		
CS-137	661.65	< 1.017E-02	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 10/26/87

Plant Name : CNS
Sample Number : 224
Type/Location : AIR RADIOIODINES / 201
Sample Date : 28-OCT-1987 12:05:00
Acq. Start Time : 3-NOV-1987 10:48:39
Sample Quantity : 578.000 M3
Sample ID : 21OCT TO 28OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.227E-03	0.000E+00		
CO-58	810.76	< 1.046E-02	0.000E+00		
FE-59	1099.22	< 2.338E-02	0.000E+00		
CO-60	1332.47	< 1.398E-02	0.000E+00		
ZN-65	1115.52	< 1.996E-02	0.000E+00		
NB-95	765.78	< 6.859E-03	0.000E+00		
ZR-95	756.72	< 1.929E-02	0.000E+00		
I-131	364.49	< 1.201E-02	0.000E+00		
CS-134	604.66	< 8.743E-03	0.000E+00		
CS-137	661.65	< 1.302E-02	0.000E+00		
BALA-140	1596.49	< 2.013E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Michael J

Approved by: Dale G. Hill

Date: 11/5/87

VAX/VMS Sample Analysis Report generated : 6-NOV-1987 17:16:53

Plant Name : CNS
Sample Number : 244
Type/Location : AIR RADIOIODINES / 201
Sample Date : 4-NOV-1987 10:20:00
Acq. Start Time : 6-NOV-1987 16:45:58
Sample Quantity : 650.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.907E-03	0.000E+00		
CO-58	810.76	< 6.627E-03	0.000E+00		
FE-59	1099.22	< 1.551E-02	0.000E+00		
CO-60	1332.47	< 1.627E-02	0.000E+00		
ZN-65	1115.52	< 2.144E-02	0.000E+00		
NB-95	765.78	< 1.105E-02	0.000E+00		
ZR-95	756.72	< 1.054E-02	0.000E+00		
I-131	364.48	< 9.626E-03	0.000E+00		
CS-134	604.66	< 8.646E-03	0.000E+00		
CS-137	661.65	< 1.044E-02	0.000E+00		
BALA-140	1596.49	< 2.098E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmen

Approved by: Dale E. Feldt

Date: 11/9/87

Plant Name : CNS
Sample Number : 263
Type/Location : AIR RADIOIODINES / 201
Sample Date : 11-NOV-1987 11:00:00
Acq. Start Time : 13-NOV-1987 13:29:35
Sample Quantity : 573.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.227E-02	0.000E+00		
CO-58	810.76	< 1.387E-02	0.000E+00		
FE-59	1099.22	< 2.760E-02	0.000E+00		
CO-60	1332.47	< 2.329E-02	0.000E+00		
ZN-65	1115.52	< 3.960E-02	0.000E+00		
NB-95	765.78	< 1.449E-02	0.000E+00		
ZR-95	756.72	< 1.380E-02	0.000E+00		
I-131	364.48	< 1.322E-02	0.000E+00		
CS-134	604.66	< 1.134E-02	0.000E+00		
CS-137	661.65	< 1.487E-02	0.000E+00		
BALA-140	1596.49	< 2.332E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 285
Type/Location : AIR RADIOIODINES / 201
Sample Date : 13-NOV-1987 06:10:00
Acq. Start Time : 23-NOV-1987 15:25:20
Sample Quantity : 123.000 M3
Sample ID : 11NOV TO 13NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.105E-02	0.000E+00		
CO-58	810.76	< 3.283E-02	0.000E+00		
FE-59	1099.22	< 8.565E-02	0.000E+00		
CO-60	1332.47	< 7.258E-02	0.000E+00		
ZN-65	1115.52	< 0.117	0.000E+00		
NB-95	765.78	< 4.965E-02	0.000E+00		
ZR-95	756.72	< 7.571E-02	0.000E+00		
I-131	364.48	< 6.518E-02	0.000E+00		
CS-134	604.66	< 3.822E-02	0.000E+00		
CS-137	661.65	< 5.474E-02	0.000E+00		
BALA-140	1596.49	< 0.102	0.000E+00		
K-40	1460.75	1.22	0.311		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Lopez-----

Date: 4/18/88-----

VAX/VMS Sample Analysis Report generated : 2-DEC-1987 13:51:43

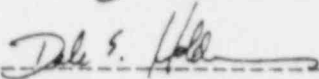
Plant Name : CNS
Sample Number : 298
Type/Location : AIR RADIODIODINES / 201
Sample Date : 25-NOV-1987 13:30:00
Acq. Start Time : 2-DEC-1987 13:20:36
Sample Quantity : 657.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.736E-02	0.000E+00		
CO-58	810.76	< 1.785E-02	0.000E+00		
FE-59	1099.22	< 4.104E-02	0.000E+00		
CO-60	1332.47	< 2.835E-02	0.000E+00		
ZN-65	1115.52	< 2.744E-02	0.000E+00		
NB-95	765.78	< 1.572E-02	0.000E+00		
ZR-95	756.72	< 3.272E-02	0.000E+00		
I-131	364.48	< 1.969E-02	0.000E+00		
CS-134	604.66	< 1.055E-02	0.000E+00		
CS-137	661.65	< 1.968E-02	0.000E+00		
BALA-140	1596.49	< 2.417E-02	0.000E+00		
K-40	1460.75	0.578	0.102		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: -----

Approved by: -----

Date: 12/3/87-----

Plant Name : CNS
Sample Number : 324
Type/Location : AIR RADIOIODINES / 201
Sample Date : 2-DEC-1987 09:05:00
Acq. Start Time : 8-DEC-1987 14:41:07
Sample Quantity : 556.000 M3
Sample ID : 25NOV TO 2DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.409E-02	0.000E+00		
CO-58	810.76	< 1.661E-02	0.000E+00		
FE-59	1099.22	< 4.583E-02	0.000E+00		
CO-60	1332.47	< 1.408E-02	0.000E+00		
ZN-65	1115.52	< 2.641E-02	0.000E+00		
NB-95	765.78	< 1.670E-02	0.000E+00		
ZR-95	756.72	< 3.032E-02	0.000E+00		
I-131	364.48	< 1.495E-02	0.000E+00		
CS-134	604.66	< 1.146E-02	0.000E+00		
CS-137	661.65	< 1.677E-02	0.000E+00		
BALA-140	1596.49	< 3.027E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigm

Approved by: Del S. Holt

Date: 12/10/87

Plant Name : CNS
Sample Number : 340
Type/Location : AIR RADIOIODINES / 201
Sample Date : 9-DEC-1987 11:25:00
Acq. Start Time : 14-DEC-1987 14:12:45
Sample Quantity : 579.000 M3
Sample ID : 2DEC TO 9DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.453E-02	0.000E+00		
CO-58	810.76	< 1.994E-02	0.000E+00		
FE-59	1099.22	< 3.058E-02	0.000E+00		
CO-60	1332.47	< 3.215E-02	0.000E+00		
ZN-65	1115.52	< 3.608E-02	0.000E+00		
NB-95	765.78	< 2.501E-02	0.000E+00		
ZR-95	756.72	< 2.686E-02	0.000E+00		
I-131	364.48	< 2.208E-02	0.000E+00		
CS-134	604.66	< 1.718E-02	0.000E+00		
CS-137	661.65	< 2.181E-02	0.000E+00		
BALA-140	1596.49	< 3.501E-02	0.000E+00		
K-40	1460.75	0.512	0.102		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: SAB

Approved by: John E. Hoo

Date: 12/12/87

VAX/VMS Sample Analysis Report generated : 22-DEC-1987 17:13:57

Plant Name : CNS
Sample Number : 356
Type/Location : AIR RADIOIODINES / 201
Sample Date : 16-DEC-1987 09:45:00
Acq. Start Time : 22-DEC-1987 16:42:52
Sample Quantity : 565.000 M3
Sample ID : 9DEC TO 16DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.851E-03	0.000E+00		
CO-58	810.76	< 1.584E-02	0.000E+00		
FE-59	1099.22	< 2.779E-02	0.000E+00		
CO-60	1332.47	< 1.255E-02	0.000E+00		
ZN-65	1115.52	< 2.893E-02	0.000E+00		
NB-95	765.78	< 1.519E-02	0.000E+00		
ZR-95	756.72	< 2.067E-02	0.000E+00		
I-131	364.48	< 1.351E-02	0.000E+00		
CS-134	604.66	< 9.983E-03	0.000E+00		
CS-137	661.65	< 1.356E-02	0.000E+00		
BALA-140	1596.49	< 2.052E-02	0.000E+00		
K-40	1460.75	0.313	7.177E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Mushtaq

Approved by: De S. Ali

Date: 1/4/88

Plant Name : CNS
Sample Number : 392
Type/Location : AIR RADIOIODINES / 201
Sample Date : 23-DEC-1987 12:55:00
Acq. Start Time : 6-JAN-1988 12:08:38
Sample Quantity : 567.000 M3
Sample ID : 16DEC TO 23DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.812E-03	0.000E+00		
CO-58	810.76	< 1.446E-02	0.000E+00		
FE-59	1099.22	< 2.133E-02	0.000E+00		
CO-60	1332.47	< 1.197E-02	0.000E+00		
ZN-65	1115.52	< 2.014E-02	0.000E+00		
NB-95	765.78	< 1.859E-02	0.000E+00		
ZR-95	756.72	< 2.444E-02	0.000E+00		
I-131	364.48	< 3.246E-02	0.000E+00		
CS-134	604.66	< 7.044E-03	0.000E+00		
CS-137	661.65	< 1.368E-02	0.000E+00		
BALA-140	1596.49	< 4.534E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: De P. Hill

Date: 1/12/88

Plant Name : CNS
Sample Number : 400
Type/Location : AIR RADIOIODINES / 201
Sample Date : 30-DEC-1987 10:40:00
Acq. Start Time : 8-JAN-1988 12:09:20
Sample Quantity : 563.000 M3
Sample ID : 23DEC TO 30DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.326E-02	0.000E+00		
CO-58	810.76	< 1.187E-02	0.000E+00		
FE-59	1099.22	< 4.539E-02	0.000E+00		
CO-60	1332.47	< 5.133E-03	0.000E+00		
ZN-65	1115.52	< 4.261E-02	0.000E+00		
NB-95	765.78	< 2.029E-02	0.000E+00		
ZR-95	756.72	< 5.834E-03	0.000E+00		
I-131	364.48	< 2.400E-02	0.000E+00		
CS-134	604.66	< 1.250E-02	0.000E+00		
CS-137	661.65	< 1.650E-02	0.000E+00		
BALU-140	1596.49	< 3.483E-02	0.000E+00		
K-40	1460.75	0.145	0.113		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: S. B.

Approved by: Dale E. Hill

Date: 2-1-88

16 JAN 1987 4:00:05 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205
TYPE: CARTRIDGE QUANTITY: 6.090E 02
COLLECTION DATE(S): 12/31-1/7/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/JT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	4.2E-03
FE-59	* -2.94E-03	7.8E-03
CO-58	* 0.00E-01	3.3E-03
CO-60	* -1.80E-03	4.0E-03
ZN-65	* 0.00E-01	7.2E-03
ZK-95	* -1.94E-03	4.3E-03
NB-95	* 5.92E-03	4.6E-03
I-131	* -2.45E-03	5.5E-03
CS-134	* -1.22E-03	2.7E-03
CS-137	* 0.00E-01	3.3E-03
BALA-140	* -3.56E-03	6.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *LHB*

VIEWED BY: *Marcia Lane*

DATE: *1/18/87*

8

16 JAN 1987 11:20:41 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA AIRBORNE RADIOIODINES CMP. - 205

TYPE: CARTRIDGE

QUANTITY: 6.400E 02

COLLECTION DATE(S): 1/7-1/14/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.98E-03	3.1E-03
FE-59	* -7.27E-03	8.7E-03
CO-58	* -1.96E-03	3.4E-03
CO-60	* -1.58E-03	4.2E-03
ZN-65	* -2.65E-03	7.0E-03
ZR-95	* 1.62E-03	6.3E-03
NB-95	* -9.31E-04	3.8E-03
I-131	* -1.85E-03	3.9E-03
CS-134	* 2.18E-03	4.6E-03
CS-137	* 6.96E-03	4.4E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigmund

JAN 16 1987

REVIEWED BY:

Marcia Lane

DATE: 1-20-87

13

 26 JAN 1987 5:44:39 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 2.940E 02
 COLLECTION DATE(S): 1/14-1/18/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (FCI/UT)	SIGMA (PCI/UT)
MN-54	* 2.19E-03	7.3E-03
FE-59	* -5.80E-03	1.7E-02
CO-58	* -4.52E-03	7.2E-03
CO-60	* 3.46E-03	1.1E-02
ZN-65	* -1.18E-02	2.2E-02
ZR-95	* -3.77E-03	1.3E-02
NB-95	* -4.57E-03	9.7E-03
I-131	* -1.13E-02	1.4E-02
CS-134	* -2.39E-03	8.6E-03
CS-137	* -3.79E-03	8.5E-03
BALA-140	* -6.83E-03	1.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *MM*

 REVIEWED BY: *Marcia* DATE: *1/31/87*

2 FEB 1987 12:47:49 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205

T : CARTRIDGE

QUANTITY: 6.620E 02

COLLECTION DATE(S): 1/21-1/28/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	3.9E-03
FE-59	* 9.76E-03	9.1E-03
CO-58	* -9.71E-04	2.9E-03
CO-60	* 0.00E-01	4.3E-03
ZN-65	* -2.58E-03	5.8E-03
ZR-95	* 0.00E-01	6.0E-03
NB-95	* 4.74E-03	3.9E-03
I-131	* 2.99E-03	5.4E-03
CS-134	* 0.00E-01	3.3E-03
CS-137	* 4.21E-03	3.7E-03
BALA-140	* 0.00E-01	5.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigman

FEB 2 1987

REVIEWED BY:

Marcia Lane

DATE: *2/5/87*

6 FEB 1987 11:22:04 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C 94BA AIRBORNE RADIOIODINES CMP. - 205
 I: CARTRIDGE QUANTITY: 5.700E 02
 COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 4.73E-03	4.4E-03
FE-59	* 0.00E-01	5.6E-03
CO-58	* 4.65E-03	4.7E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* 3.08E-03	1.1E-02
ZR-95	* 0.00E-01	6.6E-03
NB-95	* 5.49E-03	5.0E-03
I-131	* 0.00E-01	4.1E-03
CS-134	* 0.00E-01	2.6E-03
CS-137	* -2.04E-03	3.8E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigmen

FEB 06 1987

REVIEWED BY:

Marc...

DATE: 2-6-87

252

 18 FEB 1987 3:19:18 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 6.120E 02
 COLLECTION DATE(S): 2/4-2/11/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 3.84E-03	4.1E-03
FE-59	* 2.48E-03	8.9E-03
CO-58	* -9.80E-04	3.3E-03
CO-60	* 4.66E-03	4.1E-03
ZN-65	* -7.64E-03	9.2E-03
ZR-95	* 9.75E-03	7.3E-03
NB-95	* 4.87E-03	4.5E-03
I-131	* 0.00E-01	5.6E-03
CS-134	* 0.00E-01	5.1E-03
CS-137	* 8.20E-04	3.9E-03
BALA-140	* -2.78E-03	6.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *MM*

 REVIEWED BY: *Marcia D. Lane*

DATE: 2-23-87

 23 FEB 1987 1:31:04 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

COTAWEA AIRBORNE RADIOIODINES CMP. - 205

: CARTRIDGE QUANTITY: 3.450E 02
 COLLECTION DATE(S): 2/11-2/18/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -3.91E-03	6.2E-03
FE-59	* 0.00E-01	1.5E-02
CO-58	* 1.92E-03	6.9E-03
CO-60	* -3.17E-03	7.1E-03
ZN-65	* 0.00E-01	1.4E-02
ZR-95	* 1.27E-02	1.2E-02
NB-95	* 0.00E-01	5.1E-03
I-131	* -2.36E-03	6.2E-03
CS-134	* 2.14E-03	7.7E-03
CS-137	* 1.69E-03	7.7E-03
BALA-140	* -4.29E-03	7.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *SLB*

FEB 23 1987

 REVIEWED BY: *Marcia Spina*

DATE: *2-24-87*

 27 FEB 1987 8:03:58 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 6.020E 02
 COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -9.65E-04	3.7E-03
FE-59	* 0.00E-01	5.7E-03
CO-58	* -2.85E-03	4.1E-03
CO-60	* 1.58E-03	4.2E-03
ZN-65	* -1.02E-02	1.1E-02
ZR-95	* 1.57E-03	7.5E-03
NB-95	* 2.70E-03	4.3E-03
I-131	* -6.05E-04	4.8E-03
CS-134	* 2.12E-03	4.7E-03
CS-137	* 5.84E-03	4.0E-03 ✓
BALA-140	* 2.17E-03	4.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 keV not identified by Peak Search or NID.

BY: *Michael Jones*
 REVIEWED BY: *Dale L. Holden* DATE: *3/4/87*

8

 10 MAR 1987 8:37:19 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.630E 02
 COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
GAMMA SPEC		
MN-54	* 4.92E-03	6.0E-03
FE-59	* 9.14E-03	9.1E-03
CO-58	7.44E-03	4.6E-03
CO-60	* 3.76E-03	3.8E-03
ZN-65	* 3.21E-03	1.2E-02
ZR-95	* -4.12E-03	7.7E-03
NB-95	* 2.42E-03	5.4E-03
I-131	* -3.07E-03	6.4E-03
CS-134	* 1.35E-03	5.9E-03
CS-137	* -3.21E-03	4.9E-03
BALA-140	* 0.00E-01	6.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Co-58 at 811 keV.

BY: *Jim Signer*

MAR 10 1987

VIEWED BY: *Dale E. Holden*

DATE: *3/12/87*

 13 MAR 1987 11:31:03 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 205
 ID: CARTRIDGE QUANTITY: 6.480E 02
 COLLECTION DATE(S): 3/4-3/11/87 UNITS: CUBIC METERS

RADIOISOTOPE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.96E-03	3.1E-03
FE-59	* 7.13E-03	7.9E-03
CO-58	* -9.63E-04	3.5E-03
CO-60	* -3.13E-03	4.4E-03
ZN-65	* -5.23E-03	1.0E-02
ZR-95	* -6.38E-03	6.8E-03
NB-95	* 9.12E-04	4.2E-03
I-131	* 3.52E-03	4.1E-03
CS-134	* 5.38E-03	4.7E-03
CS-137	1.03E-02	4.5E-03
BALA-140	* 6.54E-03	5.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Cs-137 at 662 keV. MDA = 12 net counts.

BY:

Jim Sigmon

MAR 13 1987

INTERVIEWED BY:

Dale P. Hilde

DATE:

3/13/87

8163

 20 MAR 1987 3:50:15 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.980E 02
 COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(FCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	4.1E-03
FE-59	* 0.00E-01	3.3E-03
CO-58	* -1.91E-03	3.8E-03
CO-60	1.11E-02	5.7E-03
ZN-65	* 7.71E-03	1.5E-02
ZR-95	* -4.72E-03	7.2E-03
NB-95	* 9.02E-04	4.5E-03
I-131	* -1.20E-03	4.1E-03
CS-134	* 1.06E-03	4.9E-03
CS-137	* 3.36E-03	4.3E-03
BALA-140	* 2.16E-03	5.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Co-60 at 1332 keV. MDA = 7 net counts

BY: *mg*

 REVIEWED BY: *Dale E. Holden*

DATE: *3/23/87*

4 APR 1987 5:55:30 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

C WBA AIRBORNE RADIOIODINES CMP. - 205
.: CARTRIDGE QUANTITY: 5.670E 02
COLLECTION DATE(S): 3/18-3/25/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 3.70E-03	4.8E-03
FE-59	* -3.27E-03	7.3E-03
CO-58	* 0.00E-01	4.8E-03
CO-60	* 0.00E-01	4.6E-03
ZN-65	* -3.23E-03	1.2E-02
ZR-95	* 0.00E-01	9.2E-03
NB-95	* 0.00E-01	6.5E-03
I-131	* -6.27E-03	1.0E-02
CS-134	* 0.00E-01	5.7E-03
CS-137	* -2.12E-03	4.7E-03
BALA-140	* 4.04E-03	9.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *D. L. J.*

REVIEWED BY: *John E. Holden*

DATE: 4-6-87

 9 APR 1987 11:43:25 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.740E 02
 COLLECTION DATE(S): 3/25-4/1/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -1.21E-03	4.4E-03
FE-59	* 6.24E-03	1.1E-02
CO-58	* -1.25E-03	5.4E-03
CO-60	* 3.69E-03	5.2E-03
ZN-65	* 9.52E-03	1.3E-02
ZR-95	* -4.16E-03	8.8E-03
NB-95	* -1.26E-03	4.5E-03
I-131	* 1.28E-03	9.6E-03
CS-134	* -2.65E-03	5.0E-03
CS-137	* -1.05E-03	4.8E-03
BALA-140	* 3.54E-03	9.4E-03
NPK-40	4.30E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 KeV ^{not} identified by Peak Search and NID.

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 4-10-87

28

15 APR 1987 7:43:16 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205

TYPE: CARTRIDGE

QUANTITY: 5.330E 02

LECTION DATE(S): 4/1-4/8/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -2.20E-03	4.1E-03
FE-59	* -2.83E-03	1.1E-02
CO-58	* 0.00E-01	5.3E-03
CO-60	* 3.57E-03	4.4E-03
ZN-65	* -1.17E-02	1.2E-02
ZR-95	* 1.86E-03	6.2E-03
NB-95	1.00E-02	4.8E-03
I-131	* 0.00E-01	7.3E-03
CS-134	* 1.20E-03	5.2E-03
CS-137	* 0.00E-01	5.0E-03
BALA-140	* 0.00E-01	4.4E-03
NPK-40	7.99E-01	1.4E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No Peak identified for Nb-95 at 766 keV, ADA=9 net counts.
NPK-40 at 1461 keV identified by Peak Search and NIO.

BY: *Jim Simpson*

APR 15 1987

REVIEWED BY: *Dee S. Hold*

DATE: 4-15-87

 17 APR 1987 2:43:01 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.710E 02
 COLLECTION DATE(S): 4/8-4/15/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -1.02E-03	4.2E-03
FE-59	* 0.00E-01	1.0E-02
CO-58	* -9.99E-04	3.9E-03
CO-60	* 0.00E-01	4.1E-03
ZN-65	* -5.38E-03	1.1E-02
ZR-95	* 3.29E-03	7.4E-03
NB-95	* 1.89E-03	4.0E-03
I-131	* 1.24E-03	4.5E-03
CS-134	7.81E-03	4.9E-03
CS-137	* 1.76E-03	3.9E-03
BALA-140	* -2.26E-03	5.0E-03
NPK-40	4.57E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for Cs-134 at 796 keV, MDA = 7 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: *4-21-87*

 28 APR 1987 11:33:58 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205

TYPE: CARTRIDGE

QUANTITY: 5.680E 02

COLLECTION DATE(S): 4/15-4/22/87

UNITS: CUBIC METERS

RADIONUCLIDE
 GAMMA SPEC

ACTIVITY(PCI/UT) SIGMA(PCI/UT)

MN-54	* 0.00E-01	4.6E-03
FE-59	1.83E-02	1.1E-02 N/A
CO-58	* -2.48E-03	5.8E-03
CO-60	* 0.00E-01	5.9E-03
ZN-65	* -3.19E-03	1.2E-02
ZR-95	* -6.17E-03	8.0E-03
NB-95	* -3.66E-03	4.7E-03
I-131	* 4.34E-03	7.4E-03
CS-134	* -1.34E-03	4.8E-03
CS-137	7.42E-03	4.9E-03 .04%
BALA-140	* 3.21E-03	8.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No Peak identified for Fe-59 at 1099 keV, MDA = 6 or Cs-137 at 662 keV, MDA = 7 net counts.*

BY:

Jim Sigman

APR 28 1987

REVIEWED BY:

Dale S. Hall

DATE:

4/28/87

42

1 MAY 1987 1:23:06 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.730E 02
 COLLECTION DATE(S): 4/22-4/29/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 2.40E-03	4.8E-03
FE-59	* 0.00E-01	5.7E-03
CO-58	* 2.36E-03	5.0E-03
CO-60	* 3.69E-03	5.2E-03
ZN-65	* -3.13E-03	1.0E-02
ZR-95	* 1.95E-03	8.9E-03
NB-95	* -1.12E-03	4.9E-03
I-131	* 7.60E-04	5.6E-03
CS-134	* 2.64E-03	4.9E-03
CS-137	* 2.10E-03	5.4E-03
BALA-140	* 0.00E-01	6.3E-03
NPK-40	3.56E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigmund* MAY 01 1987

 REVIEWED BY: *Dale S. Holder* DATE: *5-1-87*

48

 11 MAY 1987 1:38:41 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.690E 02
 COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	5.0E-03
FE-59	* 0.00E-01	9.0E-03
CO-58	* -1.13E-03	4.4E-03
CO-60	* -5.35E-03	4.7E-03
ZN-65	* -3.01E-03	1.0E-02
ZR-95	* 1.88E-03	6.8E-03
NB-95	* 1.11E-03	4.0E-03
I-131	* 3.50E-03	6.3E-03
CS-134	9.84E-03	4.6E-03 0.1
CS-137	* -1.96E-03	3.9E-03
BALA-140	* 0.00E-01	7.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-134 not identified by NID. m&A net counts = 8.

BY: Dale S. Holden

5-11-87

VIEWED BY: Marcia Lane

DATE: 5-18-87

53

 19 MAY 1987 9:51:04 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 205
 PE: CARTRIDGE QUANTITY: 6.460E 02
 COLLECTION DATE(S): 5/6-5/13/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	* 4.94E-03	4.1E-03
FE-59	* -2.50E-03	4.3E-03
CO-58	* -9.95E-04	2.6E-03
CO-60	* -6.28E-03	5.0E-03
ZN-65	* -2.65E-03	7.0E-03
ZR-95	* 0.00E-01	7.8E-03
NB-95	* 1.94E-03	4.8E-03
I-131	* -4.59E-03	5.0E-03
CS-134	* 2.17E-03	4.1E-03
CS-137	* 1.72E-03	4.0E-03
BALA-140	* 0.00E-01	3.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Siger*

MAY 19 1987

REVIEWED BY: *Del. S. Holt*

DATE: 5-21-87

58*****

26 MAY 1987 2:11:07 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205

TYPE: CARTRIDGE

QUANTITY: 6.450E 02

COLLECTION DATE(S): 5/13-5/20/87

UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 0.00E-01	2.2E-03
FE-59	* 1.09E-02	9.0E-03
CO-58	* 8.85E-04	3.9E-03
CO-60	* -1.47E-03	2.5E-03
ZN-65	* -9.53E-03	1.1E-02
ZR-95	* 5.84E-03	6.5E-03
NB-95	* -8.37E-04	3.6E-03
I-131	* -1.67E-03	4.0E-03
CS-134	* 9.87E-04	4.7E-03
CS-137	7.00E-03	3.7E-03 .04
BALA-140	* 4.02E-03	4.9E-03
NPK-40	6.11E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No Peak identified for Cs-137 at 662 keV, MOA: 9 net counts.
NPK-40 at 1461 keV identified by Peak Search and NID.

BY:

Jim Simpson

MAY 26 1987

REVIEWED BY:

Del E. Holt

DATE:

5.27.87

13

 1 JUN 1987 3:12:19 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

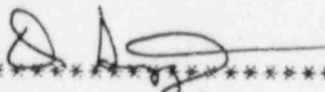
 AWBA AIRBORNE RADIOIODINES CMP. - 205
 E: CARTRIDGE QUANTITY: 5.660E 02
 COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	7.87E-03	5.4E-03 N/A
FE-59	* -2.83E-03	1.1E-02
CO-58	* 3.41E-03	4.1E-03
CO-60	* -3.59E-03	5.7E-03
ZN-65	* -3.02E-03	6.8E-03
ZR-95	* -5.66E-03	8.2E-03
NB-95	* -1.11E-03	4.6E-03
I-131	* 0.00E-01	4.5E-03
CS-134	* -1.24E-03	4.1E-03
CS-137	* 2.95E-03	4.7E-03
BALA-140	* 2.95E-03	6.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Mn-54 at 835 keV, NDA = 7 net counts.

BY:



REVIEWED BY:

Dale S. Holden

DATE: 6-2-87

 11 JUN 1987 11:48:17 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 RWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.700E 02
 COLLECTION DATE(S): 5/27-6/3/87 UNITS: CURIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
IN-54	* -2.25E-03	3.9E-03
FE-59	* 2.93E-03	1.1E-02
CO-58	* -2.30E-03	4.3E-03
CO-60	* -5.34E-03	4.0E-03
ZN-65	* -3.02E-03	5.2E-03
ZR-95	* 1.72E-03	7.4E-03
NB-95	* 5.89E-03	5.9E-03
I-131	* 2.08E-03	7.4E-03
CS-134	* 6.15E-03	4.8E-03
CS-137	* 7.82E-03	4.6E-03
BALA-140	* 0.00E-01	1.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *cs-137 at 662 keV not identified by Peak Search or NID, MDA: 9 net counts.*

BY: *Sx73*

 REVIEWED BY: *Dale S. Hold* DATE: *6-17-87*

16 JUN 1987 11:02:53 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205

TYPE: CARTRIDGE

QUANTITY: 5.680E 02

SECTION DATE(S): 6/3-6/10/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 1.19E-03	4.0E-03
FE-59	* 3.01E-03	8.0E-03
CO-58	* -1.21E-03	3.6E-03
CO-60	* 0.00E-01	3.9E-03
ZN-65	* 0.00E-01	4.4E-03
ZR-95	1.41E-02	8.3E-03
NB-95	* -1.19E-03	4.0E-03
I-131	* 1.00E-03	5.0E-03
CS-134	* 5.22E-03	4.5E-03
CS-137	* 2.07E-03	4.1E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	3.92E-01	1.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No Peak identified for Zr-95 at 753 keV, MDA = 7 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *mg*

REVIEWED BY: *Dale S. Holder*

DATE: 6-17-87

78

22 JUN 1987 2:23:09 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 205

TYPE: CARTRIDGE

QUANTITY: 6.030E 02

COLLECTION DATE(S): 6/10-6/17/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 2.12E-03	3.7E-03
FE-59	* 2.68E-03	8.9E-03
CO-58	* -1.07E-03	4.4E-03
CC-60	* -3.37E-03	4.8E-03
ZN-65	* 0.00E-01	1.2E-02
ZR-95	* 1.77E-03	6.9E-03
NB-95	* -2.09E-03	3.3E-03
I-131	* 4.14E-03	5.7E-03
CS-134	* 0.00E-01	4.0E-03
CS-137	* -9.24E-04	3.1E-03
BALA-140	* 2.78E-03	4.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigmon

JUN 22 1987

REVIEWED BY:

Dele S. Helder

DATE:

6-23-87

83

 30 JUN 1987 3:32:48 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE RADIOIODINES CMP. - 205
 E: CARTRIDGE QUANTITY: 5.720E 02
 COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.17E-03	4.5E-03
FE-59	* 0.00E-01	6.9E-03
CO-58	* 0.00E-01	4.0E-03
CO-60	* -1.92E-03	3.3E-03
ZN-65	* -3.09E-03	6.9E-03
ZR-95	* -1.91E-03	5.1E-03
NB-95	* 1.10E-03	2.9E-03
I-131	* -7.12E-04	3.4E-03
CS-134	* -1.29E-03	3.9E-03
CS-137	* 0.00E-01	2.5E-03
BALA-140	* 2.64E-03	4.6E-03
NPK-40	1.32E-01	6.4E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV ident. fied by Peak Search and MID.

BY: *ymg*

 REVIEWED BY: *John E. Hall* DATE: *7-1-87*

9 JUL 1987 4:06:50 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA AIRBORNE RADIOIODINES CMP. - 205
PE: CARTRIDGE QUANTITY: 5.840E 02
COLLECTION DATE(S): 6/24-7/1/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	* 2.33E-03	4.4E-03
FE-59	* 0.00E-01	7.4E-03
CO-58	* 2.40E-03	4.8E-03
CO-60	* -1.89E-03	5.0E-03
ZN-65	* 9.23E-03	1.2E-02
ZR-95	* 4.00E-03	7.5E-03
NB-95	* 0.00E-01	3.8E-03
I-131	* -2.34E-03	6.2E-03
CS-134	* 1.27E-03	4.2E-03
CS-137	* 0.00E-01	3.2E-03
BALA-140	* 0.00E-01	5.0E-03
NPK-40	1.10E-01	6.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1461 KeV identified by Peak Search and NID.

BY: *[Signature]*

REVIEWED BY: *[Signature]* DATE: 7-13-87

93

 13 JUL 1987 5:01:23 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 STAWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.680E 02
 COLLECTION DATE(S): 7/1-7/8/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	2.9E-03
FE-59	* 7.76E-03	9.3E-03
CO-58	* 2.07E-03	5.1E-03
CO-60	* -1.67E-03	4.4E-03
ZN-65	* -8.19E-03	9.8E-03
ZR-95	* -6.86E-03	8.4E-03
NB-95	* 4.04E-03	5.2E-03
I-131	* -8.23E-04	6.4E-03
CS-134	* 0.00E-01	5.3E-03
CS-137	9.72E-03	4.9E-03
BALA-140	8.09E-03	6.0E-03
NPK-40	6.25E-01	1.4E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Balu-140 at 1596 keV, MDA= 3 net counts.
 Cs-137 at 662 keV, MDA= 11 net counts, not identified by Peak Search or NID.
 NPK-40 at 1461 keV identified by Peak Search and NID.
 BY: *MY*

 REVIEWED BY: *Dale S. Hold* DATE: *7-14-87*

98

 20 JUL 1987 3:27:38 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205

TYPE: CARTRIDGE

QUANTITY: 5.820E 02

COLLECTION DATE(S): 7/8-7/15/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	3.1E-03
FE-59	* -8.33E-03	7.3E-03
CO-58	* -3.31E-03	4.3E-03
CO-60	* -3.49E-03	4.3E-03
ZN-65	* -5.88E-03	1.2E-02
ZR-95	* 1.10E-02	8.2E-03
NB-95	* 1.08E-03	4.9E-03
I-131	* 8.53E-04	5.0E-03
CS-134	* -1.20E-03	5.2E-03
CS-137	6.70E-03	4.4E-03
BALA-140	* -2.87E-03	5.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for Cs-137 at 662 keV, NDA = 7 net counts.*

BY: *Jim Sigmon*

JUL 20 1987

REVIEWED BY: *Dale S. Hall*

DATE: *7-21-87*

103

24 JUL 1987 2:16:35 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.890E 02
 COLLECTION DATE(S): 7/15-7/22/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.08E-03	4.2E-03
FE-59	* 2.62E-03	1.0E-02
CO-58	* 2.12E-03	3.7E-03
CO-60	* -6.88E-03	6.0E-03
ZN-65	* 0.00E-01	1.1E-02
ZR-95	* 7.02E-03	8.2E-03
NB-95	* 3.02E-03	4.8E-03
I-131	* 1.30E-03	4.3E-03
CS-134	* 1.18E-03	5.4E-03
CS-137	* -9.46E-04	3.9E-03
BALA-140	* 0.00E-01	3.4E-03
NPK-40	3.12E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *npk-40 at 140 keV identified by Peak Search and NID.*

BY:

Jim Sigmen

JUL 24 1987

REVIEWED BY:

Del S. Holder

DATE:

8-27-87

 5 AUG 1987 10:30:39 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

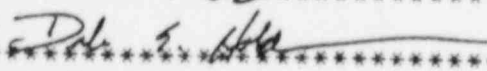
CATAWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 6.820E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 2.81E-03	3.6E-03
FE-59	* -2.41E-03	4.2E-03
CO-58	* -9.53E-04	3.2E-03
CO-60	* -4.47E-03	4.5E-03
ZN-65	* 1.01E-02	1.1E-02
ZR-95	* -1.58E-03	5.7E-03
NB-95	* -2.82E-03	4.1E-03
I-131	* -1.60E-03	5.8E-03
CS-134	* -2.05E-03	3.6E-03
CS-137	8.17E-03	4.3E-03
BALA-140	* 0.00E-01	6.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *6.137 at 662 keV, mDA = 10 net counts, not ident. find by Pulse Search or NID*

BY: 

REVIEWED BY: 

DATE: 8-7-87

113

 11 AUG 1987 12:55:50 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINES CMP. - 205
 TYPE: CARTRIDGE QUANTITY: 5.630E 02
 COLLECTION DATE(S): 7/29-8/5/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 1.04E-03	5.2E-03
FE-59	* 0.00E-01	7.4E-03
CO-58	* 3.14E-03	4.8E-03
CO-60	* 0.00E-01	4.1E-03
MN-65	* -8.26E-03	1.1E-02
ZR-95	* 1.73E-03	7.1E-03
NB-95	8.15E-03	5.2E-03
I-131	* 3.32E-03	6.0E-03
CS-134	* 2.27E-03	5.1E-03
CS-137	* 8.92E-04	4.1E-03
BALA-140	* -2.72E-03	8.2E-03
NPK-40	5.48E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Nb-95 at 766 keV, MDA: 8 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *My*

 REVIEWED BY: *Dale S. Holder* DATE: 8-13-87

118

 14 AUG 1987 3:12:06 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205

E: CARTRIDGE QUANTITY: 5.460E 02
 COLLECTION DATE(S): 8/5-8/12/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	3.7E-03
FE-59	* 7.70E-03	7.7E-03
CO-58	* 2.09E-03	4.2E-03
CO-60	* 3.48E-03	5.5E-03
ZN-65	* -5.63E-03	1.1E-02
ZR-95	* -1.72E-03	6.2E-03
NB-95	* 2.97E-03	4.3E-03
I-131	* 2.62E-03	4.8E-03
CS-134	* 3.50E-03	4.8E-03
CS-137	* 2.76E-03	4.2E-03
BALA-140	* 0.00E-01	4.7E-03
NPK-40	4.22E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NIB.*

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: *8-17-87*

123

21 AUG 1987 2:03:33 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 205
TYPE: CARTRIDGE QUANTITY: 5.660E 02
COLLECTION DATE(S): 8/12-8/19/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 4.48E-03	4.7E-03
FE-59	* 2.72E-03	1.1E-02
CO-58	* -3.31E-03	4.5E-03
CO-60	* -3.58E-03	6.7E-03
ZN-65	* -3.00E-03	1.3E-02
ZR-95	* -1.83E-03	8.0E-03
NB-95	* 3.14E-03	4.8E-03
I-131	* -2.02E-03	3.9E-03
CS-134	* 1.23E-03	4.1E-03
CS-137	* -9.84E-04	4.1E-03
BALA-140	* -2.50E-03	4.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

AUG 21 1987

REVIEWED BY: *Del P. Holt*

DATE: *8-24-87*

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:19:51

Plant Name : CNS
Sample Number : 9
Type/Location : AIR RADIOIODINES / 205
Sample Date : 26-AUG-1987 12:29:00
Acq. Start Time : 10-SEP-1987 10:27:22
Sample Quantity : 376.000 M3
Sample ID : 19AUG 26AUG87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.340E-02	0.000E+00		
CO-58	810.76	< 2.063E-02	0.000E+00		
FE-59	1099.22	< 6.315E-02	0.000E+00		
CO-60	1332.47	< 2.768E-02	0.000E+00		
ZN-65	1115.52	< 3.667E-02	0.000E+00		
NB-95	765.78	< 3.556E-02	0.000E+00		
ZR-95	756.72	< 4.664E-02	0.000E+00		
I-131	364.48	< 6.891E-02	0.000E+00		
CS-134	604.66	< 1.753E-02	0.000E+00		
CS-137	661.65	< 2.951E-02	0.000E+00		
BALA-140	537.27	< 0.173	0.000E+00		
K-40	1460.75	0.582	0.134		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Mauro A. [Signature]-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 14
Type/Location : AIR RADIOIODINES / 205
Sample Date : 2-SEP-1987 09:21:00
Acq. Start Time : 10-SEP-1987 12:15:21
Sample Quantity : 561.000 M3
Sample ID : 26AUG 2SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

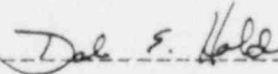
Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.356E-02	0.000E+00		
CO-58	810.76	< 1.855E-02	0.000E+00		
FE-59	1099.22	< 3.293E-02	0.000E+00		
CO-60	1332.47	< 1.039E-02	0.000E+00		
ZN-65	1115.52	< 3.484E-02	0.000E+00		
NB-95	765.78	< 1.757E-02	0.000E+00		
ZR-95	756.72	< 2.947E-02	0.000E+00		
I-131	364.48	< 2.927E-02	0.000E+00		
CS-134	604.66	< 1.495E-02	0.000E+00		
CS-137	661.65	< 1.797E-02	0.000E+00		
BALA-140	537.27	< 9.717E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____



Approved by: _____



Date: 12/18/87

Plant Name : CNS
Sample Number : 41
Type/Location : AIR RADIOIODINES / 205
Sample Date : 9-SEP-1987 10:15:00
Acq. Start Time : 14-SEP-1987 00:56:13
Sample Quantity : 573.000 M3
Sample ID : 02SEP TO 09SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.075E-02	0.000E+00		
CO-58	810.76	< 1.520E-02	0.000E+00		
FE-59	1099.22	< 2.970E-02	0.000E+00		
CO-60	1332.47	< 0.000E+00	0.000E+00		
ZN-65	1115.52	< 1.429E-02	0.000E+00		
NB-95	765.78	< 1.040E-02	0.000E+00		
ZR-95	756.72	< 2.700E-02	0.000E+00		
I-131	364.48	< 1.427E-02	0.000E+00		
CS-134	604.66	< 7.314E-03	0.000E+00		
CS-137	661.65	< 1.122E-02	0.000E+00		
BALA-140	537.27	< 3.436E-02	0.000E+00		
K-40	1460.75	0.429	8.937E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman 9-14-87

Approved by: Pat F. Hall Date: 9/14/87

K-40 identified by peak, NID

Plant Name : CNS
Sample Number : 63
Type/Location : AIR RADIOIODINES / 205
Sample Date : 16-SEP-1987 10:28:00
Acq. Start Time : 22-SEP-1987 14:14:32
Sample Quantity : 557.000 M3
Sample ID : 9SEP TO 16SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.729E-02	0.000E+00		
CO-58	810.76	< 1.362E-02	0.000E+00		
FE-59	1099.22	< 4.859E-02	0.000E+00		
CO-60	1332.47	< 1.541E-02	0.000E+00		
ZN-65	1115.52	< 3.893E-02	0.000E+00		
NB-95	765.78	< 1.145E-02	0.000E+00		
ZR-95	756.72	< 2.235E-02	0.000E+00		
I-131	364.48	< 1.599E-02	0.000E+00		
CS-134	604.66	< 1.322E-02	0.000E+00		
CS-137	661.65	< 1.645E-02	0.000E+00		
BALA-140	537.27	< 5.940E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/18/87

Plant Name : CNS
Sample Number : 84
Type/Location : AIR RADIOIODINES / 205
Sample Date : 19-SEP-1987 05:06:00
Acq. Start Time : 25-SEP-1987 22:56:05
Sample Quantity : 221.000 M3
Sample ID : 16SEP TO 19SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.422E-02	0.000E+00		
CO-58	810.76	< 2.845E-02	0.000E+00		
FE-59	1099.22	< 5.090E-02	0.000E+00		
CO-60	1332.47	< 2.217E-02	0.000E+00		
ZN-65	1115.52	< 5.090E-02	0.000E+00		
NB-95	765.78	< 3.537E-02	0.000E+00		
ZR-95	756.72	< 4.764E-02	0.000E+00		
I-131	364.48	< 4.804E-02	0.000E+00		
CS-134	604.66	< 3.139E-02	0.000E+00		
CS-137	661.65	< 3.334E-02	0.000E+00		
BALA-140	537.27	< 0.140	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: *[Signature]*

Approved by: *[Signature]*

Date: 9 / 23 / 87

This sample is a deviation due to blown fuse.

*Corrected
results*

Plant Name : CNS
Sample Number : 154
Type/Location : AIR RADIOIODINES / 205
Sample Date : 7-OCT-1987 10:40:00
Acq. Start Time : 12-OCT-1987 14:03:13
Sample Quantity : 570.000 M3
Sample ID : 30SEP TO 7OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.141E-02	0.000E+00		
CO-58	810.76	< 4.683E-03	0.000E+00		
FE-59	1099.22	< 2.339E-02	0.000E+00		
CO-60	1332.47	< 1.385E-02	0.000E+00		
ZN-65	1115.52	< 2.636E-02	0.000E+00		
NB-95	765.78	< 1.259E-02	0.000E+00		
ZR-95	756.72	< 1.704E-02	0.000E+00		
I-131	364.48	< 1.407E-02	0.000E+00		
CS-134	604.66	< 6.102E-03	0.000E+00		
CS-137	661.65	< 1.386E-02	0.000E+00		
BALA-140	1596.49	< 1.208E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman-----

Approved by: Re S. Hdd-----

Date: 10 / 12 / 87

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 16:37:25

Plant Name : CNS
Sample Number : 185
Type/Location : AIR RADIOIODINES / 205
Sample Date : 14-OCT-1987 11:50:00
Acq. Start Time : 19-OCT-1987 11:17:57
Sample Quantity : 611.000 M3
Sample ID : 7OCT TO 14OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.578E-03	0.000E+00		
CO-58	810.76	< 1.053E-02	0.000E+00		
FE-59	1099.22	< 2.603E-02	0.000E+00		
CO-60	1332.47	< 1.161E-02	0.000E+00		
ZN-65	1115.52	< 2.386E-02	0.000E+00		
NB-95	765.78	< 1.541E-02	0.000E+00		
ZR-95	756.72	< 2.340E-02	0.000E+00		
I-131	364.48	< 1.231E-02	0.000E+00		
CS-134	604.66	< 8.498E-03	0.000E+00		
CS-137	661.65	< 1.202E-02	0.000E+00		
BALA-140	1596.49	< 2.233E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/12/87

Plant Name : CNS
Sample Number : 206
Type/Location : AIR RADIOIODINES / 205
Sample Date : 21-OCT-1987 11:50:00
Acq. Start Time : 26-OCT-1987 15:09:50
Sample Quantity : 499.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.161E-03	0.000E+00		
CO-58	810.76	< 1.310E-02	0.000E+00		
FE-59	1099.22	< 1.343E-02	0.000E+00		
CO-60	1332.47	< 1.714E-02	0.000E+00		
ZN-65	1115.52	< 2.444E-02	0.000E+00		
NB-95	765.78	< 1.042E-02	0.000E+00		
ZR-95	756.72	< 2.309E-02	0.000E+00		
I-131	364.48	< 1.191E-02	0.000E+00		
CS-134	604.66	< 7.789E-03	0.000E+00		
CS-137	661.65	< 1.206E-02	0.000E+00		
BALA-140	1596.49	< 1.952E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____



Approved by: _____



Date: 10/26/87

Plant Name : CNS
Sample Number : 221
Type/Location : AIR RADIOIODINES / 205
Sample Date : 28-OCT-1987 12:24:00
Acq. Start Time : 3-NOV-1987 10:23:55
Sample Quantity : 576.000 M3
Sample ID : 21OCT TO 28OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.215E-02	0.000E+00		
CO-58	810.76	< 6.604E-03	0.000E+00		
FE-59	1099.22	< 2.029E-02	0.000E+00		
CO-60	1332.47	< 1.287E-02	0.000E+00		
ZN-65	1115.52	< 2.505E-02	0.000E+00		
NB-95	765.78	< 7.923E-03	0.000E+00		
ZR-95	756.72	< 1.565E-02	0.000E+00		
I-131	364.48	< 1.464E-02	0.000E+00		
CS-134	604.66	< 7.836E-03	0.000E+00		
CS-137	661.65	< 1.518E-02	0.000E+00		
BALA-140	1596.49	< 1.247E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: *[Signature]*

Approved by: *[Signature]*

Date: 4/5/87

Plant Name : CNS
Sample Number : 242
Type/Location : AIR RADIOIODINES / 205
Sample Date : 4-NOV-1987 11:15:00
Acq. Start Time : 6-NOV-1987 16:40:25
Sample Quantity : 567.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.102E-02	0.000E+00		
CO-58	810.76	< 1.352E-02	0.000E+00		
FE-59	1099.22	< 3.697E-02	0.000E+00		
CO-60	1332.47	< 2.483E-02	0.000E+00		
ZN-65	1115.52	< 6.136E-02	0.000E+00		
NB-95	765.78	< 2.292E-02	0.000E+00		
ZR-95	756.72	< 2.154E-02	0.000E+00		
I-131	364.48	< 1.519E-02	0.000E+00		
CS-134	604.66	< 1.503E-02	0.000E+00		
CS-137	661.65	< 2.096E-02	0.000E+00		
BALA-140	1596.49	< 2.090E-02	0.000E+00		
SE-7	477.59	0.170	4.534E-02		
K-40	1460.75	0.732	0.124		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigme

Approved by: John E. Hall

Date: 11/9/87

Plant Name : CNS
Sample Number : 264
Type/Location : AIR RADIOIODINES / 205
Sample Date : 11-NOV-1987 10:40:00
Acq. Start Time : 13-NOV-1987 13:33:09
Sample Quantity : 597.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.570E-02	0.000E+00		
CO-58	810.76	< 1.666E-02	0.000E+00		
FE-59	1099.22	< 4.446E-02	0.000E+00		
CO-60	1332.47	< 2.358E-02	0.000E+00		
ZN-65	1115.52	< 3.852E-02	0.000E+00		
NB-95	765.78	< 1.500E-02	0.000E+00		
ZR-95	756.72	< 3.520E-02	0.000E+00		
I-131	364.48	< 1.204E-02	0.000E+00		
CS-134	604.66	< 1.294E-02	0.000E+00		
CS-137	661.65	< 1.660E-02	0.000E+00		
BALA-140	1596.47	< 1.850E-02	0.000E+00		
K-40	1460.75	0.576	0.107		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmey-----

Approved by: Dale E. Hilde-----

Date: 11/16/87-----

VAX/VMS Sample Analysis Report generated : 23-NOV-1987 15:58:55

Plant Name : CNS
Sample Number : 282
Type/Location : AIR RADIOIODINES / 205
Sample Date : 18-NOV-1987 10:15:00
Acq. Start Time : 23-NOV-1987 15:27:54
Sample Quantity : 569.000 M3
Sample ID : 11NOV TO 18NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.388E-02	0.000E+00		
CO-58	810.76	< 1.683E-02	0.000E+00		
FE-59	1099.22	< 4.611E-02	0.000E+00		
CO-60	1332.47	< 1.640E-02	0.000E+00		
ZN-65	1115.52	< 3.304E-02	0.000E+00		
NB-95	765.78	< 1.941E-02	0.000E+00		
ZR-95	756.72	< 3.429E-02	0.000E+00		
I-131	364.48	< 1.847E-02	0.000E+00		
CS-134	604.66	< 1.175E-02	0.000E+00		
CS-137	661.65	< 1.743E-02	0.000E+00		
BALA-140	1596.49	< 2.780E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Lynn H. Brotherton

Approved by: Dale E. Hold

Date: 11 / 1 /


VAX/VMS Sample Analysis Report generated : 2-DEC-1987 13:54:09

Plant Name : CNS
Sample Number : 299
Type/Location : AIR RADIOIODINES / 205
Sample Date : 25-NOV-1987 13:15:00
Acq. Start Time : 2-DEC-1987 13:22:55
Sample Quantity : 654.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.136E-02	0.000E+00		
CO-58	810.76	< 1.161E-02	0.000E+00		
FE-59	1099.22	< 7.293E-03	0.000E+00		
CO-60	1332.47	< 1.577E-02	0.000E+00		
ZN-65	1115.52	< 2.047E-02	0.000E+00		
NB-95	765.78	< 1.612E-02	0.000E+00		
ZR-95	756.72	< 2.172E-02	0.000E+00		
I-131	364.48	< 1.523E-02	0.000E+00		
CS-134	604.66	< 1.190E-02	0.000E+00		
CS-137	661.65	< 1.202E-02	0.000E+00		
BALA-140	1596.49	< 2.125E-02	0.000E+00		
K-40	1460.75	0.280	6.784E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: -----

Approved by: -----

Date: 12/3/87-----

Plant Name : CNS
Sample Number : 325
Type/Location : AIR RADIOIODINES / 205
Sample Date : 2-DEC-1987 09:55:00
Acq. Start Time : 8-DEC-1987 14:43:29
Sample Quantity : 559.000 M3
Sample ID : 25NOV TO 2DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.261E-02	0.000E+00		
CO-58	810.76	< 9.892E-03	0.000E+00		
FE-59	1099.22	< 3.469E-02	0.000E+00		
CO-60	1332.47	< 1.210E-02	0.000E+00		
ZN-65	1115.52	< 2.591E-02	0.000E+00		
NB-95	765.78	< 1.225E-02	0.000E+00		
ZR-95	756.72	< 1.920E-02	0.000E+00		
I-131	364.48	< 1.203E-02	0.000E+00		
CS-134	604.66	< 1.205E-02	0.000E+00		
CS-137	661.65	< 1.204E-02	0.000E+00		
BALA-140	1596.49	< 2.452E-02	0.000E+00		
K-40	1460.75	0.466	8.805E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale S. Hall

Date: 12/10/87

Plant Name : CNS
Sample Number : 341
Type/Location : AIR RADIOIODINES / 205
Sample Date : 9-DEC-1987 11:10:00
Acq. Start Time : 14-DEC-1987 14:14:51
Sample Quantity : 647.000 M3
Sample ID : 2DEC TO 9DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.499E-02	0.000E+00		
CO-58	810.76	< 1.709E-02	0.000E+00		
FE-59	1099.22	< 2.525E-02	0.000E+00		
CO-60	1332.47	< 1.213E-02	0.000E+00		
ZN-65	1115.52	< 2.597E-02	0.000E+00		
NB-95	765.78	< 1.255E-02	0.000E+00		
ZR-95	756.72	< 2.161E-02	0.000E+00		
I-131	364.48	< 1.932E-02	0.000E+00		
CS-134	604.66	< 8.362E-03	0.000E+00		
CS-137	661.65	< 1.541E-02	0.000E+00		
BALA-140	1596.49	< 1.941E-02	0.000E+00		
K-40	1460.75	0.184	8.665E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: LAB

Approved by: D. E. Hold

Date: 12/22/87

Plant Name : CNS
Sample Number : 359
Type/Location : AIR RADIOIODINES / 205
Sample Date : 16-DEC-1987 10:22:00
Acq. Start Time : 23-DEC-1987 10:43:20
Sample Quantity : 639.000 M3
Sample ID : 9DEC TO 16DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.077E-02	0.000E+00		
CO-58	810.76	< 1.303E-02	0.000E+00		
FE-59	1099.22	< 1.698E-02	0.000E+00		
CO-60	1332.47	< 2.030E-02	0.000E+00		
ZN-65	1115.52	< 2.897E-02	0.000E+00		
NB-95	765.78	< 8.445E-03	0.000E+00		
ZR-95	756.72	< 2.011E-02	0.000E+00		
I-131	364.48	< 1.277E-02	0.000E+00		
CS-134	604.66	< 9.696E-03	0.000E+00		
CS-137	661.65	< 1.003E-02	0.000E+00		
BALA-140	1596.49	< 6.935E-03	0.000E+00		
K-40	1460.75	0.262	6.176E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. S. Hill

Approved by: D. E. Hill

Date: 1/4/88

Plant Name : CNS
Sample Number : 393
Type/Location : AIR RADIOIODINES / 205
Sample Date : 23-DEC-1987 11:50:00
Acq. Start Time : 6-JAN-1988 12:14:18
Sample Quantity : 561.000 M3
Sample ID : 16DEC TO 23DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.734E-02	0.000E+00		
CO-58	810.76	< 2.017E-02	0.000E+00		
FE-59	1099.22	< 5.476E-02	0.000E+00		
CO-60	1332.47	< 1.999E-02	0.000E+00		
ZN-65	1115.52	< 3.657E-02	0.000E+00		
NB-95	765.78	< 1.799E-02	0.000E+00		
ZR-95	756.72	< 3.796E-02	0.000E+00		
I-131	364.48	< 2.955E-02	0.000E+00		
CS-134	604.66	< 1.338E-02	0.000E+00		
CS-137	661.65	< 1.864E-02	0.000E+00		
BALA-140	1596.49	< 5.299E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmur

Approved by: Del E. Hall

Date: 1 / 12 / 88

VAX/VMS Sample Analysis Report generated : 8-JAN-1988 12:13:36

Plant Name : CNS
Sample Number : 397
Type/Location : AIR RADIOIODINES / 205
Sample Date : 30-DEC-1987 11:09:00
Acq. Start Time : 8-JAN-1988 11:41:52
Sample Quantity : 583.000 M3
Sample ID : 23DEC TO 30DEC87
Measurement Type : ROUTINE

*** Gamma-Spectroscopy Analysis ***

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.089E-02	0.000E+00		
CO-58	810.76	< 1.340E-02	0.000E+00		
FE-59	1099.22	< 2.810E-02	0.000E+00		
CO-60	1332.47	< 2.227E-02	0.000E+00		
ZN-65	1115.52	< 1.931E-02	0.000E+00		
NB-95	765.78	< 1.361E-02	0.000E+00		
ZR-95	756.72	< 1.850E-02	0.000E+00		
I-131	364.48	< 1.769E-02	0.000E+00		
CS-134	604.66	< 8.798E-03	0.000E+00		
CS-137	661.65	< 1.293E-02	0.000E+00		
BALA-140	1596.49	< 8.475E-03	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: *K. J. P.*

Approved by: *John E. Hilde*

Date: 1/ 4/ 88

15 JAN 1987 4:00:44 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

ATAWBA AIRBORNE RADIOIODINES CMP. - 212
TYPE: CARTRIDGE QUANTITY: 6.240E 02
COLLECTION DATE(S): 12/31-1/7/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 4.47E-03	4.2E-03
FE-59	* 2.95E-03	7.8E-03
CO-58	* 1.16E-03	4.5E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* 2.96E-03	7.8E-03
ZR-95	* 0.00E-01	6.7E-03
NB-95	* 3.56E-03	4.6E-03
I-131	1.66E-02	8.9E-03
CS-134	* 0.00E-01	3.5E-03
CS-137	* 9.75E-04	5.1E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *LXR*

VIEWED BY: *Marcia Lane*

DATE: *1-18-87*

 15 JAN 1987 11:21:00 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

9

 TAWBA AIRBORNE RADIOIODINES CMP. - 212
 PE: CARTRIDGE QUANTITY: 6.380E 02
 COLLECTION DATE(S): 1/7-1/14/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	1.5E-03
FE-59	* -2.60E-03	8.6E-03
CO-58	* -3.20E-03	3.5E-03
CO-60	* 3.32E-03	4.7E-03
ZN-65	* -2.84E-03	8.5E-03
ZR-95	8.86E-03	6.4E-03
NB-95	* 1.02E-03	3.7E-03
I-131	* 7.06E-04	4.7E-03
CS-134	* 2.37E-03	4.7E-03
CS-137	* 9.54E-04	4.4E-03
BALA-140	* 0.00E-01	3.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigman

JAN 16 1987

REVIEWED BY: *Marcia Lane*

DATE: 1-20-87

26 JAN 1987 5:45:02 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 212

TYPE: CARTRIDGE

QUANTITY: 5.580E 02

ECTION DATE(S): 1/14-1/21/87

UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 0.00E-01	3.9E-03
FE-59	* -2.63E-03	5.9E-03
CO-58	* 0.00E-01	5.2E-03
CO-60	* 5.11E-03	5.1E-03
ZN-65	* 2.78E-03	1.3E-02
ZR-95	* 3.49E-03	7.4E-03
NB-95	* 6.17E-03	4.4E-03
I-131	* 0.00E-01	6.4E-03
CS-134	* -1.14E-03	3.4E-03
CS-137	* 1.80E-03	4.8E-03
BALA-140	* -2.74E-03	4.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NB-95 PEAK (765.79KEV) WAS NOT PRESENT IN THE PEAK SEARCH OR THE SPECTRUM.

BY: *JAN*

REVIEWED BY: *Marcia Lane*

DATE: *1/31/87*

2 FEB 1987 12:48:10 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 212

T : CARTRIDGE

QUANTITY: 5.810E 02

COLLECTION DATE(S): 1/21-1/28/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.17E-03	3.1E-03
FE-59	* 8.65E-03	1.0E-02
CO-58	* 0.00E-01	4.4E-03
CO-60	* 3.76E-03	4.6E-03
ZN-65	* 6.10E-03	1.1E-02
ZR-95	* 0.00E-01	6.7E-03
NB-95	* -1.14E-03	4.1E-03
I-131	* 2.67E-03	5.1E-03
CS-134	* -1.28E-03	3.4E-03
CS-137	* 2.00E-03	4.5E-03
BALA-140	* 2.96E-03	6.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigmen

FEB 2 1987

REVIEWED BY:

Marcia Lane

DATE: *2/5/87*

24

 6 FEB 1987 11:22:23 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C/ WBA AIRBORNE RADIOIODINES CMP. - 212
 : CARTRIDGE QUANTITY: 4.940E 02
 COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.17E-03	4.8E-03
FE-59	* 8.49E-03	1.0E-02
CO-58	* -3.46E-03	4.2E-03
CO-60	* 0.00E-01	2.7E-03
ZN-65	* -6.22E-03	1.2E-02
ZR-95	* 1.90E-03	8.3E-03
N8-95	* -2.18E-03	5.1E-03
I-131	* -1.43E-03	4.7E-03
CS-134	* -2.58E-03	5.5E-03
CS-137	* 0.00E-01	4.5E-03
BALA-140	* -2.60E-03	6.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigan

FEB 06 1987

REVIEWED BY:

Marcia

DATE: 2-6-87

257

 18 FEB 1987 3:19:32 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 212

TYPE: CARTRIDGE

QUANTITY: 5.740E 02

COLLECTION DATE(S): 2/4-2/11/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 2.42E-03	5.4E-03
FE-59	* 3.07E-03	9.2E-03
CO-58	* 0.00E-01	5.5E-03
CO-60	* 1.85E-03	4.9E-03
ZN-65	* 3.17E-03	9.5E-03
ZR-95	* -2.06E-03	7.4E-03
NB-95	* 1.23E-03	5.9E-03
I-131	* 7.07E-03	9.0E-03
CS-134	* 7.94E-03	6.2E-03
CS-137	* 0.00E-01	4.2E-03
BALA-140	* 0.00E-01	6.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *mg*

 REVIEWED BY: *Marcus* DATE: 2-23-87

 23 FEB 1987 1:31:24 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATWBA AIRBORNE RADIOIODINES CMP. - 212
 : CARTRIDGE QUANTITY: 4.920E 02
 COLLECTION DATE(S): 2/11-2/18/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	4.7E-03
FE-59	* 2.85E-03	1.1E-02
CO-58	* -3.48E-03	5.1E-03
CO-60	* 0.00E-01	5.5E-03
ZN-65	* -6.25E-03	1.4E-02
ZR-95	* 3.83E-03	6.6E-03
NB-95	9.89E-03	5.3E-03 N/A
I-131	* 7.33E-04	5.5E-03
CS-134	* -1.29E-03	5.0E-03
CS-137	* 3.06E-03	5.7E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *LAP*

FEB 23 1987

REVIEWED BY: *Marcia Lane*

DATE: *2-24-87*

4

 27 FEB 1987 8:04:54 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CHAWBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 6.460E 02
 COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.06E-03	4.1E-03
FE-59	* -2.53E-03	7.6E-03
CO-58	* 0.00E-01	3.0E-03
CO-60	* 0.00E-01	4.0E-03
ZN-65	* -2.78E-03	9.2E-03
ZR-95	* -1.74E-03	6.7E-03
NB-95	* 3.98E-03	4.0E-03
I-131	* -4.13E-03	4.0E-03
CS-134	* 4.68E-03	4.4E-03
CS-137	* -2.80E-03	4.5E-03
BALA-140	* 2.30E-03	6.1E-03



* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *gmy*

VIEWED BY: *Dale T. Hester*

DATE: *3/2/87*

9

 10 MAR 1987 8:37:39 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 212
 E: CARTRIDGE QUANTITY: 6.260E 02
 COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -3.06E-03	4.4E-03
FE-59	* 2.59E-03	9.3E-03
CO-58	* 2.06E-03	3.3E-03
CO-60	* 0.00E-01	4.6E-03
ZN-65	* -2.73E-03	4.7E-03
ZR-95	* 0.00E-01	6.4E-03
NR-95	7.04E-03	4.6E-03
I-131	* 4.81E-03	5.4E-03
CS-134	* 0.00E-01	4.2E-03
CS-137	* 1.78E-03	4.2E-03
BALA-140	* 0.00E-01	6.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: #6-95 & #66 not identified as a peak.

BY: *Jim Sigman*

MAR 10 1987

VIEWED BY: *Dale G. Holt*

DATE: *2/12/87*

 13 MAR 1987 11:31:23 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 6.540E 02
 COLLECTION DATE(S): 3/4-3/11/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 8.87E-04	3.4E-03
FE-59	* 0.00E-01	6.0E-03
CO-58	* -3.48E-03	3.9E-03
CO-60	* -1.45E-03	3.2E-03
ZN-65	* -7.05E-03	8.5E-03
ZR-95	* 0.00E-01	6.4E-03
NB-95	* 4.11E-03	3.8E-03
I-131	* -1.07E-03	4.1E-03
CS-134	* -3.89E-03	4.4E-03
CS-137	* 4.60E-03	3.6E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigoren* MAR 13 1987

 REVIEWED BY: *Del. I. Holt* DATE: *3/13/87*

9164

 20 MAR 1987 3:50:44 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 212
 : CARTRIDGE QUANTITY: 5.670E 02
 COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -2.42E-03	4.2E-03
FE-59	* 8.64E-03	9.5E-03
CO-58	* 0.00E-01	3.4E-03
CO-60	* 0.00E-01	3.7E-03
ZN-65	* -3.16E-03	7.1E-03
ZR-95	* 3.95E-03	9.3E-03
NB-95	* 1.13E-03	4.7E-03
I-131	* 5.41E-03	5.7E-03
CS-134	* -2.67E-03	5.3E-03
CS-137	* 4.25E-03	5.6E-03
BALA-140	* 0.00E-01	6.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *My*

 REVIEWED BY: *John E. Holden*

DATE: *3/23/87*

 4 APR 1987 5:55:51 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CWA AIRBORNE RADIOIODINES CMP. - 212
 T : CARTRIDGE QUANTITY: 6.020E 02
 COLLECTION DATE(S): 3/18-3/25/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 1.07E-03	4.1E-03
FE-59	* -5.81E-03	1.1E-02
CO-58	* 2.24E-03	4.5E-03
CO-60	* -3.38E-03	5.3E-03
ZN-65	* 2.68E-03	9.6E-03
ZR-95	* -1.87E-03	5.6E-03
NB-95	* 3.46E-03	4.5E-03
I-131	* 3.83E-03	7.1E-03
CS-134	* -1.17E-03	5.1E-03
CS-137	* 7.82E-03	3.9E-03
BALA-140	* 0.00E-01	7.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 keV identified by Peak Search and NID.

BY:

[Signature]

4-4-87

REVIEWED BY:

[Signature]

DATE:

4-6-87

 9 APR 1987 11:43:41 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 5.670E+02
 COLLECTION DATE(S): 3/25-4/1/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 1.13E-03	4.9E-03
FE-59	* 5.96E-03	1.0E-02
CO-58	* -1.17E-03	3.5E-03
CO-60	* 5.37E-03	5.9E-03
ZN-65	* -3.04E-03	6.8E-03
ZR-95	* -3.89E-03	7.7E-03
NB-95	* 5.87E-03	5.4E-03
I-131	* 0.00E-01	7.9E-03
CS-134	* 6.19E-03	5.7E-03
CS-137	* 3.93E-03	4.4E-03
BALA-140	* 0.00E-01	4.9E-03
NPK-40	3.62E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1961 keV identified by Peak Search & NID.

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 4-10-87

29

15 APR 1987 7:44:03 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 212

TYPE: CARTRIDGE

QUANTITY: 5.830E 02

LECTION DATE(S): 4/1-4/8/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -2.38E-03	4.8E-03
FE-59	* 9.04E-03	1.1E-02
CO-58	* -1.22E-03	5.6E-03
CO-60	* 5.45E-03	4.8E-03
ZN-65	* -3.11E-03	8.2E-03
ZR-95	* 2.02E-03	6.1E-03
NB-95	* 0.00E-01	5.4E-03
I-131	* -2.26E-03	7.7E-03
CS-134	* 7.81E-03	6.1E-03
CS-137	* -2.07E-03	4.6E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	3.61E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *nPK-40 at 1461 keV ident. fixed by Peak Search and NID.*

BY: *Jim Sigmur*

APR 15 1987

REVIEWED BY: *D. S. Holder*

DATE: *4-15-87*

34

 17 APR 1987 2:43:50 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 212

TYPE: CARTRIDGE

QUANTITY: 5.720E 02

COLLECTION DATE(S): 4/8-4/15/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 2.40E-03	5.1E-03
FE-59	* -2.85E-03	1.0E-02
CO-58	* 0.00E-01	5.0E-03
CO-60	* -1.85E-03	3.2E-03
ZN-65	* 0.00E-01	8.9E-03
ZR-95	* -5.87E-03	8.5E-03
NB-95	* -4.49E-03	5.0E-03
I-131	* 0.00E-01	3.9E-03
CS-134	* 2.64E-03	5.6E-03
CS-137	* 5.26E-03	4.6E-03
BALA-140	* 0.00E-01	3.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *mg*

REVIEWED BY: *John E. Hall*

DATE: *4-21-87*

28 APR 1987 11:34:12 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 5.710E 02
 COLLECTION DATE(S): 4/15-4/22/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 3.36E-03	4.3E-03
FE-59	* 8.60E-03	1.0E-02
CO-58	* -2.27E-03	4.8E-03
CO-60	* 1.78E-03	5.3E-03
ZN-65	* -3.00E-03	6.7E-03
ZR-95	* 9.44E-03	7.8E-03
NB-95	7.83E-03	4.9E-03 N/A
I-131	* -9.35E-04	6.0E-03
CS-134	* 0.00E-01	3.5E-03
CS-137	* 2.93E-03	4.9E-03
BALA-140	* 3.06E-03	6.8E-03
NPK-40	2.44E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NB-95 at 766 keV, MOA = 7 net counts, not identified as a peak
 NPK-40 at 1461 keV identified by Peak Search and N.D.

BY: *Jim Sigmey* APR 28 1987

REVIEWED BY: *Dale G. Hallen* DATE: *4/28/87*

45

 1 MAY 1987 1:26:30 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 5.870E 02
 COLLECTION DATE(S): 4/22-4/29/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -2.29E-03	4.0E-03
FE-59	* 5.47E-03	6.7E-03
CO-58	* 1.12E-03	3.7E-03
CO-60	* 3.75E-03	5.3E-03
ZN-65	* 0.00E-01	8.5E-03
ZR-95	* 1.86E-03	6.2E-03
NB-95	* 2.13E-03	4.3E-03
I-131	* 0.00E-01	4.1E-03
CS-134	* 2.52E-03	4.0E-03
CS-137	* 4.00E-03	4.2E-03
BALA-140	* -2.53E-03	4.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman* DATE: *MAY 01 1987*
 REVIEWED BY: *Dale G. Holder* DATE: *5-1-87*

44

 11 MAY 1987 1:39:37 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 6.060E 02
 COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.12E-03	3.0E-03
FE-59	* 0.00E-01	7.8E-03
CO-58	* 2.24E-03	3.2E-03
CO-60	* 3.63E-03	4.5E-03
ZN-65	* 8.81E-03	1.1E-02
ZR-95	* 0.00E-01	4.6E-03
NB-95	* 3.28E-03	3.6E-03
I-131	* -3.40E-03	3.6E-03
CS-134	* 1.22E-03	3.7E-03
CS-137	* 0.00E-01	4.7E-03
BALA-140	* -2.88E-03	6.4E-03
NFK-40	3.44E-01	8.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *K-40 identified by NID.*

BY: *Debi S. Holden*

5-11-87

REVIEWED BY: *Marcus Lane*

DATE: *5-18-87*

54

 19 MAY 1987 9:51:20 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 212

E: CARTRIDGE

QUANTITY: 6.080E 02

COLLECTION DATE(S): 5/6-5/13/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -2.22E-03	4.2E-03
FE-59	* 0.00E-01	7.8E-03
CO-58	* -1.12E-03	4.3E-03
CO-60	* 0.00E-01	4.4E-03
ZN-65	* 0.00E-01	9.3E-03
ZR-95	* 1.11E-02	8.3E-03
NB-95	* 4.36E-03	4.4E-03
I-131	* 4.25E-03	4.9E-03
CS-134	* 1.22E-03	3.7E-03
CS-137	* 9.65E-04	3.7E-03
BALA-140	* 2.88E-03	5.0E-03
NPK-40	3.43E-01	8.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY:

Jim Sigman

MAY 19 1987

REVIEWED BY:

Del S. Allen

DATE:

5.21.87

59

26 MAY 1987 2:11:22 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 212

TYPE: CARTRIDGE

QUANTITY: 5.450E 02

COLLECTION DATE(S): 5/13-5/20/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 3.78E-03	5.2E-03
FE-59	1.50E-02	1.0E-02 N/A
CO-58	* 4.97E-03	5.0E-03
CO-60	* -1.94E-03	4.3E-03
ZN-65	* 0.00E-01	1.0E-02
ZR-95	* 0.00E-01	9.2E-03
NB-95	1.30E-02	6.1E-03 N/A
I-131	* -4.08E-03	5.6E-03
CS-134	* -1.39E-03	3.0E-03
CS-137	* 6.63E-03	5.6E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	4.08E-01	1.4E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Fe-59 at 1099 keV, MDA: 5 net counts,
Nb-95 at 766 keV not identified by Peak Search or NID, MDA: 11 net counts.
NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigman*

MAY 26 1987

REVIEWED BY: *Dale S. Alder*

DATE: 5-27-87

1 JUN 1987 3:12:38 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA AIRBORNE RADIOIODINES CMP. - 212
TYPE: CARTRIDGE QUANTITY: 6.060E 02
COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	2.2E-03
FE-59	* 0.00E-01	8.8E-03
CO-58	* 0.00E-01	3.9E-03
CO-60	* -1.82E-03	4.1E-03
ZN-65	1.47E-02	8.8E-03 N/A
ZR-95	* 3.72E-03	5.9E-03
NB-95	* -1.09E-03	4.2E-03
I-131	* 8.58E-04	4.9E-03
CS-134	9.77E-03	4.9E-03 0.10
CS-137	* 4.84E-03	4.2E-03
BALA-140	* -2.90E-03	5.0E-03
NPK-40	1.73E-01	7.9E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Zn-65 at 1115 keV, MDA = 5 net counts.
Cs-134 at 796 keV not identified by Peak Search or NID, MDA = 8 net counts.
K-40 at 146 keV identified by Peak Search and NID.

BY:

REVIEWED BY:

DATE:

6-2-87

 11 JUN 1987 11:48:31 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 212
 T. E: CARTRIDGE QUANTITY: 6.420E 02
 COLLECTION DATE(S): 5/27-6/3/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (FCI/UT)	SIGMA (FCI/LT)
MN-54	* -9.14E-04	4.2E-03
FE-59	* 0.00E-01	7.5E-03
CO-58	* -2.80E-03	3.9E-03
CO-60	* -2.96E-03	3.6E-03
ZN-65	* -4.86E-03	1.2E-02
ZR-95	1.08E-02	7.4E-03
NB-95	* 2.79E-03	4.5E-03
I-131	* 6.01E-03	6.4E-03
CS-134	* 2.99E-03	5.0E-03
CS-137	* 2.35E-03	3.9E-03
BALA-140	* -2.65E-03	5.9E-03
NPK-40	5.48E-01	1.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Zr-95 at 757 keV not identified by Peak Search or NID, net = 7 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: 6-17-87

16 JUN 1987 11:03:09 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 5.940E 02
 COLLECTION DATE(S): 6/3-6/10/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
IN-54	* 2.96E-03	5.1E-03
FE-59	* 0.00E-01	8.7E-03
CO-58	* -3.00E-03	3.9E-03
CO-60	* 3.20E-03	4.5E-03
ZN-65	* -7.85E-03	1.1E-02
ZR-95	* -3.31E-03	7.4E-03
NB-95	* 5.89E-03	5.0E-03
I-131	1.10E-02	6.4E-03
CS-134	* 2.15E-03	5.0E-03
CS-137	* 8.45E-04	4.1E-03
BALA-140	* 0.00E-01	3.8E-03
NPK-40	7.10E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for I-131 at 364 keV, MCA = B net counts.
 NPK-40 at 1461 keV identified by Peak Standard NID.*

BY: *M7*

 REVIEWED BY: *Dale S. Holden* DATE: *6-17-87*

79

22 JUN 1987 2:23:23 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 6.480E 02
 COLLECTION DATE(S): 6/10-6/17/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	3.0E-03
FE-59	* 7.81E-03	6.9E-03
CO-58	* 0.00E-01	1.5E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* 8.24E-03	9.9E-03
ZR-95	* 0.00E-01	4.3E-03
NB-95	* 0.00E-01	3.6E-03
I-131	* 0.00E-01	3.6E-03
CS-134	* 0.00E-01	2.8E-03
CS-137	* 1.81E-03	3.8E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	2.93E-01	8.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *nPk-40 at 1461 keV identified by Peak Search and NID.*

BY: *Jim Sigman* JUN 22 1987

 REVIEWED BY: *Dale G. Holder* DATE: *6.23.87*

84

 30 JUN 1987 3:33:02 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE RADIOIODINES CMP. - 212
 E: CARTRIDGE QUANTITY: 5.780E 02
 COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
GAMMA SPEC		
MN-54	* 0.00E-01	2.9E-03
FE-59	* -2.82E-03	8.5E-03
CO-58	9.36E-03	5.0E-03
CO-60	* -1.83E-03	4.1E-03
ZN-65	* -3.10E-03	8.2E-03
ZR-95	* 3.87E-03	8.7E-03
NB-95	* 3.33E-03	4.8E-03
I-131	* 2.27E-03	5.1E-03
CS-134	* 2.62E-03	6.1E-03
CS-137	* 5.21E-03	4.5E-03
BALA-140	* 2.54E-03	5.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Co-58 at 811 keV not identified by Peak Search or NID, MDA > 8 net counts.

BY: *my*

 REVIEWED BY: *Dale E. Holder* DATE: *7-1-87*

 9 JUL 1987 4:07:15 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT


TAWBA AIRBORNE RADIOIODINES CMP. - 212
 PE: CARTRIDGE QUANTITY: 5.630E 02
 COLLECTION DATE(S): 6/24-7/1/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -2.09E-03	3.9E-03
FE-59	* 1.09E-02	8.6E-03
CO-58	* -2.15E-03	4.0E-03
CO-60	* 0.00E-01	4.1E-03
ZN-65	* -2.78E-03	1.1E-02
ZR-95	* 1.78E-03	7.8E-03
NB-95	* -1.08E-03	3.9E-03
I-131	* -8.52E-03	8.1E-03
CS-134	* -1.14E-03	4.1E-03
CS-137	* 2.68E-03	4.3E-03
BALA-140	1.27E-02	9.0E-03
NPK-40	3.87E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for BaLa-140 at 1596 keV, MDA = 4 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY: 

 REVIEWED BY:  DATE: 7-13-87

 13 JUL 1987 5:01:40 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

TAWBA AIRBORNE RADIOIODINES CMP. - 212
 E: CARTRIDGE QUANTITY: 5.670E 02
 COLLECTION DATE(S): 7/1-7/8/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	3.2E-03
FE-59	* 0.00E-01	8.1E-03
CO-58	* 4.54E-03	4.2E-03
CO-60	* 1.79E-03	6.5E-03
ZN-65	* 9.06E-03	1.2E-02
ZR-95	* 0.00E-01	8.4E-03
NB-95	* -3.33E-03	5.1E-03
I-131	* -4.44E-03	6.0E-03
CS-134	* 2.47E-03	4.9E-03
CS-137	* -9.83E-04	4.3E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *my*

 REVIEWED BY: *De S. Hold* DATE: *7-11-87*

99

20 JUL 1987 3:27:58 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 5.880E 02
 COLLECTION DATE(S): 7/8-7/15/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.15E-03	3.8E-03
FE-59	* -2.86E-03	6.4E-03
CO-58	* 1.16E-03	4.5E-03
CO-60	* 0.00E-01	2.6E-03
ZN-65	* -9.08E-03	1.0E-02
ZR-95	* 0.00E-01	6.6E-03
NB-95	* 2.25E-03	4.5E-03
I-131	* 6.17E-03	5.1E-03
CS-134	* -2.52E-03	4.4E-03
CS-137	* -2.00E-03	3.5E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	2.12E-01	7.9E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY:

Jim Sigma

JUL 20 1987

REVIEWED BY:

Del F. Holt

DATE:

7-21-87

104

 24 JUL 1987 2:16:50 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 212
 E: CARTRIDGE QUANTITY: 5.140E 02
 COLLECTION DATE(S): 7/15-7/22/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	4.2E-03
FE-59	* 0.00E-01	9.4E-03
CO-58	* -2.22E-03	4.2E-03
CO-60	* -1.85E-03	4.1E-03
ZN-65	* -1.49E-02	1.2E-02
ZR-95	* 0.00E-01	8.2E-03
NB-95	* 4.19E-03	5.1E-03
I-131	* -2.77E-03	5.1E-03
CS-134	* 0.00E-01	6.1E-03
CS-137	* 1.95E-03	4.1E-03
BALA-140	* 7.52E-03	6.6E-03
NPK-40	4.44E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 Key identified by Plate Search and NID.*

BY: *Lisa Sigman* JUL 24 1987
 REVIEWED BY: *Dale S. Hold* DATE: *7-27-87*

 5 AUG 1987 10:31:05 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 6.080E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.11E-03	3.3E-03
FE-59	* 5.63E-03	8.0E-03
CO-58	* 0.00E-01	3.2E-03
CO-60	7.25E-03	4.4E-03
ZN-65	* -2.94E-03	8.8E-03
ZR-95	9.38E-03	6.8E-03
NB-95	* -2.23E-03	3.9E-03
I-131	* -3.74E-03	4.8E-03
CS-134	* 1.22E-03	4.0E-03
CS-137	* 1.93E-03	4.1E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Co-60 at 1332 keV, MoA-4 or Zr-95 at 757 keV,
 MOA: 5 net counts.

BY: 

 REVIEWED BY: 

DATE: 8-7-87

115

 11 AUG 1987 12:56:26 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOISOTOPES CMP. - 212
 TYPE: CARTRIDGE QUANTITY: 5.550E 02
 COLLECTION DATE(S): 7/29-8/5/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -2.44E-03	4.6E-03
FE-59	* 0.00E-01	7.5E-03
CO-58	* 3.69E-03	5.1E-03
CO-60	* 1.98E-03	5.2E-03
ZN-65	* 0.00E-01	9.1E-03
ZR-95	* -2.04E-03	6.8E-03
NB-95	* 1.20E-03	3.6E-03
I-131	* -1.92E-03	5.1E-03
CS-134	* -2.67E-03	4.6E-03
CS-137	* 0.00E-01	4.7E-03
BALA-140	* -3.21E-03	5.6E-03
NPK-40	1.56E-01	6.9E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *mg*

 REVIEWED BY: *Del. G. Holt* DATE: *8-13-87*

119

 14 AUG 1987 3:12:22 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIODINES CMP. - 212

E: CARTRIDGE

QUANTITY: 5.540E 02

LECTION DATE(S): 8/5-8/12/87

UNITS: CUBIC METERS

RADIONUCLIDE
 GAMMA SPEC

ACTIVITY(PCI/UT) SIGMA(PCI/UT)

MN-54	* -1.23E-03	3.7E-03
FE-59	1.76E-02	1.1E-02 N/A
CO-58	* 1.21E-03	5.5E-03
CO-60	7.90E-03	5.6E-03 N/A
ZN-65	* 0.00E-01	7.9E-03
ZR-95	* 2.01E-03	7.8E-03
NB-95	* 1.15E-03	5.0E-03
I-131	* 7.57E-04	5.8E-03
CS-134	* -2.71E-03	4.3E-03
CS-137	* 2.16E-03	4.8E-03
BALA-140	* -2.67E-03	6.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Fe-59 at 1099 keV, MDA: 6 and Co-60 at 1332 keV,
 MDA: 4 net counts.

BY: *mg*

REVIEWED BY: *Dale S. Hall*

DATE: 8-17-87

124

21 AUG 1987 2:03:48 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 212

TYPE: CARTRIDGE

QUANTITY: 5.610E 02

COLLECTION DATE(S): 8/12-8/19/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 4.85E-03	4.9E-03
FE-59	* 0.00E-01	8.2E-03
CO-58	* -1.20E-03	3.6E-03
CO-60	* -3.90E-03	5.5E-03
ZN-65	* 0.00E-01	7.8E-03
ZR-95	* 0.00E-01	7.9E-03
NB-95	* 0.00E-01	4.8E-03
I-131	* 2.24E-03	4.9E-03
CS-134	* -2.67E-03	4.6E-03
CS-137	* 0.00E-01	4.5E-03
BALA-140	* 0.00E-01	5.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

AUG 21 1987

REVIEWED BY: *Del S. Falk*

DATE: *9-21-87*

VAX/VMS Sample Analysis Report generated : 10-SEP-1987 10:56:05

Plant Name : CNS
Sample Number : 8
Type/Location : AIR RADIOIODINES / 212
Sample Date : 26-AUG-1987 15:10:00
Acq. Start Time : 10-SEP-1987 10:24:57
Sample Quantity : 451.000 M3
Sample ID : 19AUG 26AUG87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.506E-02	0.000E+00		
CO-58	810.76	< 0.000E+00	0.000E+00		
FE-59	1099.22	< 3.567E-02	0.000E+00		
CO-60	1332.47	< 2.694E-02	0.000E+00		
ZN-65	1115.52	< 3.207E-02	0.000E+00		
NB-95	765.78	< 1.699E-02	0.000E+00		
ZR-95	756.72	< 2.319E-02	0.000E+00		
I-131	364.48	< 3.373E-02	0.000E+00		
CS-134	604.66	< 1.224E-02	0.000E+00		
CS-137	661.65	< 1.961E-02	0.000E+00		
BALA-140	537.27	< 8.630E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Simpson 9/10/87

Approved by: Dale E. Hold

Date: 9/10/87

VAX/VMS Sample Analysis Report generated : 10-SEP-1987 13:32:38

Plant Name : CNS
Sample Number : 15
Type/Location : AIR RADIOIC / INES / 212
Sample Date : 2-SEP-1987 10:27:00
Acq. Start Time : 10-SEP-1987 13:01:41
Sample Quantity : 621.000 M3
Sample ID : 26AUG 2SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.325E-03	0.000E+00		
CO-58	810.76	< 1.344E-02	0.000E+00		
FE-59	1099.22	< 2.671E-02	0.000E+00		
CR-40	1332.47	< 1.384E-02	0.000E+00		
ZN-65	1115.52	< 3.188E-02	0.000E+00		
NB-95	765.78	< 1.631E-02	0.000E+00		
ZR-95	756.72	< 2.084E-02	0.000E+00		
I-131	364.48	< 1.269E-02	0.000E+00		
CS-134	604.66	< 8.397E-03	0.000E+00		
CS-137	661.65	< 1.530E-02	0.000E+00		
BALA-140	537.27	< 5.482E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Marcia D. Dyer 9/2/87

Approved by: Dale S. Hill

Date: 9/10/87

Corrected results

Plant Name : CNS
Sample Number : 43
Type/Location : AIR RADIOIODINES / 212
Sample Date : 9-SEP-1987 11:45:00
Acq. Start Time : 14-SEP-1987 01:33:32
Sample Quantity : 604.000 M3
Sample ID : 02SEP TO 09SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.019E-02	0.000E+00		
CO-58	810.76	< 9.557E-03	0.000E+00		
FE-59	1099.22	< 1.801E-02	0.000E+00		
CO-60	1332.47	< 1.146E-02	0.000E+00		
ZN-65	1115.52	< 1.895E-02	0.000E+00		
NB-95	765.78	< 9.971E-03	0.000E+00		
ZR-95	756.72	< 2.560E-02	0.000E+00		
I-131	364.48	< 1.011E-02	0.000E+00		
CS-134	604.66	< 1.041E-02	0.000E+00		
CS-137	661.65	< 1.065E-02	0.000E+00		
BALA-140	537.27	< 5.144E-02	0.000E+00		
K-40	1460.75	0.424	8.661E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman 9-14-87

Approved by: Dale S. Hold

Date: 9/14/87

K-40 identified by peak, N/D

VAX/VMS Sample Analysis Report generated : 17-DEC-1987 16:41:22

Plant Name : CNS
Sample Number : 64
Type/Location : AIR RADIOIODINES / 212
Sample Date : 16-SEP-1987 11:12:00
Acq. Start Time : 22-SEP-1987 14:35:13
Sample Quantity : 583.000 M3
Sample ID : 9SEP TO 16SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.425E-02	0.000E+00		
CO-58	810.76	< 1.401E-02	0.000E+00		
FE-59	1099.22	< 4.235E-02	0.000E+00		
CO-60	1332.47	< 2.235E-02	0.000E+00		
ZN-65	1115.52	< 2.361E-02	0.000E+00		
NB-95	765.78	< 1.313E-02	0.000E+00		
ZR-95	756.72	< 1.914E-02	0.000E+00		
I-131	364.48	< 2.318E-02	0.000E+00		
CS-134	604.65	< 1.116E-02	0.000E+00		
CS-137	661.65	< 1.630E-02	0.000E+00		
BALA-140	537.27	< 8.409E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 16 / 10 / 87

Plant Name : CNS
Sample Number : 85
Type/Location : AIR RADIOIODINES / 212
Sample Date : 23-SEP-1987 15:58:00
Acq. Start Time : 25-SEP-1987 22:58:52
Sample Quantity : 587.000 M3
Sample ID : 16SEP TO 23SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.230E-02	0.000E+00		
CO-58	810.76	< 1.360E-02	0.000E+00		
FE-59	1099.22	< 1.490E-02	0.000E+00		
CO-60	1332.47	< 1.033E-02	0.000E+00		
ZN-65	1115.52	< 0.000E+00	0.000E+00		
NB-95	765.78	< 1.163E-02	0.000E+00		
ZR-95	756.72	< 1.521E-02	0.000E+00		
I-131	364.48	< 1.046E-02	0.000E+00		
CS-134	604.66	< 1.169E-02	0.000E+00		
CS-137	661.65	< 5.517E-03	0.000E+00		
BALA-140	537.27	< 2.610E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 9 / 28 / 87

*Corrected
results*

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:39:20

Plant Name : CNS
Sample Number : 180
Type/Location : AIR RADIOIODINES / 212
Sample Date : 30-SEP-1987 11:25:00
Acq. Start Time : 15-OCT-1987 15:34:27
Sample Quantity : 556.000 M3
Sample ID : 23SEP TO 30SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.813E-03	0.000E+00		
CO-58	810.76	< 2.132E-03	0.000E+00		
FE-59	1099.22	< 4.384E-03	0.000E+00		
CO-60	1332.47	< 2.368E-03	0.000E+00		
ZN-65	1115.52	< 4.350E-03	0.000E+00		
NB-95	765.78	< 2.509E-03	0.000E+00		
ZR-95	756.72	< 3.629E-03	0.000E+00		
I-131	364.48	< 5.267E-03	0.000E+00		
CS-134	604.66	< 1.749E-03	0.000E+00		
CS-137	661.65	4.970E-03	8.745E-04		2.485E-04
BALA-140	1596.49	< 4.927E-03	0.000E+00		
K-40	1460.75	0.294	1.950E-02		

Total Fraction of Reporting Level 2.485E-04

Analyzed by: N/A-----

Approved by: Marcus [Signature]-----

Date: 4/18/88-----

VAX/VMS Sample Analysis Report generated : 12-OCT-1987 14:39:33

Plant Name : CNS
Sample Number : 155
Type/Location : AIR RADIOIODINES / 212
Sample Date : 7-OCT-1987 11:35:00
Acq. Start Time : 12-OCT-1987 14:08:31
Sample Quantity : 571.000 M3
Sample ID : 30SEP TO 7OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.422E-02	0.000E+00		
CO-58	810.76	< 7.642E-03	0.000E+00		
FE-59	1099.22	< 1.907E-02	0.000E+00		
CO-60	1332.47	< 0.000E+00	0.000E+00		
ZN-65	1115.52	< 2.469E-02	0.000E+00		
NB-95	765.78	< 8.851E-03	0.000E+00		
ZR-95	756.72	< 1.657E-02	0.000E+00		
I-131	364.48	< 8.287E-03	0.000E+00		
CS-134	604.66	< 1.041E-02	0.000E+00		
CS-137	661.65	< 1.304E-02	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
K-40	1460.75	0.334	7.884E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman-----

Approved by: De. S. H.-----

Date: 10 / 12 / 87-----

VAX/VMS Sample Analysis Report generated : 19-OCT-1987 15:13:53

Plant Name : CNS
Sample Number : 190
Type/Location : AIR RADIOIODINES / 212
Sample Date : 14-OCT-1987 13:00:00
Acq. Start Time : 19-OCT-1987 14:42:47
Sample Quantity : 576.000 M3
Sample ID : 7OCT TO 14OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.065E-02	0.000E+00		
CO-58	810.76	< 9.572E-03	0.000E+00		
FE-59	1099.22	< 2.653E-02	0.000E+00		
CO-60	1332.47	< 1.464E-02	0.000E+00		
ZN-65	1115.52	< 1.998E-02	0.000E+00		
NB-95	765.78	< 1.626E-02	0.000E+00		
ZR-95	756.72	< 0.000E+00	0.000E+00		
I-131	364.48	< 1.158E-02	0.000E+00		
CS-134	604.66	< 9.329E-03	0.000E+00		
CS-137	661.65	< 9.138E-03	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: *Lynn C. Brotherton* -----

Approved by: *D. E. Hahn* -----


Date: 10/22/87 -----

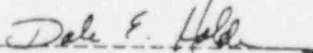
Plant Name : CNS
Sample Number : 207
Type/Location : AIR RADIOIODINES / 212
Sample Date : 21-OCT-1987 15:40:00
Acq. Start Time : 26-OCT-1987 15:12:13
Sample Quantity : 464.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.988E-02	0.000E+00		
CO-58	810.76	< 1.528E-02	0.000E+00		
FE-59	1099.22	< 2.611E-02	0.000E+00		
CO-60	1332.47	< 1.905E-02	0.000E+00		
ZN-65	1115.52	< 3.031E-02	0.000E+00		
NB-95	765.78	< 1.773E-02	0.000E+00		
ZR-95	756.72	< 2.816E-02	0.000E+00		
I-131	364.48	< 2.127E-02	0.000E+00		
CS-134	604.66	< 1.527E-02	0.000E+00		
CS-137	661.65	< 1.744E-02	0.000E+00		
BALA-140	1596.49	< 3.482E-02	0.000E+00		
K-40	1460.75	0.325	0.121		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12 / 17 / 87

Plant Name : CNS
Sample Number : 222
Type/Location : AIR RADIOIODINES / 212
Sample Date : 28-OCT-1987 13:05:00
Acq. Start Time : 3-NOV-1987 10:27:37
Sample Quantity : 566.000 M3
Sample ID : 21OCT TO 28OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.537E-02	0.000E+00		
CO-58	810.76	< 1.707E-02	0.000E+00		
FE-59	1099.22	< 4.019E-02	0.000E+00		
CO-60	1332.47	< 1.758E-02	0.000E+00		
ZN-65	1115.52	< 2.250E-02	0.000E+00		
NB-95	765.78	< 1.897E-02	0.000E+00		
ZR-95	756.72	< 2.157E-02	0.000E+00		
I-131	364.48	< 2.042E-02	0.000E+00		
CS-134	604.66	< 1.142E-02	0.000E+00		
CS-137	661.65	< 1.526E-02	0.000E+00		
BALA-140	1596.49	< 2.284E-02	0.000E+00		
K-40	1460.75	0.607	0.117		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. M. M. M.

Approved by: D. S. H.


Date: 11/5/87

Plant Name : CNS
Sample Number : 245
Type/Location : AIR RADIOIODINES / 212
Sample Date : 4-NOV-1987 14:25:00
Acq. Start Time : 6-NOV-1987 16:48:21
Sample Quantity : 533.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.680E-02	0.000E+00		
CO-58	810.76	< 1.631E-02	0.000E+00		
FE-59	1099.22	< 2.064E-02	0.000E+00		
CO-60	1332.47	< 5.408E-03	0.000E+00		
ZN-65	1115.52	< 4.413E-02	0.000E+00		
NB-95	765.78	< 1.434E-02	0.000E+00		
ZR-95	756.72	< 2.275E-02	0.000E+00		
I-131	364.48	< 1.398E-02	0.000E+00		
CS-134	604.66	< 1.238E-02	0.000E+00		
CS-137	661.65	< 1.205E-02	0.000E+00		
BALA-140	1596.49	< 7.348E-03	0.000E+00		
K-40	1460.75	0.246	7.821E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12 / 17 / 87

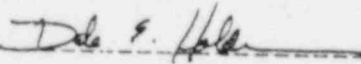
Plant Name : CNS
Sample Number : 265
Type/Location : AIR RADIOIODINES / 212
Sample Date : 11-NOV-1987 11:55:00
Acq. Start Time : 13-NOV-1987 13:41:05
Sample Quantity : 590.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.517E-02	0.000E+00		
CO-58	810.76	< 1.368E-02	0.000E+00		
FE-59	1099.22	< 7.487E-03	0.000E+00		
CO-60	1332.47	< 4.886E-03	0.000E+00		
ZN-65	1115.52	< 3.273E-02	0.000E+00		
NB-95	765.78	< 1.521E-02	0.000E+00		
ZR-95	756.72	< 1.744E-02	0.000E+00		
I-131	364.48	< 1.313E-02	0.000E+00		
CS-134	604.66	< 1.068E-02	0.000E+00		
CS-137	661.65	< 1.186E-02	0.000E+00		
BALA-140	1596.49	< 1.803E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

VAX/VMS Sample Analysis Report generated : 23-NOV-1987 16:01:42

Plant Name : CNS
Sample Number : 283
Type/Location : AIR RADIODINES / 212
Sample Date : 18-NOV-1987 13:05:00
Acq. Start Time : 23-NOV-1987 15:30:43
Sample Quantity : 467.000 M3
Sample ID : 11NOV TO 18NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.314E-02	0.000E+00		
CO-58	810.76	< 2.256E-02	0.000E+00		
FE-59	1099.22	< 4.207E-02	0.000E+00		
CO-60	1332.47	< 3.110E-02	0.000E+00		
ZN-65	1115.52	< 3.520E-02	0.000E+00		
NB-95	765.78	< 2.357E-02	0.000E+00		
ZR-95	756.72	< 4.190E-02	0.000E+00		
I-131	364.48	< 2.036E-02	0.000E+00		
CS-134	604.66	< 1.983E-02	0.000E+00		
CS-137	661.65	< 2.943E-02	0.000E+00		
BALA-140	1596.49	< 3.069E-02	0.000E+00		
K-40	1460.75	0.300	0.139		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Lynn H. Brotherton

Approved by: John S. Hall

Date: 11 / 27 / 87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:15:40

Plant Name : CNS
Sample Number : 300
Type/Location : AIR RADIOIODINES / 212
Sample Date : 25-NOV-1987 11:20:00
Acq. Start Time : 2-DEC-1987 14:15:41
Sample Quantity : 607.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.237E-02	0.000E+00	-	-
CO-58	810.76	< 1.157E-02	0.000E+00	-	-
FE-59	1099.22	< 3.657E-02	0.000E+00	-	-
CO-60	1332.47	< 1.115E-02	0.000E+00	-	-
ZN-65	1115.52	< 2.789E-02	0.000E+00	-	-
NB-95	765.78	< 8.929E-03	0.000E+00	-	-
Z.-95	756.72	< 2.077E-02	0.000E+00	-	-
I-131	364.48	< 1.661E-02	0.000E+00	-	-
CS-134	604.66	< 1.101E-02	0.000E+00	-	-
CS-137	661.65	< 1.280E-02	0.000E+00	-	-
BALA-140	1596.49	< 1.779E-02	0.000E+00	-	-
K-40	1460.75	0.368	7.507E-02	-	-

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: *[Signature]*-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 326
Type/Location : AIR RADIOIODINES / 212
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 8-DEC-1987 14:46:15
Sample Quantity : 574.000 M3
Sample ID : ZONDV TO 2DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	934.83	< 1.543E-02	0.000E+00		
CO-58	810.74	< 1.641E-02	0.000E+00		
FE-59	1099.22	< 3.145E-02	0.000E+00		
CO-60	1332.47	< 2.531E-02	0.000E+00		
ZN-65	1115.52	< 3.664E-02	0.000E+00		
N3-95	765.78	< 1.859E-02	0.000E+00		
ZR-95	756.72	< 2.310E-02	0.000E+00		
I-131	364.48	< 1.921E-02	0.000E+00		
CS-134	604.66	< 1.298E-02	0.000E+00		
CS-137	661.66	< 1.783E-02	0.000E+00		
BALA-140	1596.49	< 2.293E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale E. Hilde

Date: 12/10/87

VAX/VME Sample Analysis Report generated : 23-DEC-1987 13:56:09

Plant Name : CNS
Sample Number : 362
Type/Location : AIR RADIOIODINES / 212
Sample Date : 16-DEC-1987 11:30:00
Acq. Start Time : 23-DEC-1987 13:25:02
Sample Quantity : 568.000 M3
Sample ID : 9DEC TO 16DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.422E-03	0.000E+00		
CO-58	810.76	< 9.573E-03	0.000E+00		
FE-59	1099.22	< 2.798E-02	0.000E+00		
CO-60	1332.47	< 1.221E-02	0.000E+00		
ZN-65	1115.52	< 2.884E-02	0.000E+00		
NB-95	765.78	< 1.228E-02	0.000E+00		
ZR-95	756.72	< 2.023E-02	0.000E+00		
I-131	364.48	< 1.050E-02	0.000E+00		
CS-134	604.66	< 9.425E-03	0.000E+00		
CS-137	661.65	< 1.128E-02	0.000E+00		
BALA-140	1596.49	< 7.829E-03	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: *[Signature]*

Approved by: *Dale E. Hall*

Date: 1 / 1 / 88

VAX/VMS Sample Analysis Report generated : 6-JAN-1988 12:52:57

Plant Name : CNS
Sample Number : 394
Type/Location : AIR RADIOIODINES / 212
Sample Date : 23-DEC-1987 15:00:00
Acq. Start Time : 6-JAN-1988 12:21:57
Sample Quantity : 619.000 M3
Sample ID : 16DEC TO 23DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.596E-02	0.000E+00		
CO-58	810.76	< 2.207E-02	0.000E+00		
FE-59	1099.22	< 4.768E-02	0.000E+00		
CO-60	1332.47	< 3.516E-02	0.000E+00		
ZN-65	1115.52	< 5.144E-02	0.000E+00		
NB-95	765.78	< 1.575E-02	0.000E+00		
ZR-95	756.72	< 2.001E-02	0.000E+00		
I-131	364.48	< 3.296E-02	0.000E+00		
CS-134	604.66	< 1.488E-02	0.000E+00		
CS-137	661.65	< 1.827E-02	0.000E+00		
BALA-140	1596.49	< 5.868E-02	0.000E+00		
K-40	1460.75	0.308	8.783E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: SGP

Approved by: Del E. Holt

Date: 1 / 7 / 88

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:39:31

Plant Name : CNS
Sample Number : 398
Type/Location : AIR RADIOIODINES / 212
Sample Date : 30-DEC-1987 14:00:00
Acq. Start Time : 8-JAN-1988 11:51:13
Sample Quantity : 567.000 M3
Sample ID : 23DEC TO 30DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.258E-02	0.000E+00		
CO-58	810.76	< 1.353E-02	0.000E+00		
FE-59	1099.22	< 3.523E-02	0.000E+00		
CO-60	1332.47	< 2.565E-02	0.000E+00		
ZN-65	1115.52	< 3.923E-02	0.000E+00		
NB-95	765.78	< 1.676E-02	0.000E+00		
ZR-95	756.72	< 2.674E-02	0.000E+00		
I-131	364.48	< 2.166E-02	0.000E+00		
CS-134	604.66	< 1.331E-02	0.000E+00		
CS-137	661.65	< 1.490E-02	0.000E+00		
BALA-140	1596.49	< 3.952E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcus D. Spivey-----

Date: 4/18/88-----

5

 16 JAN 1987 4:01:01 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 217
 TYPE: CARTRIDGE QUANTITY: 6.220E 02
 COLLECTION DATE(S): 12/31-1/7/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 5.17E-03	4.0E-03
FE-59	* -2.77E-03	9.2E-03
CO-58	* 1.08E-03	4.4E-03
CO-60	* -3.27E-03	4.0E-03
ZN-65	* -2.78E-03	1.1E-02
ZR-95	* -3.59E-03	7.2E-03
NB-95	* 2.19E-03	4.6E-03
I-131	* 0.00E-01	5.8E-03
CS-134	* 6.77E-03	4.5E-03
CS-137	* 0.00E-01	4.0E-03
BALA-140	* 0.00E-01	4.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *ALB*

VIEWED BY: *Marcia Lane*

DATE: *1-18-87*

10

 16 JAN 1987 11:21:14 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE RADIOIODINES CMP. - 217
 PE: CARTRIDGE QUANTITY: 6.260E 02
 COLLECTION DATE(S): 1/7-1/14/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -2.03E-03	3.8E-03
FE-59	* -2.48E-03	4.3E-03
CO-58	* -1.00E-03	3.6E-03
CO-60	* -3.24E-03	5.6E-03
ZN-65	* -2.71E-03	8.1E-03
ZR-95	* 4.98E-03	6.8E-03
NB-95	* 7.53E-04	3.9E-03
I-131	* 6.34E-04	4.4E-03
CS-134	* -3.34E-03	4.0E-03
CS-137	* 2.67E-03	4.1E-03
BALA-140	* -2.32E-03	5.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman* JAN 16 1987

 REVIEWED BY: *Marcia Lane* DATE: 1-20-87

140

26 JAN 1987 5:45:17 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

TYPE: CARTRIDGE

QUANTITY: 6.260E 02

COLLECTION DATE(S): 1/14-1/21/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.11E-03	3.3E-03
FE-59	* -2.74E-03	7.2E-03
CO-58	* 0.00E-01	4.2E-03
CO-60	* -1.69E-03	3.8E-03
ZN-65	* 0.00E-01	5.8E-03
ZR-95	1.85E-02	8.7E-03
NB-95	* 4.36E-03	5.3E-03
I-131	* 9.21E-04	6.4E-03
CS-134	* 2.42E-03	4.8E-03
CS-137	* 9.62E-04	3.7E-03
BALA-140	* -2.79E-03	6.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: THE ZN95 PEAK (756.72 KEV) WAS NOT PRESENT IN THE
PEAK SEARCH OR SPECTRUM

BY: *mm*

REVIEWED BY: *Wpratt@one*

DATE: 1/31/87

 2 FEB 1987 12:48:36 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

TYPE: CARTRIDGE

QUANTITY: 6.540E 02

COLLECTION DATE(S): 1/21-1/28/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 4.47E-03	3.7E-03
FE-59	* -2.24E-03	6.7E-03
CO-58	* -8.97E-04	3.7E-03
CO-60	* 4.36E-03	4.4E-03
ZN-65	* -1.42E-02	1.1E-02
ZR-95	* 7.42E-03	6.8E-03
NB-95	* -1.74E-03	3.3E-03
I-131	* -1.39E-03	5.3E-03
CS-134	* 9.76E-04	4.7E-03
CS-137	* -1.54E-03	3.9E-03
BALA-140	* -2.30E-03	5.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigman

FEB

2 1987

REVIEWED BY:

Marcia A. Ne

DATE: 2/5/87

 6 FEB 1987 11:22:36 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C. WBA AIRBORNE RADIOIODINES CMP. - 217
 : CARTRIDGE QUANTITY: 6.400E 02
 COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 1.07E-03	4.7E-03
FE-59	* 0.00E-01	8.8E-03
CO-58	* -2.11E-03	4.2E-03
CO-60	* -1.65E-03	3.7E-03
ZN-65	* 0.00E-01	9.7E-03
ZR-95	* -3.50E-03	8.2E-03
NB-95	* 3.01E-03	4.6E-03
I-131	* -6.87E-04	4.6E-03
CS-134	* -2.36E-03	4.1E-03
CS-137	* -2.82E-03	3.6E-03
BALA-140	* -4.60E-03	5.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman*

FEB 06 1987

REVIEWED BY: *Marcathone*

DATE: 2-6-87

254

18 FEB 1987 3:20:04 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

T : CARTRIDGE

QUANTITY: 6.480E 02

COLLECTION DATE(S): 2/4-2/11/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	3.7E-03
FE-59	* 5.14E-03	8.1E-03
CO-58	* 5.06E-03	4.8E-03
CO-60	* -3.13E-03	4.4E-03
ZN-65	* -2.65E-03	7.0E-03
ZR-95	* 0.00E-01	5.3E-03
NB-95	* 2.01E-03	4.0E-03
I-131	* -9.06E-04	5.5E-03
CS-134	* -2.16E-03	3.7E-03
CS-137	6.88E-03	4.0E-03 .03
BALA-140	* -2.86E-03	5.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *MM*

REVIEWED BY: *Marcia*

DATE: 2-23-87

259

 23 FEB 1987 1:31:40 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217
 : CARTRIDGE QUANTITY: 6.120E 02
 COLLECTION DATE(S): 2/11-2/18/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
MN-54	* 3.37E-03	4.6E-03
FE-59	* 1.07E-02	8.5E-03
CO-58	* 4.43E-03	4.4E-03
CO-60	* 3.46E-03	3.5E-03
ZN-65	* 0.00E-01	8.3E-03
ZR-95	* -5.50E-03	7.1E-03
NB-95	* -3.15E-03	4.3E-03
I-131	* -1.45E-03	4.8E-03
CS-134	* -2.47E-03	5.2E-03
CS-137	* 9.84E-04	4.5E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *L.B.*

FEB 23 1987

 REVIEWED BY: *Marcia Lane* 2-24-87

DATE:

 27 FEB 1987 8:05:10 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217
 TYPE: CARTRIDGE QUANTITY: 6.530E 02
 COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	2.7E-03
FE-59	1.19E-02	8.5E-03 NP
CO-58	* 9.58E-04	3.7E-03
CO-60	* 0.00E-01	4.9E-03
ZN-65	* -2.60E-03	8.6E-03
ZR-95	* 3.17E-03	5.9E-03
NB-95	5.46E-03	3.6E-03 NP
I-131	* -1.20E-03	3.9E-03
CS-134	* 1.07E-03	3.9E-03
CS-137	* 8.53E-04	3.3E-03
BALA-140	* -2.20E-03	3.8E-03



* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peaks identified for: Fe-59 at 1099 keV
 Nb-95 at 765 keV*

BY: *MM*

VIEWED BY: *Dale G. Alder*

DATE: *3/4/87*

 10 MAR 1987 8:37:58 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C-131 VBA AIRBORNE RADIOIODINES CMP. - 217
 TYPE: CARTRIDGE QUANTITY: 6.190E 02
 COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 1.10E-03	3.6E-03
FE-59	* -5.44E-03	8.6E-03
CO-58	* -1.10E-03	3.7E-03
CO-60	* -1.77E-03	3.9E-03
ZN-65	* 0.00E-01	5.7E-03
ZR-95	* 0.00E-01	5.8E-03
NB-95	* -1.08E-03	3.2E-03
I-131	* 3.42E-03	5.5E-03
CS-134	* 1.20E-03	4.0E-03
CS-137	* -9.41E-04	4.1E-03
BALA-140	* 0.00E-01	4.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman* MAR 10 1987

 REVIEWED BY: *Dale E. Holt* DATE: *3/2/87*

 13 MAR 1987 11:31:37 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE RADIOIODINES CMP. - 217
 QTY: CARTRIDGE QUANTITY: 5.870E 02
 COLLECTION DATE(S): 3/4-3/11/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -3.51E-03	4.8E-03
FE-59	* -2.77E-03	8.3E-03
CO-58	* 2.30E-03	4.0E-03
CO-60	* -3.60E-03	5.1E-03
ZN-65	* -3.05E-03	6.8E-03
ZR-95	* 3.81E-03	7.1E-03
NB-95	* 0.00E-01	3.8E-03
I-131	* -7.31E-04	5.0E-03
CS-134	* -1.29E-03	5.0E-03
CS-137	* 0.00E-01	4.6E-03
BALA-140	* 0.00E-01	6.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman*

MAR 13 1987

 REVIEWED BY: *De E. Ald* DATE: *3/13/87*

10165

 20 MAR 1987 3:51:08 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINES CMP. - 217
 TYPE: CARTRIDGE QUANTITY: 6.350E 02
 COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -9.14E-04	3.8E-03
FE-59	* 4.41E-03	6.2E-03
CO-58	* -8.98E-04	3.7E-03
CO-60	* 1.49E-03	3.3E-03
ZN-65	* -2.42E-03	1.0E-02
ZR-95	* -2.96E-03	6.6E-03
NB-95	* 0.00E-01	3.8E-03
I-131	* 2.23E-03	4.4E-03
CS-134	* 3.01E-03	4.6E-03
CS-137	* 4.74E-03	4.2E-03
BALA-140	* 0.00E-01	5.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *mg*

VIEWED BY: *D. S. Holder*

DATE: *3/23/87*

4 APR 1987 5:56:10 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217
 : CARTRIDGE QUANTITY: 6.330E 02
 COLLECTION DATE(S): 3/18-3/25/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	3.5E-03
FE-59	* 2.50E-03	9.7E-03
CO-58	* -9.75E-04	3.2E-03
CO-60	* 6.01E-03	4.8E-03
ZN-65	* -2.48E-03	1.2E-02
ZR-95	1.30E-02	6.9E-03
NB-95	* -2.00E-03	4.0E-03
I-131	* 4.50E-03	8.9E-03
CS-134	* -1.01E-03	3.0E-03
CS-137	* 1.59E-03	3.9E-03
BALA-140	* -3.15E-03	7.0E-03
NPK-40	5.41E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Zr-95 at 757 keV not identified by Peak Search or NID. ADA = 8 net counts.

BY:



REVIEWED BY:

Dale S. Holden

DATE:

4.6.87

 9 APR 1987 11:43:57 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217
 TYPE: CARTRIDGE QUANTITY: 5.620E 02
 COLLECTION DATE(S): 3/25-4/1/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 2.09E-03	4.4E-03
FE-59	* 2.73E-03	1.1E-02
CO-58	* 3.23E-03	4.4E-03
CO-60	* 0.00E-01	4.1E-03
ZN-65	* -8.34E-03	1.2E-02
ZR-95	* 1.78E-03	7.8E-03
NB-95	* 0.00E-01	4.8E-03
I-131	* -2.10E-03	6.1E-03
CS-134	* 0.00E-01	4.8E-03
CS-137	* 2.68E-03	3.9E-03
BALA-140	* 0.00E-01	6.3E-03
NPK-40	6.09E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: *4-10-87*

30

 15 APR 1987 7:44:31 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

TYPE: CARTRIDGE

QUANTITY: 5.710E 02

LECTION DATE(S): 4/1-4/8/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00 -01	4.8E-03
FE-59	* -5.81E-03	7.1E-03
CO-58	* -1.14E-03	3.8E-03
CO-60	* -1.78E-03	4.7E-03
ZN-65	* 3.01E-03	1.0E-02
ZR-95	* 3.81E-03	7.6E-03
NB-95	* 3.41E-03	5.2E-03
I-131	* 7.02E-03	6.6E-03
CS-134	* 2.45E-03	5.8E-03
CS-137	* 1.95E-03	5.0E-03
BALA-140	* 0.00E-01	4.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigman

APR 15 1987

REVIEWED BY:

John S. Holt

DATE:

4-15-87

17 APR 1987 2:44:06 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

TYPE: CARTRIDGE

QUANTITY: 5.680E 02

SECTION DATE(S): 4/8-4/15/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	3.2E-03
FE-59	* 2.72E-03	9.0E-03
CO-58	* -3.30E-03	4.5E-03
CO-60	* 1.78E-03	5.4E-03
ZN-65	* 8.96E-03	1.2E-02
ZR-95	* 9.10E-03	7.5E-03
NB-95	* 1.04E-03	3.5E-03
I-131	* 2.70E-03	4.8E-03
CS-134	* -1.23E-03	3.2E-03
CS-137	* 0.00E-01	4.4E-03
BALA-140	* 0.00E-01	6.1E-03
NPK-40	2.67E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Npk-40 at 1461 keV identified by Peak Search and NID.*

BY: *jm*

REVIEWED BY: *Dale S. Holt*

DATE: *4-21-87*

 28 APR 1987 11:34:26 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217
 E: CARTRIDGE QUANTITY: 5.750E 02
 COLLECTION DATE(S): 4/15-4/22/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -4.07E-03	4.6E-03
FE-59	* -2.58E-03	7.7E-03
CO-58	* 4.12E-03	4.8E-03
CO-60	* 3.30E-03	4.0E-03
ZN-65	* -8.11E-03	9.7E-03
ZR-95	* 1.02E-02	8.4E-03
NB-95	* 2.02E-03	4.5E-03
I-131	* -4.30E-03	5.9E-03
CS-134	* -1.11E-03	4.0E-03
CS-137	* -8.73E-04	4.2E-03
BALA-140	* 0.00E-01	3.9E-03
NPK-40	6.93E-01	1.3E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigmund*

APR 28 1987

REVIEWED BY: *Dale F. Holt*

DATE: *4/28/87*

43

1 MAY 1987 1:23:21 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

TYPE: CARTRIDGE

QUANTITY: 5.860E 02

LECTION DATE(S): 4/22-4/29/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	4.0E-03
FE-59	* -2.38E-03	8.6E-03
CO-58	* -9.72E-04	4.0E-03
CO-60	* -1.62E-03	3.6E-03
ZN-65	* -2.62E-03	1.3E-02
ZR-95	* 0.00E-01	6.8E-03
NB-95	* -9.17E-04	3.8E-03
I-131	* -1.20E-03	4.0E-03
CS-134	* -3.26E-03	5.0E-03
CS-137	* 2.57E-03	3.9E-03
BALA-140	* 0.00E-01	5.3E-03
NPK-40	4.68E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *Jim Sigmen*

MAY 01 1987

REVIEWED BY: *Dale F. Hall*

DATE: *5-1-87*

50

 11 MAY 1987 1:39:54 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINES CMP. - 217
 TYPE: CARTRIDGE QUANTITY: 5.920E 02
 COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.17E-03	4.8E-03
FE-59	* 2.89E-03	1.0E-02
CO-58	* -1.18E-03	5.1E-03
CU-60	* 3.58E-03	5.1E-03
ZN-65	* -3.05E-03	6.8E-03
ZR-95	* 0.00E-01	7.3E-03
NB-95	* 0.00E-01	2.3E-03
I-131	* -4.77E-03	6.7E-03
CS-134	* 1.28E-03	5.6E-03
CS-137	* 5.08E-03	4.7E-03
BALA-140	* 0.00E-01	5.8E-03
NPK-40	3.26E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: K-40 identified by NID.

BY: *Dale E. Holch*

5-11-87

REVIEWED BY: *Marcus*

DATE: *5-18-87*

19 MAY 1987 9:51:33 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

1: CARTRIDGE

QUANTITY: 6.200E 02

COLLECTION DATE(S): 5/6-5/13/87

UNITS: CUBIC METERS

RADIONUCLIDE
GAMMA SPEC

ACTIVITY(PCI/UT) SIGMA(PCI/UT)

MN-54	* 2.23E-03	4.5E-03
FE-59	* 1.10E-02	1.0E-02
CO-58	* 0.00E-01	2.8E-03
CO-60	* 3.42E-03	5.4E-03
ZN-65	* 0.00E-01	9.2E-03
ZR-95	* -1.86E-03	6.2E-03
NB-95	* -1.10E-03	4.8E-03
I-131	* 0.00E-01	5.1E-03
CS-134	* 7.33E-03	5.5E-03
CS-137	5.83E-03	4.1E-03 .03
BALA-140	* 0.00E-01	7.8E-03
NPK-40	2.19E-01	1.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Co-137 at 662 keV, MOA: 6 net counts.
NPK-40 at 1461 keV identified by Peak Search and NID.

BY:

Jim Sigman

MAY 19 1987

REVIEWED BY:

Dale G. Holden

DATE:

5-21-87

60

26 MAY 1987 2:11:37 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

TYPE: CARTRIDGE

QUANTITY: 5.990E 02

COLLECTION DATE(S): 5/13-5/20/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.06E-03	3.5E-03
FE-59	* -2.57E-03	6.8E-03
CO-58	* -1.04E-03	4.5E-03
CO-60	* -3.38E-03	5.4E-03
ZN-65	* -2.83E-03	6.3E-03
ZR-95	* 0.00E-01	6.9E-03
NB-95	* -9.88E-04	4.1E-03
I-131	* -1.28E-03	4.2E-03
CS-134	* 3.49E-03	4.8E-03
CS-137	* -3.72E-03	5.1E-03
BALA-140	* 0.00E-01	5.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigm...*

MAY 26 1987

REVIEWED BY: *Dee S. Holt...*

DATE: 5.27.87

65

 1 JUN 1987 3:13:05 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

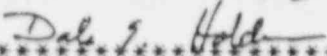
 TAWBA AIRBORNE RADIOIODINES CMP. - 217
 TYPE: CARTRIDGE QUANTITY: 6.390E 02
 COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	* 5.49E-03	4.5E-03
FE-59	* 0.00E-01	6.5E-03
CO-58	* 9.19E-04	4.2E-03
CO-60	* 4.46E-03	4.5E-03
ZN-65	* -4.85E-03	1.1E-02
ZR-95	* -1.52E-03	6.6E-03
NB-95	* 1.79E-03	4.2E-03
I-131	* 7.90E-03	5.8E-03
CS-134	* -9.99E-04	3.6E-03
CS-137	* 0.00E-01	2.9E-03
BALA-140	* -2.37E-03	4.1E-03
NPK-40	3.57E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 KeV identified by Peak Search and MID.

BY: 

 REVIEWED BY:  DATE: 6-7-87

11 JUN 1987 11:48:44 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

WBA AIRBORNE RADIOIODINES CMP. - 217
TYPE: CARTRIDGE QUANTITY: 6.090E 02
COLLECTION DATE(S): 5/27-6/3/87 UNITS: CUBIC METERS

R	IDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
		* 1.14E-03	4.4E-03
		1.74E-02	1.1E-02
		* -1.17E-03	3.9E-03
		* 5.22E-03	5.2E-03
	ZN-65	* 5.97E-03	1.3E-02
	ZR-95	* -3.88E-03	9.5E-03
	NB-95	* -1.16E-03	4.8E-03
	I-131	* -3.31E-03	7.7E-03
	CS-134	* -2.49E-03	4.3E-03
	CS-137	* 3.95E-03	5.4E-03
	BALA-140	* 0.00E-01	4.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Fe-59 at 109 keV not identified by Peak Search or NID, MDA = 6 net counts.*

BY: *LJB*

VIEWED BY: *Dale G. Hold* DATE: *6-17-87*

16 JUN 1987 11:03:27 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

TYPE: CARTRIDGE

QUANTITY: 5.890E 02

COLLECTION DATE(S): 6/3-6/10/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
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MN-54	7.06E-03	4.7E-03
FE-59	* 0.00E-01	1.0E-02
CO-58	8.36E-03	5.2E-03
CO-60	* -1.80E-03	3.1E-03
ZN-65	* 6.15E-03	1.1E-02
ZR-95	* -3.97E-03	9.3E-03
NB-95	* -1.18E-03	5.6E-03
I-131	* -3.13E-03	7.2E-03
CS-134	* 3.86E-03	5.0E-03
CS-137	* 3.07E-03	5.1E-03
BALA-140	* -7.09E-03	6.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *do peak identified for Mn-54 at 89 keV, MDA = 6 and Co-58 at 811 keV
 MDA = 7 net counts.*

BY: *gmy*

REVIEWED BY: *Dale G. Hold*

DATE: *6-17-87*

80*****

22 JUN 1987 2:23:38 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217
TYPE: CARTRIDGE QUANTITY: 6.250E 02
COLLECTION DATE(S): 6/10-6/17/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 3.74E-03	4.2E-03
FE-59	* -4.69E-03	7.4E-03
CO-58	* -4.70E-03	4.5E-03
CO-60	* 1.52E-03	3.4E-03
ZN-65	* -4.96E-03	1.2E-02
ZR-95	* -1.55E-03	6.8E-03
NB-95	7.31E-03	4.7E-03
I-131	* 0.00E-01	5.9E-03
CS-134	* 3.06E-03	4.2E-03
CS-137	* 3.21E-03	4.3E-03
BALA-140	* 4.84E-03	5.9E-03
NPK-40	6.71E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Nb-95 at 764 keV not identified by Peak Search or NID, MDA: 8 mCi units.
NPK-40 at 1961 keV identified by Peak Search and NID.

BY: *Jim Simon*

JUN 22 1987

REVIEWED BY: *Dale G. Hold*

DATE: 6-23-87

85

30 JUN 1987 3:33:17 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

PAWBA AIRBORNE RADIOIODINES CMP. - 217
: CARTRIDGE QUANTITY: 5.960E 02
COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 2.25E-03	3.6E-03
FE-59	* 2.70E-03	7.1E-03
CO-58	* -1.11E-03	3.3E-03
CO-60	* 0.00E-01	4.5E-03
ZN-65	* -2.96E-03	6.6E-03
ZR-95	* 0.00E-01	3.7E-03
NB-95	* 2.10E-03	3.9E-03
I-131	* 6.78E-04	3.9E-03
CS-134	* 4.96E-03	5.0E-03
CS-137	* 2.95E-03	4.1E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	2.01E-01	7.2E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *mmj*

REVIEWED BY: *Dale S. Hult*

DATE: 7-1-87

 9 JUL 1987 4:07:35 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

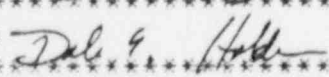
TAWBA AIRBORNE RADIOIODINES CMP. - 217
 PE: CARTRIDGE QUANTITY: 6.140E 02
 COLLECTION DATE(S): 6/24-7/1/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.13E-03	3.8E-03
FE-59	* 0.00E-01	5.8E-03
CO-58	* -2.34E-03	4.0E-03
CO-60	* 1.73E-03	5.2E-03
ZN-65	* -2.97E-03	9.8E-03
ZR-95	* 0.00E-01	8.3E-03
NB-95	* 1.18E-03	4.9E-03
I-131	* 5.99E-03	8.4E-03
CS-134	* 0.00E-01	3.9E-03
CS-137	* -9.81E-04	4.5E-03
BALA-140	* 3.32E-03	5.7E-03
NPK-40	2.75E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: 

REVIEWED BY: 

DATE: 7-13-87

95

 13 JUL 1987 5:02:02 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 STAWBA AIRBORNE RADIOIODINES CMP. - 217
 E: CARTRIDGE QUANTITY: 5.620E 02
 COLLECTION DATE(S): 7/1-7/8/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 3.61E-03	4.0E-03
FE-59	* 6.01E-03	7.4E-03
CO-58	* 2.43E-03	3.8E-03
CO-60	* 0.00E-01	4.8E-03
ZN-65	* -3.17E-03	5.5E-03
ZR-95	* -4.02E-03	5.7E-03
NB-95	* -1.19E-03	3.6E-03
I-131	* -9.42E-04	5.2E-03
CS-134	* -1.32E-03	4.0E-03
CS-137	* -2.09E-03	3.6E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	2.13E-01	6.9E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *apk-40 at 1461 keV identified by Peak Search and NID.*

BY: *MM*

 REVIEWED BY: *Dale E. Hold* DATE: *7.18.87*

20 JUL 1987 3:28:14 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CIP. - 217

TYPE: CARTRIDGE

QUANTITY: 6.520E 02

COLLECTION DATE(S): 7/8-7/15/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	3.8E-03
FE-59	* 0.00E-01	5.5E-03
CO-58	* -3.60E-03	3.8E-03
CO-60	* 0.00E-01	2.9E-03
ZN-65	* -1.19E-02	1.0E-02
ZR-95	* 1.49E-03	5.4E-03
NB-95	* -1.75E-03	4.6E-03
I-131	* 1.41E-03	5.0E-03
CS-134	* 4.90E-03	4.5E-03
CS-137	* -3.08E-03	3.6E-03
BALA-140	* 0.00E-01	0.0E-01
NPK-40	5.04E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigman*

JUL 20 1987

REVIEWED BY: *John G. Hill*

DATE: 7-21-87

24 JUL 1987 2:17:04 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

TYPE: CARTRIDGE

QUANTITY: 6.340E 02

COLLECTION DATE(S): 7/15-7/22/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
MN-54	* 0.00E-01	3.0E-03
FE-59	* -2.54E-03	7.6E-03
CO-58	7.30E-03	4.3E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* -2.78E-03	1.0E-02
ZR-95	* -3.45E-03	6.0E-03
NB-95	* 5.92E-03	4.4E-03
I-131	* 4.45E-03	3.5E-03
CS-134	* -2.33E-03	3.7E-03
CS-137	* -9.25E-04	4.0E-03
BALA-140	* -2.36E-03	4.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Co-58 at 811 keV, MDA: 7 net counts.

BY: *Jim Simon*

JUL 24 1987

REVIEWED BY: *Dale S. Holder*

DATE: 7-27-87

 7 AUG 1987 1:10:47 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

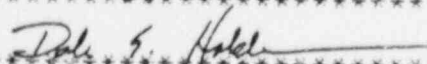
AWBA AIRBORNE RADIOIODINES CMP. - 217
 TYPE: CARTRIDGE QUANTITY: 6.170E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -2.86E-03	3.7E-03
FE-59	* -2.52E-03	7.6E-03
CO-58	* 2.97E-03	4.5E-03
CO-60	* 0.00E-01	4.4E-03
ZN-65	* 0.00E-01	1.1E-02
ZR-95	* 6.57E-03	8.7E-03
NB-95	* 0.00E-01	4.5E-03
I-131	* 0.00E-01	8.6E-03
CS-134	* -4.15E-03	4.6E-03
CS-137	* -3.26E-03	4.1E-03
BALA-140	* 0.00E-01	7.4E-03
NPK-40	4.71E-01	1.4E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV, identified by Peak Search and NID.

BY: 

 REVIEWED BY: 

DATE: 8.10.87

114

 11 AUG 1987 12:56:07 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE RADIOIODINES CMP. - 217
 TYPE: CARTRIDGE QUANTITY: 6.330E 02
 COLLECTION DATE(S): 7/29-8/5/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.01E-03	3.9E-03
FE-59	* 2.56E-03	6.8E-03
CO-58	* -1.02E-03	3.9E-03
CO-60	* -3.21E-03	6.0E-03
ZN-65	* -5.41E-03	7.6E-03
ZR-95	* -1.69E-03	5.6E-03
NB-95	* -9.94E-04	4.1E-03
I-131	* 7.90E-04	5.5E-03
CS-134	* 4.42E-03	4.9E-03
CS-137	* -8.80E-04	4.0E-03
BALA-140	* -2.65E-03	4.6E-03
NPK-40	2.49E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *mg*

 REVIEWED BY: *Del S. Waldo* DATE: *8-13-87*

20

 14 AUG 1987 3:12:39 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE RADIOIODINES CMP. - 217
 E: CARTRIDGE QUANTITY: 5.770E 02
 COLLECTION DATE(S): 8/5-8/12/87 UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY(FCI/UT)	SIGMA(PCI/UT)
MN-54	* 4.39E-03	4.1E-03
FE-59	* -8.02E-03	8.9E-03
CO-58	* 3.25E-03	5.0E-03
CO-60	* -1.76E-03	3.9E-03
ZN-65	* -5.88E-03	9.3E-03
ZR-95	* 1.79E-03	8.2E-03
NB-95	* 0.00E-01	4.1E-03
I-131	* 0.00E-01	4.2E-03
CS-134	* 4.84E-03	4.8E-03
CS-137	* 2.90E-03	4.0E-03
BALA-140	* -2.46E-03	4.3E-03
NPK-40	3.00E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *gmy*

 REVIEWED BY: *D. E. Holder* DATE: 8-17-87

125

21 AUG 1987 2:04:03 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE RADIOIODINES CMP. - 217

TYPE: CARTRIDGE

QUANTITY: 5.990E 02

COLLECTION DATE(S): 8/12-8/19/87

UNITS: CUBIC METERS

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -2.91E-03	3.2E-03
FE-59	* 2.33E-03	5.2E-03
CO-58	* -1.90E-03	3.0E-03
CO-60	* 0.00E-01	4.5E-03
ZN-65	* -1.03E-02	6.9E-03
ZR-95	* -1.57E-03	5.2E-03
NB-95	* 5.39E-03	4.4E-03
I-131	* -1.18E-03	3.6E-03
CS-134	* -3.19E-03	3.8E-03
CS-137	7.54E-03	4.0E-03 .04
BALA-140	* 0.00E-01	3.0E-03
NFK-40	5.97E-01	1.2E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *no peak identified for Cs-137 at 662 keV, MDA: 16 net counts.*

BY: *Jim Sigman*

AUG 21 1987

REVIEWED BY: *D. G. [Signature]*

DATE: *8.24.87*

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:19:54

Plant Name : CNS
Sample Number : 11
Type/Location : AIR RADIOIODINES / 217
Sample Date : 26-AUG-1987 14:05:00
Acq. Start Time : 10-SEP-1987 11:43:28
Sample Quantity : 631.000 M3
Sample ID : 19AUG 26AUG87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.558E-02	0.000E+00		
CO-58	810.76	< 1.762E-02	0.000E+00		
FE-59	1099.22	< 3.389E-02	0.000E+00		
CO-60	1332.47	< 2.160E-02	0.000E+00		
ZN-65	1115.52	< 3.255E-02	0.000E+00		
NB-95	765.78	< 1.768E-02	0.000E+00		
ZR-95	756.72	< 2.545E-02	0.000E+00		
I-131	364.48	< 4.310E-02	0.000E+00		
CS-134	604.66	< 1.580E-02	0.000E+00		
CS-137	661.65	< 1.844E-02	0.000E+00		
BALA-140	537.27	< 0.106	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Jones-----

Date: 4/18/88-----

VAX/VMS Sample Analysis Report generated : 10-SEP-1987 13:35:00

Plant Name : CNS
Sample Number : 16
Type/Location : AIR RADIOIODINES / 217
Sample Date : 2-SEP-1987 10:55:00
Acq. Start Time : 10-SEP-1987 13:04:04
Sample Quantity : 602.000 M3
Sample ID : 26AUG 2SEP87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.070E-03	0.000E+00		
CO-58	810.76	< 1.242E-02	0.000E+00		
FE-59	1099.22	< 2.408E-02	0.000E+00		
CO-60	1332.47	< 1.162E-02	0.000E+00		
ZN-65	1115.52	< 3.019E-02	0.000E+00		
NB-95	765.78	< 1.114E-02	0.000E+00		
ZR-95	756.72	< 2.284E-02	0.000E+00		
I-131	364.48	< 1.480E-02	0.000E+00		
CS-134	604.66	< 9.768E-03	0.000E+00		
CS-137	661.65	1.791E-02	5.849E-03		8.957E-04
BALA-140	537.27	< 3.973E-02	0.000E+00		
K-40	1460.75	0.447	8.937E-02		

Total Fraction of Reporting Level 8.957E-04

Analyzed by: Marcia DeLoe 9/10/87

Approved by: Dale S. Hall Date: 9/10/87

Cs-137 at 662 keV identified by Peak Search and NID.

Corrected results

Plant Name : CNS
Sample Number : 65
Type/Location : AIR RADIOIODINES / 217
Sample Date : 16-SEP-1987 11:52:00
Acq. Start Time : 22-SEP-1987 15:11:27
Sample Quantity : 576.000 M3
Sample ID : 9SEP TO 16SEP87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.600E-03	0.000E+00		
CO-58	810.76	< 6.069E-03	0.000E+00		
FE-59	1099.22	< 1.368E-02	0.000E+00		
CO-60	1332.47	< 1.022E-02	0.000E+00		
ZN-65	1115.52	< 2.019E-02	0.000E+00		
NB-95	765.78	< 1.443E-02	0.000E+00		
ZR-95	756.72	< 2.381E-02	0.000E+00		
I-131	364.48	< 1.594E-02	0.000E+00		
CS-134	604.66	< 9.639E-03	0.000E+00		
CS-137	661.65	< 1.206E-02	0.000E+00		
BALA-140	537.27	< 4.957E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: David L. [Signature]

Approved by: Del E. [Signature]

Date: 9 / 22 / 87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:20:01

Plant Name : CNS
Sample Number : 86
Type/Location : AIR RADIOIODINES / 217
Sample Date : 23-SEP-1987 14:45:00
Acq. Start Time : 26-SEP-1987 00:45:03
Sample Quantity : 610.000 M3
Sample ID : 16SEP TO 23SEP87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.191E-02	0.000E+00		
CO-58	810.76	< 1.210E-02	0.000E+00		
FE-59	1099.22	< 2.477E-02	0.000E+00		
CO-60	1332.47	< 1.134E-02	0.000E+00		
ZN-65	1115.52	< 2.622E-02	0.000E+00		
NB-95	765.78	< 1.146E-02	0.000E+00		
ZR-95	756.72	< 1.631E-02	0.000E+00		
I-131	364.48	< 8.776E-03	0.000E+00		
CS-134	604.66	< 6.312E-03	0.000E+00		
CS-137	661.65	< 9.375E-03	0.000E+00		
BALA-140	537.27	< 4.450E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A -----

Approved by: Marcus Lane -----

Date: 4/18/88 -----

VAX/VMS Sample Analysis Report generated : 4-OCT-1987 18:26:23

Plant Name : CNS
Sample Number : 135
Type/Location : AIR RADIOIODINES / 217
Sample Date : 30-SEP-1987 12:20:00
Acq. Start Time : 4-OCT-1987 17:55:24
Sample Quantity : 563.000 M3
Sample ID : 23SEP TO 30SEP87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.328E-02	0.000E+00		
CO-58	810.76	< 9.386E-03	0.000E+00		
FE-59	1099.22	< 2.835E-02	0.000E+00		
CO-60	1332.47	< 8.786E-03	0.000E+00		
ZN-65	1115.52	< 1.455E-02	0.000E+00		
NB-95	765.78	< 7.408E-03	0.000E+00		
ZR-95	756.72	< 2.489E-02	0.000E+00		
I-131	364.48	< 1.044E-02	0.000E+00		
CS-134	604.66	< 7.795E-03	0.000E+00		
CS-137	661.65	< 1.047E-02	0.000E+00		
BALA-140	1596.49	< 1.349E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: LLB-----

Approved by: Dale E. Holl-----

Date: 10/6/87-----

Plant Name : CNS
Sample Number : 156
Type/Location : AIR RADIOIODINES / 217
Sample Date : 7-OCT-1987 14:00:00
Acq. Start Time : 12-OCT-1987 14:34:55
Sample Quantity : 648.000 M3
Sample ID : JOSEP TO 7OCT87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.174E-03	0.000E+00		
CO-58	810.76	< 1.296E-02	0.000E+00		
FE-59	1099.22	< 1.184E-02	0.000E+00		
CO-60	1332.47	< 1.281E-02	0.000E+00		
ZN-65	1115.52	< 3.667E-02	0.000E+00		
NB-95	765.78	< 1.254E-02	0.000E+00		
ZR-95	756.72	< 1.593E-02	0.000E+00		
I-131	364.48	< 1.295E-02	0.000E+00		
CS-134	604.66	< 9.812E-03	0.000E+00		
CS-137	661.65	< 1.721E-02	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
K-40	1460.75	0.249	6.903E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. Sturiz

Approved by: D. E. Hall

Date: 12 / 23 / 87

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 16:37:45

Plant Name : CNS
Sample Number : 191
Type/Location : AIR RADIOIODINES / 217
Sample Date : 14-OCT-1987 14:20:00
Acq. Start Time : 19-OCT-1987 14:46:04
Sample Quantity : 614.000 M3
Sample ID : 7OCT TO 14OCT87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.239E-03	0.000E+00		
CO-58	810.76	< 7.527E-03	0.000E+00		
FE-59	1099.22	< 1.570E-02	0.000E+00		
CO-60	1332.47	< 1.207E-02	0.000E+00		
ZN-65	1115.52	< 2.808E-02	0.000E+00		
NB-95	765.78	< 8.449E-03	0.000E+00		
ZR-95	756.72	< 1.781E-02	0.000E+00		
I-131	364.48	< 1.003E-02	0.000E+00		
CS-134	604.66	< 5.908E-03	0.000E+00		
CS-137	661.65	< 1.036E-02	0.000E+00		
BALA-140	1596.49	< 1.446E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____

Approved by: _____

Date: 12 / 17 / 87

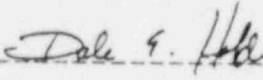
Plant Name : CNS
Sample Number : 208
Type/Location : AIR RADIOIODINES / 217
Sample Date : 21-OCT-1987 13:40:00
Acq. Start Time : 26-OCT-1987 15:14:25
Sample Quantity : 640.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.029E-02	0.000E+00		
CO-58	810.76	< 1.152E-02	0.000E+00		
FE-59	1099.22	< 4.940E-03	0.000E+00		
CO-60	1332.47	< 7.757E-03	0.000E+00		
ZN-65	1115.52	< 1.958E-02	0.000E+00		
NB-95	765.78	< 1.099E-02	0.000E+00		
ZR-95	756.72	< 1.169E-02	0.000E+00		
I-131	364.48	< 8.639E-03	0.000E+00		
CS-134	604.66	< 7.567E-03	0.000E+00		
CS-137	661.65	< 1.148E-02	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 223
Type/Location : AIR RADIOIODINES / 217
Sample Date : 28-OCT-1987 13:33:00
Acq. Start Time : 3-NOV-1987 10:30:30
Sample Quantity : 645.000 M3
Sample ID : 21OCT TO 28OCT87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.969E-03	0.000E+00		
CO-58	810.76	< 1.332E-02	0.000E+00		
FE-59	1099.22	< 2.781E-02	0.000E+00		
CO-60	1332.47	< 7.699E-03	0.000E+00		
ZN-65	1115.52	< 1.850E-02	0.000E+00		
NB-95	765.78	< 7.006E-03	0.000E+00		
ZR-95	756.72	< 1.693E-02	0.000E+00		
I-131	364.48	< 1.442E-02	0.000E+00		
CS-134	604.66	< 7.210E-03	0.000E+00		
CS-137	661.65	< 1.266E-02	0.000E+00		
BALA-140	1596.49	< 1.207E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 12/17/87

VAX/VMS Sample Analysis Report generated : 9-NOV-1987 09:16:52

Plant Name : CNS
Sample Number : 246
Type/Location : AIR RADIOIODINES / 217
Sample Date : 4-NOV-1987 12:50:00
Acq. Start Time : 9-NOV-1987 08:45:35
Sample Quantity : 625.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.671E-02	0.000E+00		
CO-58	810.76	< 1.674E-02	0.000E+00		
FE-59	1099.22	< 2.467E-02	0.000E+00		
CO-60	1332.47	< 2.214E-02	0.000E+00		
ZN-65	1115.52	< 3.579E-02	0.000E+00		
NB-95	765.78	< 2.775E-03	0.000E+00		
ZR-95	756.72	< 2.807E-02	0.000E+00		
I-131	364.48	< 1.087E-02	0.000E+00		
CS-134	604.66	< 9.993E-03	0.000E+00		
CS-137	661.65	< 1.088E-02	0.000E+00		
BALA-140	1596.49	< 7.294E-03	0.000E+00		
K-40	1460.75	0.448	8.782E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: John S. Holt

Date: 11/9/87

VAX/VMS Sample Analysis Report generated : 13-NOV-1987 14:23:58

Plant Name : CNS
Sample Number : 266
Type/Location : AIR RADIOIODINES / 217
Sample Date : 11-NOV-1987 13:25:00
Acq. Start Time : 13-NOV-1987 13:52:50
Sample Quantity : 644.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.329E-02	0.000E+00		
CO-58	810.76	< 1.292E-02	0.000E+00		
FE-59	1099.22	< 3.465E-02	0.000E+00		
CO-60	1332.47	< 1.177E-02	0.000E+00		
ZN-65	1115.52	< 3.262E-02	0.000E+00		
NB-95	765.78	< 1.414E-02	0.000E+00		
ZR-95	756.72	< 2.733E-02	0.000E+00		
I-131	364.48	< 8.904E-03	0.000E+00		
CS-134	604.66	< 1.033E-02	0.000E+00		
CS-137	661.65	< 9.455E-03	0.000E+00		
BALA-140	1596.49	< 1.654E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale E. Hille

Date: 11/16/87

VAX/VMS Sample Analysis Report generated : 23-NOV-1987 16:03:51

Plant Name : CNS
Sample Number : 284
Type/Location : AIR RADIOIODINES / 217
Sample Date : 18-NOV-1987 12:15:00
Acq. Start Time : 23-NOV-1987 15:32:49
Sample Quantity : 567.000 M3
Sample ID : 11NOV TO 18NOV87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.620E-02	0.000E+00		
CO-58	810.76	< 1.723E-02	0.000E+00		
FE-59	1099.22	< 3.629E-02	0.000E+00		
CO-60	1332.47	< 5.089E-03	0.000E+00		
ZN-65	1115.52	< 2.348E-02	0.000E+00		
NB-95	765.78	< 1.792E-02	0.000E+00		
ZR-95	756.72	< 2.210E-02	0.000E+00		
I-131	364.48	< 1.923E-02	0.000E+00		
CS-134	604.66	< 1.217E-02	0.000E+00		
CS-137	661.65	< 1.133E-02	0.000E+00		
BALA-140	1596.49	< 8.144E-03	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Lynn H. Gresham

Approved by: John S. Hall

Date: 11/21/87

VAX/VMS Sample Analysis Report generated : 2-DEC-1987 14:48:57

Plant Name : CNS
Sample Number : 301
Type/Location : AIR RADIOIODINES / 217
Sample Date : 25-NOV-1987 11:47:00
Acq. Start Time : 2-DEC-1987 14:17:40
Sample Quantity : 612.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 5.802E-03	0.000E+00		
CO-58	810.76	< 1.749E-02	0.000E+00		
FE-59	1099.22	< 2.622E-02	0.000E+00		
CO-60	1332.47	< 2.529E-02	0.000E+00		
ZN-65	1115.52	< 3.446E-02	0.000E+00		
NB-95	765.78	< 1.828E-02	0.000E+00		
ZR-95	756.72	< 2.634E-02	0.000E+00		
I-131	364.48	< 1.921E-02	0.000E+00		
CS-134	604.66	< 1.362E-02	0.000E+00		
CS-137	661.65	< 1.518E-02	0.000E+00		
BALA-140	1596.49	< 8.341E-03	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____

Approved by: _____

Date: 12/3/87

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 15:19:15

Plant Name : CNS
Sample Number : 327
Type/Location : AIR RADIOIODINES / 217
Sample Date : 2-DEC-1987 14:20:00
Acq. Start Time : 8-DEC-1987 14:48:13
Sample Quantity : 608.000 M3
Sample ID : 25NOV TO 2DEC87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.781E-02	0.000E+00		
CO-58	810.76	< 2.051E-02	0.000E+00		
FE-59	1099.22	< 5.133E-02	0.000E+00		
CO-60	1332.47	< 3.501E-02	0.000E+00		
ZN-65	1115.52	< 3.825E-02	0.000E+00		
NB-95	765.78	< 1.973E-02	0.000E+00		
ZR-95	756.72	< 3.151E-02	0.000E+00		
I-131	364.48	< 2.096E-02	0.000E+00		
CS-134	604.66	< 1.250E-02	0.000E+00		
CS-137	661.65	< 1.860E-02	0.000E+00		
BALA-140	1596.49	< 3.907E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigma

Approved by: Dale E. Holl

Date: 12 / 9 / 87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:39:26

Plant Name : CNS
Sample Number : 343
Type/Location : AIR RADIOIODINES / 217
Sample Date : 9-DEC-1987 12:40:00
Acq. Start Time : 14-DEC-1987 15:11:56
Sample Quantity : 594.000 M3
Sample ID : 2DEC TO 9DEC87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.034E-02	0.000E+00		
CO-58	810.76	< 1.160E-02	0.000E+00		
FE-59	1099.22	< 1.774E-02	0.000E+00		
CO-60	1332.47	< 1.304E-02	0.000E+00		
ZN-65	1115.52	< 3.340E-02	0.000E+00		
NB-95	765.78	< 1.328E-02	0.000E+00		
ZR-95	756.72	< 2.241E-02	0.000E+00		
I-131	364.48	< 1.205E-02	0.000E+00		
CS-134	604.66	< 9.615E-03	0.000E+00		
CS-137	661.65	< 1.479E-02	0.000E+00		
BALA-140	1596.49	< 2.309E-02	0.000E+00		
K-40	1460.75	0.324	9.429E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Spina

Date: 4/18/88

VAX/VMS Sample Analysis Report generated : 23-DEC-1987 14:45:05

Plant Name : CNS
Sample Number : 364
Type/Location : AIR RADIOIODINES / 217
Sample Date : 16-DEC-1987 12:45:00
Acq. Start Time : 23-DEC-1987 14:14:00
Sample Quantity : 571.000 M3
Sample ID : 9DEC TO 16DEC87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity ($\mu\text{Ci}/\text{M}^3$)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.997E-02	0.000E+00		
CO-58	810.76	< 1.941E-02	0.000E+00		
FE-59	1099.22	< 4.405E-02	0.000E+00		
CO-60	1332.47	< 2.671E-02	0.000E+00		
ZN-65	1115.52	< 4.472E-02	0.000E+00		
NB-95	765.78	< 2.689E-02	0.000E+00		
ZR-95	756.72	< 2.844E-02	0.000E+00		
I-131	364.48	< 2.413E-02	0.000E+00		
CS-134	604.66	< 1.935E-02	0.000E+00		
CS-137	661.65	< 2.022E-02	0.000E+00		
BALA-140	1596.49	< 3.403E-02	0.000E+00		
K-40	1460.75	0.618	0.148		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. Stutz

Approved by: Dale E. [Signature]

Date: 1/7/88

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:39:29

Plant Name : CNS
Sample Number : 395
Type/Location : AIR RADIOIODINES / 217
Sample Date : 23-DEC-1987 14:35:00
Acq. Start Time : 6-JAN-1988 13:11:49
Sample Quantity : 591.000 M3
Sample ID : 16DEC TO 23DEC87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.235E-02	0.000E+00		
CO-58	810.76	< 1.856E-02	0.000E+00		
FE-59	1099.22	< 3.823E-02	0.000E+00		
CO-60	1332.47	< 1.910E-02	0.000E+00		
ZN-65	1115.52	< 4.428E-02	0.000E+00		
NB-95	765.78	< 2.295E-02	0.000E+00		
ZR-95	756.72	< 3.251E-02	0.000E+00		
I-131	364.48	< 3.231E-02	0.000E+00		
CS-134	604.66	< 1.044E-02	0.000E+00		
CS-137	661.65	< 1.307E-02	0.000E+00		
BALA-140	1596.49	< 4.323E-02	0.000E+00		
K-40	1460.75	0.335	9.325E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A -----

Approved by: Smacust Kane -----

Date: 4/18/88 -----

VAX/VMS Sample Analysis Report generated : 11-JAN-1988 16:11:08

Plant Name : CNS
Sample Number : 399
Type/Location : AIR RADIOIODINES / 217
Sample Date : 30-DEC-1987 12:55:00
Acq. Start Time : 8-JAN-1988 11:58:56
Sample Quantity : 593.000 M3
Sample ID : 23DEC TO 30DEC87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.231E-02	0.000E+00		
CO-58	810.76	< 1.538E-02	0.000E+00		
FE-59	1099.22	< 2.027E-02	0.000E+00		
CO-60	1332.47	< 3.063E-02	0.000E+00		
ZN-65	1115.52	< 4.998E-02	0.000E+00		
NB-95	765.78	< 2.780E-02	0.000E+00		
ZR-95	756.72	< 3.437E-02	0.000E+00		
I-131	364.48	< 2.563E-02	0.000E+00		
CS-134	604.66	< 1.364E-02	0.000E+00		
CS-137	661.65	< 1.755E-02	0.000E+00		
BALA-140	1596.49	< 4.689E-02	0.000E+00		
K-40	1460.75	0.471	0.118		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:

Jim Sigman

Approved by:

Pat E. Hill

Date: 1/12/88

 16 JAN 1987 8:53:36 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 6.250E 02
 COLLECTION DATE(S): 12/31-1/7/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.29E-03	4.7E-04
BETA-T	1.79E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.3E-03
FE-59	* 0.00E-01	3.5E-03
CO-58	* 1.97E-03	3.4E-03
CO-60	* -2.93E-03	4.6E-03
ZN-65	* 0.00E-01	5.0E-03
ZR-95	* -4.90E-03	5.9E-03
NB-95	* -3.00E-03	4.1E-03
I-131	* -3.35E-03	7.5E-03
CS-134	* 0.00E-01	3.3E-03
CS-137	* -7.99E-04	3.7E-03
BALA-140	* -3.01E-03	6.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigan

JAN 16 1987

REVIEWED BY: *Marcia Lane*

DATE: 1-20-87

6

 13 JAN 1987 8:00:34 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200

FE: FILTER

QUANTITY: 6.250E 02

COLLECTION DATE(S): 1/7-1/14/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.29E-02	1.5E-03
BETA-T	3.13E-02	1.6E-03
GAMMA SPEC		
MN-54	* -8.65E-04	2.3E-03
FE-59	* 0.00E-01	6.4E-03
CO-58	* 8.29E-04	3.2E-03
CO-60	* -4.16E-03	3.1E-03
ZN-65	* 0.00E-01	8.6E-03
ZR-95	* 0.00E-01	3.3E-03
NB-95	* 3.02E-03	3.2E-03
I-131	* 4.08E-04	2.6E-03
CS-134	* 0.00E-01	3.3E-03
CS-137	* 1.46E-03	3.4E-03
BALA-140	* 0.00E-01	2.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *my*

 REVIEWED BY: *marciadene* DATE: *1-20-87*

144

26 JAN 1987 5:46:35 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200
TYPE: FILTER QUANTITY: 5.140E 02
ECTION DATE(S): 1/14-1/21/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.31E-03	6.4E-04
BETA-T	1.83E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.2E-03
FE-59	* -4.52E-03	5.5E-03
CO-58	* -1.79E-03	2.8E-03
CO-60	* -4.24E-03	3.2E-03
ZN-65	* 4.77E-03	8.3E-03
ZR-95	* -2.93E-03	5.9E-03
NB-95	* -8.66E-04	2.3E-03
I-131	* 6.97E-04	4.5E-03
CS-134	* 9.68E-04	3.7E-03
CS-137	* -7.42E-04	2.5E-03
BALA-140	* 4.69E-03	4.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *MJ*

REVIEWED BY: *marc...*

DATE: 1/31/87

 2 FEB 1987 1:58:37 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 200
 : FILTER QUANTITY: 5.890E 02
 COLLECTION DATE(S): 1/21-1/28/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	6.77E-03	1.1E-03
BETA-T	2.28E-02	1.5E-03
GAMMA SPEC		
MN-54	* -9.31E-04	3.8E-03
FE-59	* -4.71E-03	6.7E-03
CO-58	* 9.32E-04	3.6E-03
CO-60	* -4.43E-03	3.3E-03
ZN-65	* -4.98E-03	6.1E-03
ZR-95	* 1.53E-03	5.9E-03
NB-95	* 1.80E-03	3.4E-03
I-131	* 2.15E-03	5.2E-03
CS-134	* 1.01E-03	3.9E-03
CS-137	* 7.75E-04	2.8E-03
BALA-140	* 2.42E-03	6.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Simon

FEB 2 1987

REVIEWED BY:

Marcus Lane

DATE: 2/5/87

 9 FEB 1987 11:20:36 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 RWBA AIRBORNE PARTICULATE COMP. - 200
 : FILTER QUANTITY: 6.410E 02
 COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	7.82E-03	1.2E-03
BETA-T	2.20E-02	1.3E-03
GAMMA SPEC		
MN-54	* -2.74E-03	3.8E-03
FE-59	* -2.17E-03	5.8E-03
CO-58	* 8.95E-04	3.9E-03
CO-60	* 0.00E-01	3.5E-03
ZN-65	* -2.39E-03	5.3E-03
ZR-95	* -4.41E-03	6.1E-03
NB-95	* -8.44E-04	3.9E-03
I-131	* 0.00E-01	3.5E-03
CS-134	* 0.00E-01	2.8E-03
CS-137	* -7.79E-04	3.4E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigmund

FEB 09 1987

REVIEWED BY:

Marcia Lane

DATE: 2-10-87

28

 23 FEB 1987 1:24:40 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200
 : FILTER QUANTITY: 6.260E 02
 COLLECTION DATE(S): 2/4-2/11/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.01E-02	1.4E-03
BETA-T	2.68E-02	1.5E-03
GAMMA SPEC		
MN-54	* 2.64E-03	3.8E-03
FE-59	* 0.00E-01	7.2E-03
CO-58	* -8.94E-04	2.7E-03
CO-60	* -1.39E-03	3.1E-03
ZN-65	* -2.35E-03	5.3E-03
ZR-95	* -2.94E-03	6.9E-03
NB-95	* 0.00E-01	3.9E-03
I-131	* 1.61E-03	5.6E-03
CS-134	* 1.90E-03	3.8E-03
CS-137	* 7.28E-04	3.0E-03
BALA-140	* 0.00E-01	5.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *LLO*

FEB 23 1987

REVIEWED BY: *Marcia Lane*

DATE: *2-24-87*

 9 MAR 1987 2:04:42 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C JBA AIRBORNE PARTICULATE COMP. - 200
 FILTER QUANTITY: 6.470E 02
 COLLECTION DATE(S): 2/11-2/18/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	7.85E-04	3.5E-04 N/A
BETA-T	1.93E-02	1.2E-03 N/A
GAMMA SPEC		
MN-54	* -8.48E-03	2.8E-03
FE-59	8.22E-03	5.0E-03 N/A
CO-58	* 1.67E-03	2.4E-03
CO-60	5.35E-03	3.3E-03 N/A
ZN-65	* -2.25E-03	6.0E-03
ZR-95	* 2.73E-03	4.7E-03
NB-95	* 0.00E-01	2.2E-03
I-131	* 0.00E-01	2.5E-03
CS-134	* 0.00E-01	1.9E-03
CS-137	* 1.44E-03	2.3E-03
BALA-140	5.61E-03	4.2E-03 N/A

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peaks identified for Fe-59 at 1099 keV or Co-60 at 1332 keV.*

BY: *RJA* 3-9-87

 REVIEWED BY: *Dale E. Holden* DATE: *2/1/87*

 3 MAR 1987 2:13:45 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 6.410E 02
 COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	7.76E-03	1.1E-03
BETA-T	2.34E-02	1.4E-03
GAMMA SPEC		
MN-54	* 2.57E-03	3.1E-03
FE-59	* 0.00E-01	2.9E-03
CO-58	4.21E-03	3.0E-03
CO-60	* 1.35E-03	2.3E-03
ZN-65	* 0.00E-01	6.4E-03
ZR-95	* -1.38E-03	3.7E-03
NB-95	* 7.94E-04	2.4E-03
I-131	* -1.60E-03	2.6E-03
CS-134	* -1.87E-03	2.3E-03
CS-137	* 0.00E-01	1.5E-03
BALA-140	* 1.90E-03	3.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for Co-58 at 810 keV and alpha & beta activities not at significant levels.*

BY: *[Signature]*

REVIEWED BY: *Dale J. Hilde*

DATE: *3/9/87*

11

 11 MAR 1987 1:11:09 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE PARTICULATE COMP. - 200
 2: FILTER QUANTITY: 6.330E 02
 COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (FCI/UT)	SIGMA (FCI/UT)
ALPHA-T	* 1.35E-04	3.0E-04
BETA-T	9.95E-03	1.0E-03
GAMMA SPEC		
MN-54	* -2.31E-03	2.8E-03
FE-59	* -3.93E-03	7.3E-03
CO-58	4.66E-03	3.3E-03
CO-60	* -1.23E-03	2.8E-03
ZN-65	* -2.04E-03	7.9E-03
ZR-95	1.14E-02	5.5E-03
NB-95	* 1.51E-03	3.2E-03
I-131	* 6.69E-04	4.7E-03
CS-134	6.66E-03	4.1E-03
CS-137	* 1.89E-03	2.9E-03
BALA-140	* 0.00E-01	3.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Gamma Spec: No peaks identified for Co-60 at 511 keV; Zr-95 at 757 keV; and Cs-134 at 796 keV

BY:

Jim Signe

MAR 11 1987

REVIEWED BY:

Dale E. Walker

DATE:

3/12/87

 18 MAR 1987 2:34:42 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE PARTICULATE COMP. - 200
 FILTER: FILTER QUANTITY: 5.800E 02
 COLLECTION DATE(S): 3/4-3/11/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.88E-03	5.9E-04
BETA-T	2.08E-02	1.4E-03
GAMMA SPEC		
MN-54	* -9.37E-04	3.4E-03
FE-59	* -4.55E-03	6.4E-03
CO-58	* 9.17E-04	3.8E-03
CO-60	* 4.49E-03	5.4E-03
ZN-65	* -2.50E-03	8.3E-03
ZR-95	* 4.50E-03	5.8E-03
NB-95	* 0.00E-01	3.0E-03
I-131	* 1.11E-03	3.5E-03
CS-134	6.13E-03	4.1E-03
CS-137	* -1.57E-03	2.9E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-134 at 746 keV not identified by Peak Search or NID. MDA = 6 net counts.

BY: *mz*

 REVIEWED BY: *Dale S. Holder* DATE: *3/19/87*

164

 23 MAR 1987 9:27:24 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE PARTICULATE COMP. - 200
 -: FILTER QUANTITY: 6.410E 02
 COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.47E-02	1.5E-03
BETA-T	4.22E-02	1.7E-03
GAMMA SPEC		
MN-54	* 3.65E-03	3.4E-03
FE-59	* -2.18E-03	5.8E-03
CO-58	* -8.96E-04	3.5E-03
CO-60	* 0.00E-01	4.0E-03
ZN-65	* 2.39E-03	7.2E-03
ZR-95	* -2.94E-03	6.2E-03
NB-95	* 0.00E-01	2.7E-03
I-131	* -1.75E-03	4.2E-03
CS-134	* 2.99E-03	3.6E-03
CS-137	* -7.79E-04	3.2E-03
BALA-140	* 0.00E-01	2.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *M J*

 REVIEWED BY: *D. S. Holden*

DATE: *3/24/87*

 13 APR 1987 8:23:35 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200

TYPE: FILTER

QUANTITY: 6.070E 02

COLLECTION DATE(S): 3/18-3/25/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.93E-03	7.7E-04 N/A
BETA-T	2.13E-02	1.4E-03 N/A
GAMMA SPEC		
MN-54	* 0.00E-01	3.4E-03
FE-59	1.30E-02	8.6E-03 N/A
CO-58	* 2.05E-03	3.5E-03
CO-60	* -1.51E-03	4.0E-03
ZN-65	* -7.73E-03	8.6E-03
ZR-95	* -5.09E-03	6.6E-03
NB-95	* -1.05E-03	3.5E-03
I-131	* -4.96E-03	8.9E-03
CS-134	* 2.12E-03	3.7E-03
CS-137	* 3.29E-03	3.9E-03
BALA-140	* 9.76E-03	9.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Fe-59 at 1099keV, MDA: 5 net counts.

BY: *Jim Sigmund*

REVIEWED BY: *Dale S. Holder*

DATE: *4-14-87*

 13 APR 1987 8:27:47 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200

TYPE: FILTER

QUANTITY: 5.690E 02

COLLECTION DATE(S): 3/25-4/1/87

UNIT(S): CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 1.57E-04	2.7E-04
BETA-T	1.27E-02	1.3E-03
GAMMA SPEC		
MN-54	* -1.93E-03	3.6E-03
FE-59	1.25E-02	9.0E-03
CO-58	* -9.82E-04	4.0E-03
CO-60	* 1.53E-03	4.6E-03
ZN-65	* 0.00E-01	8.2E-03
ZR-95	* 8.07E-03	8.1E-03
NB-95	* 0.00E-01	3.6E-03
I-131	* 8.76E-03	6.1E-03
CS-134	* 0.00E-01	2.6E-03
CS-137	* -8.01E-04	3.3E-03
BALU-140	8.35E-03	6.2E-03
NPBE-7	1.07E-01	4.4E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *Fe-59 at 1095keV, ADA-5 and BaLa-140 at 1596 keV, MOA-3 - not identified by Peak Search or NID. NPBe-7 at 478keV was identified by Peak Search and NID.*

BY: *Jim Sigman*

REVIEWED BY: *Dale E. Hobb*

DATE: *4-14-87*

16 APR 1987 12:56:20 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200

E: FILTER QUANTITY: 5.620E 02
COLLECTION DATE(S): 4/1-4/8/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	8.08E-04	4.8E-04
BETA-T	1.21E-02	1.2E-03
GAMMA SPEC		
MN-54	* -9.78E-04	4.3E-03
FE-59	* -2.53E-03	6.7E-03
CO-58	9.92E-03	4.9E-03
CO-60	* -4.64E-03	4.1E-03
ZN-65	* -5.23E-03	9.1E-03
ZR-95	* -4.89E-03	6.7E-03
NB-95	* 2.93E-03	4.3E-03
I-131	* -4.35E-03	5.8E-03
CS-134	* -1.06E-03	3.8E-03
CS-137	* 2.43E-03	3.1E-03
BALA-140	* 0.00E-01	3.9E-03
NPBE-7	1.10E-01	4.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *No peak identified for Co-58 at 811 keV, MOA = 10 net counts.
NPBE-7 at 478 keV identified by Peak Search and NID.*

BY: *Jim Sigmen*

APR 16 1987

REVIEWED BY: *Dale S. Holden*

DATE: *4-16-87*

21 APR 1987 10:31:57 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200
TYPE: FILTER QUANTITY: 5.780E 02
COLLECTION DATE(S): 4/8-4/15/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	6.30E-03	1.1E-03
BETA-T	2.58E-02	1.5E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.9E-03
FE-59	* 7.23E-03	8.0E-03
CO-58	* -9.93E-04	3.0E-03
CO-60	* 3.16E-03	5.0E-03
ZN-65	* 0.00E-01	1.1E-02
ZR-95	* -4.89E-03	7.5E-03
NB-95	* 1.87E-03	3.7E-03
I-131	* 2.57E-03	4.4E-03
CS-134	* 3.32E-03	4.3E-03
CS-137	* 8.64E-04	3.3E-03
BALA-140	* 2.19E-03	3.8E-03
NPBE-7	1.69E-01	5.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *4Pb-7 at 978 keV identified by Peak Search and NID.*

BY: *D. [Signature]*

REVIEWED BY: *Dale G. Holder*

DATE: *4-22-87*

 28 APR 1987 3:02:10 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200

FILTER

QUANTITY: 5.660E 02

COLLECTION DATE(S): 4/15-4/22/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	8.64E-03	1.2E-03 N/A
BETA-T	3.05E-02	1.7E-03 N/A
GAMMA SPEC		
MN-54	* 1.72E-03	3.2E-03
FE-59	* 4.39E-03	6.9E-03
CO-58	* -2.60E-03	2.9E-03
CO-60	* 1.38E-03	3.6E-03
ZN-65	* -6.86E-03	8.2E-03
ZR-95	* 0.00E-01	5.7E-03
NB-95	* 2.53E-03	3.7E-03
I-131	* 4.46E-03	5.6E-03
CS-134	* -9.31E-04	3.8E-03
CS-137	* 0.00E-01	2.2E-03
BALA-140	* -2.35E-03	6.2E-03
NPK-40	4.15E-01	8.9E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY:

[Signature]

REVIEWED BY:

[Signature]

DATE:

4-30-87

 4 JUN 1987 11:22:07 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 5.870E 02
 COLLECTION DATE(S): 4/22-4/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/LIT)
ALPHA-T	9.85E-04	5.9E-04 N/A
BETA-T	1.12E-02	1.1E-03 N/A
GAMMA SPEC		
MN-54	* -1.99E-03	3.2E-03
FE-59	* 0.00E-01	3.4E-03
CO-58	* -1.96E-03	4.1E-03
CO-60	* 6.22E-03	4.9E-03
ZN-65	* 0.00E-01	3.7E-03
ZR-95	* -1.61E-03	5.8E-03
NB-95	* -1.84E-03	3.7E-03
I-131	* 1.90E-03	4.3E-03
CS-134	* -3.27E-03	4.2E-03
CS-137	* -8.51E-04	3.3E-03
BALA-140	* 2.16E-03	3.7E-03
NPBE-7	2.03E-01	5.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *Jim Sigman* 6-4-87

REVIEWED BY: *Del S. Holden* DATE: 6-5-87

 4 JUN 1987 11:30:06 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 6.320E 02
 COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	9.72E-04	5.8E-04 N/A
BETA-T	2.12E-02	1.3E-03 N/A
GAMMA SPEC		
MN-54	* 7.70E-04	3.4E-03
FE-59	* 0.00E-01	6.1E-03
CO-58	* -7.70E-04	3.7E-03
CO-60	* -1.23E-03	2.1E-03
ZN-65	* -4.09E-03	9.1E-03
ZR-95	* -2.52E-03	5.3E-03
NB-95	* -7.43E-04	3.7E-03
I-131	* 0.00E-01	4.4E-03
CS-134	* -1.67E-03	3.5E-03
CS-137	* -1.26E-03	2.4E-03
BALA-140	* 0.00E-01	2.8E-03
NPBE-7	2.19E-01	3.8E-02
NPK-40	2.74E-01	8.4E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV and NPK-40 at 1461 keV, identified by Peak Search and NID.

BY: *Jim Sigmund* 6-4-87

REVIEWED BY: *Debra E. Helton* DATE: 6-5-87

 5 JUN 1987 11:13:38 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 6.530E 02
 COLLECTION DATE(S): 5/6-5/13/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.49E-03	4.4E-04 N/A
BETA-T	2.02E-02	8.1E-04 N/A
GAMMA SPEC		
MN-54	* 8.38E-04	3.0E-03
FE-59	* 4.24E-03	6.7E-03
CO-58	* -1.68E-03	3.1E-03
CO-60	* -2.66E-03	2.7E-03
ZN-65	* 0.00E-01	7.8E-03
ZR-95	* -1.38E-03	4.6E-03
NB-95	* 3.24E-03	3.4E-03
I-131	<u>9.01E-03</u>	<u>4.6E-03</u> 12
CS-134	* 4.55E-03	4.0E-03
CS-137	* -2.09E-03	3.3E-03
BALA-140	* -2.18E-03	3.8E-03
NPBE-7	1.76E-01	4.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for I-131 at 364 keV, MDA = 14 net counts
 NPBE-7 at 478 keV identified by Peak Search and N/D.

BY: *Jim Sigman 6-5-87*

REVIEWED BY: *Dale F. Holden* DATE: *6-5-87*

 4 JUN 1987 11:37:51 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 5.670E 02
 COLLECTION DATE(S): 5/13-5/20/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)	
ALPHA-T	1.51E-03	5.7E-04	N/A
BETA-T	1.68E-02	1.3E-03	N/A
GAMMA SPEC			
MN-54	* -1.92E-03	4.1E-03	
FE-59	* 0.00E-01	6.6E-03	
CO-58	* -1.88E-03	2.7E-03	
CO-60	* 3.06E-03	4.3E-03	
ZN-65	* -2.56E-03	9.2E-03	
ZR-95	* -4.61E-03	5.9E-03	
NB-95	* -8.82E-04	2.9E-03	
I-131	8.06E-03	4.5E-03	0.9
CS-134	* 0.00E-01	4.2E-03	
CS-137	* 3.21E-03	3.8E-03	
BALA-140	* 0.00E-01	3.0E-03	

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for I-131 at 364 keV, MDA: 19 net counts.

BY:

Jim Sigman 6-4-87

REVIEWED BY:

Del. J. Hatcher

DATE:

6-5-87

68

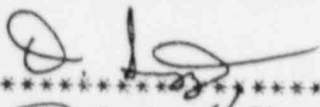
 2 JUN 1987 32 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SPECIAL ANALYSIS REPORT

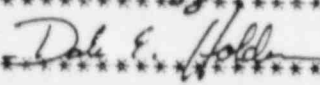
 TAWBA AIRBORNE PARTICULATES COMP. - 200
 TYPE: FILTER QUANTITY: 5.990E 02
 COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* -4.30E-04	4.3E-04
BETA-T	1.21E-02	1.2E-03 N/A
GAMMA SPEC		
MN-54	* 0.00E-01	3.2E-03
FE-59	* -4.08E-03	7.1E-03
CO-58	* 4.87E-03	4.0E-03
CO-60	* 0.00E-01	3.2E-03
ZN-65	* -6.46E-03	8.3E-03
ZR-95	9.27E-03	6.1E-03 N/A
NB-95	* -7.82E-04	3.0E-03
I-131	* -3.21E-03	5.0E-03
CS-134	* 0.00E-01	4.1E-03
CS-137	* 3.33E-03	3.5E-03
BALA-140	* 0.00E-01	4.2E-03
NPK-40	1.94E-01	7.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Zr-95 at 757 keV, MDA = 7 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY: 

REVIEWED BY:  DATE: 6-2-87

16 JUN 1987 1:29:49 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 6.420E 02
 COLLECTION DATE(S): 5/27-6/3/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.07E-03	4.8E-04
BETA-T	1.38E-02	1.2E-03
GAMMA SPEC		
MN-54	* 3.73E-03	4.0E-03
FE-59	* 0.00E-01	8.0E-03
CO-58	6.91E-03	4.1E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* 0.00E-01	3.5E-03
ZR-95	* 1.64E-03	6.8E-03
NB-95	* -1.03E-03	4.0E-03
I-131	* -6.89E-03	8.6E-03
CS-134	* -1.01E-03	4.4E-03
CS-137	* 0.00E-01	2.9E-03
BALA-140	* -3.41E-03	5.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Co-58 at 811 keV, MDA = 7 net counts, not identified by Peak Search or NID

BY: *MMK*

 REVIEWED BY: *Dale E. Hold* DATE: *6-17-87*

17 JUN 1987 11:49:04 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200

TYPE: FILTER

QUANTITY: 6.220E 02

SECTION DATE(S): 6/3-6/10/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	9.59E-04	3.4E-04
BETA-T	2.47E-02	1.5E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.8E-03
FE-59	* 2.26E-03	6.8E-03
CO-58	* -1.78E-03	2.5E-03
CO-60	* -1.40E-03	4.2E-03
ZN-65	* -4.72E-03	5.8E-03
ZR-95	* 2.92E-03	5.5E-03
NB-95	* 2.60E-03	3.6E-03
I-131	* -7.36E-04	4.7E-03
CS-134	* -9.56E-04	3.4E-03
CS-137	* -7.33E-04	2.6E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Lynn L. Brotherton*

JUN 17 1987

REVIEWED BY: *Dee E. Holden*

DATE: 6-22-87

 23 JUN 1987 11:31:45 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200

TYPE: FILTER

QUANTITY: 6.360E 02

COLLECTION DATE(S): 6/10-6/17/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.80E-03	8.9E-04
BETA-T	2.25E-02	1.3E-03
GAMMA SPEC		
MN-54	* -1.85E-03	2.9E-03
FE-59	* -2.30E-03	5.1E-03
CO-58	* 1.86E-03	3.9E-03
CO-60	* 1.44E-03	4.3E-03
ZN-65	* 0.00E-01	4.9E-03
ZR-95	* 0.00E-01	5.3E-03
NB-95	* 9.05E-04	4.1E-03
I-131	* 0.00E-01	5.1E-03
CS-134	* 2.02E-03	3.8E-03
CS-137	* 3.93E-03	4.1E-03
BALA-140	* 0.00E-01	3.3E-03
NPBE-7	9.69E-02	3.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 kev identified by Peak Search and MID.

BY: *Jim Sigman*

JUN 23 1987

REVIEWED BY: *Ida S. Holden*

DATE: 6-24-87

80

 1 JUL 1987 8:46:01 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C TAWBA AIRBORNE PARTICULATE COMP. - 200
 FILTER QUANTITY: 5.950E 02
 COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.48E-02	1.8E-03
BETA-T	3.11E-02	1.6E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.0E-03
FE-59	9.96E-03	7.0E-03
CO-58	* -9.82E-04	2.6E-03
CO-60	* -1.62E-03	3.6E-03
ZN-65	* 0.00E-01	6.5E-03
ZR-95	* 4.88E-03	6.3E-03
NB-95	* -9.57E-04	2.5E-03
I-131	* -7.49E-04	4.4E-03
CS-134	* 0.00E-01	2.1E-03
CS-137	* 8.45E-04	2.8E-03
BALA-140	* 0.00E-01	3.6E-03
NPBE-7	7.70E-02	3.3E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Fe-59 at 1099 keV, MDA = 4 net counts.
 NPBE-7 at 978 keV identified by Peak Search and NID.

BY: *My*

REVIEWED BY: *Dale S. Hold*

DATE: 7-1-87

 13 JUL 1987 4:50:37 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 5.750E 02
 COLLECTION DATE(S): 6/24-7/1/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	9.03E-04	6.4E-04
BETA-T	1.86E-02	1.3E-03
GAMMA SPEC		
MN-54	* -3.13E-03	4.3E-03
FE-59	* 2.71E-03	8.1E-03
CO-58	* 1.07E-03	4.2E-03
CO-60	8.20E-03	4.9E-03
ZN-65	* -2.76E-03	8.3E-03
ZR-95	* -1.78E-03	5.9E-03
NB-95	* 2.16E-03	4.3E-03
I-131	* 0.00E-01	6.9E-03
CS-134	* 1.13E-03	4.4E-03
CS-137	* -8.87E-04	4.3E-03
BALA-140	* 3.11E-03	8.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for Co-60 at 1332 keV, MDA: 5 net counts.*

BY: *mg*

 REVIEWED BY: *Dale G. Hadd* DATE: *7-14-87*

98

 14 JUL 1987 10:17:08 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 OTAWA AIRBORNE PARTICULATE COMP. - 200
 FILTER QUANTITY: 5.690E 02
 COLLECTION DATE(S): 7/1-7/8/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	8.44E-04	5.2E-04
BETA-T	1.38E-02	1.2E-03
GAMMA SPEC		
MN-54	* -1.96E-03	3.1E-03
FE-59	* 2.48E-03	8.2E-03
CO-58	* -2.94E-03	4.0E-03
CO-60	* 0.00E-01	5.0E-03
ZN-65	* -5.24E-03	7.4E-03
ZR-95	* 1.61E-03	5.8E-03
NB-95	* 3.80E-03	3.8E-03
I-131	* 3.80E-03	4.7E-03
CS-134	* -1.06E-03	4.6E-03
CS-137	5.72E-03	3.4E-03
BALA-140	* 0.00E-01	6.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for Cs-137 at 662 keV, MOA = 7 net counts.*

BY: *gm*

REVIEWED BY: *Dale E. Halch* DATE: *7-14-87*

103

 23 JUL 1987 11:46:27 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

DATAWBA AIRBORNE PARTICULATE COMP. - 200

E: FILTER

COLLECTION DATE(S): 7/8-7/15/87

QUANTITY: 6.190E 02

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	9.93E-04	5.3E-04
BETA-T	1.54E-02	1.2E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.8E-03
FE-59	* 0.00E-01	8.3E-03
CO-58	* -2.90E-03	3.7E-03
CO-60	* 1.52E-03	4.6E-03
ZN-65	* 2.54E-03	9.8E-03
ZR-95	* 0.00E-01	5.5E-03
NB-95	* 1.88E-03	3.8E-03
I-131	* -1.55E-03	5.0E-03
CS-134	* 1.05E-03	3.8E-03
CS-137	* -2.47E-03	3.4E-03
BALA-140	* 0.00E-01	0.0E-01
NPBE-7	1.16E-01	3.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *Peak identified by Peak Search and NID for NPBE-7 at 478 KeV.*

BY:

Jim Sigmund

JUL 23 1987

REVIEWED BY:

Dale E. Hill

DATE:

7-24-87

30 JUL 1987 3:08:17 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

OTAWA AIRBORNE PARTICULATE COMP. - 200
 FILTER QUANTITY: 5.870E 02
 COLLECTION DATE(S): 7/15-7/22/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.28E-03	5.7E-04
BETA-T	3.25E-02	1.7E-03
GAMMA SPEC		
MN-54	* 1.71E-03	3.4E-03
FE-59	* -2.07E-03	7.5E-03
CO-58	* -8.39E-04	3.0E-03
CO-60	* 0.00E-01	2.8E-03
ZN-65	* -0.83E-03	6.8E-03
ZR-95	* -4.13E-03	5.7E-03
NB-95	* -3.16E-03	3.7E-03
I-131	* -1.05E-03	3.9E-03
CS-134	* -2.80E-03	3.9E-03
CS-137	* -1.45E-03	2.9E-03
BALA-140	* -1.92E-03	4.3E-03
NPBE-7	1.85E-01	4.7E-02
NPK-40	5.62E-01	1.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 478 keV and NPK-40 at 1161 keV identified by Peak Search and N.I.D.*

BY: *Lynn L. Bretton* JUL 30 1987

REVIEWED BY: *Dale E. Hold* DATE: 7-31-87

 5 AUG 1987 10:34:13 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CHIAWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 6.020E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 6.55E-04	5.8E-04
BETA-T	2.90E-02	1.6E-03
GAMMA SPEC		
MN-54	* 1.68E-03	3.8E-03
FE-59	* 6.47E-03	7.8E-03
CO-58	* -2.56E-03	3.1E-03
CO-60	* 0.00E-01	2.8E-03
ZN-65	* -6.74E-03	1.0E-02
ZR-95	* 4.21E-03	6.4E-03
NB-95	* -2.50E-03	3.4E-03
I-131	* 1.45E-03	5.5E-03
CS-134	* -9.15E-04	4.2E-03
CS-137	* 3.53E-03	3.7E-03
BAL-140	* 2.33E-03	5.2E-03
NPBE-7	1.22E-01	3.4E-02
NPK-40	1.62E-01	8.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBE-7 at 473 keV and NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 8-7-87

12 AUG 1987 2:25:41 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200
E: FILTER QUANTITY: 6.320E 02
COLLECTION DATE(S): 7/29-8/5/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.58E-03	6.8E-04
BETA-T	2.67E-02	1.5E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.8E-03
FE-59	1.34E-02	9.0E-03
CO-58	* 3.54E-03	4.1E-03
CO-60	* -2.84E-03	2.8E-03
ZN-65	* -4.72E-03	6.7E-03
ZR-95	* -2.91E-03	5.4E-03
NB-95	* 3.43E-03	3.6E-03
I-131	* 2.07E-03	4.8E-03
CS-134	* -9.57E-04	3.7E-03
CS-137	* 0.00E-01	2.9E-03
BALA-140	* 4.64E-03	5.7E-03
NPBE-7	1.21E-01	4.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *No peak identified for Fe-59 at 1099 keV, MDA = 6 net counts.
NPBE-7 at 470 keV identified by Peak Search and NID.*

BY: *mm*

REVIEWED BY: *Dale E. Holt* DATE: *8-13-87*

123

18 AUG 1987 11:12:29 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200

FILTER

QUANTITY: 5.900E 02

COLLECTION DATE(S): 8/5-8/12/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 4.98E-04	5.0E-04
BETA-T	2.26E-02	1.5E-03 N/A
GAMMA SPEC		
MN-54	* -1.00E-03	2.7E-03
FE-59	* 0.00E-01	4.8E-03
CO-58	* -9.83E-04	2.2E-03
CO-60	* 3.31E-03	3.3E-03
ZN-65	* 0.00E-01	7.5E-03
ZR-95	* -4.83E-03	5.3E-03
NB-95	* -2.77E-03	3.3E-03
I-131	* 0.00E-01	3.5E-03
CS-134	* -3.28E-03	3.6E-03
CS-137	* -8.45E-04	3.0E-03
BALA-140	* 0.00E-01	3.2E-03
NPBE-7	1.52E-01	3.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Ni-63 at 478 keV identified by Peak Search and NID.*

BY: *Jim Sigmund*

AUG 18 1987

REVIEWED BY: *Dale G. Hill*

DATE: *8-19-87*

 28 AUG 1987 10:42:05 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 200
 TYPE: FILTER QUANTITY: 5.990E 02
 COLLECTION DATE(S): 8/12-8/19/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 0.00E-01	3.0E-04
BETA-T	1.62E-02	1.3E-03 N/A
GAMMA SPEC		
MN-54	* 2.96E-03	4.1E-03
FE-59	* 0.00E-01	6.7E-03
CO-58	* 2.91E-03	4.0E-03
CO-60	* 1.57E-03	3.5E-03
ZN-65	* 0.00E-01	6.4E-03
ZR-95	* 4.79E-03	7.0E-03
NB-95	* 2.75E-03	4.4E-03
I-131	* -6.13E-04	3.9E-03
CS-134	7.58E-03	4.5E-03 .082
CS-137	* -2.55E-03	3.5E-03
BALA-140	* 2.13E-03	6.4E-03
NPBE-7	1.57E-01	3.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-134 at 796 keV not identified by Peak Search and NID, MDA = 7 net counts.
 NPBE-7 at 470 keV identified by Peak Search and NID.

BY: *LJB*

REVIEWED BY: *Dale E. Hilde*

DATE: 8-28-87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:20:09

Plant Name : CNS
Sample Number : 17
Type/Location : AIR PARTICULATE / 200
Sample Date : 26-AUG-1987 11:32:00
Acq. Start Time : 10-SEP-1987 13:07:07
Sample Quantity : 602.000 M3
Sample ID : 19AUG 26AUG87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.370E-02	1.500E-03		0.000E+00
ALPHA	1.00	2.640E-03	8.700E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.696E-02	0.000E+00		
CO-58	810.76	< 1.373E-02	0.000E+00		
FE-59	1099.22	< 3.162E-02	0.000E+00		
CO-60	1332.47	< 8.782E-03	0.000E+00		
7N-65	1115.52	< 3.675E-02	0.000E+00		
NB-95	765.78	< 1.924E-02	0.000E+00		
ZR-95	756.72	< 1.913E-02	0.000E+00		
I-131	364.48	< 3.888E-02	0.000E+00		
CS-134	604.66	< 1.421E-02	0.000E+00		
CS-137	661.65	< 1.286E-02	0.000E+00		
BALA-140	537.27	< 9.065E-02	0.000E+00		
BE-7	477.59	0.206	5.783E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Spivey-----

Date: 7/16/88-----

Plant Name : CNS
Sample Number : 45
Type/Location : AIR PARTICULATES / 200
Sample Date : 9-SEP-1987 10:45:00
Acq. Start Time : 14-SEP-1987 01:58:45
Sample Quantity : 577.000 M3
Sample ID : 02SEP TO 09SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	1.690E-02	1.300E-03		0.000E+00
ALPHA	1.00	1.590E-03	6.800E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.722E-03	0.000E+00		
CO-58	810.76	< 1.465E-02	0.000E+00		
FE-59	1099.22	< 2.731E-02	0.000E+00		
CO-60	1332.47	< 8.785E-03	0.000E+00		
ZN-65	1115.52	< 2.878E-02	0.000E+00		
NB-95	765.78	< 1.578E-02	0.000E+00		
ZR-95	756.72	< 2.382E-02	0.000E+00		
I-131	364.48	< 1.018E-02	0.000E+00		
CS-134	604.66	< 9.146E-03	0.000E+00		
CS-137	661.65	< 4.664E-03	0.000E+00		
BALA-140	537.27	< 1.892E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: mg

Approved by: Dale S. Hold

Date: 10 / 1 / 87

Corrected
results

Plant Name : CNS
Sample Number : 66
Type/Location : AIR PARTICULATES / 200
Sample Date : 16-SEP-1987 09:50:00
Acq. Start Time : 22-SEP-1987 15:21:19
Sample Quantity : 582.000 M3
Sample ID : 9SEP TO 16SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.030E-02	1.400E-03		0.000E+00
ALPHA	1.00	9.470E-04	4.700E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 6.596E-03	0.000E+00		
CO-58	810.76	< 1.457E-02	0.000E+00		
FE-59	1099.22	< 2.180E-02	0.000E+00		
CO-60	1332.47	< 8.715E-03	0.000E+00		
ZN-65	1115.52	< 1.440E-02	0.000E+00		
NB-95	765.78	< 1.211E-02	0.000E+00		
ZR-95	756.72	< 2.608E-02	0.000E+00		
I-131	364.48	< 1.427E-02	0.000E+00		
CS-134	604.66	< 4.949E-03	0.000E+00		
CS-137	661.65	< 9.249E-03	0.000E+00		
BALA-140	537.27	< 3.906E-02	0.000E+00		
BE-7	477.59	0.193	3.986E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. M. M. M.

Approved by: Dale E. Hall Date: 10/1/87

Be-7 at 478 keV identified by Peak Search & NID.

corrected results

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:20:13

Plant Name : CNS
Sample Number : 87
Type/Location : AIR PARTICULATE / 200
Sample Date : 23-SEP-1987 10:55:00
Acq. Start Time : 26-SEP-1987 00:48:22
Sample Quantity : 575.000 M3
Sample ID : 16SEP TO 23SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.920E-02	1.600E-03		0.000E+00
ALPHA	1.00	< 9.390E-04	7.400E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.276E-02	0.000E+00		
CO-58	810.76	< 5.851E-03	0.000E+00		
FE-59	1099.22	< 2.290E-02	0.000E+00		
CO-60	1332.47	< 1.762E-02	0.000E+00		
ZN-65	1115.52	< 2.020E-02	0.000E+00		
NB-95	765.78	< 7.968E-03	0.000E+00		
ZR-95	756.72	< 1.268E-02	0.000E+00		
I-131	364.48	< 1.075E-02	0.000E+00		
CS-134	604.66	< 7.506E-03	0.000E+00		
CS-137	661.65	< 1.404E-02	0.000E+00		
BALA-140	537.27	< 4.168E-02	0.000E+00		
BE-7	477.59	0.186	4.642E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: marcio Dias-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 136
Type/Location : AIR PARTICULATES / 200
Sample Date : 30-SEP-1987 10:25:00
Acq. Start Time : 4-OCT-1987 20:08:12
Sample Quantity : 592.000 M3
Sample ID : 23SEP TO 30SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.980E-02	1.600E-03		0.000E+00
ALPHA	1.00	1.180E-03	6.300E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.629E-03	0.000E+00		
CO-58	810.76	< 1.474E-02	0.000E+00		
FE-59	1099.22	< 1.915E-02	0.000E+00		
CO-60	1332.47	< 1.228E-02	0.000E+00		
ZN-65	1115.52	< 3.225E-02	0.000E+00		
NB-95	765.78	< 9.372E-03	0.000E+00		
ZR-95	756.72	< 1.325E-02	0.000E+00		
I-131	364.48	< 9.182E-03	0.000E+00		
CS-134	604.66	< 7.906E-03	0.000E+00		
CS-137	661.65	< 1.406E-02	0.000E+00		
BALA-140	1596.49	< 1.349E-02	0.000E+00		
BE-7	477.59	0.194	3.541E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Bigman

Approved by: Dale J. Holt

Date: 10/13/87

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 16:14:48

Plant Name : CNS
Sample Number : 165
Type/Location : AIR PARTICULATES / 200
Sample Date : 7-OCT-1987 08:57:00
Acq. Start Time : 13-OCT-1987 12:54:15
Sample Quantity : 566.000 M3
Sample ID : 30SEP TO 7OCT87
Measurement Type : ROUTINE


***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.940E-02	1.400E-03		0.000E+00
ALPHA	1.00	1.280E-03	6.100E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.122E-03	0.000E+00		
CO-58	810.76	< 0.000E+00	0.000E+00		
FE-59	1099.22	< 1.270E-02	0.000E+00		
CO-60	1332.47	< 1.100E-02	0.000E+00		
ZN-65	1115.52	< 0.000E+00	0.000E+00		
NB-95	765.78	< 4.997E-03	0.000E+00		
ZR-95	756.72	< 1.703E-02	0.000E+00		
I-131	364.48	< 1.064E-02	0.000E+00		
CS-134	604.66	< 7.654E-03	0.000E+00		
CS-137	661.65	< 5.825E-03	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
BE-7	477.59	7.325E-02	3.218E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/12/87

Plant Name : CNS
Sample Number : 192
Type/Location : AIR PARTICULATES / 200
Sample Date : 14-OCT-1987 12:20:00
Acq. Start Time : 19-OCT-1987 15:15:59
Sample Quantity : 582.000 M3
Sample ID : 7OCT TO 14OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.130E-02	1.400E-03		0.000E+00
ALPHA	1.00	2.330E-03	7.000E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.309E-03	0.000E+00		
CO-58	810.76	< 1.157E-02	0.000E+00		
FE-59	1099.22	< 2.567E-02	0.000E+00		
CO-60	1332.47	< 1.298E-02	0.000E+00		
ZN-65	1115.52	< 1.398E-02	0.000E+00		
NB-95	765.78	< 8.866E-03	0.000E+00		
ZR-95	756.72	< 1.617E-02	0.000E+00		
I-131	364.48	< 8.555E-03	0.000E+00		
CS-134	604.66	< 6.388E-03	0.000E+00		
CS-137	661.65	< 6.914E-03	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
BE-7	477.59	6.641E-02	3.341E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 10/28/87

Plant Name : CNS
Sample Number : 209
Type/Location : AIR PARTICULATES / 200
Sample Date : 21-OCT-1987 10:40:00
Acq. Start Time : 26-OCT-1987 15:52:13
Sample Quantity : 621.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	3.470E-02	1.700E-03		0.000E+00
ALPHA	1.00	3.850E-03	8.600E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.785E-03	0.000E+00		
CO-58	810.76	< 4.260E-03	0.000E+00		
FE-59	1099.22	< 1.124E-02	0.000E+00		
CO-60	1332.47	< 9.946E-03	0.000E+00		
ZN-65	1115.52	< 1.680E-02	0.000E+00		
NB-95	765.78	< 1.112E-02	0.000E+00		
ZR-95	756.72	< 1.206E-02	0.000E+00		
I-131	364.48	< 1.106E-02	0.000E+00		
CS-134	604.66	< 9.057E-03	0.000E+00		
CS-137	661.65	< 9.128E-03	0.000E+00		
BALA-140	1596.49	< 2.220E-02	0.000E+00		
BE-7	477.59	0.145	3.544E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

VAX/VMS Sample Analysis Report generated : 23-NOV-1987 10:30:52

Plant Name : CNS
Sample Number : 225
Type/Location : AIR PARTICULATES / 200
Sample Date : 28-OCT-1987 11:47:00
Acq. Start Time : 3-NOV-1987 10:51:01
Sample Quantity : 636.000 M3
Sample ID : 21OCT TO 28OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.750E-02	1.500E-03		0.000E+00
ALPHA	1.00	1.800E-03	6.700E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 6.192E-03	0.000E+00		
CO-58	810.76	< 6.141E-03	0.000E+00		
FE-59	1099.22	< 1.110E-02	0.000E+00		
CO-60	1332.47	< 0.000E+00	0.000E+00		
ZN-65	1115.52	< 2.371E-02	0.000E+00		
NB-95	765.78	< 7.339E-03	0.000E+00		
ZR-95	756.72	< 1.452E-02	0.000E+00		
I-131	364.48	< 1.072E-02	0.000E+00		
CS-134	604.66	< 8.849E-03	0.000E+00		
CS-137	661.65	< 7.267E-03	0.000E+00		
BALA-140	1596.49	< 1.665E-02	0.000E+00		
BE-7	477.59	0.161	2.851E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: D. E. [Signature]

Date: 11 / 23 / 87

VAX/VMS Sample Analysis Report generated : 23-NOV-1987 10:50:17

Plant Name : CNS
Sample Number : 247
Type/Location : AIR PARTICULATES / 200
Sample Date : 4-NOV-1987 09:55:00
Acq. Start Time : 9-NOV-1987 11:43:13
Sample Quantity : 607.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.860E-02	1.800E-03		0.000E+00
ALPHA	1.00	1.760E-03	7.100E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.532E-02	0.000E+00		
CO-58	810.76	< 1.367E-02	0.000E+00		
FE-59	1099.22	< 2.654E-02	0.000E+00		
CO-60	1332.47	< 4.182E-03	0.000E+00		
ZN-65	1115.52	< 3.267E-02	0.000E+00		
NB-95	765.78	< 1.391E-02	0.000E+00		
ZR-95	756.72	< 2.232E-02	0.000E+00		
I-131	364.48	< 1.388E-02	0.000E+00		
CS-134	604.66	< 7.876E-03	0.000E+00		
CS-137	661.65	< 1.155E-02	0.000E+00		
BALA-140	1596.49	< 1.859E-02	0.000E+00		
BE-7	477.59	0.158	3.519E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: J. E. [Signature]

Date: 11/23/87

Plant Name : CNS
Sample Number : 267
Type/Location : AIR PARTICULATES / 200
Sample Date : 11-NOV-1987 11:20:00
Acq. Start Time : 13-NOV-1987 13:59:21
Sample Quantity : 648.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.100E-02	1.300E-03		0.000E+00
ALPHA	1.00	2.410E-03	7.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.372E-03	0.000E+00		
CO-58	810.76	< 8.218E-03	0.000E+00		
FE-59	1099.22	< 1.592E-02	0.000E+00		
CO-60	1332.47	< 1.063E-02	0.000E+00		
ZN-65	1115.52	< 2.555E-02	0.000E+00		
NB-95	765.78	< 8.984E-03	0.000E+00		
ZR-95	756.72	< 1.595E-02	0.000E+00		
I-131	364.48	< 7.036E-03	0.000E+00		
CS-134	604.66	< 6.618E-03	0.000E+00		
CS-137	661.65	< 9.252E-03	0.000E+00		
BALA-140	1596.49	< 1.971E-02	0.000E+00		
BE-7	477.59	0.132	2.500E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: John P. Volk

Date: 11 / 23 / 87

VAX/VMS Sample Analysis Report generated : 3-DEC-1987 15:50:20

Plant Name : CNS
Sample Number : 286
Type/Location : AIR PARTICULATES / 200
Sample Date : 18-NOV-1987 09:35:00
Acq. Start Time : 24-NOV-1987 12:10:23
Sample Quantity : 459.000 M3
Sample ID : 11NOV TO 18NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	3.570E-02	2.000E-03		0.000E+00
ALPHA	1.00	1.230E-03	6.500E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.202E-02	0.000E+00		
CO-58	810.76	< 3.502E-03	0.000E+00		
FE-59	1099.22	< 3.506E-02	0.000E+00		
CO-60	1332.47	< 2.457E-02	0.000E+00		
ZN-65	1115.52	< 4.540E-02	0.000E+00		
NB-95	765.78	< 1.368E-02	0.000E+00		
ZR-95	756.72	< 2.330E-02	0.000E+00		
I-131	364.48	< 1.968E-02	0.000E+00		
CS-134	604.66	< 8.059E-03	0.000E+00		
CS-137	661.65	< 1.420E-02	0.000E+00		
BALA-140	1596.49	< 9.559E-03	0.000E+00		
BE-7	477.59	0.335	6.053E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/4/87

VAX/VMS Sample Analysis Report generated : 3-DEC-1987 15:40:09

Plant Name : CNS
Sample Number : 302
Type/Location : AIR PARTICULATES / 200
Sample Date : 25-NOV-1987 13:55:00
Acq. Start Time : 2-DEC-1987 15:06:20
Sample Quantity : 644.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	2.900E-02	1.500E-03		0.000E+00
ALPHA	1.00	1.370E-03	5.900E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

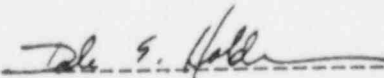
Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.102E-02	0.000E+00		
CO-58	810.76	< 9.939E-03	0.000E+00		
FE-59	1099.22	< 2.580E-02	0.000E+00		
CO-60	1332.47	< 1.354E-02	0.000E+00		
ZN-65	1115.52	< 3.244E-02	0.000E+00		
NB-95	765.78	< 1.386E-02	0.000E+00		
ZR-95	754.72	< 1.360E-02	0.000E+00		
I-131	364.48	< 1.461E-02	0.000E+00		
CS-134	604.66	< 8.257E-03	0.000E+00		
CS-137	661.65	< 1.224E-02	0.000E+00		
BALA-140	1596.49	< 7.169E-03	0.000E+00		
BE-7	477.59	0.202	3.784E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____



Approved by: _____



Date: 12/1/87

Plant Name : CNS
Sample Number : 328
Type/Location : AIR PARTICULATES / 200
Sample Date : 2-DEC-1987 10:25:00
Acq. Start Time : 9-DEC-1987 12:42:47
Sample Quantity : 559.000 M3
Sample ID : 25NOV TO 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.330E-02	1.300E-03		0.000E+00
ALPHA	1.00	< 1.880E-04	4.200E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.134E-02	0.000E+00		
CO-58	810.76	< 1.602E-02	0.000E+00		
FE-59	1099.22	< 2.566E-02	0.000E+00		
CO-60	1332.47	< 1.236E-02	0.000E+00		
ZN-65	1115.52	< 3.738E-02	0.000E+00		
NB-95	765.78	< 1.359E-02	0.000E+00		
ZR-95	756.72	< 2.157E-02	0.000E+00		
I-131	364.48	< 1.271E-02	0.000E+00		
CS-134	604.66	< 1.006E-02	0.000E+00		
CS-137	661.65	< 9.563E-03	0.000E+00		
BALA-140	1596.49	< 2.843E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: De S. Hold

Date: 12/11/87

Plant Name : CNS
Sample Number : 344
Type/Location : AIR PARTICULATES / 200
Sample Date : 9-DEC-1987 11:50:00
Acq. Start Time : 15-DEC-1987 13:29:17
Sample Quantity : 647.000 M3
Sample ID : 2DEC TO 9DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.900E-02	1.200E-03		0.000E+00
ALPHA	1.00	6.630E-04	4.700E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	833.83	< 1.229E-02	0.000E+00		
CO-58	810.76	< 1.305E-02	0.000E+00		
FE-59	1099.22	< 3.759E-02	0.000E+00		
CO-60	1332.47	< 1.046E-02	0.000E+00		
ZN-65	1115.52	< 2.249E-02	0.000E+00		
NB-95	715.78	< 1.244E-02	0.000E+00		
ZR-95	756.72	< 1.955E-02	0.000E+00		
I-131	364.48	< 1.570E-02	0.000E+00		
CS-134	604.66	< 6.673E-03	0.000E+00		
CS-137	661.65	< 1.198E-02	0.000E+00		
BALA-140	1596.49	< 2.289E-02	0.000E+00		
BE-7	477.59	5.761E-02	2.663E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: SJB

Approved by: Dale E. Hill

Date: 1/5/88

VAX/VMS Sample Analysis Report generated : 5-JAN-1988 13:21:44

Plant Name : CNS
Sample Number : 357
Type/Location : AIR PARTICULATES / 200
Sample Date : 16-DEC-1987 09:25:00
Acq. Start Time : 22-DEC-1987 17:10:57
Sample Quantity : 591.000 M3
Sample ID : 9DEC TO 16DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.630E-02	1.400E-03		0.000E+00
ALPHA	1.00	< 2.080E-04	4.600E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.150E-02	0.000E+00		
CO-58	810.76	< 9.971E-03	0.000E+00		
FE-59	1099.22	< 2.820E-02	0.000E+00		
CO-60	1332.47	< 1.317E-02	0.000E+00		
ZN-65	1115.52	< 2.876E-02	0.000E+00		
NB-95	765.78	< 1.455E-02	0.000E+00		
ZR-95	756.72	< 1.888E-02	0.000E+00		
I-131	364.48	< 1.421E-02	0.000E+00		
CS-134	604.66	< 7.933E-03	0.000E+00		
CS-137	661.65	< 9.147E-03	0.000E+00		
BALA-140	1596.49	< 2.654E-02	0.000E+00		
BE-7	477.59	7.779E-02	3.198E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: LDB

Approved by: De S. He

Date: 1/5/88

Plant Name : CNS
Sample Number : 559
Type/Location : AIR PARTICULATES / 200
Sample Date : 23-DEC-1987 11:25:00
Acq. Start Time : 14-JAN-1988 10:46:49
Sample Quantity : 491.000 M3
Sample ID : 16DEC TO 23DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.810E-02	1.800E-03		0.000E+00
ALPHA	1.00	1.260E-03	7.300E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.861E-02	0.000E+00		
CO-58	810.76	< 1.839E-02	0.000E+00		
FE-59	1099.22	< 3.430E-02	0.000E+00		
CO-60	1332.47	< 2.046E-02	0.000E+00		
ZN-65	1115.52	< 3.232E-02	0.000E+00		
NR-95	765.78	< 2.086E-02	0.000E+00		
ZR-95	756.72	< 3.150E-02	0.000E+00		
I-131	364.48	< 5.796E-02	0.000E+00		
CS-134	604.66	< 1.434E-02	0.000E+00		
CS-137	661.65	< 1.559E-02	0.000E+00		
BALA-140	1596.49	< 2.111E-02	0.000E+00		
BE-7	477.59	0.165	5.526E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Del S. Hall

Date: 1/20/88

Plant Name : CNS
Sample Number : 401
Type/Location : AIR PARTICULATES / 200
Sample Date : 30-DEC-1987 10:23:00
Acq. Start Time : 9-JAN-1988 10:45:52
Sample Quantity : 596.000 M3
Sample ID : 23DEC TD 30DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req L. D	Frac. of Rpt. Level
BETA	1.00	1.770E-02	1.300E-03		0.000E+00
ALPHA	1.00	1.170E-03	5.600E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.292E-02	0.000E+00		
CO-58	810.76	< 1.101E-02	0.000E+00		
FE-59	1099.22	< 4.040E-02	0.000E+00		
CO-60	1332.47	< 1.736E-02	0.000E+00		
ZN-65	1115.52	< 3.289E-02	0.000E+00		
NB-95	765.78	< 1.386E-02	0.000E+00		
ZR-95	756.72	< 1.517E-02	0.000E+00		
I-131	364.48	< 2.346E-02	0.000E+00		
CS-134	604.66	< 9.461E-03	0.000E+00		
CS-137	661.65	< 1.323E-02	0.000E+00		
BALA-140	1596.49	< 9.098E-03	0.000E+00		
BE-7	477.59	7.783E-02	3.414E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmur

Approved by: T. F. Vll

Date: 1/14/88

2

 16 JAN 1987 8:54:40 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 OTAWBA AIRBORNE PARTICULATE COMP. - 201
 PE: FILTER QUANTITY: 6.060E 02
 COLLECTION DATE(S): 12/31-1/7/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.75E-03	5.5E-04
BETA-T	1.94E-02	1.4E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.6E-03
FE-59	* 0.00E-01	7.7E-03
CO-58	* -9.44E-04	3.9E-03
CO-60	* -2.87E-03	4.1E-03
ZN-65	* 7.33E-03	8.8E-03
ZR-95	* -1.55E-03	4.7E-03
NB-95	* 2.86E-03	4.2E-03
I-131	* -3.03E-03	6.6E-03
CS-134	* -9.85E-04	3.3E-03
CS-137	* -1.50E-03	3.0E-03
BALA-140	* 2.97E-03	6.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman* JAN 16 1987

REVIEWED BY: *Marcia* DATE: 1-20-87

13 JAN 1987 8:01:38 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

FILTER

QUANTITY: 6.410E 02

COLLECTION DATE(S): 1/7-1/14/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	8.58E-03	1.2E-03
BETA-T	3.32E-02	1.6E-03
GAMMA SPEC		
MN-54	* -8.50E-04	2.8E-03
FE-59	* 0.00E-01	4.9E-03
CO-58	* 3.27E-03	2.6E-03
CO-60	* 0.00E-01	3.3E-03
ZN-65	* 2.25E-03	5.0E-03
ZR-95	* -1.34E-03	4.0E-03
NB-95	* 0.00E-01	2.1E-03
I-131	* 1.64E-03	1.9E-03
CS-134	* -9.33E-04	3.1E-03
CS-137	* 0.00E-01	2.3E-03
BALA-140	* 0.00E-01	3.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *MJ*

REVIEWED BY: *Marcia Lane*

DATE: *1-20-87*

145

26 JAN 1987 5:47:55 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

TYPE: FILTER

QUANTITY: 6.220E 02

COLLECTION DATE(S): 1/14-1/21/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	2.96E-03	7.8E-04
BETA-T	1.73E-02	1.2E-03
GAMMA SPEC		
MN-54	* -2.35E-03	3.0E-03
FE-59	1.18E-02	7.4E-03
CO-58	* -7.84E-04	3.2E-03
CO-60	* 0.00E-01	2.5E-03
ZN-65	* -6.23E-03	6.2E-03
ZR-95	* 5.12E-03	5.4E-03
NB-95	* 7.57E-04	2.7E-03
I-131	* 6.33E-04	4.0E-03
CS-134	* 5.08E-03	4.6E-03
CS-137	* -1.92E-03	2.9E-03
BALA-140	* 2.05E-03	3.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: FE-59 PEAK (1099.22 KEV) WAS NOT SEEN IN THE PEAK SEARCH OR THE SPECTRUM

BY: *DTM*

REVIEWED BY: *Meredith*

DATE: 1/31/87

16

 2 FEB 1987 1:57:44 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

FILTER: QUANTITY: 4.870E 02
 COLLECTION DATE(S): 1/21-1/28/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	6.31E-03	1.1E-03
BETA-T	2.22E-02	1.7E-03
GAMMA SPEC		
MN-54	* 0.00E-01	4.2E-03
FE-59	* 0.00E-01	5.7E-03
CO-58	* -1.14E-03	3.8E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* 0.00E-01	0.0E-01
ZR-95	* 1.87E-03	5.6E-03
NB-95	* 1.10E-03	4.3E-03
I-131	* -1.78E-03	4.5E-03
CS-134	* 4.94E-03	4.6E-03
CS-137	* 1.91E-03	3.0E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigman

FEB 2 1987

REVIEWED BY:

M. J. ...

DATE:

2/5/87

 9 FEB 1987 11:22:51 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C/ WBA AIRBORNE PARTICULATE COMP. - 201
 : FILTER QUANTITY: 6.420E 02
 COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	7.05E-03	1.1E-03
BETA-T	2.51E-02	1.4E-03
GAMMA SPEC		
MN-54	* -8.47E-04	2.8E-03
FE-59	1.03E-02	7.4E-03 N/A
CO-58	* -8.30E-04	2.8E-03
CO-60	* -1.35E-03	4.5E-03
ZN-65	* 2.26E-03	6.8E-03
ZR-95	* 2.71E-03	5.1E-03
NB-95	* 1.56E-03	3.1E-03
I-131	* 1.53E-03	3.3E-03
CS-134	* 1.85E-03	3.5E-03
CS-137	* 3.55E-03	3.3E-03
BALA-140	* 0.00E-01	2.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigman

FEB 09 1987

REVIEWED BY:

mp...

DATE: 2-10-

23 FEB 1987 1:25:46 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

FILTER

QUANTITY: 5.090E 02

COLLECTION DATE(S): 2/4-2/11/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	6.81E-03	1.6E-03
BETA-T	1.80E-02	1.5E-03
GAMMA SPEC		
MN-54	* 3.27E-03	2.9E-03
FE-59	* 0.00E-01	6.9E-03
CO-58	* -1.11E-03	3.7E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* 1.16E-02	1.0E-02
ZR-95	* 1.83E-03	5.5E-03
NB-95	* 1.10E-03	4.3E-03
I-131	* 1.02E-03	5.7E-03
CS-134	* -1.18E-03	3.5E-03
CS-137	* 0.00E-01	2.9E-03
BALA-140	* 0.00E-01	7.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *LJB*

FEB 23 1987

REVIEWED BY: *Maria Lane*

DATE: *2-24-87*

 9 MAR 1987 2:05:32 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C/ WBA AIRBORNE PARTICULATE COMP. - 201
 : FILTER QUANTITY: 6.470E 02
 COLLECTION DATE(S): 2/11-2/18/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.80E-03	5.4E-04 N/A
BETA-T	2.51E-02	1.4E-03 N/A
GAMMA SPEC		
MN-54	* 4.48E-03	3.3E-03
FE-59	* -3.62E-03	5.1E-03
CO-58	* -1.46E-03	3.3E-03
CO-60	* 3.61E-03	4.0E-03
ZN-65	* -3.96E-03	7.9E-03
ZR-95	* 1.19E-03	5.2E-03
NB-95	* 1.37E-03	3.5E-03
I-131	* -1.87E-03	3.2E-03
CS-134	* -8.11E-04	2.4E-03
CS-137	* 0.00E-01	2.8E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *L.P.B.* 3-9-87

 REVIEWED BY: *Dale E. Hill* DATE: 3/9/87

 3 MAR 1987 2:15:18 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201
 TYPE: FILTER QUANTITY: 6.450E 02
 COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	8.04E-03	1.1E-03
BETA-T	2.41E-02	1.4E-03
GAMMA SPEC		
MN-54	* -1.50E-03	2.4E-03
FE-59	* 0.00E-01	5.7E-03
CO-58	* -2.20E-03	2.6E-03
CO-60	* 1.21E-03	2.7E-03
ZN-65	* -7.94E-03	6.3E-03
ZR-95	* -1.20E-03	4.9E-03
NB-95	* 2.75E-03	3.4E-03
I-131	* 9.45E-04	2.9E-03
CS-134	* 1.63E-03	4.2E-03
CS-137	* -1.24E-03	2.8E-03
BALA-140	* 0.00E-01	4.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *Alpha & Beta activities not at a significant level.*

BY: 

REVIEWED BY: *Dale S. Holden*

DATE: *3/4/87*

12

 11 MAR 1987 1:11:46 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C WBA AIRBORNE PARTICULATE COMP. - 201
 .: FILTER QUANTITY: 5.630E 02
 COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (FCI/UT)	SIGMA (FCI/UT)
ALPHA-T	* 0.00E-01	3.1E-04
BETA-T	1.34E-02	1.2E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.4E-03
FE-59	* 5.02E-03	8.7E-03
CO-58	* -1.99E-03	2.8E-03
CO-60	* 1.54E-03	3.4E-03
ZN-65	* 2.62E-03	6.9E-03
ZR-95	* 4.91E-03	6.8E-03
NB-95	* 0.00E-01	3.6E-03
I-131	* 2.53E-03	4.8E-03
CS-134	* 0.00E-01	2.6E-03
CS-137	* 1.65E-03	3.1E-03
BALA-140	* 0.00E-01	3.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigmur*

MAR 11 1987

REVIEWED BY: *Dale E. Holtz*

DATE: *3/12/87*

 18 MAR 1987 2:45:28 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C JBA AIRBORNE PARTICULATE COMP. - 201
 T L: FILTER QUANTITY: 6.470E 02
 COLLECTION DATE(S): 3/4-3/11/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.36E-03	4.7E-04
BETA-T	1.57E-02	1.2E-03
GAMMA SPEC		
MN-54	* -8.48E-04	3.3E-03
FE-59	* -2.05E-03	3.5E-03
CO-58	* 0.00E-01	1.7E-03
CO-60	* 0.00E-01	1.9E-03
ZN-65	* 2.25E-03	7.5E-03
ZR-95	* -1.36E-03	4.1E-03
NB-95	* 7.81E-04	1.7E-03
I-131	* 1.03E-03	2.4E-03
CS-134	* -1.85E-03	3.7E-03
CS-137	* -1.44E-03	2.7E-03
BALA-140	* -1.85E-03	3.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *my*

 REVIEWED BY: *Dale E. Hilde*

DATE: *3/18/87*

165

 23 MAR 1987 9:28:37 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

WBA AIRBORNE PARTICULATE COMP. - 201
 : FILTER QUANTITY: 6.420E 02
 COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.33E-02	1.4E-03
BETA-T	4.22E-02	1.7E-03
GAMMA SPEC		
MN-54	* 3.01E-03	2.8E-03
FE-59	* -1.82E-03	6.0E-03
CO-58	* 0.00E-01	2.8E-03
CO-60	* 0.00E-01	3.0E-03
ZN-65	* -1.40E-02	8.7E-03
ZR-95	1.08E-02	4.6E-03
NB-95	4.13E-03	2.9E-03
I-131	* 0.00E-01	3.5E-03
CS-134	* 8.18E-04	3.2E-03
CS-137	6.21E-03	3.4E-03
BALA-140	* 0.00E-01	2.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Zr-95 at 757 keV, MDA=9; Nb-95 at 766 keV, MDA=6; and Cs-137 at 662 keV, MDA=10; all not identified by Peak Search or NID.

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: 3/24/87

24

 13 APR 1987 8:24:19 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

FILTER

QUANTITY: 5.690E 02

COLLECTION DATE(S): 3/18-3/25/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.49E-03	7.4E-04
BETA-T	2.27E-02	1.5E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.4E-03
FE-59	* -2.64E-03	5.9E-03
CO-58	* 1.01E-03	3.9E-03
CO-60	* 3.06E-03	4.3E-03
ZN-65	* 2.61E-03	1.1E-02
ZR-95	* 0.00E-01	6.7E-03
NB-95	* 3.10E-03	4.5E-03
I-131	* 5.83E-03	7.6E-03
CS-134	* 0.00E-01	3.0E-03
CS-137	* 4.00E-03	3.8E-03
BALA-140	* 3.33E-03	5.8E-03
NPBE-7	1.29E-01	4.4E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBe-7 at 478 keV identified by Peak Search and NID.

BY: *Jim Sigmey*

REVIEWED BY: *Del S. Allen*

DATE: *4-14-87*

 13 APR 1987 8:28:55 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

E: FILTER

QUANTITY: 5.730E 02

COLLECTION DATE(S): 3/25-4/1/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	6.06E-04	3.7E-04
BETA-T	1.03E-02	1.2E-03
GAMMA SPEC		
MN-54	* 0.00E-01	4.3E-03
FE-59	* -2.20E-03	6.6E-03
CO-58	* 0.00E-01	3.5E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* -9.06E-03	9.1E-03
ZR-95	* 8.49E-03	6.9E-03
NB-95	* 2.55E-03	4.2E-03
I-131	* 0.00E-01	4.9E-03
CS-134	* -3.68E-03	3.7E-03
CS-137	* 4.87E-03	3.5E-03
BALA-140	* -2.45E-03	4.2E-03
NPK-40	3.26E-01	8.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 KeV identified by Peak Search and NID.

BY: *Jim Sigman*

REVIEWED BY: *Dale S. Holden*

DATE: *4-14-87*

16 APR 1987 12:57:15 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201
TYPE: FILTER QUANTITY: 5.650E 02
COLLECTION DATE(S): 4/1-4/8/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 4.70E-04	4.1E-04
BETA-T	1.43E-02	1.2E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.2E-03
FE-59	1.33E-02	7.7E-03
CO-58	* 0.00E-01	3.7E-03
CO-60	* 0.00E-01	3.4E-03
ZN-65	* -5.89E-03	6.9E-03
ZR-95	* -4.29E-03	5.9E-03
NB-95	8.58E-03	3.8E-03
I-131	* 3.95E-03	5.5E-03
CS-134	* -3.73E-03	4.0E-03
CS-137	* 2.82E-03	2.8E-03
BALA-140	* 0.00E-01	4.9E-03
NPB-7	1.05E-01	3.5E-02
NPK-40	4.07E-01	9.4E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Fa-59 at 1099keV, MOA = 6, not identified by Peak Search or NID.
Nb-95 at 766 keV no peaks identified MOA = 10 net counts.
NPB-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *Jim Sigmen* APR 16 1987

REVIEWED BY: *Dale F. Holtz* DATE: *4-16-87*

21 APR 1987 10:32:30 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

5: FILTER

QUANTITY: 6.480E 02

COLLECTION DATE(S): 4/8-4/15/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	6.55E-03	1.1E-03
BETA-T	2.52E-02	1.4E-03
GAMMA SPEC		
MN-54	* 2.98E-03	2.8E-03
FE-59	* 0.00E-01	5.7E-03
CO-58	* -1.46E-03	3.1E-03
CO-60	* 0.00E-01	2.9E-03
ZN-65	* -5.92E-03	9.0E-03
ZR-95	* 3.56E-03	5.2E-03
NB-95	* 2.72E-03	3.0E-03
I-131	* 9.18E-04	3.2E-03
CS-134	* -1.62E-03	3.4E-03
CS-137	* 1.23E-03	2.9E-03
BALA-140	* 0.00E-01	3.3E-03
NPBE-7	2.30E-01	3.8E-02
NPK-40	1.62E-01	6.4E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID*

BY:

D. L. [Signature]

REVIEWED BY:

Dale S. Holden

DATE:

4-22-87

28 APR 1987 3:03:49 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

E: FILTER

QUANTITY: 5.620E 02

COLLECTION DATE(S): 4/15-4/22/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	7.80E-03	1.1E-03 N/A
BETA-T	2.62E-02	1.6E-03 N/A
GAMMA SPEC		
MN-54	* 5.25E-03	4.3E-03
FE-59	* -2.64E-03	7.9E-03
CO-58	* -1.06E-03	4.1E-03
CO-60	* -1.63E-03	4.3E-03
ZN-65	* -2.75E-03	8.3E-03
ZR-95	* -1.75E-03	7.2E-03
NB-95	* 4.18E-03	4.7E-03
I-131	* 3.77E-03	6.5E-03
CS-134	* -2.29E-03	4.6E-03
CS-137	* 8.89E-04	4.1E-03
BALA-140	* 5.64E-03	6.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:



REVIEWED BY:



DATE:

4-30-87

 4 JUN 1987 11:23:00 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE PARTICULATE COMP. - 201
 TYPE: FILTER QUANTITY: 5.760E 02
 COLLECTION DATE(S): 4/22-4/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 4.17E-04	5.1E-04
BETA-T	1.33E-02	1.2E-03 N/A
GAMMA SPEC		
MN-54	* 0.00E-01	3.8E-03
FE-59	* 0.00E-01	6.5E-03
CO-58	* 9.25E-04	3.6E-03
CO-60	* 0.00E-01	3.0E-03
ZN-65	* 2.52E-03	9.8E-03
ZR-95	9.07E-03	6.4E-03 N/A
NB-95	* 2.60E-03	3.4E-03
I-131	* 5.68E-04	4.0E-03
CS-134	6.17E-03	4.1E-03 .06
CS-137	* 3.16E-03	3.0E-03
BALA-140	* 0.00E-01	3.0E-03
NPBE-7	1.73E-01	3.9E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak ident. find for Zr-95 at 757 keV or Cs-134 at 796 keV. MDA = 6 and 6 net counts respectfully. NPBe-7 at 478 keV identified by peak search and NID.

BY: Jim Sigmund 6-4-87

REVIEWED BY: Dee F. Halpern DATE: 6-5-87

53

4 JUN 1987 11:27:11 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

AWBA AIRBORNE PARTICULATE COMP. - 201
TYPE: FILTER QUANTITY: 5.680E 02
COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.77E-03	7.7E-04 N/A
BETA-T	2.54E-02	1.5E-03 N/A
GAMMA SPEC		
MN-54	* 8.57E-04	4.3E-03
FE-59	* -4.31E-03	6.8E-03
CO-58	* -8.56E-04	2.8E-03
CO-60	* 2.74E-03	4.3E-03
ZN-65	* -1.36E-02	1.0E-02
ZR-95	* -1.40E-03	5.0E-03
NB-95	* 8.25E-04	4.0E-03
I-131	* -6.81E-04	4.8E-03
CS-134	* -9.27E-04	3.1E-03
CS-137	* 7.02E-04	3.2E-03
BALU-140	* 2.22E-03	3.9E-03
NPBE-7	2.52E-01	4.9E-02
NPK-40	3.17E-01	8.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigman* 6-4-87
REVIEWED BY: *Dale E. Holden* DATE: 6-5-87

 5 JUN 1987 11:15:10 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

TYPE: FILTER

QUANTITY: 4.160E 02

COLLECTION DATE(S): 5/6-5/11/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.23E-03	5.4E-04 N/A
BETA-T	2.34E-02	1.1E-03 N/A
GAMMA SPEC		
MN-54	* 1.17E-03	4.8E-03
FE-59	1.82E-02	1.3E-02 N/A
CO-58	* 0.00E-01	4.8E-03
CO-60	* 0.00E-01	5.9E-03
ZN-65	* 3.12E-03	1.3E-02
ZR-95	* 9.75E-03	9.4E-03
NB-95	* 3.51E-03	5.1E-03
I-131	* -3.30E-03	8.0E-03
CS-134	* -3.80E-03	5.2E-03
CS-137	* -1.92E-03	4.9E-03
BALA-140	* 0.00E-01	4.8E-03
NPBE-7	2.56E-01	5.5E-02
NPK-40	3.09E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Fe-59 at 1099 keV, MBA: 6 not counted
 NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID.
 This composite date is a deviation due to air sampler - malfunction.

BY:

Jim Sigmund 6-4-87

REVIEWED BY:

Dee E. Holt

DATE:

6-5-87

 4 JUN 1987 11:38:36 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE PARTICULATE COMP. - 201
 TYPE: FILTER QUANTITY: 5.690E 02
 COLLECTION DATE(S): 5/13-5/20/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)	
ALPHA-T	1.70E-03	6.0E-04	N/A
BETA-T	1.84E-02	1.4E-03	U/A
GAMMA SPEC			
MN-54	* 1.01E-03	3.4E-03	
FE-59	* 0.00E-01	6.1E-03	
CO-58	* 0.00E-01	1.4E-03	
CO-60	* 0.00E-01	4.1E-03	
ZN-65	* 2.74E-03	6.1E-03	
ZR-95	* 0.00E-01	5.2E-03	
NB-95	* -9.45E-04	1.6E-03	
I-131	* 1.22E-03	3.5E-03	
CS-134	* 2.23E-03	3.5E-03	
CS-137	* -8.84E-04	2.3E-03	
BALA-140	* 4.59E-03	6.5E-03	
NPBE-7	1.95E-01	3.5E-02	

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV identified by Peak Search and NID.

BY:

Jim Sigmund 6-4-87

REVIEWED BY:

Del S. Holden

DATE:

6-5-87

69

 2 JUN 1987 9:41:39 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE PARTICULATE COMP. - 201
 E: FILTER QUANTITY: 5.660E 02
 COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.17E-03	7.7E-04 N/A
BETA-T	1.26E-02	1.2E-03 N/A
GAMMA SPEC		
MN-54	* -1.04E-03	4.0E-03
FE-59	* 7.74E-03	7.7E-03
CO-58	* 0.00E-01	3.3E-03
CO-60	* 0.00E-01	3.2E-03
ZN-65	* 0.00E-01	6.7E-03
ZR-95	* -1.72E-03	7.1E-03
NB-95	* 1.01E-03	4.4E-03
I-131	* 8.52E-04	5.8E-03
CS-134	* 1.13E-03	4.9E-03
CS-137	* 1.76E-03	4.1E-03
BALA-140	* 0.00E-01	5.3E-03
NPBE-7	9.78E-02	3.9E-02

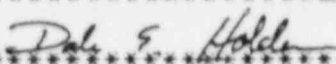
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65 SIGMA)

 COMMENTS: NPBE-7 at 478 keV identified by Peak Search and NID.

BY:



REVIEWED BY:



DATE: 6-2-87

74

16 JUN 1987 1:30:56 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 201
 TYPE: FILTER QUANTITY: 5.680E 02
 SECTION DATE(S): 5/27-6/3/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	2.84E-03	8.5E-04
BETA-T	2.02E-02	1.4E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.4E-03
FE-59	* 0.00E-01	7.7E-03
CO-58	* -2.07E-03	3.9E-03
CO-60	* -1.53E-03	4.6E-03
ZN-65	* -2.63E-03	4.6E-03
ZR-95	* 0.00E-01	6.4E-03
NB-95	* 1.07E-03	3.9E-03
I-131	1.51E-02	8.6E-03
CS-134	* 2.11E-03	3.9E-03
CS-137	* -1.60E-03	3.6E-03
BALA-140	* -3.69E-03	8.3E-03
NPBE-7	2.01E-01	4.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No Peak identified for I-131 at 364 keV, MCA: 11 net counts.
 NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *M. J.*

 REVIEWED BY: *Dale S. Holt* DATE: 6-17-87

17 JUN 1987 11:52:57 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 201
 TYPE: FILTER QUANTITY: 5.970E 02
 COLLECTION DATE(S): 6/3-6/10/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.06E-03	5.3E-04
BETA-T	1.90E-02	1.6E-03
GAMMA SPEC		
MN-54	* -9.75E-04	2.6E-03
FE-59	* 0.00E-01	6.2E-03
CO-58	* -9.89E-04	3.0E-03
CO-60	* -1.61E-03	2.8E-03
ZN-65	* 0.00E-01	7.5E-03
ZR-95	* 0.00E-01	2.3E-03
NB-95	* 4.87E-03	4.0E-03
I-131	* -3.28E-03	4.6E-03
CS-134	* 1.07E-03	3.2E-03
CS-137	* -8.43E-04	3.5E-03
BALA-140	* 2.71E-03	4.7E-03
NPBE-7	1.68E-01	4.0E-02
NPK-40	9.40E-02	5.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 476 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Lynn H. Bratherton*

JUN 17 1987

REVIEWED BY: *Dale E. Holden*

DATE: *6-22-87*

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:20:53

Plant Name : CNS
Sample Number : 880
Type/Location : AIR PARTICULATE / 201
Sample Date : 17-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 642.000 M3
Sample ID : 10JUN 17JUN87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	< 8.528E-04	2.828E-03		
CO-58	0.00	< 2.565E-03	3.525E-03		
FE-59	0.00	< 1.080E-02	8.908E-03		
CO-60	0.00	< 4.059E-03	3.025E-03		
ZN-65	0.00	< 4.560E-03	9.120E-03		
NB-95	0.00	< 8.273E-04	2.744E-03		
ZR-95	0.00	< 1.402E-03	5.429E-03		
I-131	0.00	< 1.990E-03	4.142E-03		
CS-134	0.00	< 9.257E-04	3.070E-03		
CS-137	0.00	< 2.129E-03	3.093E-03		
BALA-140	0.00	< 2.234E-03	3.870E-03		
ALPHA	0.00	3.690E-03	1.200E-03		0.000E+00
BETA	0.00	1.530E-02	1.300E-03		0.000E+00
NPBE-7	0.00	8.975E-02	3.143E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: [Signature] Date: 4/18/88

89

 1 JUL 1987 8:46:14 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C-14WBA AIRBORNE PARTICULATE COMP. - 201
 FILTER QUANTITY: 6.360E 02
 COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.43E-02	3.8E-03
BETA-T	2.97E-02	1.7E-03
GAMMA SPEC		
MN-54	* 0.00E-01	1.8E-03
FE-59	* -2.33E-03	6.2E-03
CO-58	* 0.00E-01	3.2E-03
CO-60	* 0.00E-01	0.0E-01
ZN-65	* 0.00E-01	6.0E-03
ZR-95	* 7.62E-03	5.9E-03
NB-95	* -8.98E-04	3.0E-03
I-131	* 3.54E-03	3.8E-03
CS-134	* -1.00E-03	3.3E-03
CS-137	* 4.74E-03	3.5E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: 7-1-87

94

 13 JUL 1987 4:51:32 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE PARTICULATE COMP. -- 201
 TYPE: FILTER QUANTITY: 6.340E 02
 COLLECTION DATE(S): 6/24-7/1/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 4.75E-04	1.1E-03
BETA-T	1.23E-02	1.2E-03
GAMMA SPEC		
MN-54	* 3.53E-03	3.3E-03
FE-59	* -4.67E-03	6.6E-03
CO-58	* -1.81E-03	3.1E-03
CO-60	* -1.42E-03	3.7E-03
ZN-65	* -4.74E-03	8.2E-03
ZR-95	* 0.00E-01	7.0E-03
NB-95	* 0.00E-01	2.9E-03
I-131	* 8.81E-04	6.0E-03
CS-134	3.61E-03	4.4E-03
CS-137	* 5.14E-03	3.8E-03
BALA-140	* -2.70E-03	4.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.63*SIGMA)

 COMMENTS: Cs-134 at 796 keV, MDA = 9 net counts, not identified by Peak Search or NID.

BY: *Miy*

 REVIEWED BY: *John E. Hald* DATE: *7-14-87*

100

 14 JUL 1987 10:35:42 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

E: FILTER

QUANTITY: 6.250E 02

COLLECTION DATE(S): 7/1-7/8/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 3.57E-04	6.2E-04
BETA-T	1.36E-02	1.3E-03
GAMMA SPEC		
MN-54	* 1.62E-03	3.0E-03
FE-59	* 2.05E-03	8.4E-03
CO-58	* -1.63E-03	3.6E-03
CO-60	* 0.00E-01	3.2E-03
ZN-65	* -8.63E-03	9.2E-03
ZR-95	* 4.01E-03	5.2E-03
NB-95	* 3.16E-03	4.0E-03
I-131	* 0.00E-01	4.0E-03
CS-134	* 2.64E-03	3.4E-03
CS-137	* -6.81E-04	3.1E-03
BALA-140	* 2.14E-03	5.7E-03
NPBE-7	1.14E-01	3.6E-02
NPK-40	1.58E-01	6.4E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBE-7 at 478 kev and NPK-40 at 146 kev identified by Mark Search and NLD.*

BY: *mm*

REVIEWED BY: *Dale S. Gold*

DATE: *7-19-87*

104

 23 JUL 1987 11:47:23 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201
 FILTER QUANTITY: 6.250E 02
 COLLECTION DATE(S): 7/8-7/15/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 3.70E-04	6.4E-04
BETA-T	1.64E-02	1.4E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.3E-03
FE-59	* 2.26E-03	5.0E-03
CO-58	* -8.93E-04	2.4E-03
CO-60	* -2.87E-03	4.1E-03
ZN-65	* -4.77E-03	6.7E-03
ZR-95	* -4.40E-03	5.7E-03
NB-95	* -8.64E-04	3.6E-03
I-131	* 1.37E-03	4.5E-03
CS-134	* 0.00E-01	3.9E-03
CS-137	* 4.47E-03	3.3E-03
BALA-140	* 2.32E-03	4.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigmund*

JUL 23 1987

REVIEWED BY: *Dee S. Hall*

DATE: *7-24-87*

 30 JUL 1987 3:09:02 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 201
 E: FILTER QUANTITY: 6.290E 02
 COLLECTION DATE(S): 7/15-7/22/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	4.80E-03	1.6E-03
BETA-T	3.44E-02	1.9E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.3E-03
FE-59	* -4.52E-03	8.5E-03
CO-58	* -9.25E-04	2.8E-03
CO-60	* 1.50E-03	4.0E-03
ZN-65	* 0.00E-01	7.8E-03
ZR-95	* 0.00E-01	4.8E-03
NB-95	* -8.74E-04	3.4E-03
I-131	* -5.90E-04	3.5E-03
CS-134	* -2.06E-03	4.1E-03
CS-137	* 2.43E-03	3.9E-03
BAL-140	* -2.05E-03	3.5E-03
NPBE-7	1.76E-01	3.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBE-7 at 478 keV identified by Peak Search and NID.*

BY: *Larry O. Gaulton*

JUL 30 1987

REVIEWED BY: *Dale S. Holden*

DATE: *7-31-87*

 5 AUG 1987 10:35:21 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CHIAWBA AIRBORNE PARTICULATE COMP. - 201
 TYPE: FILTER QUANTITY: 5.940E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	2.07E-03	1.2E-03
BETA-T	3.54E-02	2.0E-03
GAMMA SPEC		
MN-54	* 2.01E-03	3.8E-03
FE-59	* 7.64E-03	9.2E-03
CO-58	* 1.02E-03	3.9E-03
CO-60	* 0.00E-01	3.9E-03
ZN-65	* 0.00E-01	9.2E-03
ZR-95	1.52E-02	7.4E-03
NB-95	* 4.01E-03	3.8E-03
I-131	* 2.66E-03	6.8E-03
CS-134	* -2.19E-03	4.9E-03
CS-137	7.73E-03	4.8E-03
BALA-140	* 0.00E-01	6.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: 21.95 at 757 keV, DA: 9 net counts, not identified by Peak Search or NID.
 Cs-137 at 662 keV, MDA: 9 net counts, not identified as a peak,

BY: 

 REVIEWED BY: 

DATE: 8-7-87

119

 12 AUG 1987 2:26:39 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201
 TYPE: FILTER QUANTITY: 6.180E 02
 COLLECTION DATE(S): 7/29-8/5/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.77E-03	7.6E-04
BETA-T	3.01E-02	1.6E-03
GAMMA SPEC		
MN-54	* -2.46E-03	3.8E-03
FE-59	* 2.07E-03	6.2E-03
CO-58	* -2.4E-03	2.7E-03
CO-60	* 2.68E-03	3.8E-03
ZN-65	* -8.73E-03	7.6E-03
ZR-95	* -1.35E-03	4.5E-03
NB-95	* 4.00E-03	3.7E-03
I-131	* 2.62E-03	5.5E-03
CS-134	* -2.67E-03	4.1E-03
CS-137	* 2.07E-03	2.8E-03
BALA-140	* 0.00E-01	3.1E-03
NPBE-7	1.15E-01	4.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBE-7 at 478 keV identified by Peak Search and NID.*

BY: *MJD*

 REVIEWED BY: *John E. Hold* DATE: *8-13-87*

18 AUG 1987 11:13:09 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 201

FILTER: QUANTITY: 6.030E 02
 COLLECTION DATE(S): 8/5-8/12/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	7.17E-04	5.3E-04 N/A
BETA-T	1.99E-02	1.4E-03 N/A
GAMMA SPEC		
MN-54	* 8.33E-04	2.8E-03
FE-59	* 0.00E-01	7.0E-03
CO-58	* 2.45E-03	3.4E-03
CO-60	* 1.37E-03	4.1E-03
ZN-65	* -6.65E-03	8.6E-03
ZR-95	* 5.36E-03	5.0E-03
NB-95	* 3.85E-03	3.0E-03
I-131	* 3.59E-03	3.3E-03
CS-134	* -2.73E-03	3.5E-03
CS-137	* -7.05E-04	3.2E-03
BALA-140	* 1.87E-03	4.2E-03
NPBE-7	2.05E-01	1.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 478 keV identified by Peak Search and NID.*

BY: *Jim Sigman*

AUG 18 1987

REVIEWED BY: *Dee S. Todd*

DATE: *8-19-87*

 28 AUG 1987 10:43:43 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 201
 TYPE: FILTER QUANTITY: 5.970E 02
 COLLECTION DATE(S): 8/12-8/19/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	6.27E-04	4.7E-04 N/A
BETA-T	1.39E-02	1.2E-03 N/A
GAMMA SPEC		
MN-54	* -9.26E-04	2.4E-03
FE-59	* 2.25E-03	6.8E-03
CO-58	* -9.07E-04	2.7E-03
CO-60	* -3.00E-03	4.7E-03
ZN-65	* -4.95E-03	7.8E-03
ZR-95	* 0.00E-01	3.6E-03
NB-95	* 8.51E-04	3.5E-03
I-131	* -2.75E-03	3.4E-03
CS-134	* -1.01E-03	3.9E-03
CS-137	* -7.79E-04	3.4E-03
BALA-140	* 2.05E-03	4.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *LJB*

REVIEWED BY: *Del G. Hill*

DATE: 8-28-87

Plant Name : CNS
Sample Number : 18
Type/Location : AIR PARTICULATE / 201
Sample Date : 26-AUG-1987 11:45:00
Acq. Start Time : 10-SEP-1987 13:46:26
Sample Quantity : 633.000 M3
Sample ID : 19AUG 26AUG87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.650E-02	1.500E-03		-0.000E+00
ALPHA	1.00	2.050E-03	7.500E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.500E-02	0.000E+00		
CO-58	810.76	< 9.562E-03	0.000E+00		
FE-59	1099.22	< 2.747E-02	0.000E+00		
CO-60	1332.47	< 1.311E-02	0.000E+00		
ZN-65	1115.52	< 1.920E-02	0.000E+00		
NB-95	765.78	< 1.103E-02	0.000E+00		
ZR-95	757.72	< 9.914E-03	0.000E+00		
I-131	364.48	< 2.112E-02	0.000E+00		
CS-134	604.66	< 7.531E-03	0.000E+00		
CS-137	661.65	< 1.083E-02	0.000E+00		
BALA-140	537.27	< 5.451E-02	0.000E+00		
BE-7	477.55	0.166	3.991E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Stone

Date: 4/18/88

Plant Name : CNS
 Sample Number : 34
 Type/Location : AIR PARTICULATES / 201
 Sample Date : 2-SEP-1987 09:02:00
 Acq. Start Time : 12-SEP-1987 14:10:15
 Sample Quantity : 632.000 M3
 Sample ID : 26AUG TO 2SEP87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.110E-02	1.400E-03		0.000E+00
ALPHA	1.00	2.850E-03	7.400E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.023E-03	0.000E+00		
CO-58	810.76	< 8.169E-03	0.000E+00		
FE-59	1099.22	< 2.045E-02	0.000E+00		
CO-60	1332.47	< 1.397E-02	0.000E+00		
ZN-65	1115.52	< 1.404E-02	0.000E+00		
NB-95	765.78	< 1.081E-02	0.000E+00		
ZR-95	756.72	< 1.589E-02	0.000E+00		
I-131	364.48	< 2.243E-02	0.000E+00		
CS-134	604.66	< 6.889E-03	0.000E+00		
CS-137	661.65	< 1.150E-02	0.000E+00		
BALA-140	537.27	< 4.990E-02	0.000E+00		
BE-7	477.59	0.208	3.680E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. J.

Approved by: Dale S. Hall Date: 10/1/87

Be-7 at 478 kev identified by Peak search & NID.

Corrected results

Plant Name : CNS
Sample Number : 46
Type/Location : AIR PARTICULATES / 201
Sample Date : 9-SEP-1987 10:25:00
Acq. Start Time : 14-SEP-1987 02:09:00
Sample Quantity : 575.000 M3
Sample ID : 02SEP TO 09SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.680E-02	1.300E-03		0.000E+00
ALPHA	1.00	1.310E-03	6.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.616E-03	0.000E+00		0.000E+00
CO-58	810.76	< 5.927E-03	0.000E+00		0.000E+00
FE-59	1099.22	< 2.000E-02	0.000E+00		0.000E+00
CO-60	1332.47	< 1.038E-02	0.000E+00		0.000E+00
ZN-65	1115.52	< 1.290E-02	0.000E+00		0.000E+00
NB-95	765.78	< 1.232E-02	0.000E+00		0.000E+00
ZR-95	756.72	< 1.615E-02	0.000E+00		0.000E+00
I-131	364.48	< 1.245E-02	0.000E+00		0.000E+00
CS-134	604.66	< 7.857E-03	0.000E+00		0.000E+00
CS-137	661.65	< 8.185E-03	0.000E+00		0.000E+00
BALA-140	537.27	< 5.489E-02	0.000E+00		0.000E+00
BE-7	477.59	3.716E-02	4.218E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. Y.

Approved by: Dale E. Hall

Date: 10/1/87

Be-7 at 470 keV identified by Peak Search & NID.

*Corrected
results*

Plant Name : CNS
Sample Number : 67
Type/Location : AIR PARTICULATES / 201
Sample Date : 16-SEP-1987 10:40:00
Acq. Start Time : 22-SEP-1987 15:24:47
Sample Quantity : 581.000 M3
Sample ID : 9SEP TO 16SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.960E-02	1.400E-03		0.000E+00
ALPHA	1.00	6.820E-04	3.900E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.458E-02	0.000E+00		
CO-58	810.76	< 1.334E-02	0.000E+00		
FE-59	1099.22	< 3.743E-02	0.000E+00		
CO-60	1332.47	< 1.814E-02	0.000E+00		
ZN-65	1115.52	< 3.773E-02	0.000E+00		
NB-95	765.78	< 1.603E-02	0.000E+00		
ZR-95	756.72	< 1.577E-02	0.000E+00		
I-131	364.48	< 1.761E-02	0.000E+00		
CS-134	604.66	< 1.344E-02	0.000E+00		
CS-137	661.65	< 1.567E-02	0.000E+00		
BALA-140	537.27	< 6.579E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 11/18/87

Plant Name : CNS
 Sample Number : 88
 Type/Location : AIR PARTICULATES / 201
 Sample Date : 23-SEP-1987 11:25:00
 Acq. Start Time : 26-SEP-1987 00:51:35
 Sample Quantity : 573.000 M3
 Sample ID : 16SEP TO 23SEP87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.220E-02	1.700E-03		0.000E+00
ALPHA	1.00	2.080E-03	9.000E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.544E-03	0.000E+00		
CO-58	810.76	< 5.112E-03	0.000E+00		
FE-59	1099.22	< 2.325E-02	0.000E+00		
CO-60	1332.47	< 1.403E-02	0.000E+00		
ZN-65	1115.52	< 2.270E-02	0.000E+00		
NB-95	765.78	< 9.479E-03	0.000E+00		
ZR-95	756.72	< 9.848E-03	0.000E+00		
I-131	364.48	< 6.374E-03	0.000E+00		
CS-134	604.66	< 8.738E-03	0.000E+00		
CS-137	661.65	< 1.046E-02	0.000E+00		
BALA-140	537.27	< 2.112E-02	0.000E+00		
BE-7	477.70	9.841E-02	3.464E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Mitchell

Approved by: Dale P. Holt

Date: 10/11/87

Corrected results

VAX/VMS Sample Analysis Report generated : 13-OCT-1987 08:52:06

Plant Name : CNS
Sample Number : 137
Type/Location : AIR PARTICULATES / 201
Sample Date : 30-SEP-1987 10:45:00
Acq. Start Time : 4-OCT-1987 20:13:01
Sample Quantity : 625.000 M3
Sample ID : 23SEP TO 30SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.600E-02	1.500E-03		0.000E+00
ALPHA	1.00	1.290E-03	6.100E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.713E-03	0.000E+00		
CO-58	810.76	< 6.153E-03	0.000E+00		
FE-59	1099.22	< 2.299E-02	0.000E+00		
CO-60	1332.47	< 1.210E-02	0.000E+00		
ZN-65	1115.52	< 1.178E-02	0.000E+00		
NB-95	765.78	< 1.187E-02	0.000E+00		
ZR-95	756.72	< 1.257E-02	0.000E+00		
I-131	364.48	< 1.049E-02	0.000E+00		
CS-134	604.66	< 6.622E-03	0.000E+00		
CS-137	661.65	< 8.623E-03	0.000E+00		
BALA-140	1596.49	< 1.507E-02	0.000E+00		
BE-7	477.59	0.106	3.266E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmen

Approved by: Dee E. Hall

Date: 10/13/87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:21:08

Plant Name : CNS
Sample Number : 166
Type/Location : AIR PARTICULATE / 201
Sample Date : 7-OCT-1987 09:35:00
Acq. Start Time : 13-OCT-1987 14:07:18
Sample Quantity : 567.000 M3
Sample ID : 30SEP TO 7OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.460E-02	1.200E-03		- 0.000E+00
ALPHA	1.00	1.270E-03	6.000E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.685E-03	0.000E+00		
CO-58	810.76	< 8.795E-03	0.000E+00		
FE-59	1099.22	< 0.000E+00	0.000E+00		
CO-60	1332.47	< 0.000E+00	0.000E+00		
ZN-65	1115.52	< 1.321E-02	0.000E+00		
NB-95	765.78	< 4.991E-03	0.000E+00		
ZR-95	756.72	< 1.471E-02	0.000E+00		
I-131	364.48	< 1.626E-02	0.000E+00		
CS-134	604.66	< 1.036E-02	0.000E+00		
CS-137	661.65	< 6.019E-03	0.000E+00		
BALA-140	1596.49	< 1.322E-02	0.000E+00		
SN-113	391.69	6.823E-03	3.005E-03		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A -----

Approved by: Merced Ojeda -----

Date: 4/18/88 -----

Plant Name : CNS
Sample Number : 193
Type/Location : AIR PARTICULATES / 201
Sample Date : 14-OCT-1987 11:23:00
Acq. Start Time : 19-OCT-1987 15:22:54
Sample Quantity : 577.000 M3
Sample ID : 7OCT TO 14OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.920E-02	1.400E-03		0.000E+00
ALPHA	1.00	1.920E-03	6.400E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.038E-03	0.000E+00		
CO-58	810.76	< 1.079E-02	0.000E+00		
FE-59	1099.22	< 1.478E-02	0.000E+00		
CO-60	1332.47	< 0.000E+00	0.000E+00		
ZN-65	1115.52	< 0.000E+00	0.000E+00		
NB-95	765.78	< 6.864E-03	0.000E+00		
ZR-95	756.72	< 1.011E-02	0.000E+00		
I-131	364.48	< 7.188E-03	0.000E+00		
CS-134	604.66	< 7.248E-03	0.000E+00		
CS-137	661.65	< 7.637E-03	0.000E+00		
BALA-140	1596.49	< 1.063E-02	0.000E+00		
BE-7	477.59	0.132	3.204E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Lynn H. Brydson

Approved by: Pat S. Hold

Date: 10 / 28 / 87

VAX/VMS Sample Analysis Report generated : 20-NOV-1987 14:59:00

Plant Name : CNS
Sample Number : 210
Type/Location : AIR PARTICULATES / 201
Sample Date : 21-OCT-1987 11:05:00
Acq. Start Time : 26-OCT-1987 15:55:05
Sample Quantity : 627.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.040E-02	1.600E-03		0.000E+00
ALPHA	1.00	3.570E-03	8.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 0.000E+00	0.000E+00		
CO-58	810.76	< 8.774E-03	0.000E+00		
FE-59	1099.22	< 1.544E-02	0.000E+00		
CO-60	1332.47	< 0.000E+00	0.000E+00		
ZN-65	1115.52	< 1.152E-02	0.000E+00		
NB-95	765.78	< 7.335E-03	0.000E+00		
ZR-95	756.72	< 1.269E-02	0.000E+00		
I-131	364.48	< 7.625E-03	0.000E+00		
CS-134	604.66	< 2.965E-03	0.000E+00		
CS-137	661.65	< 6.283E-03	0.000E+00		
BALA-140	1596.49	< 1.138E-02	0.000E+00		
BE-7	477.59	0.147	3.646E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: [Signature]

Date: 11 / 23 / 87

VAX/VMS Sample Analysis Report generated : 23-NOV-1987 10:30:19

Plant Name : CNS
Sample Number : 229
Type/Location : AIR PARTICULATES / 201
Sample Date : 28-OCT-1987 12:05:00
Acq. Start Time : 3-NOV-1987 11:21:10
Sample Quantity : 578.000 M3
Sample ID : 21OCT TO 28OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.750E-02	1.600E-03		0.000E+00
ALPHA	1.00	1.960E-03	7.300E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.217E-03	0.000E+00		
CO-58	810.76	< 4.795E-03	0.000E+00		
FE-59	1099.22	< 1.199E-02	0.000E+00		
CO-60	1332.47	< 1.307E-02	0.000E+00		
ZN-65	1115.52	< 1.977E-02	0.000E+00		
NB-95	765.78	< 9.821E-03	0.000E+00		
ZR-95	756.72	< 8.326E-03	0.000E+00		
I-131	364.48	< 9.553E-03	0.000E+00		
CS-134	604.66	< 1.037E-02	0.000E+00		
CS-137	661.65	< 9.364E-03	0.000E+00		
BALA-140	1596.49	< 2.230E-02	0.000E+00		
BE-7	477.59	0.122	3.291E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmund

Approved by: Dale E. [Signature]

Date: 11/23/87

Plant Name : CNS
Sample Number : 248
Type/Location : AIR PARTICULATES / 201
Sample Date : 4-NOV-1987 10:20:00
Acq. Start Time : 9-NOV-1987 11:45:55
Sample Quantity : 650.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.840E-02	1.500E-03		0.000E+00
ALPHA	1.00	3.150E-03	8.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.276E-02	0.000E+00		
CO-58	810.76	< 1.231E-02	0.000E+00		
FE-59	1099.22	< 2.096E-02	0.000E+00		
CO-60	1332.47	< 1.339E-02	0.000E+00		
ZN-65	1115.52	< 2.216E-02	0.000E+00		
NB-95	765.78	< 8.125E-03	0.000E+00		
ZR-95	756.72	< 5.505E-03	0.000E+00		
I-131	364.48	< 1.086E-02	0.000E+00		
CS-134	604.66	< 5.706E-03	0.000E+00		
CS-137	661.65	< 1.031E-02	0.000E+00		
BALA-140	1596.49	< 1.723E-02	0.000E+00		
BE-7	477.59	7.829E-02	3.528E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: John F. [Signature]

Date: 11 / 23 / 87

Plant Name : CNS
Sample Number : 268
Type/Location : AIR PARTICULATES / 201
Sample Date : 11-NOV-1987 11:00:00
Acq. Start Time : 13-NOV-1987 14:05:01
Sample Quantity : 573.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.080E-02	1.400E-03		0.000E+00
ALPHA	1.00	1.840E-03	6.800E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.229E-02	0.000E+00		
CO-58	810.76	< 1.252E-02	0.000E+00		
FE-59	1099.22	< 2.959E-02	0.000E+00		
CC-60	1332.47	< 1.179E-02	0.000E+00		
ZN-65	1115.52	< 2.512E-02	0.000E+00		
NB-95	765.78	< 1.528E-02	0.000E+00		
ZR-95	756.72	< 2.365E-02	0.000E+00		
I-131	364.48	< 8.846E-03	0.000E+00		
CS-134	604.66	< 1.114E-02	0.000E+00		
CS-137	661.65	< 1.549E-02	0.000E+00		
BALA-140	1596.49	< 2.088E-02	0.000E+00		
BE-7	477.59	0.126	4.316E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 12/17/87

VAX/VMS Sample Analysis Report generated : 3-DEC-1987 15:50:25

Plant Name : CNS
Sample Number : 289
Type/Location : AIR PARTICULATES / 201
Sample Date : 13-NOV-1987 06:10:00
Acq. Start Time : 24-NOV-1987 12:12:34
Sample Quantity : 128.000 M3
Sample ID : 11NOV TO 13NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	0.124	7.200E-03		0.000E+00
ALPHA	1.00	6.980E-03	2.800E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.653E-02	0.000E+00		
CO-58	810.76	< 4.350E-02	0.000E+00		
FE-59	1099.22	< 8.745E-02	0.000E+00		
CO-60	1332.47	< 8.126E-02	0.000E+00		
ZN-65	1115.52	< 0.121	0.000E+00		
NB-95	765.78	< 6.128E-02	0.000E+00		
ZR-95	756.72	< 8.550E-02	0.000E+00		
I-131	364.48	< 6.855E-02	0.000E+00		
CS-134	604.66	< 3.202E-02	0.000E+00		
CS-137	661.65	< 5.181E-02	0.000E+00		
BALA-140	1596.49	< 0.113	0.000E+00		
BE-7	477.59	0.891	0.147		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: Dale E. Hald

Date: 12/4/87

This sample composite period from 11/11 - 11/18/87 was a deviation due to a blown air sampler fuse.

VAX/VMS Sample Analysis Report generated : 3-DEC-1987 15:40:11

Plant Name : CNS
Sample Number : 303
Type/Location : AIR PARTICULATES / 201
Sample Date : 25-NOV-1987 13:30:00
Acq. Start Time : 2-DEC-1987 15:08:26
Sample Quantity : 657.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

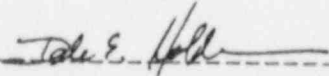
Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.660E-02	1.400E-03		0.000E+00
ALPHA	1.00	1.500E-03	6.000E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.084E-02	0.000E+00		
CO-58	810.76	< 1.028E-02	0.000E+00		
FE-59	1099.22	< 1.909E-02	0.000E+00		
CO-60	1332.47	< 1.444E-02	0.000E+00		
ZN-65	1115.52	< 2.245E-02	0.000E+00		
NB-95	765.78	< 8.343E-03	0.000E+00		
ZR-95	756.72	< 1.445E-02	0.000E+00		
I-131	364.48	< 1.245E-02	0.000E+00		
CS-134	604.66	< 9.663E-03	0.000E+00		
CS-137	661.65	< 1.112E-02	0.000E+00		
BALA-140	1596.49	< 2.394E-02	0.000E+00		
BE-7	477.59	0.190	4.113E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: -----

Approved by: -----

Date: 12 / 1 / 87

Plant Name : CNS
Sample Number : 329
Type/Location : AIR PARTICULATES / 201
Sample Date : 2-DEC-1987 09:05:00
Acq. Start Time : 9-DEC-1987 12:45:16
Sample Quantity : 556.000 M3
Sample ID : 25NOV TO 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.520E-02	1.400E-03		0.000E+00
ALPHA	1.00	< 1.850E-04	4.100E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.756E-03	0.000E+00		
CO-58	810.76	< 1.545E-02	0.000E+00		
FE-59	1099.22	< 2.220E-02	0.000E+00		
CO-60	1332.47	< 1.377E-02	0.000E+00		
ZN-65	1115.52	< 2.289E-02	0.000E+00		
NB-95	765.78	< 9.860E-03	0.000E+00		
ZR-95	756.72	< 1.858E-02	0.000E+00		
I-131	364.48	< 1.298E-02	0.000E+00		
CS-134	604.66	< 7.743E-03	0.000E+00		
CS-137	661.65	< 8.022E-03	0.000E+00		
BALA-140	1596.49	< 2.364E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale E. Todd

Date: 12 / 11 / 87

Plant Name : CNS
Sample Number : 358
Type/Location : AIR PARTICULATES / 201
Sample Date : 16-DEC-1987 09:45:00
Acq. Start Time : 23-DEC-1987 10:26:08
Sample Quantity : 565.000 M3
Sample ID : 9DEC TO 16DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.890E-02	1.500E-03		0.000E+00
ALPHA	1.00	1.500E-03	7.100E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.256E-02	0.000E+00		
CO-58	810.76	< 1.143E-02	0.000E+00		
FE-59	1099.22	< 2.009E-02	0.000E+00		
CO-60	1332.47	< 1.979E-02	0.000E+00		
ZN-65	1115.52	< 2.619E-02	0.000E+00		
NB-95	765.78	< 1.128E-02	0.000E+00		
ZR-95	756.72	< 2.267E-02	0.000E+00		
I-131	364.48	< 1.463E-02	0.000E+00		
CS-134	604.66	< 8.476E-03	0.000E+00		
CS-137	661.65	< 8.174E-03	0.000E+00		
BALA-140	1596.49	< 3.249E-02	0.000E+00		
BE-7	477.59	6.487E-02	3.098E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: LGB

Approved by: John S. [Signature]

Date: 1/5/88

Plant Name : CNS
Sample Number : 560
Type/Location : AIR PARTICULATES / 201
Sample Date : 23-DEC-1987 12:55:00
Acq. Start Time : 14-JAN-1988 10:49:18
Sample Quantity : 567.000 M3
Sample ID : 16DEC TO 23DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.370E-02	1.500E-03		0.000E+00
ALPHA	1.00	1.800E-03	7.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.078E-02	0.000E+00		
CO-58	810.76	< 1.657E-02	0.000E+00		
FE-59	1099.22	< 3.565E-02	0.000E+00		
CO-60	1332.47	< 1.515E-02	0.000E+00		
ZN-65	1115.52	< 4.821E-02	0.000E+00		
NB-95	765.78	< 2.004E-02	0.000E+00		
ZR-95	756.72	< 3.332E-02	0.000E+00		
I-131	364.48	< 6.052E-02	0.000E+00		
CS-134	604.66	< 1.147E-02	0.000E+00		
CS-137	661.65	< 1.300E-02	0.000E+00		
BALA-140	1596.49	< 6.164E-02	0.000E+00		
BE-7	477.59	8.398E-02	6.371E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale E. Hale

Date: 1/15/88

Plant Name : CNS
Sample Number : 402
Type/Location : AIR PARTICULATES / 201
Sample Date : 30-DEC-1987 10:40:00
Acq. Start Time : 9-JAN-1988 10:48:23
Sample Quantity : 563.000 M3
Sample ID : 23DEC TO 30DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	2.180E-02	1.500E-03		0.000E+00
ALPHA	1.00	8.700E-04	5.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.737E-03	0.000E+00		
CO-58	810.76	< 8.742E-03	0.000E+00		
FE-59	1099.22	< 2.292E-02	0.000E+00		
CO-60	1332.47	< 1.064E-02	0.000E+00		
ZN-65	1115.52	< 1.806E-02	0.000E+00		
NB-95	765.78	< 1.344E-02	0.000E+00		
ZR-95	756.72	< 1.275E-02	0.000E+00		
I-131	364.48	< 1.597E-02	0.000E+00		
CS-134	604.66	< 6.159E-03	0.000E+00		
CS-137	661.65	< 8.099E-03	0.000E+00		
BALA-140	1596.49	< 8.231E-03	0.000E+00		
BE-7	477.59	7.224E-02	2.631E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: D. E. Hill

Date: 1/14/88

16 JAN 1987 8:55:27 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA AIRBORNE PARTICULATE COMP. - 205

FE: FILTER

QUANTITY: 6.090E 02

COLLECTION DATE(S): 12/31-1/7/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.33E-03	4.9E-04
BETA-T	1.64E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.4E-03
FE-59	1.03E-02	7.3E-03
CO-58	* -1.01E-03	3.4E-03
CO-60	* -1.50E-03	3.4E-03
ZN-65	* -2.56E-03	9.2E-03
ZR-95	* -3.35E-03	5.8E-03
NB-95	* -2.05E-03	3.8E-03
I-131	* -2.30E-03	7.6E-03
CS-134	* 2.12E-03	4.5E-03
CS-137	* 0.00E-01	3.1E-03
BALA-140	* 9.29E-03	8.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

JAN 16 1987

REVIEWED BY: *Marcia Lane*

DATE: 1-20-87

13 JAN 1987 8:31:49 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205
TYPE: FILTER QUANTITY: 6.400E 02
COLLECTION DATE(S): 1/7-1/14/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.22E-02	1.4E-03
BETA-T	3.31E-02	1.6E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.5E-03
FE-59	* -1.84E-03	4.1E-03
CO-58	* -7.55E-04	2.3E-03
CO-60	6.60E-03	4.0E-03
ZN-65	* -8.35E-03	6.6E-03
ZR-95	* -2.46E-03	6.0E-03
NB-95	* -6.89E-04	3.3E-03
I-131	* 1.49E-03	2.9E-03
CS-134	* -2.59E-03	3.1E-03
CS-137	* -1.99E-03	2.7E-03
BALA-140	* 3.07E-03	3.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: THERE WAS NO IDENTIFIABLE PEAK IN THE SPECTRUM
OR PEAK SEARCH FOR CO-60 (1332.49keV)

BY: *my*

REVIEWED BY: *Marcus Lane* DATE: *1-20-87*

146

25 JAN 1987 5:48:55 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205
TYPE: FILTER QUANTITY: 2.940E 02
ACTION DATE(S): 1/14-1/18/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* -8.26E-04	7.3E-04
BETA-T	1.82E-02	2.1E-03
GAMMA SPEC		
MN-54	* 8.07E-03	8.1E-03
FE-59	* 0.00E-01	1.0E-02
CO-58	* 6.24E-03	7.5E-03
CO-60	* 3.11E-03	8.2E-03
ZN-65	* 5.30E-03	2.1E-02
ZR-95	* 1.38E-02	1.4E-02
NB-95	* 0.00E-01	7.8E-03
I-131	2.21E-02	1.5E-02
CS-134	* -4.38E-03	8.2E-03
CS-137	* 1.70E-03	5.6E-03
BALA-140	* 6.12E-03	1.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: ⁷²Zn-95 PEAK (364.48keV) WAS SEEN IN THE SPECTRUM, BUT
I-131
WAS NOT SEEN BY THE PEAK SEARCH. Deviation

BY: MJ

REVIEWED BY: Marcus Lane DATE: 1/31/87

2 FEB 1987 2:17:50 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

COTAWBA AIRBORNE PARTICULATE COMP. - 205
7 : FILTER QUANTITY: 6.620E 02
COLLECTION DATE(S): 1/21-1/28/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	4.11E-03	7.9E-04
BETA-T	1.77E-02	1.3E-03
GAMMA SPEC		
MN-54	* -2.20E-03	2.6E-03
FE-59	* -1.85E-03	4.1E-03
CO-58	* 7.35E-04	3.4E-03
CO-60	* 2.35E-03	2.9E-03
ZN-65	* -9.75E-03	7.6E-03
ZR-95	* 0.00E-01	4.2E-03
NB-95	* -7.08E-04	3.2E-03
I-131	* 0.00E-01	4.4E-03
CS-134	* -3.18E-03	3.7E-03
CS-137	* 6.02E-04	3.2E-03
BALA-140	* -1.91E-03	5.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigmund

FEB 2 1987

REVIEWED BY:

Marcia Lane

DATE: 2/5/87

23

9 FEB 1987 11:23:39 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C/ WBA AIRBORNE PARTICULATE COMP. - 205
 T : FILTER QUANTITY: 5.700E 02
 COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	4.46E-03	9.8E-04
BETA-T	1.96E-02	1.3E-03
GAMMA SPEC		
MN-54	* -1.03E-03	3.1E-03
FE-59	* 0.00E-01	6.9E-03
CO-58	* -1.01E-03	3.6E-03
CO-60	* 1.60E-03	4.2E-03
ZN-65	* 2.68E-03	8.0E-03
ZR-95	* -4.97E-03	6.4E-03
NB-95	* 9.50E-04	3.9E-03
I-131	* 0.00E-01	4.8E-03
CS-134	* 0.00E-01	2.7E-03
CS-137	* 7.01E-03	5.0E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigmen* FEB 09 1987

REVIEWED BY: *Marcia Lane* DATE: 2-10-87

 23 FEB 1987 1:27:22 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205
 : FILTER QUANTITY: 6.120E 02
 COLLECTION DATE(S): 2/4-2/11/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	7.69E-03	1.3E-03
BETA-T	2.04E-02	1.4E-03
GAMMA SPEC		
MN-54	* 3.19E-03	3.7E-03
FE-59	* 4.13E-03	7.2E-03
CO-58	* -8.11E-04	2.7E-03
CO-60	* -1.27E-03	3.4E-03
7N-65	* -8.49E-03	9.5E-03
ZR-95	* 1.33E-03	5.5E-03
NB-95	5.59E-03	3.7E-03 N/A
I-131	* 7.56E-04	5.4E-03
CS-134	* 0.00E-01	4.2E-03
CS-137	* 1.95E-03	3.1E-03
BALA-140	* -2.31E-03	4.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *L.P.*

FEB 23 1987

REVIEWED BY: *Marisa Spore*

DATE: 2-24-87

9 MAR 1987 2:06:15 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

WBA AIRBORNE PARTICULATE COMP. - 205
 : FILTER QUANTITY: 3.450E 02
 COLLECTION DATE(S): 2/11-2/1 /87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.67E-03	6.8E-04 N/A
BETA-T	3.02E-02	2.2E-03 N/A
GAMMA SPEC		
MN-54	* 0.00E-01	5.9E-03
FE-59	* -4.05E-03	9.1E-03
CO-58	* 1.67E-03	5.5E-03
CO-60	* 5.29E-03	5.3E-03
ZN-65	* -4.43E-03	1.2E-02
ZR-95	* 1.64E-02	1.3E-02
NB-95	* -3.15E-03	5.9E-03
I-131	* -3.28E-07	6.7E-03
CS-134	* 3.71E-03	8.7E-03
CS-137	* -1.45E-03	5.6E-03
BALA-140	* 0.00E-01	5.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *[Signature]* 3-9-87

REVIEWED BY: *[Signature]* DATE: 3/1/87

 3 MAR 1987 2:16:49 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 205
 TYPE: FILTER QUANTITY: 6.020E 02
 COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	3.72E-03	8.4E-04
BETA-T	1.92E-02	1.3E-03
GAMMA SPEC		
MN-54	* -9.72E-04	4.0E-03
FE-59	* 4.65E-03	8.1E-03
CO-58	* -9.56E-04	3.9E-03
CO-60	* -1.52E-03	2.6E-03
ZN-65	* 0.00E-01	6.2E-03
ZR-95	7.86E-03	4.7E-03
NB-95	* 0.00E-01	1.8E-03
I-131	* -1.26E-03	4.0E-03
CS-134	* 0.00E-01	4.5E-03
CS-137	* -8.30E-04	3.0E-03
BALA-140	* 2.14E-03	3.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Zr-95 at 756 keV and alpha & beta activities not at significant levels.

BY: 

REVIEWED BY: 

DATE: 3/3/87

13

11 MAR 1987 1:12:33 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

C W3A AIRBORNE PARTICULATE COMP. - 205
L: FILTER QUANTITY: 5.630E 02
COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 4.66E-04	4.1E-04
BETA-T	1.19E-02	1.2E-03
GAMMA SPEC		
MN-54	* 1.73E-03	3.9E-03
FE-59	* 2.21E-03	7.3E-03
CO-58	6.11E-03	4.2E-03
CO-60	* -2.77E-03	4.8E-03
ZN-65	* -4.60E-03	9.8E-03
ZR-95	* 2.85E-03	6.4E-03
NB-95	* 1.70E-03	4.0E-03
I-131	* -1.50E-03	5.8E-03
CS-134	* -9.36E-04	4.1E-03
CS-137	* -2.12E-03	2.9E-03
BALA-140	* 0.00E-01	3.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Co-58 at 511 KeV. MDA = 7 net counts.

BY: *Jim Sigmund* MAR 11 1987

REVIEWED BY: *Dale E. Hill* DATE: *3/12/87*

8

 18 MAR 1987 3:55:31 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WPA AIRBORNE PARTICULATE COMP. - 205
 FILTER QUANTITY: 6.480E 02
 COLLECTION DATE(S): 3/4-3/11/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	6.89E-04	3.6E-04
BETA-T	1.41E-02	1.2E-03
GAMMA SPEC		
MN-54	* -8.46E-04	2.5E-03
FE-59	* -2.05E-03	4.6E-03
CO-58	* -8.31E-04	2.8E-03
CO-60	* 0.00E-01	2.7E-03
ZN-65	* 0.00E-01	4.5E-03
ZR-95	* 2.73E-03	4.3E-03
NB-95	* -1.56E-03	2.2E-03
I-131	* 2.07E-03	3.1E-03
CS-134	* -9.25E-04	2.8E-03
CS-137	* 0.00E-01	2.7E-03
BALA-140	* 3.72E-03	3.7E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

EY: *mg*

 REVIEWED BY: *Del. E. Holt* DATE: *3/19/87*

166

23 MAR 1987 9:29:47 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE PARTICULATE COMP. - 205
 E: FILTER QUANTITY: 5.980E 02
 COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.29E-02	1.4E-03
BETA-T	4.16E-02	1.8E-03
GAMMA SPEC		
MN-54	5.87E-03	3.9E-03
FE-59	* 2.34E-03	8.4E-03
CO-58	* -1.92E-03	3.6E-03
CO-60	* 0.00E-01	2.2E-03
ZN-65	* 0.00E-01	0.0E-01
ZR-95	* -1.58E-03	5.2E-03
NB-95	* 9.06E-04	3.5E-03
I-131	* -2.51E-03	3.9E-03
CS-134	* -2.14E-03	3.7E-03
CS-137	* 2.51E-03	4.0E-03
BALA-140	* 2.13E-03	4.8E-03

> NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Mn-54 at 835 keV, MDA: 6 net counts.

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: 3/24/87

25
 13 APR 1987 8:25:18 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 205

E: FILTER

QUANTITY: 5.670E 02

COLLECTION DATE(S): 3/18-3/25/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.62E-03	7.7E-04
BETA-T	2.11E-02	1.4E-03
GAMMA SPEC		
MN-54	* 1.74E-03	3.5E-03
FE-59	* 7.02E-03	7.8E-03
CO-58	* 9.03E-04	3.9E-03
CO-60	* 0.00E-01	3.9E-03
ZN-65	* -2.31E-03	1.0E-02
ZR-95	* 0.00E-01	3.6E-03
NB-95	* -9.17E-04	4.0E-03
I-131	* -2.14E-03	6.9E-03
CS-134	* 3.73E-03	4.4E-03
CS-137	* 0.00E-01	3.7E-03
BALA-140	* 0.00E-01	5.9E-03
NPBE-7	2.08E-01	5.5E-02
NPK-40	2.37E-01	8.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 978 keV and NPK-40 at 196 keV identified by Peak Search and NID.

BY:

Jim Sigman

REVIEWED BY:

Dale S. Follen

DATE:

4-14-87

13 APR 1987 8:30:02 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205

E: FILTER

QUANTITY: 5.740E 02

COLLECTION DATE(S): 3/25-4/1/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	7.42E-04	3.9E-04
BETA-T	1.01E-02	1.2E-03
GAMMA SPEC		
MN-54	* -2.06E-03	3.6E-03
FE-59	* -7.88E-03	8.7E-03
CO-58	* -1.05E-03	3.8E-03
CO-60	* 0.00E-01	3.9E-03
ZN-65	* -5.40E-03	1.1E-02
ZR-95	* 8.68E-03	8.0E-03
NB-95	* -2.08E-03	4.2E-03
I-131	* -9.98E-04	7.4E-03
CS-134	* -3.36E-03	4.3E-03
CS-137	* 5.22E-03	4.1E-03
BALA-140	* 0.00E-01	7.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *DH*

BY: *Jim Siger*

REVIEWED BY: *Dr. S. Holl*

DATE: *4-14-87*

16 APR 1987 12:57:52 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205

TYPE: FILTER

QUANTITY: 5.330E 02

COLLECTION DATE(S): 4/1-4/8/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (FCI/UT)	SIGMA (FCI/UT)
ALPHA-T	* 3.25E-04	4.0E-04
BETA-T	1.17E-02	1.2E-03
GAMMA SPEC		
MN-54	* -2.22E-03	4.4E-03
FE-59	1.69E-02	8.9E-03
CO-58	* -1.13E-03	3.4E-03
CO-60	* -1.72E-03	4.5E-03
ZN-65	* -2.91E-03	7.7E-03
ZR-95	* 0.00E-01	7.9E-03
NI-95	6.68E-03	4.7E-03
I-131	* -2.09E-03	6.8E-03
CS-134	* 4.82E-03	5.1E-03
CS-137	* 0.00E-01	3.5E-03
BALA-140	* 6.13E-03	7.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No Peak identified for Fe-59 at 1099 keV or Ni-95 at 766 keV, MDA = 6.
 MDA = 6

BY: *Jim Sigmund* APR 16 1987

REVIEWED BY: *Delo J. Holt* DATE: 4-16-87

21 APR 1987 10:31:25 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205

E: FILTER

QUANTITY: 5.710E 02

COLLECTION DATE(S): 4/8-4/15/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	4.72E-03	1.1E-03
BETA-T	2.26E-02	1.4E-03
GAMMA SPEC		
MN-54	* -1.02E-03	3.1E-03
FE-59	* 7.32E-03	7.3E-03
CO-58	* -1.00E-03	2.7E-03
CO-60	* -1.60E-03	3.6E-03
ZN-65	* 2.68E-03	7.1E-03
ZR-95	* 0.00E-01	6.6E-03
NB-95	* 9.47E-04	4.1E-03
I-131	* 0.00E-01	4.0E-03
CS-134	* 0.00E-01	4.2E-03
CS-137	* -8.75E-04	2.9E-03
BALA-140	* 2.22E-03	5.0E-03
NPBE-7	2.10E-01	4.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 478 keV identified by Peak Search and NID.*

BY: *[Signature]*

REVIEWED BY: *Dale S. Holden*

DATE: *4-22-87*

28 APR 1987 3:05:26 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205

FILTER

QUANTITY: 5.680E 02

COLLECTION DATE(S): 4/15-4/22/87

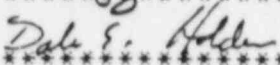
UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	7.02E-03	1.1E-03 N/A
BETA-T	2.33E-02	1.5E-03 N/A
GAMMA SPEC		
MN-54	* 0.00E-01	3.4E-03
FE-59	* 2.19E-03	7.3E-03
CO-58	* -2.60E-03	3.4E-03
CO-60	* 0.00E-01	3.9E-03
ZN-65	* 0.00E-01	9.1E-03
ZR-95	* -1.41E-03	5.8E-03
NB-95	* 4.21E-03	3.9E-03
I-131	* -7.44E-04	6.0E-03
CS-134	* -9.28E-04	4.4E-03
CS-137	* 7.72E-03	4.2E-03 04%
BALA-140	* 2.35E-03	6.2E-03
NPBE-7	1.10E-01	3.4E-02
NPK-40	2.65E-01	8.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV not identified by Peak Searcher N10, MDA: 11 net counts.
 NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Searcher N10.

BY: 

REVIEWED BY: 

DATE: 4-30-87

 4 JUN 1987 11:24:09 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE PARTICULATE COMP. - 205
 TYPE: FILTER QUANTITY: 5.730E 02
 COLLECTION DATE(S): 4/22-4/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.42E-03	6.7E-04 N/A
BETA-T	1.28E-02	1.2E-03 N/A
GAMMA SPEC		
MN-54	* 3.37E-03	3.8E-03
FE-59	* 0.00E-01	0.0E-01
CO-58	* -8.25E-04	3.4E-03
CO-60	* -1.36E-03	3.6E-03
ZN-65	* -4.47E-03	8.4E-03
ZR-95	* -4.03E-03	5.9E-03
NB-95	* -2.31E-03	3.0E-03
I-131	* 1.04E-03	4.1E-03
CS-134	* -2.75E-03	3.8E-03
CS-137	* 0.00E-01	2.8E-03
BALU-140	* 0.00E-01	2.7E-03
NPBE-7	1.93E-01	4.3E-02
NPK-40	3.47E-01	8.7E-02
NPTH-SER	2.18E-02	6.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBE-7 at 178 keV, NPK-40 at 146 keV, NPTH-Ser at 239 keV, all ident. find by peak search and NID.*

BY: *Jim Sigman* 6-4-87

REVIEWED BY: *Dale F. Holden* DATE: 6-5-87

 4 JUN 1987 11:28:14 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA AIRBORNE PARTICULATE COMP. - 205
 TYPE: FILTER QUANTITY: 5.690E 02
 COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(FCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.07E-03	6.4E-04 N/A
BETA-T	2.48E-02	1.5E-03 N/A
GAMMA SPEC		
MN-54	* 9.62E-04	4.0E-03
FE-59	* -2.44E-03	9.4E-03
CO-58	* -2.89E-03	3.7E-03
CO-60	* -6.11E-03	4.8E-03
ZN-65	* 5.14E-03	8.9E-03
ZR-95	* -1.58E-03	6.1E-03
NB-95	* 9.33E-04	3.8E-03
I-131	* 5.96E-03	5.2E-03
CS-134	* -1.04E-03	3.8E-03
CS-137	* 0.00E-01	2.5E-03
BALA-140	* 5.03E-03	6.2E-03
NPBE-7	1.52E-01	4.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 448 keV identified by Peak Search and NID.

BY: *Jim Sigman 6-4-87*

REVIEWED BY: *Dale F. Hold* DATE: *6-5-87*

 5 JUN 1987 11:16:09 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 205
 TYPE: FILTER QUANTITY: 6.460E 02
 COLLECTION DATE(S): 5/6-5/13/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.39E-03	4.4E-04 N/A
BETA-T	1.99E-02	8.1E-04 N/A
GAMMA SPEC		
MN-54	* 0.00E-01	3.6E-03
FE-59	* -2.26E-03	6.0E-03
CO-58	* 9.15E-04	3.5E-03
CO-60	* -2.83E-03	4.0E-03
ZN-65	* -2.39E-03	6.3E-03
ZR-95	* -4.53E-03	5.8E-03
NB-95	* -1.78E-03	3.8E-03
I-131	* 4.48E-03	5.5E-03
CS-134	* -1.99E-03	3.1E-03
CS-137	* 4.64E-03	4.2E-03
BALA-140	* 0.00E-01	0.0E-01
NPBE-7	2.19E-01	6.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBE-7 at 476 keV identified by Peak Search and NID.*

BY: *Jim Sigmund* 6-5-87

 REVIEWED BY: *Dee S. Holt* DATE: 6-5-87

 4 JUN 1987 11:39:21 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE PARTICULATE COMP. - 205
 TYPE: FILTER QUANTITY: 6.450E 02
 COLLECTION DATE(S): 5/13-5/20/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)	
ALPHA-T	1.35E-03	5.1E-04	N/A
BETA-T	1.83E-02	1.3E-03	N/A
GAMMA SPEC			
MN-54	* -7.49E-04	3.3E-03	
FE-59	* 0.00E-01	5.7E-03	
CO-58	* -1.46E-03	2.5E-03	
CO-60	* 1.21E-03	3.6E-03	
ZN-65	* -7.93E-03	7.4E-03	
ZR-95	* 1.19E-03	5.2E-03	
NB-95	* 4.11E-03	3.5E-03	
I-131	* 9.22E-04	3.7E-03	
CS-134	* 8.14E-04	3.7E-03	
CS-137	* -6.18E-04	2.5E-03	
BALA-140	* 0.00E-01	2.3E-03	
NPBE-7	1.51E-01	3.7E-02	
NPK-40	2.44E-01	7.2E-02	

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigman* 6-4-87

REVIEWED BY: *Dale E. Holden* DATE: 6-5-87

 2 JUN 1987 9:42:37 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

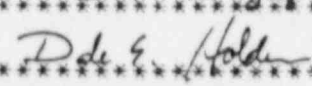
TAWBA AIRBORNE PARTICULATE COMP. - 205
 'E: FILTER QUANTITY: 5.660E 02
 COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 9.08E-04	7.2E-04
BETA-T	9.87E-03	1.1E-02 N/A
GAMMA SPEC		
MN-54	* -9.67E-04	3.2E-03
FE-59	* -4.89E-03	6.0E-03
CO-58	* 4.84E-03	4.4E-03
CO-60	* 0.00E-01	3.8E-03
ZN-65	* 0.00E-01	8.2E-03
ZR-95	* 1.59E-03	6.9E-03
NE-95	* 9.36E-04	3.6E-03
I-131	* -1.49E-03	4.8E-03
CS-134	* -1.05E-03	3.5E-03
CS-137	* -8.05E-04	3.9E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: 

REVIEWED BY: 

DATE: 6-2-87

75

16 JUN 1987 1:31:59 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 205
 TYPE: FILTER QUANTITY: 5.700E 02
 COLLECTION DATE(S): 5/27-6/3/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	2.47E-03	7.8E-04
BETA-T	1.65E-02	1.3E-03
GAMMA SPEC		
MN-54	* 2.07E-03	4.1E-03
FE-59	* -2.91E-03	6.5E-03
CO-58	* 0.00E-01	3.1E-03
CO-60	* 1.69E-03	3.8E-03
ZN-65	* 0.00E-01	4.0E-03
ZR-95	* 0.00E-01	3.7E-03
NB-95	* 0.00E-01	4.3E-03
I-131	* -1.43E-03	7.3E-03
CS-134	* 0.00E-01	1.6E-03
CS-137	* -8.83E-04	2.3E-03
BALA-140	* 7.90E-03	7.9E-03
NPBE-7	1.26E-01	4.9E-02
NPK-40	1.76E-01	8.2E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV and NPK-40 at 1461 keV, identified by Peak Search and NID.

BY: *[Signature]*

 REVIEWED BY: *Dale E. Holden* DATE: 6-17-87

17 JUN 1987 11:53:59 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205

TYPE: FILTER

QUANTITY: 5.680E 02

COLLECTION DATE(S): 6/3-6/10/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	7.45E-04	3.0E-04
BETA-T	2.26E-02	1.5E-03
GAMMA SPEC		
MN-54	* 2.57E-03	3.9E-03
FE-59	* -2.19E-03	5.8E-03
CO-58	* -2.59E-03	2.9E-03
CO-60	* 1.37E-03	3.1E-03
ZN-65	* -6.83E-03	8.8E-03
ZR-95	* -1.41E-03	6.8E-03
NB-95	* 3.36E-03	3.9E-03
I-131	* -2.96E-03	5.9E-03
CS-134	* -9.28E-04	2.8E-03
CS-137	* -1.40E-03	3.3E-03
BALA-140	* 0.00E-01	5.7E-03
NPBE-7	1.20E-01	4.4E-02
NPK-40	4.58E-01	1.1E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPBE-7 at 478 kev and NPK-40 at 1411 kev ident. find by Peak Search and NID.

BY:

Lynn L. Brotherton

JUN 17 1987

REVIEWED BY:

Dale S. Holden

DATE:

6-22-87

85

23 JUN 1987 11:38:02 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205

TYPE: FILTER

QUANTITY: 6.030E 02

COLLECTION DATE(S): 6/10-6/17/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	4.64E-03	9.9E-04
BETA-T	1.78E-02	1.3E-03
GAMMA SPEC		
MN-54	* -8.07E-04	3.1E-03
FE-59	* -2.03E-03	7.3E-03
CO-58	* -3.23E-03	3.4E-03
CO-60	* 1.29E-03	4.3E-03
ZN-65	* -6.42E-03	6.4E-03
ZR-95	* 2.64E-03	5.3E-03
NB-95	6.23E-03	3.5E-03
I-131	* 1.93E-03	5.0E-03
CS-134	* -1.75E-03	2.8E-03
CS-137	* 6.61E-04	3.0E-03
BALA-140	* -2.10E-03	3.6E-03
NPK-40	2.92E-01	8.2E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No Peak identified for Nb-95 at 766 keV, MDA: 8 net counts.
NPK-90 at 1461 keV identified by Peak Search or NID.

BY: *Jim Sigmund*

JUN 23 1987

REVIEWED BY: *Dale S. Holder*

DATE: 6-24-87

 1 JUL 1987 4:41:46 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205
 : FILTER QUANTITY: 5.720E 02
 COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.54E-02	1.9E-03
BETA-T	2.64E-02	1.6E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.5E-03
FE-59	* 7.80E-03	6.9E-03
CO-58	* -1.02E-03	3.1E-03
CO-60	* 1.68E-03	3.8E-03
ZN-65	* 0.00E-01	7.8E-03
ZR-95	* 3.40E-03	5.9E-03
NB-95	* 3.00E-03	3.9E-03
I-131	* 1.59E-03	4.8E-03
CS-134	* 1.11E-03	3.3E-03
CS-137	* -8.79E-04	2.9E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *gmy*

REVIEWED BY: *Dale E. Holden*

DATE: 7-1-87

 13 JUL 1987 4:52:31 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE PARTICULATE COMP. - 205
 TYPE: FILTER QUANTITY: 5.840E 02
 COLLECTION DATE(S): 6/24-7/1/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	2.16E-03	8.1E-04
BETA-T	1.84E-02	1.3E-03
GAMMA SPEC		
MN-54	* 2.00E-03	2.8E-03
FE-59	* -2.66E-03	7.1E-03
CO-58	* 3.10E-03	3.7E-03
CO-60	* 1.65E-03	3.7E-03
ZN-65	* -2.71E-03	8.1E-03
ZR-95	* 0.00E-01	3.4E-03
NB-95	* 1.04E-03	3.4E-03
I-131	* -2.01E-03	4.5E-03
CS-134	* 4.37E-03	3.8E-03
CS-137	* -8.61E-04	2.3E-03
BAL-140	* 0.00E-01	6.2E-03
NPBE-7	1.74E-01	4.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBE-7 at 478 kev identified by Peak Search and NID.*

BY: *mg*

 REVIEWED BY: *Dale S. Hold* DATE: *7-19-87*

99

 14 JUL 1987 10:34:53 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

TAWBA AIRBORNE PARTICULATE COMP. - 205

E: FILTER

QUANTITY: 5.680E 02

COLLECTION DATE(S): 7/1-7/8/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.58E-03	5.8E-04
BETA-T	1.31E-02	1.2E-03
GAMMA SPEC		
MN-54	* -1.78E-03	3.1E-03
FE-59	* 0.00E-01	5.5E-03
CO-58	* 2.68E-03	5.0E-03
CO-60	* -1.46E-03	3.3E-03
ZN-65	* -7.12E-03	5.3E-03
ZR-95	* 0.00E-01	4.7E-03
NB-95	* 0.00E-01	3.9E-03
I-131	* -3.55E-03	5.3E-03
CS-134	* 9.69E-04	4.6E-03
CS-137	* 0.00E-01	3.7E-03
BALA-140	* -2.35E-03	4.1E-03
NPBE-7	1.05E-01	4.1E-02
NPK-40	4.95E-01	1.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peter Seashand NID.

BY: *mm*

REVIEWED BY: *Dale G. Holden*

DATE: *7-14-87*

 23 JUL 1987 11:48:14 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 205
 E: FILTER QUANTITY: 5.820E 02
 COLLECTION DATE(S): 7/8-7/15/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.41E-03	6.1E-04
BETA-T	1.54E-02	1.2E-03
GAMMA SPEC		
MN-54	* 9.98E-04	3.6E-03
FE-59	* 0.00E-01	3.6E-03
CO-58	* 1.01E-03	3.0E-03
CO-60	* 6.62E-03	5.2E-03
ZN-65	1.62E-02	8.5E-03
ZR-95	* -1.67E-03	3.7E-03
NB-95	* -9.81E-04	2.6E-03
I-131	* 1.55E-03	3.8E-03
CS-134	* -1.09E-03	3.9E-03
CS-137	* -3.64E-04	2.9E-03
BALA-140	* 0.00E-01	3.7E-03
NPBE-7	1.07E-01	3.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Zn-65 at 1115 keV, MDA = 6 net counts.
 NPBE-7 at 470 keV identified by Peak Search and AID.

BY: *Jim Siger*

JUL 23 1987

REVIEWED BY: *Del S. Holt*

DATE: 7.23.87

 30 JUL 1987 3:13:27 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205
 E: FILTER QUANTITY: 5.890E 02
 COLLECTION DATE(S): 7/15-7/22/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.91E-03	6.8E-04
BETA-T	2.88E-02	1.6E-03
GAMMA SPEC		
MN-54	* 3.75E-03	4.0E-03
FE-59	* 4.57E-03	8.6E-03
CO-58	* 9.20E-04	4.2E-03
CO-60	* -3.04E-03	4.8E-03
ZN-65	* -5.02E-03	8.7E-03
ZR-95	* -3.01E-03	6.0E-03
NB-95	6.05E-03	3.6E-03
I-131	* -1.12E-03	3.8E-03
CS-134	6.14E-03	4.3E-03
CS-137	* -7.90E-04	3.1E-03
BALA-140	* 0.00E-01	3.0E-03
NPBE-7	1.27E-01	5.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Nb-95 at 766 keV, MDA: 7 or Cs-134 at 796 keV,
 MDA: 6 net counts. NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *L. J. [Signature]* JUL 30 1987

 REVIEWED BY: *D. E. [Signature]* DATE: 7-31-87

 5 AUG 1987 10:36:19 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 205
 TYPE: FILTER QUANTITY: 6.820E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	7.74E-04	5.5E-04
BETA-T	2.39E-02	1.3E-03
GAMMA SPEC		
MN-54	* 8.18E-04	2.9E-03
FE-59	* -8.41E-03	7.3E-03
CO-58	* 8.27E-04	3.2E-03
CO-60	* 1.32E-03	4.4E-03
ZN-65	* -4.38E-03	6.9E-03
ZR-95	1.09E-02	5.4E-03
NB-95	* 0.00E-01	3.6E-03
I-131	* 3.44E-03	4.9E-03
CS-134	4.44E-03	3.2E-03
CS-137	* 2.73E-03	3.6E-03
BALA-140	4.50E-03	3.2E-03
NFBE-7	1.33E-01	3.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *no peak identified for Zr-95 at 757 keV, MDA: 8; on Bala-140 at 1596 keV, MDA: 2 net counts. Cs-137 at 746 keV not identified by Peak Search or NO, MDA: 5 net counts.*

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 8-7-87

120

12 AUG 1987 2:27:53 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 205
 E: FILTER QUANTITY: 5.630E 02
 COLLECTION DATE(S): 7/29-8/5/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.40E-03	9.7E-04
BETA-T	2.50E-02	1.5E-03
GAMMA SPEC		
MN-54	* 5.29E-03	4.6E-03
FE-59	* 0.00E-01	9.2E-03
CO-58	* 0.00E-01	4.0E-03
CO-60	* 3.35E-03	4.1E-03
ZN-65	* 0.00E-01	3.9E-03
ZR-95	* -1.76E-03	6.8E-03
NB-95	* 1.04E-03	5.0E-03
I-131	* 2.59E-03	6.0E-03
CS-134	* -2.31E-03	4.3E-03
CS-137	* 1.81E-03	4.2E-03
BALA-140	* -2.71E-03	4.7E-03
NPBE-7	1.40E-01	4.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 bar identified by Plate Search and NID.

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 8-13-87

125
 18 AUG 1987 11:13:53 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 205

TYPE: FILTER

QUANTITY: 5.460E 02

COLLECTION DATE(S): 8/5-8/12/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (FCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.44E-03	7.6E-04 N/A
BETA-T	2.27E-02	1.6E-03 N/A
GAMMA SPEC		
MN-54	* 1.08E-03	4.2E-03
FE-59	* 7.81E-03	8.6E-03
CO-58	* 0.00E-01	3.7E-03
CO-60	* 6.89E-03	4.9E-03 N/A
ZN-65	* 0.00E-01	9.9E-03
ZR-95	* -1.76E-03	6.8E-03
NB-95	* -1.01E-03	4.8E-03
I-131	* 2.04E-03	4.7E-03
CS-134	* -1.19E-03	3.6E-03
CS-137	* -2.80E-03	3.4E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No rad identified for Co-60 at 1332 keV, MDA: 4 net counts.

BY:

Jim Sigman

AUG 18 1987

REVIEWED BY:

Del S. Holt

DATE:

8-19-87

133

 28 AUG 1987 4:19:06 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C. TAWBA AIRBORNE PARTICULATES COMP. - 205
 TYPE: FILTER QUANTITY: 5.660E 02
 COLLECTION DATE(S): 8/12-8/19/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)	
ALPHA-T	9.83E-04	6.0E-04	N/A
BETA-T	1.80E-02	1.4E-03	N/A
GAMMA SPEC			
MN-54	* -2.98E-03	3.6E-03	
FE-57	* 0.00E-01	9.2E-03	
CO-58	* 0.00E-01	4.1E-03	
CO-60	* -3.18E-03	3.2E-03	
ZN-65	* -1.07E-02	9.2E-03	
ZR-95	* -1.69E-03	5.6E-03	
NB-93	* -1.04E-03	3.7E-03	
I-131	* -2.16E-03	7.3E-03	
CS-134	* -2.14E-03	3.4E-03	
CS-137	6.58E-03	3.7E-03	.032
BALU-140	* -3.20E-03	5.5E-03	
NPBL-7	1.76E-01	4.2E-02	

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 kev, MDA = 8 net counts, not identified by Peak Search or NID.
 NPBL-7 at 478 kev identified by Peak Search and NID.

BY: *L. B. ...* 8/28

 REVIEWED BY: *Dale G. ...* DATE: 9-4-87

Plant Name : CNS
Sample Number : 19
Type/Location : AIR PARTICULATE / 205
Sample Date : 26-AUG-1987 12:29:00
Acq. Start Time : 10-SEP-1987 13:48:53
Sample Quantity : 376.000 M3
Sample ID : 19AUG 26AUG87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.720E-02	2.300E-03		0.000E+00
ALPHA	1.00	3.630E-03	1.300E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 5.391E-03	0.000E+00		
CO-58	810.76	< 2.199E-02	0.000E+00		
FE-59	1099.22	< 4.049E-02	0.000E+00		
CO-60	1332.47	< 3.111E-02	0.000E+00		
ZN-65	1115.52	< 4.124E-02	0.000E+00		
NB-95	765.78	< 1.892E-02	0.000E+00		
ZR-95	756.72	< 1.407E-02	0.000E+00		
I-131	364.48	< 2.574E-02	0.000E+00		
CS-134	604.66	< 1.163E-02	0.000E+00		
CS-137	661.65	< 2.181E-02	0.000E+00		
BALA-140	537.27	< 6.042E-02	0.000E+00		
BE-7	477.59	0.342	5.861E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia [Signature]-----

Date: 4/18/88-----

Plant Name : CNS
 Sample Number : 35
 Type/Location : AIR PARTICULATES / 205
 Sample Date : 2-SEP-1987 09:21:00
 Acq. Start time : 12-SEP-1987 14:16:34
 Sample Quantity : 561.000 M3
 Sample ID : 26AUG TO 2SEP87
 Measurement Type : ROUTINE


***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
BETA	1.00	2.690E-02	1.900E-03		0.000E+00
ALPHA	1.00	6.670E-03	1.700E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.082E-02	0.000E+00		
CO-58	810.76	< 1.113E-02	0.000E+00		
FE-59	1099.22	< 3.958E-02	0.000E+00		
CO-60	1332.47	< 2.489E-02	0.000E+00		
ZN-65	1115.52	< 4.303E-02	0.000E+00		
NB-95	765.78	< 1.339E-02	0.000E+00		
ZR-95	756.72	< 1.876E-02	0.000E+00		
I-131	364.48	< 2.781E-02	0.000E+00		
CS-134	604.66	< 1.191E-02	0.000E+00		
CS-137	661.65	< 1.568E-02	0.000E+00		
BALA-140	537.27	< 6.777E-02	0.000E+00		
BE-7	477.59	0.150	6.077E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/18/87

Plant Name : CNS
Sample Number : 47
Type/Location : AIR PARTICULATES / 205
Sample Date : 9-SEP-1987 10:15:00
Acq. Start Time : 14-SEP-1987 02:12:57
Sample Quantity : 573.000 M3
Sample ID : 02SEP TO 09SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.630E-02	1.400E-03		0.000E+00
ALPHA	1.00	< 8.780E-04	8.800E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.502E-02	0.000E+00		
CO-58	810.76	< 8.430E-03	0.000E+00		
FE-59	1099.22	< 3.142E-02	0.000E+00		
CO-60	1332.47	< 2.251E-02	0.000E+00		
ZN-65	1115.52	< 4.147E-02	0.000E+00		
NB-95	765.78	< 1.648E-02	0.000E+00		
ZR-95	756.72	< 2.807E-02	0.000E+00		
I-131	364.48	< 1.860E-02	0.000E+00		
CS-134	604.66	< 1.067E-02	0.000E+00		
CS-137	661.65	< 9.286E-03	0.000E+00		
BALA-140	537.27	< 6.143E-02	0.000E+00		
BE-7	477.59	0.141	4.360E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/18/87

Plant Name : CNS
Sample Number : 68
Type/Location : AIR PARTICULATE / 205
Sample Date : 16-SEP-1987 10:28:00
Acq. Start Time : 22-SEP-1987 15:27:32
Sample Quantity : 557.000 M3
Sample ID : 9SEP TO 16SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.770E-02	1.500E-03		-0.000E+00
ALPHA	1.00	1.720E-03	7.700E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.379E-02	0.000E+00		
CO-58	810.76	< 0.000E+00	0.000E+00		
FE-59	1099.22	< 2.401E-02	0.000E+00		
CO-60	1332.47	< 1.380E-02	0.000E+00		
ZN-65	1115.52	< 2.450E-02	0.000E+00		
NB-95	765.78	< 1.041E-02	0.000E+00		
ZR-95	756.72	< 1.250E-02	0.000E+00		
I-131	364.48	< 1.403E-02	0.000E+00		
CS-134	604.66	< 1.122E-02	0.000E+00		
CS-137	661.65	< 1.274E-02	0.000E+00		
BALA-140	537.27	< 4.907E-02	0.000E+00		
BE-7	477.59	0.114	3.422E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: n/a -----

Approved by: Maurice -----

Date: 4/18/88 -----

Plant Name : CNS
 Sample Number : 89
 Type/Location : AIR PARTICULATES / 205
 Sample Date : 19-SEP-1987 05:06:00
 Acq. Start Time : 26-SEP-1987 00:54:11
 Sample Quantity : 221.000 M3
 Sample ID : 16SEP TO 19SEP87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

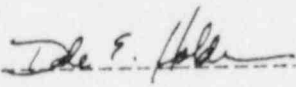
Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.810E-02	3.000E-03		0.000E+00
ALPHA	1.00	< 0.000E+00	1.400E-03		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.838E-02	0.000E+00		
CO-58	810.76	< 2.488E-02	0.000E+00		
FE-59	1099.22	< 6.741E-02	0.000E+00		
CO-60	1332.47	< 5.333E-02	0.000E+00		
ZN-65	1115.52	< 9.848E-02	0.000E+00		
NB-95	765.78	< 3.592E-02	0.000E+00		
ZR-95	756.72	< 7.248E-02	0.000E+00		
I-131	364.48	< 4.676E-02	0.000E+00		
CS-134	604.66	< 3.339E-02	0.000E+00		
CS-137	661.65	< 3.365E-02	0.000E+00		
BALA-140	537.27	< 0.176	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 12/18/87

Plant Name : CNS
 Sample Number : 167
 Type/Location : AIR PARTICULATES / 205
 Sample Date : 7-OCT-1987 10:40:00
 Acq. Start Time : 13-OCT-1987 14:10:26
 Sample Quantity : 570.000 M3
 Sample ID : 30SEP TO 7OCT87
 Measurement Type : ROUTINE

*** Bernate Analysis ****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BE-7	1.00	2.110E-02	1.400E-03		0.000E+00
ALPHA	1.00	1.600E-03	6.900E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.271E-02	0.000E+00		
CO-58	810.76	< 7.006E-03	0.000E+00		
FE-59	1099.22	< 2.158E-02	0.000E+00		
CO-60	1332.47	< 1.084E-02	0.000E+00		
ZN-65	1115.52	< 3.179E-02	0.000E+00		
NB-95	765.78	< 1.160E-02	0.000E+00		
ZR-95	756.72	< 1.622E-02	0.000E+00		
I-131	364.48	< 1.200E-02	0.000E+00		
CS-134	604.66	< 8.605E-03	0.000E+00		
CS-137	661.65	< 9.804E-03	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
BE-7	477.59	0.136	4.613E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Del S. [Signature]

Date: 10/16/87

Plant Name : CNS
 Sample Number : 194
 Type/Location : AIR PARTICULATES / 203
 Sample Date : 14-OCT-1987 11:50:00
 Acq. Start Time : 19-OCT-1987 15:26:12
 Sample Quantity : 611.000 M3
 Sample ID : 7OCT TO 14OCT87
 Measurement Type : ROUTINE


***** Alternate Analysis *****

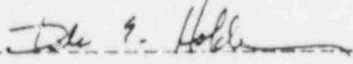
Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.980E-02	1.400E-03		0.000E+00
ALPHA	1.00	1.310E-03	5.300E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.990E-03	0.000E+00		
CO-58	810.76	< 1.011E-02	0.000E+00		
FE-59	1099.22	< 2.067E-02	0.000E+00		
CO-60	1332.47	< 1.610E-02	0.000E+00		
ZN-65	1115.52	< 2.248E-02	0.000E+00		
NB-95	765.78	< 1.038E-02	0.000E+00		
ZR-95	756.72	< 1.691E-02	0.000E+00		
I-131	364.48	< 1.160E-02	0.000E+00		
CS-134	604.66	< 1.019E-02	0.000E+00		
CS-137	661.55	< 1.164E-02	0.000E+00		
BALA-140	1596.49	< 1.885E-02	0.000E+00		
BE-7	477.59	0.127	5.363E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 211
Type/Location : AIR PARTICULATES / 205
Sample Date : 21-OCT-1987 11:50:00
Acq. Start Time : 26-OCT-1987 15:58:18
Sample Quantity : 499.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.570E-02	1.900E-03		0.000E+00
ALPHA	1.00	3.850E-03	9.900E-04		-0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.080E-02	0.000E+00		
CO-58	810.76	< 1.247E-02	0.000E+00		
FE-59	1099.22	< 2.116E-02	0.000E+00		
CO-60	1332.47	< 1.330E-02	0.000E+00		
ZN-65	1115.52	< 2.209E-02	0.000E+00		
NB-95	765.78	< 1.210E-02	0.000E+00		
ZR-95	756.72	< 1.564E-02	0.000E+00		
I-131	364.48	< 1.187E-02	0.000E+00		
CS-134	604.66	< 6.336E-03	0.000E+00		
CS-137	661.65	< 9.534E-03	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
BE-7	477.59	0.162	4.396E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 226
Type/Location : AIR PARTICULATES / 205
Sample Date : 28-OCT-1987 12:24:00
Acq. Start Time : 3-NOV-1987 11:10:28
Sample Quantity : 576.000 M3
Sample ID : 21OCT TO 28OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	2.560E-02	1.600E-03		0.000E+00
ALPHA	1.00	1.820E-03	7.300E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.120E-03	0.000E+00		
CO-58	810.76	< 7.317E-03	0.000E+00		
FE-59	1099.22	< 1.527E-02	0.000E+00		
CO-60	1332.47	< 1.844E-03	0.000E+00		
ZN-65	1115.52	< 2.703E-02	0.000E+00		
NB-95	765.78	< 6.969E-03	0.000E+00		
ZR-95	756.72	< 1.534E-02	0.000E+00		
I-131	364.48	< 1.099E-02	0.000E+00		
CS-134	604.66	< 7.153E-03	0.000E+00		
CS-137	661.65	< 6.843E-03	0.000E+00		
BALA-140	1596.49	< 1.111E-02	0.000E+00		
BE-7	477.59	0.138	3.251E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: De S. [Signature]

Date: 11 / 23 / 87

VAX/VMS Sample Analysis Report generated : 23-NOV-1987 10:50:20

Plant Name : CNS
Sample Number : 249
Type/Location : AIR PARTICULATES / 205
Sample Date : 4-NOV-1987 11:15:00
Acq. Start Time : 9-NOV-1987 11:48:19
Sample Quantity : 567.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	4.830E-03	9.900E-04		0.000E+00
ALPHA	1.00	9.790E-04	5.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 6.536E-03	0.000E+00		
CO-58	810.76	< 9.769E-03	0.000E+00		
FE-59	1099.22	< 1.669E-02	0.000E+00		
CO-60	1332.47	< 1.721E-02	0.000E+00		
ZN-65	1115.52	< 2.240E-02	0.000E+00		
NB-95	765.78	< 2.333E-03	0.000E+00		
ZR-95	756.72	< 1.596E-02	0.000E+00		
I-131	364.48	< 1.094E-02	0.000E+00		
CS-134	604.66	< 7.853E-03	0.000E+00		
CS-137	661.65	< 8.040E-03	0.000E+00		
BALA-140	1596.49	< 2.483E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Del S. Allen

Date: 11 / 23 / 87

Plant Name : CNS
Sample Number : 269
Type/Location : AIR PARTICULATES / 205
Sample Date : 11-NOV-1987 10:40:00
Acq. Start Time : 13-NOV-1987 14:33:00
Sample Quantity : 597.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.200E-02	1.400E-03		0.000E+00
ALPHA	1.00	2.740E-03	8.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.456E-02	0.000E+00		
CO-58	810.76	< 7.047E-03	0.000E+00		
FE-59	1099.22	< 2.198E-02	0.000E+00		
CO-60	1332.47	< 1.156E-02	0.000E+00		
ZN-65	1115.52	< 2.445E-02	0.000E+00		
NB-95	765.78	< 1.355E-02	0.000E+00		
ZR-95	756.72	< 2.616E-02	0.000E+00		
I-131	364.48	< 1.203E-02	0.000E+00		
CS-134	604.66	< 7.986E-03	0.000E+00		
CS-137	661.65	< 1.279E-02	0.000E+00		
BALA-140	1596.49	< 1.614E-02	0.000E+00		
BE-7	477.59	0.154	3.410E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale S. [Signature]

Date: 11/23/87

VAX/VMS Sample Analysis Report generated : 3-DEC-1987 15:50:22

Plant Name : CNS
Sample Number : 287
Type/Location : AIR PARTICULATES / 205
Sample Date : 18-NOV-1987 10:15:00
Acq. Start Time : 24-NOV-1987 12:14:26
Sample Quantity : 569.000 M3
Sample ID : 11NOV TO 18NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.840E-02	1.600E-03		0.000E+00
ALPHA	1.00	6.080E-04	4.500E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.677E-02	0.000E+00		
CO-58	810.76	< 1.176E-02	0.000E+00		
FE-59	1099.22	< 3.141E-02	0.000E+00		
CO-60	1332.47	< 1.941E-02	0.000E+00		
ZN-65	1115.52	< 2.027E-02	0.000E+00		
NB-95	765.78	< 1.666E-02	0.000E+00		
ZR-95	756.72	< 2.407E-02	0.000E+00		
I-131	364.48	< 1.605E-02	0.000E+00		
CS-134	604.66	< 1.170E-02	0.000E+00		
CS-137	661.65	< 1.350E-02	0.000E+00		
BALA-140	1596.49	< 3.438E-02	0.000E+00		
BE-7	477.59	0.222	4.809E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/4/87

VAX/VMS Sample Analysis Report generated : 3-DEC-1987 15:40:13

Plant Name : CNS
Sample Number : 304
Type/Location : AIR PARTICULATES / 205
Sample Date : 25-NOV-1987 13:15:00
Acq. Start Time : 2-DEC-1987 15:10:24
Sample Quantity : 654.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.640E-02	1.400E-03		0.000E+00
ALPHA	1.00	< 5.150E-04	4.500E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.166E-02	0.000E+00		
CO-58	810.76	< 1.419E-02	0.000E+00		
FE-59	1099.22	< 3.057E-02	0.000E+00		
CO-60	1332.47	< 9.898E-03	0.000E+00		
ZN-65	1115.52	< 2.591E-02	0.000E+00		
NB-95	765.78	< 1.295E-02	0.000E+00		
ZR-95	756.72	< 1.669E-02	0.000E+00		
I-131	364.48	< 1.522E-02	0.000E+00		
CS-134	604.66	< 9.453E-03	0.000E+00		
CS-137	661.65	< 1.214E-02	0.000E+00		
BALA-140	1596.49	< 3.094E-02	0.000E+00		
BE-7	477.59	0.219	4.452E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____

Approved by: _____

Date: 12/7/87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:15:54

Plant Name : CNS
Sample Number : 330
Type/Location : AIR PARTICULATE / 205
Sample Date : 2-DEC-1987 09:55:00
Acq. Start Time : 9-DEC-1987 12:47:27
Sample Quantity : 559.000 M3
Sample ID : 25NOV TO 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.410E-02	1.300E-03		0.000E+00
ALPHA	1.00	< 1.890E-04	4.200E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.438E-02	0.000E+00		
CO-58	810.76	< 7.964E-03	0.000E+00		
FE-59	1099.22	< 2.061E-02	0.000E+00		
CO-60	1332.47	< 1.771E-02	0.000E+00		
ZN-65	1115.52	< 3.027E-02	0.000E+00		
NB-95	765.78	< 1.791E-02	0.000E+00		
ZR-95	756.72	< 2.879E-02	0.000E+00		
I-131	364.48	< 1.932E-02	0.000E+00		
CS-134	604.66	< 1.312E-02	0.000E+00		
CS-137	661.65	< 1.531E-02	0.000E+00		
BALA-140	1596.49	< 8.169E-03	0.000E+00		
BE-7	477.59	0.100	5.013E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A -----

Approved by: Meredith -----

Date: 4/15/88 -----

Plant Name : CNS
Sample Number : 346
Type/Location : AIR PARTICULATES / 205
Sample Date : 9-DEC-1987 11:10:00
Acq. Start Time : 15-DEC-1987 13:39:58
Sample Quantity : 647.000 M3
Sample ID : 2DEC TO 9DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	2.040E-02	1.300E-03		0.000E+00
ALPHA	1.00	1.380E-03	6.600E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.132E-03	0.000E+00		
CO-58	810.76	< 8.872E-03	0.000E+00		
FE-59	1099.22	< 3.075E-02	0.000E+00		
CO-60	1332.47	< 1.076E-02	0.000E+00		
ZN-65	1115.52	< 3.261E-02	0.000E+00		
NB-95	765.78	< 8.713E-03	0.000E+00		
ZR-95	756.72	< 1.920E-02	0.000E+00		
I-131	364.48	< 1.480E-02	0.000E+00		
CS-134	604.66	< 6.927E-03	0.000E+00		
CS-137	661.65	< 1.034E-02	0.000E+00		
BALA-140	1596.49	< 1.823E-02	0.000E+00		
EE-7	477.59	0.168	3.090E-02		
K-40	1460.75	0.133	4.435E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: YJB

Approved by: Dale E. Hold

Date: 1/5/88

Plant Name : CNS
 Sample Number : 561
 Type/Location : AIR PARTICULATES / 205
 Sample Date : 23-DEC-1987 11:50:00
 Acq. Start Time : 14-JAN-1988 10:53:40
 Sample Quantity : 561.000 M3
 Sample ID : 16DEC TO 23DEC87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
BETA	1.00	2.800E-02	1.600E-03		0.000E+00
ALPHA	1.00	1.330E-03	6.800E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.274E-02	0.000E+00		
CO-58	810.76	< 1.183E-02	0.000E+00		
FE-59	1099.22	< 3.706E-02	0.000E+00		
CO-60	1332.47	< 1.952E-02	0.000E+00		
ZN-65	1115.52	< 2.681E-02	0.000E+00		
NB-95	765.78	< 1.601E-02	0.000E+00		
ZR-95	756.72	< 2.110E-02	0.000E+00		
I-131	364.48	< 6.560E-02	0.000E+00		
CS-134	604.66	< 1.187E-02	0.000E+00		
CS-137	661.65	< 1.064E-02	0.000E+00		
BALA-140	1596.49	< 6.561E-02	0.000E+00		
BE-7	477.59	8.429E-02	4.497E-02		
K-40	1460.75	0.350	6.185E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Digner

Approved by: Del S. Hill

Date: 1/12/88

Plant Name : CNS
 Sample Number : 403
 Type/Location : AIR PARTICULATES / 205
 Sample Date : 30-DEC-1987 11:09:00
 Acq. Start Time : 9-JAN-1988 10:50:26
 Sample Quantity : 583.000 M3
 Sample ID : 23DEC TO 30DEC87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.160E-02	1.400E-03		0.000E+00
ALPHA	1.00	< 5.170E-04	4.600E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.566E-02	0.000E+00		
CO-58	810.76	< 1.244E-02	0.000E+00		
FE-59	1099.22	< 4.109E-02	0.000E+00		
CO-60	1332.47	< 1.742E-02	0.000E+00		
ZN-65	1115.52	< 2.524E-02	0.000E+00		
NB-95	765.78	< 1.566E-02	0.000E+00		
ZR-95	756.72	< 2.865E-02	0.000E+00		
I-131	364.48	< 2.120E-02	0.000E+00		
CS-134	604.66	< 1.550E-02	0.000E+00		
CS-137	661.65	< 1.121E-02	0.000E+00		
BALA-140	1596.49	< 2.489E-02	0.000E+00		
BE-7	477.59	8.677E-02	4.847E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmer

Approved by: Dale E. Hall

Date: 1 / 14 / 88

 16 JAN 1987 8:56:13 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE PARTICULATE COMP. - 212

PE: FILTER

QUANTITY: 6.240E 02

COLLECTION DATE(S): 12/31-1/7/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.27E-03	4.7E-04
BETA-T	2.03E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.8E-03
FE-59	* -2.37E-03	4.1E-03
CO-58	* -9.16E-04	2.4E-03
CO-60	* -4.18E-03	3.1E-03
ZN-65	* -2.37E-03	7.1E-03
ZR-95	* -4.53E-03	6.6E-03
NB-95	* 1.85E-03	3.9E-03
I-131	* -1.95E-03	6.2E-03
CS-134	* 2.87E-03	3.9E-03
CS-137	* 1.46E-03	3.6E-03
BALA-140	* 5.76E-03	7.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigmen

JAN 16 1987

REVIEWED BY:

Marcia Lane

DATE: 1-20-87

13 JAN 1987 8:32:50 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212

TYPE: FILTER

QUANTITY: 6.380E 02

COLLECTION DATE(S): 1/7-1/14/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	2.21E-02	1.9E-03
BETA-T	5.07E-02	1.9E-03
GAMMA SPEC		
MN-54	* 1.82E-03	3.4E-03
FE-59	* -2.10E-03	7.0E-03
CO-58	* 0.00E-01	2.5E-03
CO-60	* 4.29E-03	4.7E-03
ZN-65	* 2.38E-03	1.1E-02
ZR-95	* 1.44E-03	5.6E-03
NB-95	* 1.61E-03	3.6E-03
I-131	* 2.32E-03	3.2E-03
CS-134	* -1.00E-03	3.6E-03
CS-137	* 0.00E-01	2.7E-03
BALA-140	* 1.72E-03	3.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *MM*

REVIEWED BY: *Marcus*

DATE: 1-20-87

26 JAN 1987 5:50:04 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212
TYPE: FILTER QUANTITY: 5.580E 02
COLLECTION DATE(S): 1/14-1/21/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	9.27E-04	6.2E-04
BETA-T	1.54E-02	1.3E-03
GAMMA SPEC		
MN-54	* -1.96E-03	3.7E-03
FE-59	* 0.00E-01	7.9E-03
CO-58	* 0.00E-01	3.4E-03
CO-60	* -3.11E-03	3.1E-03
ZN-65	* -2.62E-03	6.9E-03
ZR-95	* -3.23E-03	6.8E-03
NB-95	* 0.00E-01	2.7E-03
I-131	* 7.68E-04	4.7E-03
CS-134	* -2.13E-03	3.7E-03
CS-137	* 0.00E-01	3.5E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *my*

REVIEWED BY: *Marcia Lane* DATE: *1/31/87*

 2 FEB 1987 2:00:30 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATWBA AIRBORNE PARTICULATE COMP. - 212

T : FILTER

QUANTITY: 5.810E 02

COLLECTION DATE(S): 1/21-1/28/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	9.46E-03	1.3E-03
BETA-T	2.71E-02	1.6E-03
GAMMA SPEC		
MN-54	* 2.83E-03	2.9E-03
FE-59	* -7.14E-03	7.1E-03
CO-58	* 1.89E-03	4.2E-03
CO-60	* -4.48E-03	3.3E-03
ZN-65	* -7.55E-03	8.4E-03
ZR-95	* 0.00E-01	3.1E-03
NB-95	9.11E-03	4.1E-03
I-131	* -3.60E-03	4.7E-03
CS-134	* 1.02E-03	3.7E-03
CS-137	* 3.14E-03	2.9E-03
BALA-140	* -2.44E-03	4.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigman

FEB 2 1987

REVIEWED BY:

Maria D. Lane

DATE: 2/5/87

 9 FEB 1987 11:24:40 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C WBA AIRBORNE PARTICULATE COMP. - 212
 FILTER: QUANTITY: 4.940E 02
 COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	7.25E-03	1.3E-03
BETA-T	2.97E-02	1.7E-03
GAMMA SPEC		
MN-54	* 0.00E-01	4.4E-03
FE-59	* 0.00E-01	7.6E-03
CO-58	* -2.16E-03	4.3E-03
CO-60	* 3.51E-03	5.6E-03
ZN-65	* 0.00E-01	8.3E-03
ZR-95	* 3.52E-03	7.9E-03
NE-95	* 0.00E-01	4.0E-03
I-131	* 1.32E-03	4.5E-03
CS-134	* 0.00E-01	2.9E-03
CS-137	* -9.22E-04	4.4E-03
BALA-140	* -2.46E-03	4.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigmen

FEB 09 1987

REVIEWED BY:

Marcia Lane

DATE: 2-10-87

23 FEB 1987 1:28:20 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 212
 1 : FILTER QUANTITY: 5.740E 02
 COLLECTION DATE(S): 2/4-2/11/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	3.08E-02	2.3E-03
BETA-T	5.53E-02	2.1E-03
GAMMA SPEC		
MN-54	* -2.06E-03	3.3E-03
FE-59	* 0.00E-01	7.4E-03
CO-58	* -2.10E-03	3.6E-03
CO-60	* 0.00E-01	3.9E-03
ZN-65	* -5.40E-03	8.5E-03
ZR-95	* -1.74E-03	6.3E-03
NB-95	* 1.04E-03	4.0E-03
I-131	* 2.00E-03	7.9E-03
CS-134	* 2.24E-03	4.8E-03
CS-137	* 5.22E-03	3.9E-03
BALA-140	* 2.90E-03	6.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *LNS*

FEB 23 1987

REVIEWED BY: *Marcia Lane*

DATE: *2-24-87*

 9 MAR 1987 2:06:54 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C WBA AIRBORNE PARTICULATE COMP. - 212
 FILTER QUANTITY: 4.920E 02
 COLLECTION DATE(S): 2/11-2/18/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.20E-03	4.9E-04 N/A
BETA-T	2.71E-02	1.7E-03 N/A
GAMMA SPEC		
MN-54	* 0.00E-01	2.2E-03
FE-59	* 5.48E-03	8.7E-03
CO-58	* 5.48E-03	4.5E-03
CO-60	* 5.29E-03	5.9E-03
ZN-65	* -8.88E-03	1.2E-02
ZR-95	* 0.00E-01	7.2E-03
NB-95	* 0.00E-01	2.5E-03
I-131	* -7.36E-04	4.1E-03
CS-134	7.23E-03	4.5E-03 .07
CS-137	* 9.26E-04	3.8E-03
BALA-140	* 2.63E-03	5.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *cs-134 at 796 keV not identified by peak search or NID.*

BY: *LJB* 3-9-87

 REVIEWED BY: *Dee G. Hold* DATE: *3/9/87*

3 MAR 1987 2:18:14 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT


CATAWBA AIRBORNE PARTICULATE COMP. - 212
TYPE: FILTER QUANTITY: 6.460E 02
COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	8.88E-03	1.2E-03
BETA-T	2.59E-02	1.4E-03
GAMMA SPEC		
MN-54	* -8.42E-04	3.3E-07
FE-59	* -2.05E-03	5.4E-03
CO-58	* 8.26E-04	3.6E-03
CO-60	* -2.69E-03	4.2E-03
ZN-65	* -4.49E-03	6.4E-03
ZR-95	* -2.70E-03	4.3E-03
NB-95	* -1.55E-03	2.7E-03
I-131	* 2.56E-03	3.6E-03
CS-134	* 0.00E-01	4.1E-03
CS-137	* 4.94E-03	3.4E-03
BALA-140	* 0.00E-01	3.8E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV not identified by Peak Search or NID. Alpha & Beta activities not significant levels.

BY: 

REVIEWED BY: 

DATE: 3/4/87

14

 11 MAR 1987 1:13:18 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C WBA AIRBORNE PARTICULATE COMP. - 212
 FILTER QUANTITY: 6.260E 02
 COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 4.10E-04	3.6E-04
BETA-T	1.39E-02	1.2E-03
GAMMA SPEC		
MN-54	* -1.77E-03	3.3E-03
FE-59	* -2.26E-03	3.9E-03
CO-58	* 0.00E-01	2.2E-03
CO-60	4.15E-03	3.1E-03
ZN-65	* -7.06E-03	7.8E-03
ZR-95	* -1.47E-03	3.3E-03
NB-95	* -8.76E-04	2.3E-03
I-131	* 0.00E-01	3.7E-03
CS-134	3.84E-03	2.7E-03
CS-137	* 0.00E-01	1.8E-03
BALA-140	* 2.39E-03	5.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *Gamma spec: Co-60 at 1332 keV and Cs-134 at 796 keV not identified by peak search -- NID*

BY:

Jim Sigmus

MAR 11 1987

REVIEWED BY:

John S. Holden

DATE:

2/12/87

 19 MAR 1987 8:42:11 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYST'S REPORT

 C WBA AIRBORNE PARTICULATE COMP. - 212
 FILTER: FILTER QUANTITY: 6.540E 02
 COLLECTION DATE(S): 3/4-3/11/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	2.01E-03	5.5E-04
BETA-T	1.88E-02	1.3E-03
GAMMA SPEC		
MN-54	* -1.66E-03	3.1E-03
FE-59	* -2.02E-03	7.3E-03
CO-58	* -2.44E-03	3.7E-03
CO-60	* -1.33E-03	3.5E-03
ZN-65	* -2.22E-03	5.0E-03
ZR-95	* -3.99E-03	6.1E-03
NB-95	* 0.00E-01	3.4E-03
I-131	* 2.98E-03	3.1E-03
CS-134	* 3.62E-03	3.4E-03
CS-137	* -6.96E-04	3.2E-03
BALA-140	* 0.00E-01	2.6E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *gmy*

REVIEWED BY: *Dale S. Hall*

DATE: *3/19/87*

2167

 23 MAR 1987 9:31:06 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA AIRBORNE PARTICULATE COMP. - 212
 TYPE: FILTER QUANTITY: 5.670E 02
 COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-	3.55E-02	2.4E-03
BETA-	7.69E-02	2.4E-03
GAMMA SPEC		
MN-54	* -8.52E-04	3.1E-03
FE-59	* -2.06E-03	5.4E-03
CO-58	* 8.33E-04	3.4E-03
CO-60	* -2.74E-03	3.4E-03
ZN-65	* -4.51E-03	9.0E-03
ZR-95	* -2.71E-03	4.3E-03
NR-92	6.24E-03	4.1E-03
I-131	* -1.58E-03	3.8E-03
CS-134	* 3.70E-03	4.3E-03
CS-137	* -1.41E-03	3.1E-03
BALA-140	* 3.79E-03	5.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No ¹ identified for Nb-95 at 766 keV. MDA = 0 net counts.

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 3/24/87

 CATAWBA AIRBORNE PARTICULATE COMP. - 212
 TYPE: FILTER QUANTITY: 6.020E 02
 COLLECTION DATE(S): 3/18-3/25/87 UNITS: CUBIC METERS

RADIOISOTOPE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	9.65E-03	1.2E-03
BETA-T	3.10E-02	1.6E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.4E-03
FE-59	* -5.26E-03	8.3E-03
CO-58	* -1.03E-03	4.0E-03
CO-60	* 0.00E-01	3.0E-03
ZN-65	* 2.60E-03	8.6E-03
ZR-95	1.20E-02	8.2E-03
NB-95	* -2.11E-03	4.2E-03
I-131	* 0.00E-01	7.7E-03
CS-134	* -1.07E-03	4.4E-03
CS-137	* -8.30E-04	2.5E-03
BALA-140	* 0.00E-01	6.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No Peak identified for Zr-95 at 957 keV, AD4 = 7 net counts

BY: *Jim Sigman*

REVIEWED BY: *Dale S. Holch* DATE: *4-11-87*

13 APR 1987 8:30:48 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212

E: FILTER

QUANTITY: 5.670E 02

COLLECTION DATE(S): 3/25-4/1/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.07E-03	4.6E-04
BETA-T	1.43E-02	1.3E-03
GAMMA SPEC		
MN-54	* 2.59E-03	4.1E-03
FE-59	* 6.76E-03	7.5E-03
CO-58	* -8.82E-04	3.2E-03
CO-60	* 1.37E-03	3.6E-03
ZN-65	* -4.59E-03	7.3E-03
ZR-95	* 0.00E-01	6.5E-03
NB-95	6.12E-03	4.2E-03
I-131	* 8.68E-04	6.8E-03
CS-134	* 0.00E-01	4.2E-03
CS-137	* -7.03E-04	3.7E-03
BALA-140	* 0.00E-01	7.3E-03
NPBE-7	1.30E-01	3.7E-02
NPK-40	2.26E-01	7.7E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No identifiable peak at Nb-95 at 766 keV, MOA 7 not counts. NPBs-7 at 472 keV and NPK-40 at 1461 keV were identified by Peak Search and NID.

BY:

Jim Sigman

REVIEWED BY:

Dr. S. Holt

DATE:

4-14-87

16 APR 1987 12:58:39 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 212

TYPE: FILTER

QUANTITY: 5.830E 02

SECTION DATE(S): 4/1-4/8/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 0.00E-01	3.1E-04
BETA-T	1.45E-02	1.2E-03
GAMMA SPEC		
MN-54	* 1.88E-03	3.8E-03
FE-59	* 0.00E-01	9.7E-03
CO-58	* 9.56E-04	4.4E-03
CO-60	* -4.47E-03	4.9E-03
ZN-65	* -2.52E-03	1.2E-02
ZR-95	* 0.00E-01	5.9E-03
NB-95	* 0.00E-01	3.8E-03
I-131	* -8.33E-04	6.3E-03
CS-134	* -3.06E-03	5.1E-03
CS-137	* 3.91E-03	3.2E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigma* APR 16 1987

REVIEWED BY: *Dale S. Holtz*

DATE: 4-16-87

21 APR 1987 10:32:54 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212

TYPE: FILTER

QUANTITY: 5.720E 02

COLLECTION DATE(S): 4/8-4/15/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.03E-02	1.7E-03
BETA-T	3.56E-02	1.8E-03
GAMMA SPEC		
MN-54	* 1.02E-03	3.7E-03
FE-59	* -2.44E-03	6.4E-03
CO-58	* 1.00E-03	3.3E-03
CO-60	* 0.00E-01	3.9E-03
ZN-65	* 8.02E-03	8.9E-03
ZR-95	* -1.65E-03	5.9E-03
NB-95	* 9.45E-04	3.9E-03
I-131	* 6.49E-04	4.7E-03
CS-134	* -2.24E-03	4.7E-03
CS-137	* -8.73E-04	3.6E-03
BALA-140	* -2.21E-03	5.0E-03
NPBE-7	2.30E-01	4.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 978 keV identified by Peak Search and NID.*

BY:

[Signature]

REVIEWED BY:

[Signature]

DATE:

4-22-87

46

30 APR 1987 3:05:21 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212
TYPE: FILTER QUANTITY: 5.710E 02
LECTION DATE(S): 4/15-4/22/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 5.47E-04	4.8E-04
BETA-T	1.38E-02	1.3E-03 N/A
GAMMA SPEC		
MN-54	* 0.00E-01	3.6E-03
FE-59	* 5.20E-03	7.3E-03
CO-58	* 2.09E-03	4.2E-03
CO-60	* -1.60E-03	4.2E-03
ZN-65	* 0.00E-01	5.4E-03
ZR-95	1.03E-02	7.3E-03 N/A
NB-95	9.81E-03	3.5E-03 N/A
I-131	* 2.76E-03	6.8E-03
CS-134	* -1.12E-03	4.6E-03
CS-137	* 1.75E-03	3.9E-03
BALA-140	* -2.76E-03	4.8E-03
NPBE-7	1.47E-01	5.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Zr-95 at 957 kev not identified by Peak Search or NID, MDA = 6 net counts.
Nb-95 at 766 kev and NPBe-7 at 478 kev both identified by Peak Search and NID.

BY: Jim Sigman APR 30 1987

REVIEWED BY: Dale S. Allen DATE: 4.30-87

 4 JUN 1987 11:25:09 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE PARTICULATE COMP. - 212
 TYPE: FILTER QUANTITY: 5.870E 02
 COLLECTION DATE(S): 4/22-4/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.46E-03	6.9E-04 N/A
BETA-T	1.13E-02	1.1E-03 N/A
GAMMA SPEC		
MN-54	* -1.99E-03	3.5E-03
FE-59	* 0.00E-01	4.7E-03
CO-58	* 4.89E-03	4.5E-03
CO-60	* 3.11E-03	4.4E-03
ZN-65	* 0.00E-01	0.0E-01
ZR-95	* 3.21E-03	7.9E-03
NB-95	* 0.00E-01	3.9E-03
I-131	* 6.33E-04	4.3E-03
CS-134	* 1.09E-03	3.9E-03
CS-137	8.51E-03	4.8E-03 .04
BALA-140	* -2.16E-03	4.8E-03
NPBE-7	1.97E-01	4.7E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No Peak identified for Co-137 at 662 keV, MDA = 10 net counts.
 NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *Jim Sigmon* 6-4-87

REVIEWED BY: *Dale E. Hold* DATE: 6-5-87

 4 JUN 1987 11:29:19 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE PARTICULATE COMP. - 212
 TYPE: FILTER QUANTITY: 6.060E 02
 COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.87E-03	7.5E-04 N/A
BETA-T	2.68E-02	1.5E-03 N/A
GAMMA SPEC		
MN-54	* 9.58E-04	3.5E-03
FE-59	* 0.00E-01	0.0E-01
CO-58	* 2.89E-03	3.7E-03
CO-60	* 3.18E-03	5.0E-03
ZN-65	* 2.59E-03	5.8E-03
ZR-95	* -1.60E-03	5.8E-03
NB-95	* -1.88E-03	3.3E-03
I-131	* 0.00E-01	2.9E-03
CS-134	* 0.00E-01	3.3E-03
CS-137	* 0.00E-01	2.3E-03
BALA-140	* 0.00E-01	3.6E-03
NPBE-7	2.04E-01	4.2E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *Jim Sigman* 6-4-87

REVIEWED BY: *Dale E. Hilde* DATE: 6-5-87

 5 JUN 1987 11:17:31 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 212
 TYPE: FILTER QUANTITY: 6.080E 02
 COLLECTION DATE(S): 5/6-5/13/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.92E-03	5.1E-04 N/A
BETA-T	2.47E-02	9.1E-04 N/A
GAMMA SPEC		
MN-54	* 9.00E-04	3.5E-03
FE-59	* -2.28E-03	6.8E-03
CO-58	* 1.80E-03	3.1E-03
CO-60	* -5.71E-03	4.0E-03
ZN-65	* -4.81E-03	7.6E-03
ZR-95	* 8.87E-03	6.9E-03
NB-95	* 0.00E-01	2.1E-03
I-131	* -1.39E-03	3.9E-03
CS-134	* 3.91E-03	4.4E-03
CS-137	* 3.75E-03	3.7E-03
BALA-140	* 0.00E-01	0.0E-01
NPBE-7	2.08E-01	5.3E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *Jim Sigmen*

6-5-87

REVIEWED BY: *Dale E. Hilde*

DATE: *6-5-87*

66

4 JUN 1987 11:40:11 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

WBA AIRBORNE PARTICULATE COMP. - 212
TYPE: FILTER QUANTITY: 5.450E 02
COLLECTION DATE(S): 5/13-5/20/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)	
ALPHA-T	8.76E-04	4.4E-04	N/A
BETA-T	2.23E-02	1.5E-03	N/A
GAMMA SPEC			
MN-54	* 8.87E-04	4.1E-03	
FE-59	* -6.43E-03	7.1E-03	
CO-58	* -1.73E-03	3.2E-03	
CO-60	* 4.28E-03	3.8E-03	
ZN-65	* -9.39E-03	8.1E-03	
ZR-95	* -1.41E-03	6.2E-03	
NB-95	* 0.00E-01	3.6E-03	
I-131	* 3.31E-03	3.9E-03	
CS-134	* -2.89E-03	4.2E-03	
CS-137	* 7.31E-04	3.4E-03	
BALA-140	* -1.93E-03	3.4E-03	
NPBE-7	1.31E-01	4.7E-02	
NPK-40	2.65E-01	8.7E-02	

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.63*SIGMA)

COMMENTS: NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigmen* 6-4-87
REVIEWED BY: *Dale F. Holden* DATE: 6-5-87

 2 JUN 1987 9:43:52 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

TAWBA AIRBORNE PARTICULATE COMP. - 212
 'E: FILTER QUANTITY: 6.060E 02
 COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 8.52E-04	6.7E-04
BETA-T	1.44E-02	1.2E-03 N/A
GAMMA SPEC		
MN-54	* 2.88E-03	3.2E-03
FE-59	* -2.45E-03	5.5E-03
CO-58	* 2.89E-03	3.7E-03
CO-60	* 1.59E-03	3.6E-03
ZN-65	* 0.00E-01	6.3E-03
ZR-95	* 0.00E-01	0.0E-01
NB-95	* -9.40E-04	2.5E-03
I-131	* -1.47E-03	3.8E-03
CS-134	6.30E-03	3.6E-03 .06
CS-137	* 8.30E-04	2.5E-03
BALA-140	* 0.00E-01	3.6E-03
NPBE-7	1.07E-01	3.2E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Cs-134 at 646 keV, MDA = 6 net counts
 NPBE-7 at 470 keV identified by Peak Search and NID.

BY:

[Signature]

REVIEWED BY:

[Signature]

DATE:

6-25-87
 2
 27

17 JUN 1987 8:25:18 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212

TYPE: FILTER

QUANTITY: 6.420E 02

SECTION DATE(S): 5/27-6/3/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	3.27E-03	8.4E-04
BETA-T	1.93E-02	1.3E-03
GAMMA SPEC		
MN-54	* 2.79E-03	3.6E-03
FE-59	* 0.00E-01	8.0E-03
CO-58	* 0.00E-01	3.1E-03
CO-60	* 0.00E-01	2.0E-03
ZN-65	* 0.00E-01	4.0E-03
ZR-95	* 4.91E-03	7.5E-03
NE-95	* 0.00E-01	7.2E-03
I-131	* 1.10E-02	9.1E-03
CS-134	* -2.01E-03	3.8E-03
CS-137	* 0.00E-01	2.7E-03
BALA-140	* 6.81E-03	8.3E-03
NPBE-7	1.08E-01	4.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPBe-7 at 478 keV identified by Peak Search and NID.

BY: *WJZ*

REVIEWED BY: *Dale G. Holt*

DATE: 6-17-87

17 JUN 1987 11:55:09 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 212
 TYPE: FILTER QUANTITY: 5.940E 02
 COLLECTION DATE(S): 6/3-6/10/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
ALPHA-T	8.80E-04	3.3E-04
BETA-T	2.61E-02	1.5E-03
GAMMA SPEC		
MN-54	* -9.93E-04	3.0E-03
FE-59	* 2.50E-03	7.5E-03
CO-58	* 1.00E-03	3.0E-03
CO-60	* 4.62E-03	4.1E-03
ZN-65	* 0.00E-01	6.4E-03
ZR-95	* 0.00E-01	6.6E-03
NB-95	* 0.00E-01	2.8E-03
I-131	* 0.00E-01	5.8E-03
CS-134	6.49E-03	4.6E-03
CS-137	* -3.36E-03	3.6E-03
BALU-140	* -5.29E-03	7.5E-03
NPBE-7	1.56E-01	6.7E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Cs-134 at 796 keV, MDA: 6 net counts.
 NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *Lynn L. Bickerton* - JUN 17 1987

REVIEWED BY: *Dale G. Holden* DATE: *6-22-87*

23 JUN 1987 11:38:35 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212

TYPE: FILTER

QUANTITY: 6.480E 02

COLLECTION DATE(S): 6/10-6/17/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	6.85E-03	1.2E-03
BETA-T	2.42E-02	1.4E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.9E-03
FE-59	* 0.00E-01	5.5E-03
CO-58	* 0.00E-01	1.3E-03
CO-60	* 0.00E-01	3.5E-03
ZN-65	* 2.38E-03	7.1E-03
ZR-95	1.20E-02	6.4E-03
NB-95	* 8.87E-04	3.9E-03
I-131	* -7.46E-04	4.7E-03
CS-134	* 0.00E-01	4.0E-03
CS-137	* 0.00E-01	3.3E-03
BALA-140	* -2.31E-03	4.0E-03
NPBE-7	1.60E-01	3.9E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Zr-95 at 757 keV, MDA = 8 net counts.
NPBE-7 at 478 keV identified by Peak Search and NID.

BY:

Jim Sigmen

JUN 23 1987

REVIEWED BY:

D. S. Holden

DATE:

6-24-87

90

 1 JUL 1987 4:40:43 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 212
 E: FILTER QUANTITY: 5.790E 02
 COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.55E-02	2.6E-03
BETA-T	5.26E-02	2.1E-03
GAMMA SPEC		
MN-54	* 2.01E-03	2.5E-03
FE-59	* -5.13E-03	6.3E-03
CO-58	* 1.01E-03	3.0E-03
CO-60	* 3.33E-03	4.1E-03
ZN-65	* 0.00E-01	5.4E-03
ZR-95	* -1.68E-03	5.0E-03
NB-95	5.92E-03	3.7E-03
I-131	* -1.55E-03	4.0E-03
CS-134	* -2.20E-03	3.5E-03
CS-137	* 1.74E-03	3.5E-03
BALA-140	* 0.00E-01	5.3E-03
NPBE-7	1.44E-01	3.3E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No peak identified for Nb-95 at 766 keV, mg: 6 net counts.
 NPBE-7 at 478 keV identified by Peak Search and NID.*

BY: *my*

REVIEWED BY: *Dale S. Hold*

DATE: *7-1-87*

90

 13 JUL 1987 4:53:26 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212

FILTER

QUANTITY: 5.630E 02

COLLECTION DATE(S): 6/24-7/1/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
ALPHA-T	* 2.36E-04	5.3E-04
BETA-T	2.33E-02	1.5E-03
GAMMA SPEC		
MN-54	* -1.81E-03	3.4E-03
FE-59	* 0.00E-01	7.5E-03
CO-58	* -3.71E-03	3.7E-03
CO-60	* 2.95E-03	4.2E-03
ZN-65	* 0.00E-01	9.7E-03
ZR-95	1.07E-02	6.7E-03
NB-95	* 0.00E-01	4.4E-03
I-131	* -1.84E-03	7.2E-03
CS-134	7.84E-03	4.8E-03
CS-137	* 1.51E-03	3.7E-03
BALA-140	* -2.77E-03	7.3E-03
NPBE-7	1.89E-01	3.9E-02
NPK-40	2.79E-01	8.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *Zr-95 at 757 keV, MDA = 7 net counts and Cs-134 at 796 keV, MDA = 8 net counts, not identified by Peak Search or NID. NPBE-7 at 478 keV and NPK-40 at 1461 keV, identified by Peak Search and NID.*

BY: *MM*

REVIEWED BY: *John E. Hold*

DATE: *7-14-87*

101

 14 JUL 1987 10:36:29 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212

E: FILTER

QUANTITY: 5.670E 02

COLLECTION DATE(S): 7/1-7/8/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.20E-03	5.7E-04
BETA-T	1.65E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.3E-03
FE-59	* 5.26E-03	9.1E-03
CO-58	* -1.06E-03	4.1E-03
CO-60	* 6.65E-03	5.3E-03
ZN-65	* -2.77E-03	8.3E-03
ZR-95	* -3.50E-03	6.1E-03
NB-95	* 4.12E-03	5.0E-03
I-131	* -8.54E-04	6.0E-03
CS-134	* 0.00E-01	4.0E-03
CS-137	* 1.80E-03	4.0E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *mm*

REVIEWED BY: *Dale E. Hald*

DATE: *7-14-87*

106

23 JUL 1987 11:48:57 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 212
 TYPE: FILTER QUANTITY: 5.880E 02
 COLLECTION DATE(S): 7/8-7/15/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 2.07E-04	3.6E-04
BETA-T	1.65E-02	1.3E-03
GAMMA SPEC		
MN-54	* -8.60E-04	3.9E-03
FE-59	* 0.00E-01	3.1E-03
CO-58	* -1.72E-03	3.7E-03
CO-60	* 0.00E-01	2.8E-03
ZN-65	* -9.16E-03	9.7E-03
ZR-95	* 0.00E-01	5.3E-03
NB-95	* 0.00E-01	4.3E-03
I-131	* -1.34E-03	5.3E-03
CS-134	* -9.36E-04	3.9E-03
CS-137	* 2.17E-03	3.5E-03
BALU-140	* 0.00E-01	3.2E-03
NPBE-7	1.17E-01	3.7E-02
NPK-40	3.49E-01	1.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SICMA)

 COMMENTS: NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and N/D.

BY: *Jimi Sigman*

JUL 23 1987

REVIEWED BY: *Dale F. Holt*

DATE: 7-24-87

 30 JUL 1987 3:14:16 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212
 E: FILTER QUANTITY: 5.140E 02
 COLLECTION DATE(S): 7/15-7/22/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.58E-03	7.1E-04
BETA-T	3.41E-02	1.9E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.2E-03
FE-59	* 0.00E-01	8.7E-03
CO-58	* 3.32E-03	4.0E-03
CO-60	* 0.00E-01	4.6E-03
ZN-65	* 0.00E-01	7.4E-03
ZR-95	* -1.83E-03	4.8E-03
NB-95	7.32E-03	4.6E-03
I-131	* 3.37E-03	3.9E-03
CS-134	* 0.00E-01	4.6E-03
CS-137	* 0.00E-01	3.4E-03
BALA-140	* 0.00E-01	3.6E-03
NPBE-7	3.46E-01	4.9E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *No Peak identified for Nb-95 at 766 keV, MPA: 7 net counts.
 NPBE-7 at 478 keV identified by Peak Search and NID.*

BY: *[Signature]*

JUL 30 1987

REVIEWED BY: *[Signature]*

DATE: 7-31-87

 5 AUG 1987 10:37:27 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

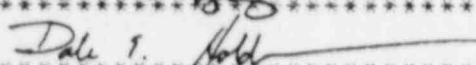
CHAWBA AIRBORNE PARTICULATE COMP. - 212
 TYPE: FILTER QUANTITY: 6.080E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	2.67E-03	8.9E-04
BETA-T	3.13E-02	1.6E-03
GAMMA SPEC		
MN-54	* 1.92E-03	3.6E-03
FE-59	* 0.00E-01	3.5E-03
CO-58	* 1.94E-03	3.6E-03
CO-60	4.75E-03	3.5E-03
ZN-65	* -2.59E-03	6.9E-03
ZR-95	* -1.61E-03	5.3E-03
NB-95	* 4.78E-03	3.7E-03
I-131	7.24E-03	4.6E-03
CS-134	* -1.05E-03	3.1E-03
CS-137	* -1.65E-03	2.9E-03
BALA-140	* 0.00E-01	5.3E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Co-60 at 1332 keV, MDA = 3 on I-131 at 364 keV, MDA = 9 net counts.

BY: 

REVIEWED BY: 

DATE: 8-7-87

121

12 AUG 1987 2:29:02 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212

FILTER

QUANTITY: 5.550E 02

COLLECTION DATE(S): 7/29-8/5/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	2.16E-03	8.5E-04
BETA-T	3.58E-02	1.8E-03
GAMMA SPEC		
MN-54	* -3.01E-03	3.9E-03
FE-59	* -5.09E-03	9.5E-03
CO-58	* 2.01E-03	3.8E-03
CO-60	* 1.62E-03	4.9E-03
ZN-65	* 2.69E-03	8.1E-03
ZR-95	* 4.96E-03	7.2E-03
NB-95	* 1.95E-03	4.4E-03
I-131	* 0.00E-01	4.1E-03
CS-134	* -1.09E-03	3.3E-03
CS-137	* 4.19E-03	4.0E-03
BALA-140	* 0.00E-01	6.5E-03
NPBE-7	1.84E-01	5.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 470 keV identified by Peak Search and NID.*

BY: *MG*

REVIEWED BY:

Del. S. Hall

DATE:

8-13-87

126

 18 AUG 1987 11:14:34 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 212

FILTER

QUANTITY: 5.540E 02

COLLECTION DATE(S): 8/5-8/12/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.01E-03	6.2E-04 N/A
BETA-T	2.22E-02	1.5E-03 N/A
GAMMA SPEC		
MN-54	* -2.00E-03	3.7E-03
FE-59	* 2.43E-03	8.7E-03
CO-58	* 1.95E-03	4.1E-03
CO-60	* -4.85E-03	3.6E-03
ZN-65	* -5.33E-03	9.2E-03
ZR-95	* -6.40E-03	6.8E-03
NB-95	* -9.17E-04	3.6E-03
I-131	* 5.93E-04	3.8E-03
CS-134	* -1.09E-03	3.9E-03
CS-137	* 2.52E-03	3.7E-03
BALA-140	8.86E-03	6.3E-03 N/A
NPBE-7	1.09E-01	3.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Bala-140 at 1596 keV, MA = 4 net counts.
 NPBE-7 at 478 keV identified by Peak Search and NID.

BY:

Jim Sigman

AUG 18 1987

REVIEWED BY:

Dale S. Hold

DATE:

8-19-87

 28 AUG 1987 10:45:21 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 212
 TYPE: FILTER QUANTITY: 5.610E 02
 COLLECTION DATE(S): 8/12-8/19/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.58E-03	6.8E-04 N/A
BETA-T	1.76E-02	1.4E-03 N/A
GAMMA SPEC		
MN-54	* -9.85E-04	3.8E-03
FE-59	* 2.40E-03	8.6E-03
CO-58	* 4.82E-03	4.8E-03
CO-60	* 6.39E-03	6.0E-03
ZN-65	* -2.63E-03	1.0E-02
ZR-95	* 9.47E-03	6.3E-03 N/A
NB-95	* 9.05E-04	2.0E-03
I-131	* 4.09E-03	4.0E-03
CS-134	* -1.07E-03	4.4E-03
CS-137	* 0.00E-01	2.6E-03
BALA-140	* 0.00E-01	0.0E-01
NPBE-7	1.13E-01	4.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No Peak identified for Zr-95 at 757 keV, MDA = 6 net counts.
 NPBe-7 at 478 keV identified by Peak Search and NID.

BY: *D. J. B.*

REVIEWED BY: *Dale S. Holt*

DATE: 8-28-87

Plant Name : CNS
Sample Number : 20
Type/Location : AIR PARTICULATE / 212
Sample Date : 26-AUG-1987 15:10:00
Acq. Start Time : 10-SEP-1987 13:51:04
Sample Quantity : 451.000 M3
Sample ID : 19AUG 26AUG87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	4.310E-02	2.200E-03		- 0.000E+00
ALPHA	1.00	2.950E-03	1.100E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.894E-02	0.000E+00		
CO-58	810.76	< 1.451E-02	0.000E+00		
FE-59	1099.22	< 4.328E-02	0.000E+00		
CO-60	1332.47	< 1.658E-02	0.000E+00		
ZN-65	1115.52	< 4.030E-02	0.000E+00		
NB-95	765.78	< 2.575E-02	0.000E+00		
ZR-95	756.72	< 4.069E-02	0.000E+00		
I-131	364.48	< 4.586E-02	0.000E+00		
CS-134	604.66	< 1.745E-02	0.000E+00		
CS-137	661.65	< 2.073E-02	0.000E+00		
BALA-140	537.27	< 0.145	0.000E+00		
BE-7	477.59	0.351	9.725E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: [Signature]

Date: 4/18/88

Plant Name : CNS
 Sample Number : 36
 Type/Location : AIR PARTICULATES / 212
 Sample Date : 2-SEP-1987 10:27:00
 Acq. Start Time : 12-SEP-1987 14:25:50
 Sample Quantity : 621.000 M3
 Sample ID : 26AUG TO 2SEP87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.770E-02	1.500E-03		0.000E+00
ALPHA	1.00	2.280E-03	6.900E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.264E-03	0.000E+00		
CO-58	810.76	< 1.199E-02	0.000E+00		
FE-59	1099.22	< 1.378E-02	0.000E+00		
CO-60	1332.47	< 8.179E-03	0.000E+00		
ZN-65	1115.52	< 2.730E-02	0.000E+00		
NB-95	765.78	< 1.157E-02	0.000E+00		
ZR-95	756.72	< 2.016E-02	0.000E+00		
I-131	364.48	< 1.527E-02	0.000E+00		
CS-134	604.66	< 7.609E-03	0.000E+00		
CS-137	661.65	< 9.693E-03	0.000E+00		
BALA-140	537.27	< 5.898E-02	0.000E+00		
BE-7	477.59	0.137	4.678E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: mg

Approved by: Dale E. Hold

Date: 10/1/87

Be-7 at 478 keV identified by Peak Search & MIO.

Corrected results

Plant Name : CNS
 Sample Number : 69
 Type/Location : AIR PARTICULATES / 212
 Sample Date : 16-SEP-1987 11:12:00
 Acq. Start Time : 22-SEP-1987 15:59:36
 Sample Quantity : 583.000 M3
 Sample ID : 9SEP TO 16SEP87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.820E-02	1.400E-03		0.000E+00
ALPHA	1.00	9.360E-04	4.700E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.511E-03	0.000E+00		
CO-58	810.76	< 4.817E-03	0.000E+00		
FE-59	1099.22	< 1.731E-02	0.000E+00		
CO-60	1332.47	< 7.485E-03	0.000E+00		
ZN-65	1115.52	< 2.162E-02	0.000E+00		
NB-95	765.78	< 9.468E-03	0.000E+00		
ZR-95	756.72	< 1.788E-02	0.000E+00		
I-131	364.48	< 1.103E-02	0.000E+00		
CS-134	604.66	< 9.353E-03	0.000E+00		
CS-137	661.65	< 8.912E-03	0.000E+00		
BALA-140	537.27	< 4.355E-02	0.000E+00		
BE-7	477.59	5.581E-02	3.066E-02		

Total Fraction of Reporting Level: 0.000E+00

Analyzed by: MV

Approved by: Dale E. Hall Date: 10/1/87

Be-7 at 478 keV identified by Peak Search & NID.

Corrected results

Plant Name : CNS
 Sample Number : 90
 Type/Location : AIR PARTICULATES / 212
 Sample Date : 23-SEP-1987 15:58:00
 Acq. Start Time : 26-SEP-1987 01:19:43
 Sample Quantity : 587.000 M3
 Sample ID : 16SEP TO 23SEP87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.110E-02	1.600E-03		0.000E+00
ALPHA	1.00	3.680E-03	1.100E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.047E-02	0.000E+00		
CO-58	810.76	< 9.217E-03	0.000E+00		
FE-59	1099.22	< 8.533E-03	0.000E+00		
CO-60	1332.47	< 1.050E-02	0.000E+00		
ZN-65	1115.52	< 2.510E-02	0.000E+00		
NB-95	765.78	< 1.151E-02	0.000E+00		
ZR-95	756.72	< 1.536E-02	0.000E+00		
I-131	364.48	< 8.460E-03	0.000E+00		
CS-134	604.66	< 9.039E-03	0.000E+00		
CS-137	661.65	< 1.034E-02	0.000E+00		
BALA-140	537.27	< 2.652E-02	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Michael J.

Approved by: Del S. Hadd

Date: 10/1/87

Corrected results

Plant Name : CNS
Sample Number : 138
Type/Location : AIR PARTICULATES / 212
Sample Date : 30-SEP-1987 11:25:00
Acq. Start Time : 4-OCT-1987 20:39:12
Sample Quantity : 556.000 M3
Sample ID : 23SEP TO 30SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.260E-02	1.700E-03		0.000E+00
ALPHA	1.00	2.560E-03	8.900E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.056E-03	0.000E+00		
CO-58	810.76	< 8.806E-03	0.000E+00		
FE-59	1099.22	< 2.205E-02	0.000E+00		
CO-60	1332.47	< 9.991E-03	0.000E+00		
ZN-65	1115.52	< 1.663E-02	0.000E+00		
NB-95	765.78	< 1.040E-02	0.000E+00		
ZR-95	756.72	< 1.035E-02	0.000E+00		
I-131	364.48	< 1.107E-02	0.000E+00		
CS-134	604.66	< 9.308E-03	0.000E+00		
CS-137	661.65	< 8.650E-03	0.000E+00		
BALA-140	1596.49	< 1.353E-02	0.000E+00		
BE-7	477.59	0.110	3.743E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Del S. Holt

Date: 10 / 13 / 87

Plant Name : CNS
Sample Number : 168
Type/Location : AIR PARTICULATES / 212
Sample Date : 7-OCT-1987 11:35:00
Acq. Start Time : 13-OCT-1987 15:04:10
Sample Quantity : 571.000 M3
Sample ID : 30SEP TO 7OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.200E-02	1.400E-03		0.000E+00
ALPHA	1.00	< 4.440E-04	4.400E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.095E-02	0.000E+00		
CO-58	810.76	< 6.994E-03	0.000E+00		
FE-59	1099.22	< 2.148E-02	0.000E+00		
CO-60	1332.47	< 1.325E-02	0.000E+00		
ZN-65	1115.52	< 1.652E-02	0.000E+00		
NB-95	765.78	< 8.134E-03	0.000E+00		
ZR-95	756.72	< 1.403E-02	0.000E+00		
I-131	364.48	< 1.283E-02	0.000E+00		
CS-134	604.66	< 8.282E-03	0.000E+00		
CS-137	661.65	< 8.900E-03	0.000E+00		
BALA-140	1596.49	< 2.208E-02	0.000E+00		
BE-7	477.59	0.113	3.045E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: John S. Hill

Date: 10 / 15 / 87

Plant Name : CNS
 Sample Number : 195
 Type/Location : AIR PARTICULATES / 212
 Sample Date : 14-OCT-1987 13:00:00
 Acq. Start Time : 19-OCT-1987 15:29:42
 Sample Quantity : 576.000 M3
 Sample ID : 7OCT TO 14OCT87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.130E-02	1.500E-03		0.000E+00
ALPHA	1.00	1.520E-03	5.700E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.145E-02	0.000E+00		
CO-58	810.76	< 8.566E-03	0.000E+00		
FE-59	1099.22	< 1.736E-02	0.000E+00		
CO-60	1332.47	< 7.638E-03	0.000E+00		
ZN-65	1115.52	< 1.297E-02	0.000E+00		
NE-95	765.78	< 1.075E-02	0.000E+00		
ZR-95	756.72	< 1.848E-02	0.000E+00		
I-131	364.48	< 1.180E-02	0.000E+00		
CS-134	604.66	< 9.693E-03	0.000E+00		
CS-137	661.65	< 5.781E-03	0.000E+00		
BALA-140	1595.49	< 1.227E-02	0.000E+00		
BE-7	477.59	0.148	4.209E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 212
Type/Location : AIR PARTICULATES / 212
Sample Date : 21-OCT-1987 15:40:00
Acq. Start Time : 26-OCT-1987 16:02:25
Sample Quantity : 464.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	4.040E-02	2.100E-03		0.000E+00
ALPHA	1.00	3.490E-03	9.300E-04		-0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.380E-02	0.000E+00		
CO-58	810.76	< 1.419E-02	0.000E+00		
FE-59	1099.22	< 1.542E-02	0.000E+00		
CO-60	1332.47	< 1.597E-02	0.000E+00		
ZN-65	1115.52	< 3.504E-02	0.000E+00		
NB-95	765.78	< 1.416E-02	0.000E+00		
ZR-95	756.72	< 3.316E-02	0.000E+00		
I-131	364.48	< 1.182E-02	0.000E+00		
CS-134	604.66	< 1.095E-02	0.000E+00		
CS-137	661.65	< 9.918E-03	0.000E+00		
BALA-140	1596.49	< 1.511E-02	0.000E+00		
BE-7	477.59	0.195	6.185E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 227
Type/Location : AIR PARTICULATES / 212
Sample Date : 28-OCT-1987 13:05:00
Acq. Start Time : 3-NOV-1987 11:12:18
Sample Quantity : 566.000 M3
Sample ID : 21OCT TO 28OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.500E-02	1.600E-03		0.000E+00
ALPHA	1.00	8.060E-04	5.700E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.173E-02	0.000E+00		
CO-58	810.76	< 9.169E-03	0.000E+00		
FE-59	1099.22	< 4.034E-02	0.000E+00		
CO-60	1332.47	< 2.111E-02	0.000E+00		
ZN-65	1115.52	< 2.991E-02	0.000E+00		
NB-95	765.78	< 1.268E-02	0.000E+00		
ZR-95	756.72	< 2.162E-02	0.000E+00		
I-131	364.48	< 1.623E-02	0.000E+00		
CS-134	604.66	< 1.277E-02	0.000E+00		
CS-137	661.65	< 1.305E-02	0.000E+00		
BALA-140	1596.49	< 2.146E-02	0.000E+00		
BE-7	477.59	0.148	4.722E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: D. S. [Signature]

Date: 11 / 23 / 87

Plant Name : CNS
Sample Number : 250
Type/Location : AIR PARTICULATES / 212
Sample Date : 4-NOV-1987 14:25:00
Acq. Start Time : 9-NOV-1987 12:36:35
Sample Quantity : 533.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	4.490E-02	2.000E-03		0.000E+00
ALPHA	1.00	2.150E-03	8.000E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.550E-02	0.000E+00		
CO-58	810.76	< 1.324E-02	0.000E+00		
FE-59	1099.22	< 2.501E-02	0.000E+00		
CO-60	1332.47	< 1.296E-02	0.000E+00		
ZN-65	1115.52	< 2.187E-02	0.000E+00		
NB-95	765.78	< 1.284E-02	0.000E+00		
ZR-95	756.72	< 2.210E-02	0.000E+00		
I-131	364.48	< 1.602E-02	0.000E+00		
CS-134	604.66	< 1.273E-02	0.000E+00		
CS-137	661.65	< 8.664E-03	0.000E+00		
BALA-140	1596.49	< 2.650E-02	0.000E+00		
BE-7	477.59	0.178	3.854E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: D. E. [Signature]

Date: 11/20/87

Plant Name : CNS
Sample Number : 270
Type/Location : AIR PARTICULATES / 212
Sample Date : 11-NOV-1987 11:55:00
Acq. Start Time : 13-NOV-1987 14:35:23
Sample Quantity : 590.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.490E-02	1.500E-03		0.000E+00
ALPHA	1.00	2.280E-03	7.500E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.066E-02	0.000E+00		
CO-58	810.76	< 8.671E-03	0.000E+00		
FE-59	1099.22	< 3.116E-02	0.000E+00		
CO-60	1332.47	< 2.207E-02	0.000E+00		
ZN-65	1115.52	< 3.132E-02	0.000E+00		
NB-95	765.78	< 1.293E-02	0.000E+00		
ZR-95	756.72	< 1.944E-02	0.000E+00		
I-131	364.48	< 9.489E-03	0.000E+00		
CS-134	604.56	< 8.905E-03	0.000E+00		
CS-137	661.65	< 1.060E-02	0.000E+00		
BALA-140	1596.49	< 1.953E-02	0.000E+00		
BE-7	477.59	5.764E-02	3.586E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dee L. Hill

Date: 11 / 23 / 87

Plant Name : CNS
Sample Number : 288
Type/Location : AIR PARTICULATES / 212
Sample Date : 18-NOV-1987 13:05:00
Acq. Start Time : 24-NOV-1987 12:16:36
Sample Quantity : 467.000 M3
Sample ID : 11NOV TO 18NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.320E-02	2.000E-03		0.000E+00
ALPHA	1.00	1.700E-03	7.300E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

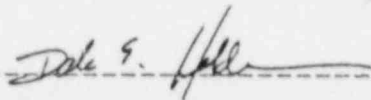
Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.051E-02	0.000E+00		
CO-58	810.76	< 1.672E-02	0.000E+00		
FE-59	1099.22	< 6.236E-02	0.000E+00		
CO-60	1332.47	< 3.284E-02	0.000E+00		
ZN-65	1115.52	< 6.119E-02	0.000E+00		
NB-95	765.78	< 1.724E-02	0.000E+00		
ZR-95	756.72	< 3.244E-02	0.000E+00		
I-131	364.48	< 2.756E-02	0.000E+00		
CS-134	604.66	< 1.773E-02	0.000E+00		
CS-137	661.65	< 2.394E-02	0.000E+00		
BALA-140	1596.49	< 4.427E-02	0.000E+00		
BE-7	477.59	0.154	8.252E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____



Approved by: _____



Date: 12 / 4 / 87

VAX/VMS Sample Analysis Report generated : 3-DEC-1987 15:40:15

Plant Name : CNS
Sample Number : 305
Type/Location : AIR PARTICULATES / 212
Sample Date : 25-NOV-1987 11:20:00
Acq. Start Time : 2-DEC-1987 15:12:21
Sample Quantity : 607.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.740E-02	1.500E-03		0.000E+00
ALPHA	1.00	1.600E-03	6.400E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.358E-02	0.000E+00		
CO-58	810.76	< 1.909E-02	0.000E+00		
FE-59	1099.22	< 4.577E-02	0.000E+00		
CO-60	1332.47	< 2.207E-02	0.000E+00		
ZN-65	1115.52	< 4.012E-02	0.000E+00		
NB-95	765.78	< 1.880E-02	0.000E+00		
ZR-95	756.72	< 2.459E-02	0.000E+00		
I-131	364.48	< 2.023E-02	0.000E+00		
CS-134	604.66	< 1.024E-02	0.000E+00		
CS-137	661.65	< 1.615E-02	0.000E+00		
BALA-140	1596.49	< 3.703E-02	0.000E+00		
BE-7	477.59	0.276	5.375E-02		
K-40	1460.75	0.106	7.877E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/4/87

Plant Name : CNS
Sample Number : 331
Type/Location : AIR PARTICULATES / 212
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 9-DEC-1987 12:49:43
Sample Quantity : 574.000 M3
Sample ID : 25NOV TO 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.460E-02	1.300E-03		0.000E+00
ALPHA	1.00	< 3.540E-04	4.300E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.571E-02	0.000E+00		
CO-58	810.76	< 1.146E-02	0.000E+00		
FE-59	1099.22	< 3.219E-02	0.000E+00		
CO-60	1332.47	< 1.916E-02	0.000E+00		
ZN-65	1115.52	< 4.765E-02	0.000E+00		
NB-95	765.78	< 1.512E-02	0.000E+00		
ZR-95	756.72	< 3.298E-02	0.000E+00		
I-131	364.48	< 2.198E-02	0.000E+00		
CS-134	604.66	< 1.550E-02	0.000E+00		
CS-137	661.65	< 1.435E-02	0.000E+00		
BALA-140	1596.49	< 2.325E-02	0.000E+00		
BE-7	477.59	7.228E-02	3.380E-02		
K-40	1460.75	0.151	8.333E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: John S. Hold

Date: 12/11/87

Plant Name : CNS
 Sample Number : 361
 Type/Location : AIR PARTICULATES / 212
 Sample Date : 16-DEC-1987 11:30:00
 Acq. Start Time : 23-DEC-1987 13:22:26
 Sample Quantity : 568.000 M3
 Sample ID : 9DEC TO 16DEC87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	1.720E-02	1.400E-03		0.000E+00
ALPHA	1.00	< 2.090E-04	4.700E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.343E-02	0.000E+00		
CO-58	810.76	< 1.483E-02	0.000E+00		
FE-59	1099.22	< 1.742E-02	0.000E+00		
CO-60	1332.47	< 1.535E-02	0.000E+00		
ZN-65	1115.52	< 2.606E-02	0.000E+00		
NB-95	765.78	< 1.254E-02	0.000E+00		
ZR-95	756.72	< 1.642E-02	0.000E+00		
I-131	364.48	< 1.660E-02	0.000E+00		
CS-134	604.66	< 1.284E-02	0.000E+00		
CS-137	661.65	< 1.185E-02	0.000E+00		
BALA-140	1596.49	< 8.141E-03	0.000E+00		
BE-7	477.59	0.143	3.977E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: SJP

Approved by: Ed E. Hall

Date: 1/6/88

Plant Name : CNS
 Sample Number : 562
 Type/Location : AIR PARTICULATES / 212
 Sample Date : 23-DEC-1987 15:00:00
 Acq. Start Time : 14-JAN-1988 11:27:50
 Sample Quantity : 619.000 M3
 Sample ID : 16DEC TO 23DEC87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.330E-02	1.400E-03		0.000E+00
ALPHA	1.00	< 6.560E-04	5.200E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.180E-02	0.000E+00		
CO-58	810.76	< 1.460E-02	0.000E+00		
FE-59	1099.22	< 2.259E-02	0.000E+00		
CO-60	1332.47	< 1.832E-02	0.000E+00		
ZN-65	1115.52	< 2.493E-02	0.000E+00		
NB-95	765.78	< 1.912E-02	0.000E+00		
ZR-95	756.72	< 2.286E-02	0.000E+00		
I-131	364.48	< 4.366E-02	0.000E+00		
CS-134	604.66	< 7.840E-03	0.000E+00		
CS-137	661.65	< 8.644E-03	0.000E+00		
BALA-140	1596.49	< 5.712E-02	0.000E+00		
BE-7	477.59	0.105	3.887E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: F. S. Hold

Date: 1/15/88

Plant Name : CNS
 Sample Number : 404
 Type/Location : AIR PARTICULATES / 212
 Sample Date : 30-DEC-1987 14:00:00
 Acq. Start Time : 9-JAN-1988 10:52:45
 Sample Quantity : 567.000 M3
 Sample ID : 23DEC TO 30DEC87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.450E-02	1.300E-03		0.000E+00
ALPHA	1.00	1.150E-03	5.400E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.117E-02	0.000E+00		
CO-58	810.76	< 1.747E-02	0.000E+00		
FE-59	1099.22	< 3.684E-02	0.000E+00		
CO-60	1332.47	< 2.166E-02	0.000E+00		
ZN-65	1115.52	< 4.061E-02	0.000E+00		
NB-95	765.78	< 1.993E-02	0.000E+00		
ZR-95	756.72	< 2.787E-02	0.000E+00		
I-131	364.48	< 2.826E-02	0.000E+00		
CS-134	604.66	< 1.736E-02	0.000E+00		
CS-137	661.65	< 1.124E-02	0.000E+00		
BALA-140	1596.49	< 3.549E-02	0.000E+00		
BE-7	477.59	0.110	3.921E-02		
K-40	1460.75	0.331	0.110		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Del. S. Hill

Date: 1/14/88

 16 JAN 1987 8:56:55 FM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

^TAWBA AIRBORNE PARTICULATE COMP. - 217

FE: FILTER

QUANTITY: 6.220E 02

COLLECTION DATE(S): 12/31-1/7/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.23E-03	5.3E-04
BETA-T	1.86E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.8E-03
FE-59	* 2.51E-03	7.5E-03
CO-58	* 2.97E-03	3.6E-03
CO-60	* 4.41E-03	4.9E-03
ZN-65	* -5.02E-03	1.1E-02
ZR-95	* 0.00E-01	4.6E-03
NB-95	* -3.01E-03	3.9E-03
I-131	* -3.35E-03	8.0E-03
CS-134	* 0.00E-01	2.5E-03
CS-137	* 1.61E-03	3.8E-03
BALA-140	* 0.00E-01	6.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigmey

JAN 16 1987

REVIEWED BY:

Marcus

DATE: 1-20-87

13 JAN 1987 8:33:55 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 217

TYPE: FILTER

QUANTITY: 6.260E 02

COLLECTION DATE(S): 1/7-1/14/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.88E-02	2.3E-03
BETA-T	3.51E-02	1.7E-03
GAMMA SPEC		
MN-54	* -6.63E-04	2.9E-03
FE-59	* -4.05E-03	7.6E-03
CO-58	* -1.66E-03	2.9E-03
CO-60	* 0.00E-01	4.4E-03
ZN-65	* -4.60E-03	8.0E-03
ZR-95	9.45E-03	5.9E-03
NB-95	* 0.00E-01	2.8E-03
I-131	* 2.06E-03	2.6E-03
CS-134	* -2.83E-03	3.7E-03
CS-137	* 2.91E-03	3.4E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: THE WAS NO IDENTIFIABLE PEAK IN THE SPECTRUM OR
 PEAK SEARCH FOR ZR-95 (756.72 keV)

BY: *my*

REVIEWED BY: *marc...*

DATE: 1-20-87

148

26 JAN 1987 5:50:57 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217
TYPE: FILTER QUANTITY: 6.260E 02
EXPOSURE DATE(S): 1/14-1/21/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	2.29E-03	8.4E-04
BETA-T	1.58E-02	1.2E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.8E-03
FE-59	* 0.00E-01	6.3E-03
CO-58	* 3.55E-03	3.3E-03
CO-60	* -1.38E-03	3.7E-03
ZN-65	* 4.69E-03	7.4E-03
ZR-95	* -1.46E-03	5.3E-03
NB-95	* 8.61E-04	3.3E-03
I-131	* 1.41E-03	3.8E-03
CS-134	* 2.88E-03	3.7E-03
CS-137	* 0.00E-01	3.0E-03
BALA-140	* 2.28E-03	5.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *MM*

REVIEWED BY: *Marcia Lane* DATE: *1/21/87*

2 FEB 1987 2:01:28 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217
T : FILTER QUANTITY: 6.540E 02
COLLECTION DATE(S): 1/21-1/28/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.69E-03	7.8E-04
BETA-T	2.02E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	1.2E-03
FE-59	* 4.24E-03	6.0E-03
CO-58	* 0.00E-01	2.7E-03
CO-60	* -1.32E-03	3.0E-03
ZN-65	* -4.49E-03	6.3E-03
ZR-95	* 1.39E-03	4.2E-03
NB-95	* 2.46E-03	2.7E-03
I-131	* -1.31E-03	3.2E-03
CS-134	* 1.84E-03	3.2E-03
CS-137	* 1.42E-03	2.8E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigmon*

FEB 2 1987

REVIEWED BY: *Marcia Lane*

DATE: *2/5/87*

9 FEB 1987 11:25:46 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C/ WBA AIRBORNE PARTICULATE COMP. - 217
 T : FILTER QUANTITY: 6.400E 02
 COLLECTION DATE(S): 1/28-2/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	5.62E-03	1.1E-03
BETA-T	1.89E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.0E-03
FE-59	* 4.15E-03	5.1E-03
CO-58	* -8.42E-04	2.2E-03
CO-60	* 0.00E-01	1.9E-03
ZN-65	* 0.00E-01	7.2E-03
ZR-95	* 5.52E-03	5.2E-03
NB-95	* 1.59E-03	3.0E-03
I-131	* 0.00E-01	2.5E-03
CS-134	* 9.37E-04	3.1E-03
CS-137	* -1.45E-03	2.5E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Siger*

FEB 09 1987

REVIEWED BY: *Mavis Lane*

DATE: 2-10-87

23 FEB 1987 1:29:19 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217

1 : FILTER

QUANTITY: 6.480E 02

COLLECTION DATE(S): 2/4-2/11/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	9.26E-03	1.7E-03
BETA-T	2.74E-02	1.5E-03
GAMMA SPEC		
MN-54	* 8.48E-04	3.1E-03
FE-59	* 4.40E-03	8.2E-03
CO-58	* 3.45E-03	4.0E-03
CO-60	* -2.68E-03	3.3E-03
ZN-65	* -2.27E-03	7.5E-03
ZR-95	7.08E-03	5.1E-03 N/A
NB-95	* 6.50E-04	2.5E-03
I-131	* 3.08E-03	5.2E-03
CS-134	* 2.76E-03	4.0E-03
CS-137	* 0.00E-01	2.4E-03
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

L.S.

FEB 23 1987

REVIEWED BY:

Marcia Lane

DATE: 2.24.87

9 MAR 1987 2:08:04 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

WBA AIRBORNE PARTICULATE COMP. - 217
 FILTER QUANTITY: 6.120E 02
 COLLECTION DATE(S): 2/11-2/13/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	3.91E-03	1.2E-03 N/A
BETA-T	2.85E-02	1.7E-03 N/A
GAMMA SPEC		
MN-54	* 8.97E-04	2.4E-03
FE-59	* -2.17E-03	4.9E-03
CO-58	* 0.00E-01	1.2E-03
CO-60	* 2.83E-03	2.8E-03
ZN-65	* 4.76E-03	5.8E-03
ZR-95	* 0.00E-01	5.0E-03
NE-95	* 0.00E-01	3.1E-03
I-131	* -5.57E-04	2.0E-03
CS-134	* -1.96E-03	3.1E-03
CS-137	* -7.60E-04	2.3E-03
BALA-140	* 0.00E-01	4.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *LOB* 3-9-87

REVIEWED BY: *Dele E. Holden* DATE: *3/9/87*

3 MAR 1987 2:20:26 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

AWBA AIRBORNE PARTICULATE COMP. - 217
TYPE: FILTER QUANTITY: 6.530E 02
COLLECTION DATE(S): 2/18-2/25/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	6.87E-03	1.1E-03
BETA-T	1.97E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	2.9E-03
FE-59	* 0.00E-01	6.4E-03
CO-58	* 2.48E-03	2.7E-03
CO-60	* -1.33E-03	3.0E-03
ZN-65	* 0.00E-01	4.5E-03
ZR-95	* -1.35E-03	4.1E-03
NB-95	* 3.11E-03	2.7E-03
I-131	* -2.09E-03	2.7E-03
CS-134	* -9.18E-04	2.4E-03
CS-137	* -1.43E-03	2.7E-03
BALA-140	* 1.66E-03	3.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Alpha & Beta activities not at significant levels.*

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 3/4/87

15

11 MAR 1987 1:13:52 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

C WBA AIRBORNE PARTICULATE COMP. - 217
F: FILTER QUANTITY: 6.190E 02
COLLECTION DATE(S): 2/25-3/4/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 0.00E-01	3.9E-04
BETA-T	1.37E-02	1.2E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.2E-03
FE-59	* 0.00E-01	4.9E-03
CO-58	* -2.38E-03	3.3E-03
CO-60	* -1.26E-03	2.8E-03
ZN-65	* 0.00E-01	9.8E-03
ZR-95	* 2.60E-03	4.9E-03
NB-95	* 2.32E-03	3.4E-03
I-131	* -2.05E-03	4.8E-03
CS-134	* 0.00E-01	3.4E-03
CS-137	* 3.22E-03	3.1E-03
BALA-140	* 2.16E-03	6.5E-03

* NET ACTIVITY < CRITICAL LEVEL, (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Signy

MAR 11 1987

REVIEWED BY:

Don E. Hill

DATE:

3/12/87

10

 19 MAR 1987 8:47:12 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C WBA AIRBORNE PARTICULATE COMP. - 217
 FILTER QUANTITY: 5.870E 02
 COLLECTION DATE(S): 3/4-3/11/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	3.02E-03	8.6E-04
BETA-T	1.98E-02	1.5E-03
GAMMA SPEC		
MN-54	* 9.34E-04	3.1E-03
FE-59	* -2.26E-03	3.9E-03
CO-58	* -9.15E-04	3.0E-03
CO-60	* 0.00E-01	3.6E-03
ZN-65	* 2.48E-03	6.6E-03
ZR-95	* 1.50E-03	4.5E-03
NB-95	* -8.61E-04	1.5E-03
I-131	* 1.69E-03	2.9E-03
CS-134	* -1.02E-03	3.1E-03
CS-137	* -7.93E-04	3.3E-03
BALA-130	* 0.00E-01	2.9E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *mg*

 REVIEWED BY: *Dale E. Hold* DATE: *3/11/87*

23 MAR 1987 9:32:27 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

WBA AIRBORNE PARTICULATE COMP. - 217
 FILTER QUANTITY: 6.350E 02
 COLLECTION DATE(S): 3/11-3/18/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	2.27E-02	2.3E-03
BETA-T	4.16E-02	1.9E-03
GAMMA SPEC		
MN-54	* -9.21E-04	3.6E-03
FE-59	* 0.00E-01	3.1E-03
CO-58	* -9.04E-04	3.5E-03
CO-60	* 1.44E-03	3.8E-03
ZN-65	* 2.41E-03	8.0E-03
ZR-95	* -2.97E-03	5.9E-03
NB-95	* 3.41E-03	3.6E-03
I-131	* -1.17E-03	4.0E-03
CS-134	* 4.03E-03	4.3E-03
CS-137	* 4.72E-03	3.1E-03
BALA-140	* -2.00E-03	3.5E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No Peak identified for Cs-137 at 662 keV, MDA = 6 net counts

BY: *MA*

REVIEWED BY: *Dale E. Holder*

DATE: 3/24/87

13 APR 1987 8:26:59 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

COTAWBA AIRBORNE PARTICULATE COMP. - 217

E: FILTER

QUANTITY: 6.330E 02

COLLECTION DATE(S): 3/18-3/25/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	2.75E-03	7.4E-04
BETA-T	2.16E-02	1.4E-03
GAMMA SPEC		
MN-54	* 1.88E-03	3.8E-03
FE-59	* 4.99E-03	9.3E-03
CO-58	* -9.81E-04	2.2E-03
CO-60	* 0.00E-01	4.1E-03
ZN-65	* -2.47E-03	8.9E-03
ZR-95	* 1.63E-03	7.5E-03
NB-95	* 3.01E-03	4.1E-03
I-131	* -3.54E-03	6.6E-03
CS-134	* -3.05E-03	3.9E-03
CS-137	* 7.89E-04	3.8E-03
BALA-140	* 0.00E-01	4.4E-03
NPBE-7	1.72E-01	5.1E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBe-7 at 878 keV identified by Peak Search and NID*

BY:

Jim Sigmund

REVIEWED BY:

Dale S. Holden

DATE:

4-14-87

54

13 APR 1987 8:31:31 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217
E: FILTER QUANTITY: 5.620E 02
COLLECTION DATE(S): 3/25-4/1/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	6.86E-04	4.2E-04
BETA-T	1.35E-02	1.3E-03
GAMMA SPEC		
MN-54	* 5.27E-03	4.1E-03
FE-59	* -2.71E-03	9.0E-03
CO-58	* -2.16E-03	4.3E-03
CO-60	* 3.26E-03	4.0E-03
ZN-65	* 0.00E-01	7.8E-03
ZR-95	* 5.36E-03	7.4E-03
NB-95	* 2.16E-03	4.3E-03
I-131	* 4.36E-03	7.4E-03
CS-134	* -1.14E-03	4.4E-03
CS-137	* 0.00E-01	3.8E-03
BALA-140	* -3.09E-03	5.4E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

REVIEWED BY: *Dale E. Holt* DATE: *7-17-87*

37

16 APR 1987 12:59:33 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217
E: FILTER QUANTITY: 5.710E 02
COLLECTION DATE(S): 4/1-4/8/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 7.41E-04	6.5E-04
BETA-T	1.53E-02	1.3E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.2E-03
FE-59	* 6.59E-03	7.9E-03
CO-58	* -8.65E-04	3.4E-03
CO-60	* 0.00E-01	1.9E-03
ZN-65	* -4.54E-03	7.9E-03
ZR-95	* -1.41E-03	6.5E-03
NB-95	* -1.69E-03	3.2E-03
I-131	* 0.00E-01	5.9E-03
CS-134	* 9.23E-04	4.0E-03
CS-137	* 2.79E-03	3.4E-03
BALA-140	* -2.41E-03	5.4E-03
NPBE-7	1.32E-01	5.5E-02
NPK-40	1.99E-01	7.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *Jim Sigman* APR 16 1987

REVIEWED BY: *Dale F. Hold* DATE: *4-16-87*

21 APR 1987 10:33:11 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217

TYPE: FILTER

QUANTITY: 5.680E 02

COLLECTION DATE(S): 4/8-4/15/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.23E-02	2.8E-03
BETA-T	3.00E-02	1.9E-03
GAMMA SPEC		
MN-54	* -1.91E-03	3.8E-03
FE-59	* -2.33E-03	7.0E-03
CO-58	* 9.37E-04	3.6E-03
CO-60	* -6.11E-03	4.3E-03
ZN-65	* -2.55E-03	1.1E-02
ZR-95	* -1.53E-03	6.7E-03
NB-95	* 8.79E-04	3.4E-03
I-131	* -1.14E-03	3.8E-03
CS-134	* 0.00E-01	3.6E-03
CS-137	* 1.60E-03	3.6E-03
BALA-140	* 2.13E-03	4.8E-03
NPB-7	1.84E-01	5.4E-02
NPK-40	2.14E-01	9.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPB-7 at 470 keV and NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: *4.22.87*

 28 APR 1987 3:19:23 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAMBA AIRBORNE PARTICULATE COMP. - 217

FILTER

QUANTITY: 5.750E 02

COLLECTION DATE(S): 4/15-4/22/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.07E-02	1.5E-03 N/A
BETA-T	2.77E-02	1.7E-03 N/A
GAMMA SPEC		
MN-54	* -1.70E-03	2.7E-03
FE-59	* 6.47E-03	7.2E-03
CO-58	* -8.54E-04	3.5E-03
CO-60	* -1.35E-03	3.0E-03
ZN-65	* -4.50E-03	7.8E-03
ZR-95	* 0.00E-01	5.9E-03
NB-95	* 8.30E-04	3.2E-03
I-131	* -2.18E-03	5.7E-03
CS-134	* 9.16E-04	4.2E-03
CS-137	5.55E-03	3.5E-03 .03%
BALA-140	* 0.00E-01	5.7E-03
NPBE-7	1.23E-01	4.3E-02
NPK-40	3.68E-01	8.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 keV not identified by Peak Search or NID, MDA: 8 net counts,
 NPBE-7 at 475 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: 

REVIEWED BY: 

DATE: 4-30-87

 4 JUN 1987 11:26:02 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA AIRBORNE PARTICULATE COMP. - 217
 TYPE: FILTER QUANTITY: 5.860E 02
 COLLECTION DATE(S): 4/22-4/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.15E-03	8.1E-04 N/A
BETA-T	1.61E-02	1.3E-03 N/A
GAMMA SPEC		
MN-54	* 1.86E-03	3.7E-03
FE-59	* -2.25E-03	6.8E-03
CO-58	* 0.00E-01	3.6E-03
CO-60	* 2.96E-03	4.2E-03
ZN-65	* -2.48E-03	7.4E-03
ZR-95	8.90E-03	5.6E-03 N/A
NB-95	5.11E-03	2.9E-03 N/A
I-131	* -1.10E-03	3.2E-03
CS-134	* 2.02E-03	4.0E-03
CS-137	* -3.11E-03	3.1E-03
BALA-140	* -2.06E-03	3.6E-03
NPBE-7	2.49E-01	5.9E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Er-95 at 757 keV, MDA = 6 net counts or Nb-95 at 766 keV, MDA = 6 net counts. NPBE-7 at 478 keV identified by Peak Search and ID.

BY: *Jim Sigmund 6-4-87*

REVIEWED BY: *Dale S. Hold* DATE: *6-5-87*

 4 JUN 1987 11:30:55 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 * AWBA AIRBORNE PARTICULATE COMP. - 217
 * TYPE: FILTER QUANTITY: 5.920E 02
 * COLLECTION DATE(S): 4/29-5/6/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.77E-03	8.4E-04 N/A
BETA-T	2.24E-02	1.4E-03 N/A
GAMMA SPEC		
MN-54	* 9.94E-04	4.6E-03
FE-59	* -2.47E-03	6.5E-03
CO-58	* 0.00E-01	4.0E-03
CO-60	* -3.09E-03	3.8E-03
ZN-65	* -2.60E-03	6.9E-03
ZR-95	* 0.00E-01	4.0E-03
NB-95	* 3.88E-03	3.9E-03
I-131	* 0.00E-01	5.3E-03
CS-134	* -1.08E-03	3.9E-03
CS-137	* 3.37E-03	3.6E-03
BALA-140	* 0.00E-01	3.6E-03
NPBE-7	1.59E-01	3.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *Jim Sigman 6-4-87*

REVIEWED BY: *De S. Hill* DATE: *6-5-87*

 5 JUN 1987 11:18:19 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 217
 TYPE: FILTER QUANTITY: 6.200E 02
 COLLECTION DATE(S): 5/6-5/13/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)	
ALPHA-T	1.46E-03	6.8E-04	N/A
BETA-T	2.16E-02	9.6E-04	N/A
GAMMA SPEC			
MN-54	* 2.81E-03	3.9E-03	
FE-59	* 4.78E-03	6.8E-03	
CO-58	* -1.89E-03	3.3E-03	
CO-60	* 0.00E-01	2.2E-03	
ZN-65	* 0.00E-01	3.6E-03	
ZR-95	* 1.56E-03	5.2E-03	
NB-95	9.19E-03	3.9E-03	N/A
I-131	* -7.19E-04	4.0E-03	
CS-134	* 4.10E-03	3.2E-03	
CS-137	* 0.00E-01	1.6E-03	
BALA-140	* 0.00E-01	0.0E-01	
NPBE-7	2.12E-01	4.0E-02	

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No Peak identified for Nb-95 at 766 keV, MDA = 10 net counts.
 NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *Jim Sigmor* 6-5-87

REVIEWED BY: *D. E. Holl* DATE: 6-5-87

 4 JUN 1987 11:40:56 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA AIRBORNE PARTICULATE COMP. - 217
 TYPE: FILTER QUANTITY: 5.990E 02
 COLLECTION DATE(S): 5/13-5/20/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	9.77E-04	5.6E-04 N/A
BETA-T	1.78E-02	1.4E-03 N/A
GAMMA SPEC		
MN-54	* -9.76E-04	3.5E-03
FE-59	* -4.65E-03	6.6E-03
CO-58	* 4.79E-03	3.7E-03
CO-60	* 0.00E-01	2.2E-03
ZN-65	* -2.55E-03	8.5E-03
ZR-95	* -3.15E-03	7.4E-03
NB-95	* 0.00E-01	2.6E-03
I-131	* 4.95E-03	4.3E-03
CS-134	* 3.20E-03	4.1E-03
CS-137	* 4.17E-03	3.2E-03
BALA-140	* 2.11E-03	4.7E-03
NPBE-7	1.43E-01	5.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV ident: filed by Peak Search and NID.

BY:

Jim Sigmon 6-4-87

REVIEWED BY:

Dale F. Holden

DATE:

6-5-87

12

 2 JUN 1987 9:44:57 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

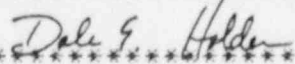
TAWBA AIRBORNE PARTICULATE COMP. - 217
 E: FILTER QUANTITY: 6.390E 02
 COLLECTION DATE(S): 5/20-5/27/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* -4.00E-04	9.0E-04
BETA-T	1.07E-02	1.2E-03 N/A
GAMMA SPEC		
MN-54	* 2.76E-03	2.8E-03
FE-59	* 2.28E-03	7.6E-03
CO-58	* -9.24E-04	3.8E-03
CO-60	* 1.43E-03	3.2E-03
ZN-65	* -2.41E-03	7.2E-03
ZR-95	* 4.57E-03	6.3E-03
NB-95	* 3.59E-03	3.6E-03
I-131	* 2.25E-03	5.6E-03
CS-134	* 0.00E-01	3.2E-03
CS-137	* 7.82E-04	3.2E-03
BALA-140	* -2.33E-03	4.0E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: 

REVIEWED BY: 

DATE: 6-2-87

16 JUN 1987 1:34:32 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217
TYPE: FILTER QUANTITY: 6.090E 02
EXPOSURE DATE(S): 5/27-6/3/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)	
ALPHA-T	2.13E-03	1.1E-03	--
BETA-T	2.05E-02	1.6E-03	
GAMMA SPEC			
MN-54	* 0.00E-01	1.8E-03	
FE-59	* -2.53E-03	5.7E-03	
CO-58	* 9.64E-04	4.2E-03	
CO-60	* -2.86E-03	4.0E-03	
ZN-65	* -4.90E-03	6.0E-03	
ZR-95	* -1.59E-03	4.8E-03	
NB-95	* 5.99E-03	4.9E-03	
I-131	* 6.31E-03	8.6E-03	
CS-134	* -2.95E-03	3.8E-03	
CS-137	* 2.99E-03	3.3E-03	
BALU-140	* 0.00E-01	0.0E-01	
NPBE-7	9.60E-02	3.3E-02	

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 478 kev identified by Peak Search and NID.*

BY: *mg*

REVIEWED BY: *Dale F. Holden* DATE: *6-17-87*

17 JUN 1987 11:55:57 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217
TYPE: FILTER QUANTITY: 5.890E 02
SECTION DATE(S): 6/3-6/10/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	1.25E-03	5.6E-04
BETA-T	2.59E-02	1.7E-03
GAMMA SPEC		
MN-54	* 3.72E-03	3.5E-03
FE-59	* -4.77E-03	7.5E-03
CO-58	* -2.82E-03	3.1E-03
CO-60	* 0.00E-01	3.0E-03
ZN-65	* 0.00E-01	9.3E-03
ZR-95	* 3.08E-03	5.8E-03
NB-95	* 0.00E-01	3.9E-03
I-131	* 0.00E-01	6.0E-03
CS-134	* 0.00E-01	4.0E-03
CS-137	* -2.32E-03	2.6E-03
BALA-140	* 7.64E-03	7.6E-03
NPBE-7	2.05E-01	4.6E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 478 keV identified by Peak Search and NID.*

BY: *Lynn H. Bretherton* JUN 17 1987

REVIEWED BY: *Dale S. Holden* DATE: *6-22-87*

87

23 JUN 1987 11:39:10 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217

TYPE: FILTER

QUANTITY: 6.250E 02

COLLECTION DATE(S): 6/10-6/17/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	4.75E-03	1.4E-03
BETA-T	2.08E-02	1.5E-03
GAMMA SPEC		
MN-54	* 3.50E-03	3.5E-03
FE-59	* -8.85E-03	7.7E-03
CO-58	* 0.00E-01	2.8E-03
CO-60	* -1.39E-03	3.7E-03
ZN-65	* -2.34E-03	5.2E-03
ZR-95	* 0.00E-01	3.5E-03
NB-95	* 2.54E-03	3.9E-03
I-131	* 0.00E-01	3.4E-03
CS-134	* -9.51E-04	3.9E-03
CS-137	* 1.46E-03	3.3E-03
BALA-140	* -2.27E-03	5.1E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigmund*

JUN 23 1987

REVIEWED BY: *Del. Holder*

DATE: 6-24-87

97

 1 JUL 1987 8:46:54 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C TAWBA AIRBORNE PARTICULATE COMP. - 217
 FILTER: QUANTITY: 5.960E 02
 COLLECTION DATE(S): 6/17-6/24/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	2.54E-02	3.3E-03
BETA-T	3.14E-02	1.8E-03
GAMMA SPEC		
MN-54	* 1.95E-03	3.1E-03
FE-59	* 0.00E-01	6.1E-03
CO-58	* -1.96E-03	3.4E-03
CO-60	* 3.23E-03	4.0E-03
ZN-65	* 5.27E-03	8.3E-03
ZR-95	* 0.00E-01	4.0E-03
NB-95	* 0.00E-01	3.3E-03
I-131	* 0.00E-01	4.0E-03
CS-134	* 1.07E-03	2.8E-03
CS-137	* 2.53E-03	3.7E-03
BALA-140	* 0.00E-01	3.7E-03
NPBE-7	1.89E-01	4.5E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBE-7 at 478 keV identified by Peak Search and NID.*

BY: *My*

REVIEWED BY: *Dale S. Hall*

DATE: *7-1-87*

q7

13 JUL 1987 4:59:54 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA AIRBORNE PARTICULATE COMP. - 217
 TYPE: FILTER QUANTITY: 6.140E 02
 COLLECTION DATE(S): 6/24-7/1/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 8.74E-04	1.1E-03
BETA-T	1.85E-02	1.4E-03
GAMMA SPEC		
MN-54	* -9.12E-04	3.0E-03
FE-59	* -4.81E-03	5.9E-03
CO-58	* -1.87E-03	4.0E-03
CO-60	* 0.00E-01	4.1E-03
ZN-65	* -4.89E-03	9.8E-03
ZR-95	* -1.54E-03	6.7E-03
NB-95	* -1.87E-03	3.5E-03
I-131	* 3.60E-03	5.4E-03
CS-134	* 0.00E-01	3.1E-03
CS-137	* 1.52E-03	3.7E-03
BALA-140	* 0.00E-01	5.5E-03
NPBE-7	1.53E-01	3.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBE-7 at 170 keV identified by Peak Search and NID.*

BY: *MM*

 REVIEWED BY: *Dale S. Gold* DATE: *7-14-87*

102

 14 JUL 1987 10:37:19 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 217

FILTER

QUANTITY: 5.620E 02

COLLECTION DATE(S): 7/1-7/8/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 6.73E-04	6.7E-04
BETA-T	1.33E-02	1.3E-03
GAMMA SPEC		
MN-54	* 2.97E-03	4.1E-03
FE-59	* -2.51E-03	7.5E-03
CO-58	* 9.94E-04	4.1E-03
CO-60	* -3.19E-03	4.5E-03
ZN-65	* -2.65E-03	9.6E-03
ZR-95	* 1.63E-03	7.1E-03
NB-95	* 0.002E-01	2.7E-03
I-131	* 3.85E-03	5.2E-03
CS-134	* 4.30E-03	4.3E-03
CS-137	* 3.31E-03	3.3E-03
BALA-140	* -5.19E-03	6.4E-03
NPBE-7	1.25E-01	4.3E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPBe-7 at 478 keV identified by Peak Search and NLD.*

BY: *[Signature]*

REVIEWED BY:

[Signature]

DATE:

7-14-87

109

23 JUL 1987 11:49:46 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 217
 FILTER: QUANTITY: 6.520E 02
 COLLECTION DATE(S): 7/8-7/15/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	1.02E-03	7.6E-04
BETA-T	1.94E-02	1.4E-03
GAMMA SPEC		
MN-54	* -9.13E-04	3.3E-03
FE-59	* 0.00E-01	3.2E-03
CO-58	* 1.84E-03	3.4E-03
CO-60	5.78E-03	3.5E-03
ZN-65	* 0.00E-01	8.3E-03
ZR-95	* -1.52E-03	6.3E-03
NB-95	* 0.00E-01	2.2E-03
I-131	* -7.33E-04	4.9E-03
CS-134	* 4.99E-03	4.3E-03
CS-137	* 0.00E-01	3.1E-03
BALA-140	* -2.31E-03	6.1E-03
NPBE-7	8.39E-02	3.0E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Co-60 at 1332 keV, MDA. Y net counts.
 NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *Jim Sigman*

JUL 23 1987

REVIEWED BY: *Dale S. Holt*

DATE: 7.24.87

 30 JUL 1987 3:14:54 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217
 E: FILTER QUANTITY: 6.340E 02
 COLLECTION DATE(S): 7/15-7/22/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	2.97E-03	1.2E-03
BETA-T	3.36E-02	1.9E-03
GAMMA SPEC		
MN-54	* -7.92E-04	2.9E-03
FE-59	* -1.92E-03	5.1E-03
CO-58	* -7.77E-04	3.7E-03
CO-60	3.92E-03	2.9E-03
ZN-65	* -6.32E-03	7.0E-03
ZR-95	* -2.55E-03	5.1E-03
NB-95	* 4.38E-03	3.7E-03
I-131	* -4.84E-04	3.9E-03
CS-134	* -8.65E-04	2.9E-03
CS-137	* 2.68E-03	3.3E-03
BALA-140	* 1.77E-03	3.1E-03
NPBE-7	1.85E-01	4.4E-02
NPK-40	5.10E-01	9.3E-02

*No peak identified for Co-60 at 1332 keV, MDA= 3 net counts.
 NPBE-7 at 470keV and NPK-40 at 1461 keV identified by Peak Search and NID.*

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

8712

JUL 30 1987

Dale S. Hold

7-31-87

 5 AUG 1987 10:38:39 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

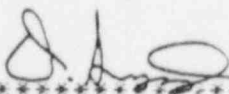
 CATAWBA AIRBORNE PARTICULATE COMP. - 217
 TYPE: FILTER QUANTITY: 6.170E 02
 COLLECTION DATE(S): 7/22-7/29/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 7.46E-04	9.1E-04
BETA-T	3.03E-02	1.8E-03
GAMMA SPEC		
MN-54	* 2.91E-03	4.2E-03
FE-59	1.73E-02	8.9E-03
CO-58	6.91E-03	3.6E-03
CO-60	* 1.53E-03	2.6E-03
ZN-65	* 0.00E-01	8.1E-03
ZR-95	* 8.17E-03	7.5E-03
NB-95	* 9.77E-04	4.7E-03
I-131	* 6.23E-03	6.1E-03
CS-134	* 0.00E-01	2.6E-03
CS-137	* -8.27E-04	3.8E-03
BALA-140	* 2.68E-03	6.0E-03

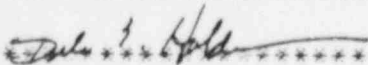
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No Peak identified for Fe-59 at 1099 keV, nor Co-58 at 811 keV,
 MDA = 7 net counts.

BY:



 REVIEWED BY:



DATE: 8-7-87

 12 AUG 1987 2:30:10 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217

FILTER QUANTITY: 6.330E 02
 COLLECTION DATE(S): 7/29-8/5/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 8.23E-04	8.2E-04
BETA-T	2.89E-02	1.6E-03
GAMMA SPEC		
MN-54	* 0.00E-01	3.4E-03
FE-59	* -6.06E-03	7.8E-03
CO-58	* -8.03E-04	2.7E-03
CO-60	* 0.00E-01	1.9E-03
ZN-65	* -6.39E-03	6.4E-03
ZR-95	* -3.96E-03	5.4E-03
NB-95	1.01E-02	4.2E-03
I-131	* -1.91E-03	4.6E-03
CS-134	* -8.69E-04	3.8E-03
CS-137	* -2.02E-03	3.5E-03
BALA-140	* 0.00E-01	4.2E-03
NPBE-7	1.45E-01	4.2E-02
NPK-40	2.11E-01	7.4E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Nb-95 at 766 KeV, MDA = 13 net counts, not identified as a peak.
 NPBE-7 at 478 KeV and NPK-40 at 1461 KeV identified by Peak Search and A.I.D.

BY: *MM*

REVIEWED BY: *Dale E. Hall*

DATE: 8-13-87

18 AUG 1987 11:15:09 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA AIRBORNE PARTICULATE COMP. - 217

FILTER

QUANTITY: 5.770E 02

COLLECTION DATE(S): 8/5-8/12/87

UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (FCI/UT)	SIGMA (FCI/UT)
ALPHA-T	2.04E-03	8.8E-04 N/A
BETA-T	2.21E-02	1.5E-03 N/A
GAMMA SPEC		
MN-54	* 4.10E-03	3.2E-03
FE-59	* 0.00E-01	4.9E-03
CO-58	* 0.00E-01	2.5E-03
CO-60	* 0.00E-01	3.4E-03
<u>ZN-65</u>	* 0.00E-01	0.0E-01
ZR-95	* -1.64E-03	4.9E-03
NB-95	* 9.44E-04	2.8E-03
I-131	* 0.00E-01	3.1E-03
CS-134	* -2.24E-03	4.7E-03
<u>CS-137</u>	* 0.00E-01	0.0E-01
BALA-140	* 0.00E-01	3.2E-03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigman

AUG 18 1987

REVIEWED BY:

Dale S. Hall

DATE:

8-19-87

 28 AUG 1987 10:46:05 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CATAWBA AIRBORNE PARTICULATE COMP. - 217
 TYPE: FILTER QUANTITY: 5.990E 02
 COLLECTION DATE(S): 8/12-8/19/87 UNITS: CUBIC METERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 4.90E-04	4.9E-04
BETA-T	6.37E-03	1.1E-03 N/A
GAMMA SPEC		
MN-54	* 1.97E-03	3.1E-03
FE-59	* -2.37E-03	7.1E-03
CO-58	* -1.94E-03	3.4E-03
CO-60	* 1.57E-03	4.2E-03
ZN-65	* 0.00E-01	6.4E-03
ZR-95	* 3.20E-03	5.5E-03
NB-95	* -9.15E-04	3.0E-03
I-131	* -6.11E-04	3.8E-03
CS-134	* 5.41E-03	4.5E-03
CS-137	* 0.00E-01	3.8E-03
BALA-140	* 0.00E-01	4.3E-03
NB-7	1.25E-01	3.8E-02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NB-7 at 478 kev identified by Peak Search and NID.*

BY: *Lab.*

REVIEWED BY: *Dale S. Holder*

DATE: 8-28-87

Plant Name : CNS
 Sample Number : 21
 Type/Location : AIR PARTICULATES / 217
 Sample Date : 26-AUG-1987 14:05:00
 Acq. Start Time : 10-SEP-1987 14:22:17
 Sample Quantity : 631.000 M3
 Sample ID : 19AUG 26AUG87
 Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.180E-02	1.700E-03		0.000E+00
ALPHA	1.00	1.970E-03	9.300E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.226E-03	0.000E+00		
CO-58	810.76	< 5.534E-03	0.000E+00		
FE-59	1099.22	< 3.424E-02	0.000E+00		
CO-60	1332.47	< 1.613E-02	0.000E+00		
ZN-65	1115.52	< 3.336E-02	0.000E+00		
NB-95	765.78	< 1.105E-02	0.000E+00		
ZR-95	756.72	< 1.620E-02	0.000E+00		
I-131	364.48	< 3.088E-02	0.000E+00		
CS-134	604.66	< 4.892E-03	0.000E+00		
CS-137	661.65	< 6.035E-03	0.000E+00		
BALA-140	537.27	< 8.068E-02	0.000E+		
BE-7	477.57	0.251	4.428E-		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Michael J

Approved by: Dale E. Hold Date: 10 / 1 / 87

Be-7 at 475 keV ident: find by Peak Search & NID.

Plant Name : CNS
Sample Number : 38
Type/Location : AIR PARTICULATES / 217
Sample Date : 2-SEP-1987 10:55:00
Acq. Start Time : 12-SEP-1987 14:45:26
Sample Quantity : 602.000 M3
Sample ID : 26AUG TO 2SEP87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.500E-02	1.600E-03		0.000E+00
ALPHA	1.00	2.300E-03	8.100E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.736E-03	0.000E+00		
CO-58	810.76	< 6.999E-03	0.000E+00		
FE-59	1099.22	< 1.280E-02	0.000E+00		
CO-60	1332.47	< 2.074E-02	0.000E+00		
ZN-65	1115.52	< 0.000E+00	0.000E+00		
NB-95	765.78	< 1.133E-02	0.000E+00		
ZR-95	756.72	< 1.444E-02	0.000E+00		
I-131	364.48	< 1.597E-02	0.000E+00		
CS-134	604.66	< 1.135E-02	0.000E+00		
CS-137	661.65	< 1.138E-02	0.000E+00		
BALA-140	537.27	< 3.546E-02	0.000E+00		
BE-7	477.59	0.176	4.357E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: My

Approved by: Dale E. Hold

Date: 10/1/87

Be-7 at 478 keV identified by Peak Search & NID.

corrected results

Plant Name : CNS
 Sample Number : 70
 Type/Location : AIR PARTICULATES / 217
 Sample Date : 16-SEP-1987 11:52:00
 Acq. Start Time : 22-SEP-1987 16:03:31
 Sample Quantity : 576.000 M3
 Sample ID : 9SEP TO 16SEP87
 Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.730E-02	1.400E-03		0.000E+00
ALPHA	1.00	9.460E-04	5.500E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.762E-03	0.000E+00		
CO-58	810.76	< 7.863E-03	0.000E+00		
FE-59	1099.22	< 2.956E-02	0.000E+00		
CO-60	1332.47	< 1.245E-02	0.000E+00		
ZN-65	1115.52	< 1.455E-02	0.000E+00		
NB-95	765.78	< 1.014E-02	0.000E+00		
ZR-95	756.72	< 1.338E-02	0.000E+00		
I-131	364.48	< 1.371E-02	0.000E+00		
CS-134	604.66	< 5.260E-03	0.000E+00		
CS-137	661.65	< 7.365E-03	0.000E+00		
BALA-140	537.27	< 2.738E-02	0.000E+00		
BE-7	477.59	7.913E-02	3.305E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: *Mmy*

Approved by: *Dale S. Hollis* Date: 10/ 1 / 87

Be-7 at 478 keV identified by Peak Search & NID.

corrected results

Plant Name : CNS
 Sample Number : 91
 Type/Location : AIR PARTICULATES / 217
 Sample Date : 23-SEP-1987 14:45:00
 Acq. Start Time : 26-SEP-1987 01:22:58
 Sample Quantity : 610.000 M3
 Sample ID : 16SEP TO 23SEP87
 Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.040E-02	1.800E-03		0.000E+00
ALPHA	1.00	4.880E-03	2.000E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.903E-07	0.000E+00		
CO-58	810.76	< 5.062E-03	0.000E+00		
FE-59	1099.22	< 1.759E-02	0.000E+00		
CO-60	1332.47	< 1.438E-02	0.000E+00		
ZN-65	1115.52	< 1.357E-02	0.000E+00		
NB-95	765.78	< 1.108E-02	0.000E+00		
ZR-95	756.72	< 1.462E-02	0.000E+00		
I-131	364.48	< 1.042E-02	0.000E+00		
CS-134	604.66	< 8.974E-03	0.000E+00		
CS-137	661.65	< 6.238E-03	0.000E+00		
BALA-140	537.27	< 2.920E-02	0.000E+00		
BE-7	477.59	0.165	6.030E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. J. [Signature]

Approved by: Dale S. [Signature] Date: 10/1/87

Be-7 at 478 keV identified by Peak Search & NID.

Corrected results

Plant Name : CNS
 Sample Number : 139
 Type/Location : AIR PARTICULATES / 217
 Sample Date : 30-SEP-1987 12:20:00
 Acq. Start Time : 4-OCT-1987 20:42:32
 Sample Quantity : 563.000 M3
 Sample ID : 23SEP TO 30SEP87
 Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.370E-02	1.900E-03		0.000E+00
ALPHA	1.00	6.360E-03	1.900E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 5.989E-03	0.000E+00		
CO-58	810.76	< 1.128E-02	0.000E+00		
FE-59	1099.22	< 2.012E-02	0.000E+00		
CO-60	1332.47	< 1.581E-02	0.000E+00		
ZN-65	1115.52	< 2.626E-02	0.000E+00		
NB-95	765.78	< 5.684E-03	0.000E+00		
ZR-95	756.72	< 1.706E-02	0.000E+00		
I-131	364.48	< 1.220E-02	0.000E+00		
CS-134	604.66	< 9.239E-03	0.000E+00		
CS-137	661.65	< 6.047E-03	0.000E+00		
BALA-140	1596.49	< 2.042E-02	0.000E+00		
BE-7	477.59	0.140	3.612E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Bigman

Approved by: Del S. Reid

Date: 10/13/87

Plant Name : CNS
Sample Number : 169
Type/Location : AIR PARTICULATES / 217
Sample Date : 7-OCT-1987 14:00:00
Acq. Start Time : 13-OCT-1987 15:06:47
Sample Quantity : 648.000 M3
Sample ID : 30SEP TO 7OCT87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	1.770E-02	1.300E-03		0.000E+00
ALPHA	1.00	4.980E-03	1.400E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.597E-03	0.000E+00		
CO-58	810.76	< 6.284E-03	0.000E+00		
FE-59	1099.22	< 1.003E-02	0.000E+00		
CO-60	1332.47	< 1.176E-02	0.000E+00		
ZN-65	1115.52	< 2.311E-02	0.000E+00		
NB-95	765.78	< 9.587E-03	0.000E+00		
ZR-95	756.72	< 1.288E-02	0.000E+00		
I-131	364.48	< 1.293E-02	0.000E+00		
CS-134	604.66	< 6.121E-03	0.000E+00		
CS-137	661.65	< 7.523E-03	0.000E+00		
BALA-140	1595.49	< 1.147E-02	0.000E+00		
BE-7	477.59	0.141	4.537E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: -----

Approved by: -----

Date: 12 / 17 / 87

Plant Name : CNS
Sample Number : 196
Type/Location : AIR PARTICULATES / 217
Sample Date : 14-OCT-1987 14:20:00
Acq. Start Time : 19-OCT-1987 15:40:12
Sample Quantity : 614.000 M3
Sample ID : 7OCT TO 14OCT87
Measurement Type : CONTROL

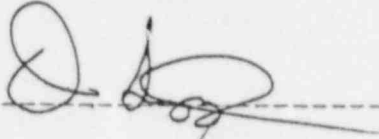
***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.160E-02	1.500E-03		0.000E+00
ALPHA	1.00	2.470E-03	1.000E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.182E-02	0.000E+00		
CO-58	810.76	< 1.050E-02	0.000E+00		
FE-59	1099.22	< 2.118E-02	0.000E+00		
CO-60	1332.47	< 1.340E-02	0.000E+00		
ZN-65	1115.52	< 3.344E-02	0.000E+00		
NB-95	765.78	< 8.821E-03	0.000E+00		
ZR-95	756.72	< 2.151E-02	0.000E+00		
I-131	364.48	< 1.438E-02	0.000E+00		
CS-134	604.66	< 1.168E-02	0.000E+00		
CS-137	661.65	< 1.402E-02	0.000E+00		
BALA-140	1596.49	< 2.530E-02	0.000E+00		
BE-7	477.59	7.348E-02	3.689E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 10 / 28 / 87

Plant Name : CNS
Sample Number : 213
Type/Location : AIR PARTICULATES / 217
Sample Date : 21-OCT-1987 13:40:00
Acq. Start Time : 26-OCT-1987 16:05:09
Sample Quantity : 640.000 M3
Sample ID : 14OCT TO 21OCT87
Measurement Type : CONTROL


***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.560E-02	1.900E-03		0.000E+00
ALPHA	1.00	6.830E-03	1.800E-03		-0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.863E-03	0.000E+00		
CO-58	810.76	< 6.304E-03	0.000E+00		
FE-59	1099.22	< 1.562E-02	0.000E+00		
CO-60	1332.47	< 1.191E-02	0.000E+00		
ZN-65	1115.52	< 0.000E+00	0.000E+00		
NB-95	765.78	< 1.144E-02	0.000E+00		
ZR-95	756.72	< 1.822E-02	0.000E+00		
I-131	364.48	< 1.016E-02	0.000E+00		
CS-134	604.66	< 7.408E-03	0.000E+00		
CS-137	661.65	< 7.540E-03	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
BE-7	477.51	0.183	3.960E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
 Sample Number : 228
 Type/Location : AIR PARTICULATES / 217
 Sample Date : 28-OCT-1987 13:33:00
 Acq. Start Time : 3-NOV-1987 11:15:33
 Sample Quantity : 645.000 M3
 Sample ID : 21OCT TO 28OCT87
 Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
BETA	1.00	2.840E-02	1.800E-03		0.000E+00
ALPHA	1.00	4.460E-03	1.700E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 6.596E-03	0.000E+00		
CO-58	810.76	< 8.903E-03	0.000E+00		
FE-59	1099.22	< 1.972E-02	0.000E+00		
CO-60	1332.47	< 9.649E-03	0.000E+00		
ZN-65	1115.52	< 2.537E-02	0.000E+00		
NR-95	765.78	< 7.557E-03	0.000E+00		
ZR-95	756.72	< 1.957E-02	0.000E+00		
I-131	364.48	< 1.385E-02	0.000E+00		
CS-134	604.66	< 8.157E-03	0.000E+00		
CS-137	661.65	< 9.898E-03	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
BE-7	477.59	0.141	3.466E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

VAX/VMS Sample Analysis Report generated : 23-NOV-1987 10:50:23

Plant Name : CNS
Sample Number : 251
Type/Location : AIR PARTICULATES / 217
Sample Date : 4-NOV-1987 12:50:00
Acq. Start Time : 9-NOV-1987 12:38:39
Sample Quantity : 625.000 M3
Sample ID : 28OCT TO 4NOV87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	4.760E-02	2.200E-03		0.000E+00
ALPHA	1.00	3.600E-03	1.600E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.545E-03	0.000E+00		
CO-58	810.76	< 1.009E-02	0.000E+00		
FE-57	1099.22	< 2.526E-02	0.000E+00		
CO-60	1332.47	< 1.012E-02	0.000E+00		
ZN-65	1115.52	< 2.671E-02	0.000E+00		
NB-95	765.78	< 9.862E-03	0.000E+00		
ZR-95	756.72	< 1.900E-02	0.000E+00		
I-131	364.48	< 1.382E-02	0.000E+00		
CS-134	604.66	< 9.993E-03	0.000E+00		
CS-137	661.65	< 1.127E-02	0.000E+00		
BALA-140	1596.49	< 2.253E-02	0.000E+00		
BE-7	477.59	0.132	3.522E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: De E. Ho

Date: 11/23/87

Plant Name : CNS
Sample Number : 271
Type/Location : AIR PARTICULATES / 217
Sample Date : 11-NOV-1987 13:25:00
Acq. Start Time : 13-NOV-1987 14:37:49
Sample Quantity : 644.000 M3
Sample ID : 4NOV TO 11NOV87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.130E-02	1.600E-03		0.000E+00
ALPHA	1.00	5.160E-03	1.700E-03		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.043E-02	0.000E+00		
CO-58	810.76	< 9.663E-03	0.000E+00		
FE-59	1099.22	< 2.574E-02	0.000E+00		
CO-60	1332.47	< 1.960E-02	0.000E+00		
ZN-65	1115.52	< 2.238E-02	0.000E+00		
NB-95	765.78	< 1.312E-02	0.000E+00		
ZR-95	756.72	< 2.193E-02	0.000E+00		
I-131	364.48	< 1.142E-02	0.000E+00		
CS-134	604.66	< 1.204E-02	0.000E+00		
CS-137	661.65	< 1.000E-02	0.000E+00		
BALA-140	1596.49	< 2.887E-02	0.000E+00		
BE-7	477.59	0.170	4.498E-02		
K-40	1460.75	0.373	7.772E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: De F. [Signature]

Date: 11/23/87

VAX/VMS Sample Analysis Report generated : 3-DEC-1987 15:50:26

Plant Name : CNS
Sample Number : 290
Type/Location : AIR PARTICULATES / 217
Sample Date : 18-NOV-1987 12:15:00
Acq. Start Time : 24-NOV-1987 12:18:47
Sample Quantity : 567.000 M3
Sample ID : 11NOV TO 18NOV87
Measurement Type : CONTROL

***** Alternate Analysis *****

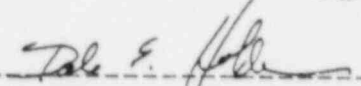
Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.440E-02	1.600E-03		0.000E+00
ALPHA	1.00	1.730E-03	8.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.515E-02	0.000E+00		
CO-58	810.76	< 1.323E-02	0.000E+00		
FE-59	1099.22	< 1.999E-02	0.000E+00		
CO-60	1332.47	< 1.227E-02	0.000E+00		
ZN-65	1115.52	< 7.676E-03	0.000E+00		
NB-95	765.78	< 9.903E-03	0.000E+00		
ZR-95	756.72	< 1.993E-02	0.000E+00		
I-131	364.48	< 1.835E-02	0.000E+00		
CS-134	604.66	< 1.061E-02	0.000E+00		
CS-137	661.65	< 1.386E-02	0.000E+00		
BALA-140	1596.49	< 7.604E-03	0.000E+00		
BE-7	477.59	8.929E-02	4.081E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: -----

Approved by: -----

Date: 12/1/87-----

VAX/VMS Sample Analysis Report generated : 3-DEC-1987 15:40:16

Plant Name : CNS
Sample Number : 306
Type/Location : AIR PARTICULATES / 217
Sample Date : 25-NOV-1987 11:47:00
Acq. Start Time : 2-DEC-1987 15:14:59
Sample Quantity : 612.000 M3
Sample ID : 18NOV TO 25NOV87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	3.080E-02	1.700E-03		0.000E+00
ALPHA	1.00	< 3.310E-04	7.400E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.290E-03	0.000E+00		
CO-58	810.76	< 7.509E-03	0.000E+00		
FE-59	1099.22	< 2.290E-02	0.000E+00		
CO-60	1332.47	< 1.138E-02	0.000E+00		
ZN-65	1115.52	< 2.839E-02	0.000E+00		
NB-95	765.78	< 1.215E-02	0.000E+00		
ZR-95	756.72	< 2.241E-02	0.000E+00		
I-131	364.48	< 1.492E-02	0.000E+00		
CS-134	604.66	< 1.030E-02	0.000E+00		
CS-137	661.65	< 1.073E-02	0.000E+00		
BALA-140	1596.49	< 2.573E-02	0.000E+00		
BE-7	477.59	0.114	4.252E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/4/87

Plant Name : CNS
Sample Number : 332
Type/Location : AIR PARTICULATES / 217
Sample Date : 2-DEC-1987 14:20:00
Acq. Start Time : 9-DEC-1987 12:53:28
Sample Quantity : 608.000 M3
Sample ID : 25NOV TO 2DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.220E-02	1.200E-03		0.000E+00
ALPHA	1.00	< 4.420E-04	5.400E-04		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.110E-02	0.000E+00		
CO-58	810.76	< 9.519E-03	0.000E+00		
FE-59	1099.22	< 1.171E-02	0.000E+00		
CO-60	1332.47	< 1.445E-02	0.000E+00		
ZN-65	1115.52	< 2.856E-02	0.000E+00		
NB-95	765.78	< 9.409E-03	0.000E+00		
ZR-95	756.72	< 1.827E-02	0.000E+00		
I-131	364.48	< 1.253E-02	0.000E+00		
CS-134	604.66	< 8.625E-03	0.000E+00		
CS-137	661.65	< 1.025E-02	0.000E+00		
BALA-140	1596.49	< 3.277E-02	0.000E+00		
BE-7	477.59	9.361E-02	3.181E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale E. Ald

Date: 12/11/87

Plant Name : CNS
Sample Number : 348
Type/Location : AIR PARTICULATES / 217
Sample Date : 9-DEC-1987 12:40:00
Acq. Start Time : 15-DEC-1987 14:10:52
Sample Quantity : 594.000 M3
Sample ID : 2DEC TO 9DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.040E-02	1.400E-03		0.000E+00
ALPHA	1.00	1.880E-03	9.900E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.048E-02	0.000E+00		
CO-58	810.76	< 1.211E-02	0.000E+00		
FE-59	1099.22	< 1.619E-02	0.000E+00		
CO-60	1332.47	< 1.644E-02	0.000E+00		
ZN-65	1115.52	< 1.693E-02	0.000E+00		
NB-95	765.78	< 9.046E-03	0.000E+00		
ZR-95	756.72	< 1.121E-02	0.000E+00		
I-131	364.48	< 1.529E-02	0.000E+00		
CS-134	604.66	< 9.437E-03	0.000E+00		
CS-137	661.65	< 1.121E-02	0.000E+00		
BALA-140	1596.49	< 2.163E-02	0.000E+00		
BE-7	477.59	8.105E-02	2.788E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: LoB

Approved by: D. F. Hall

Date: 1/5/88

Plant Name : CNS
Sample Number : 363
Type/Location : AIR PARTICULATES / 217
Sample Date : 16-DEC-1987 12:45:00
Acq. Start Time : 23-DEC-1987 13:27:45
Sample Quantity : 571.000 M3
Sample ID : 9DEC TO 16DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	1.950E-02	1.500E-03		0.000E+00
ALPHA	1.00	1.220E-03	8.700E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.117E-02	0.000E+00		
CO-58	810.76	< 1.868E-02	0.000E+00		
FE-59	1099.22	< 1.963E-02	0.000E+00		
CO-60	1332.47	< 1.496E-02	0.000E+00		
ZN-65	1115.52	< 2.556E-02	0.000E+00		
NB-95	765.78	< 1.737E-02	0.000E+00		
ZR-95	756.72	< 2.327E-02	0.000E+00		
I-131	364.48	< 2.147E-02	0.000E+00		
CS-134	604.66	< 1.498E-02	0.000E+00		
CS-137	661.65	< 1.062E-02	0.000E+00		
BALA-140	1596.49	< 3.167E-02	0.000E+00		
BE-7	477.59	0.141	4.487E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: SPB

Approved by: John F. Hilde

Date: 1/5/88

Plant Name : CNS
Sample Number : 563
Type/Location : AIR PARTICULATES / 217
Sample Date : 23-DEC-1987 14:35:00
Acq. Start Time : 14-JAN-1988 11:30:02
Sample Quantity : 591.000 M3
Sample ID : 16DEC TO 23DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
BETA	1.00	2.790E-02	1.600E-03		0.000E+00
ALPHA	1.00	2.200E-03	8.800E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.586E-02	0.000E+00		
CO-58	810.76	< 1.703E-02	0.000E+00		
FE-59	1099.22	< 3.016E-02	0.000E+00		
CO-60	1332.47	< 1.684E-02	0.000E+00		
ZN-65	1115.52	< 3.915E-02	0.000E+00		
NB-95	765.78	< 1.955E-02	0.000E+00		
ZR-95	756.72	< 3.264E-02	0.000E+00		
I-131	364.48	< 6.265E-02	0.000E+00		
CS-134	604.66	< 1.340E-02	0.000E+00		
CS-137	661.65	< 1.341E-02	0.000E+00		
BALA-140	1596.49	< 5.900E-02	0.000E+00		
BE-7	477.59	0.208	6.293E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale E. Holder

Date: 1/15/88

Plant Name : CNS
 Sample Number : 405
 Type/Location : AIR PARTICULATES / 217
 Sample Date : 30-DEC-1987 12:55:00
 Acq. Start Time : 9-JAN-1988 10:54:31
 Sample Quantity : 593.000 M3
 Sample ID : 23DEC TO 30DEC87
 Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
BETA	1.00	1.750E-02	1.300E-03		0.000E+00
ALPHA	1.00	7.390E-04	5.200E-04		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/M3)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.647E-03	0.000E+00		
CO-58	810.76	< 1.300E-02	0.000E+00		
FE-59	1099.22	< 2.564E-02	0.000E+00		
CO-60	1332.47	< 1.483E-02	0.000E+00		
ZN-65	1115.52	< 3.597E-02	0.000E+00		
NB-95	765.78	< 1.025E-02	0.000E+00		
ZR-95	756.72	< 1.957E-02	0.000E+00		
I-131	364.48	< 2.191E-02	0.000E+00		
CS-134	604.66	< 1.041E-02	0.000E+00		
CS-137	661.65	< 9.416E-03	0.000E+00		
BALA-140	1596.49	< 8.989E-03	0.000E+00		
BE-7	477.59	0.138	3.237E-02		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale E. Hill

Date: 1 / 17 / 88

Plant Name : CNS
Sample Number : 601
Type/Location : GROUND WATER / 200
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 3.50000 LITERS
Sample ID : 25MAR87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	0.00	<-6.050E-02	0.380		
H-3	0.00	< 350.	90.0		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	<-0.733	1.08		
CO-58	0.00	< 6.885E-02	1.11		
FE-59	0.00	< -2.66	1.99		
CO-60	0.00	< -1.31	1.08		
ZN-65	0.00	< -3.05	2.35		
NB-95	0.00	3.56	1.29		8.902E-03
ZR-95	0.00	<-0.234	1.95		
I-131	0.00	< 0.226	2.16		
CS-134	0.00	< 0.738	1.20		
CS-137	0.00	<-6.160E-02	1.14		
BALA-140	0.00	< 0.000E+00	1.50		

Total Fraction of Reporting Level 8.902E-03

Analyzed by: N/A

Approved by: Michael D. Fine

Date: 4/26/88

Plant Name : CNS
Sample Number : 603
Type/Location : GROUND WATER / 200
Sample Date : 24-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 3.50000 LITERS
Sample ID : 24JUN87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	0.00	< 0.149	0.310		
H-3	0.00	< 350.	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	< -1.95	3.28		
CO-58	0.00	< 1.93	3.49		
FE-59	0.00	< 0.724	6.19		
CO-60	0.00	<-0.477	3.40		
ZN-65	0.00	< 0.806	8.64		
NE-95	0.00	30.1	4.73		7.517E-02
ZR-95	0.00	< -1.09	5.81		
I-131	0.00	< 6.50	4.82		
CS-134	0.00	< 0.365	4.01		
CS-137	0.00	< 0.934	4.00		
BALA-140	0.00	< -1.18	3.83		
NPK-40	0.00	386.	62.0		

Total Fraction of Reporting Level 7.517E-02

Analyzed by: N/A

Approved by: Marcia Spina

Date: 4/18/88

Plant Name : CNS
Sample Number : 100
Type/Location : GROUND WATER / 200
Sample Date : 23-SEP-1987 12:00:00
Acq. Start Time : 26-SEP-1987 05:54:33
Sample Quantity : 3.50000 LITERS
Sample ID : 23SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.00	< 0.940	0.000E+00		
H-3	1.00	660.	90.0		3.300E-02

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.40	0.000E+00		
CO-58	810.76	< 3.24	0.000E+00		
FE-59	1099.22	< 6.44	0.000E+00		
CO-60	1332.47	< 3.62	0.000E+00		
ZN-65	1115.52	< 15.2	0.000E+00		
NB-95	765.78	< 5.95	0.000E+00		
ZR-95	756.72	< 5.80	0.000E+00		
I-131	364.48	< 4.61	0.000E+00		
CS-134	604.66	< 3.88	0.000E+00		
CS-137	661.65	< 3.94	0.000E+00		
BALA-140	537.27	< 14.9	0.000E+00		

Total Fraction of Reporting Level 3.300E-02

Analyzed by: N/A -----

Approved by: marcus d. opau -----

Date: 4/18/88 -----

Plant Name : CNS
Sample Number : 375
Type/Location : GROUND WATER / 200
Sample Date : 23-DEC-1987 12:00:00
Acq. Start Time : 29-DEC-1987 15:39:43
Sample Quantity : 3.50000 LITERS
Sample ID : 23DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.963	0.000E+00	-	-
H-3	18.00	< 350.	0.000E+00	-	-

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 5.45	0.000E+00	-	-
CO-58	810.76	< 5.52	0.000E+00	-	-
FE-59	1099.22	< 13.0	0.000E+00	-	-
CO-60	1332.47	< 5.94	0.000E+00	-	-
ZN-65	1115.52	< 14.5	0.000E+00	-	-
NB-95	765.78	< 7.71	0.000E+00	-	-
ZR-95	756.72	< 11.8	0.000E+00	-	-
I-131	364.48	< 9.40	0.000E+00	-	-
CS-134	604.66	< 5.21	0.000E+00	-	-
CS-137	661.65	< 6.95	0.000E+00	-	-
BALA-140	1596.49	< 12.1	0.000E+00	-	-
K-40	1460.75	147.	36.3	-	-

Total Fraction of Reporting Level 0.000E+00

Analyzed by: d/A -----

Approved by: Marcia Spore -----

Date: 4/18/88 -----

Plant Name : CNS
Sample Number : 602
Type/Location : GROUND WATER / 252
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 3.50000 LITERS
Sample ID : 25MAR87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	0.00	< 0.306	0.330		
H-3	0.00	< 350.	90.0		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	< 0.185	0.836		
CO-58	0.00	<-0.256	0.867		
FE-59	0.00	<-0.145	1.56		
CO-60	0.00	< 0.801	0.811		
ZN-65	0.00	< 0.298	1.71		
NB-95	0.00	< 1.36	1.01		
ZR-95	0.00	< 0.761	1.59		
I-131	0.00	<-0.210	1.67		
CS-134	0.00	< 1.17	1.00		
CS-137	0.00	<-0.173	0.921		
BALA-140	0.00	<-0.322	1.29		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Mariano

Date: 4/18/88

Plant Name : CNS
Sample Number : 604
Type/Location : GROUND WATER / 252
Sample Date : 24-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 3.50000 LITERS
Sample ID : 24JUN87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	0.00	< 7.700E-02	0.310		
H-3	0.00	< 350.	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	< -1.21	2.67		
CO-58	0.00	<-0.893	2.61		
FE-59	0.00	< 0.000E+00	3.82		
CO-60	0.00	< 0.000E+00	2.33		
ZN-65	0.00	< 0.729	5.10		
NB-95	0.00	5.97	3.26		1.493E-02
ZR-95	0.00	<-0.504	5.12		
I-131	0.00	< -1.65	3.47		
CS-134	0.00	< 0.338	2.97		
CS-137	0.00	<-0.576	2.88		
BALA-140	0.00	< 0.000E+00	2.42		

Total Fraction of Reporting Level 1.493E-02

Analyzed by: N/A

Approved by: Marcia Spivey

Date: 7/18/88

Plant Name : CNS
Sample Number : 197
Type/Location : GROUND WATER / 252
Sample Date : 23-SEP-1987 12:00:00
Acq. Start Time : 21-OCT-1987 10:56:41
Sample Quantity : 3.50000 LITERS
Sample ID : 23SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.00	< 0.906	0.000E+00		
H-3	1.00	480.	90.0		2.400E-02

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.32	0.000E+00		
CO-58	810.76	< 1.64	0.000E+00		
FE-59	1099.22	< 3.94	0.000E+00		
CO-60	1332.47	< 1.41	0.000E+00		
ZN-65	1115.52	< 2.84	0.000E+00		
NB-95	765.78	< 2.19	0.000E+00		
ZR-95	756.72	< 3.01	0.000E+00		
I-131	364.48	< 15.0	0.000E+00		
CS-134	604.66	< 1.22	0.000E+00		
CS-137	661.65	< 1.39	0.000E+00		
BALA-140	1596.49	< 7.18	0.000E+00		
K-40	1460.75	48.9	6.94		

Total Fraction of Reporting Level 2.400E-02

Analyzed by: N/A

Approved by: Marcus Jones

Date: 4/18/88

Plant Name : CNS
Sample Number : 374
Type/Location : GROUND WATER / 252
Sample Date : 23-DEC-1987 12:00:00
Acq. Start Time : 29-DEC-1987 15:41:35
Sample Quantity : 3.50000 LITERS
Sample ID : 23DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.938	0.000E+00		
H-3	18.00	< 350.	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 10.7	0.000E+00		
CO-58	810.76	< 9.06	0.000E+00		
FE-59	1099.22	< 19.4	0.000E+00		
CO-60	1332.47	< 7.55	0.000E+00		
ZN-65	1115.52	< 17.3	0.000E+00		
NS-95	765.78	< 10.8	0.000E+00		
ZR-95	756.72	< 13.4	0.000E+00		
I-131	364.48	< 13.5	0.000E+00		
CS-134	604.66	< 9.02	0.000E+00		
CS-137	661.65	< 9.27	0.000E+00		
BALA-140	1596.49	< 14.5	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcus D. Gano-----

Date: 4/18/88-----


11 FEB 1987 11:38:15 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA DRINKING WATER CMP. - 213
TYPE: LIQUID QUANTITY: 3.500E 00
COLLECTION DATE(S): 12/31-1/28/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
SPECIFIC		
ALPHA-T	7.37E-01	3.9E-01
BETA-T	2.98E 00	4.7E-01
LOW-LEVEL I-131		
ANAL#1	* -1.29E-01	2.9E-01
ANAL#2	* 1.57E-01	2.4E-01
GAMMA SPEC		
MN-54	4.58E 00	1.8E 00
FE-59	* 3.34E 00	4.1E 00
CO-58	* -9.10E-01	1.7E 00
CO-60	* 4.44E-01	1.7E 00
ZN-65	* 0.00E-01	3.9E 00
ZR-95	* -5.13E-01	3.4E 00
NB-95	* 2.63E 00	2.0E 00
I-131	* 0.00E-01	2.1E 00
CS-134	* -6.82E-01	2.3E 00
CS-137	* 1.44E 00	2.0E 00
BALA-140	* -6.04E-01	1.6E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: 

REVIEWED BY: *Marcia Lane* DATE: 2-18-87

11 MAR 1987 1:17:11 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA DRINKING WATER CMP. - 213

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/11-2/25/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* -1.06E-01	1.8E-01
BETA-T	2.46E 00	4.5E-01
LOW-LEVEL I-131		
ANAL#1	* 3.78E-01	3.0E-01
ANAL#2	* 2.38E-01	2.9E-01
GAMMA SPEC		
MN-54	* 6.94E-01	6.9E-01
FE-59	* -1.09E-01	1.5E 00
CO-58	* 4.19E-01	7.6E-01
CO-60	* -2.48E-01	6.4E-01
ZN-65	* 2.10E-01	1.3E 00
ZR-95	* 1.59E 00	1.3E 00
NB-95	1.94E 00	8.5E-01
I-131	* 2.96E 00	2.1E 00
CS-134	* 1.43E-01	7.7E-01
CS-137	* 0.00E-01	7.7E-01
BALA-140	* -5.83E-01	1.3E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Gamma Spec: Nb-95 at 766 keV not ident. Fixed by Peak Search or N/D. MDA: 39 total counts deviation*

BY:

Jim Sigman

MAR 11 1987

REVIEWED BY:

John F. Holth

DATE:

3/12/87

14 APR 1987 10:27:30 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

ATAWBA DRINKING WATER CMP. - 213

E: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/25-3/25/87

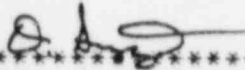
UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.41E-01	2.0E-01
BETA-T	2.28E 00	4.8E-01
LOW-LEVEL I-131		
ANAL#1	* 1.69E-01	4.3E-01
ANAL#2	* 7.24E-02	2.3E-01
GAMMA SPEC		
MN-54	* -1.51E 00	2.0E 00
FE-59	* 1.97E 00	4.0E 00
CO-58	* -2.99E-01	2.1E 00
CO-60	* -4.26E-01	1.8E 00
ZN-65	* 7.29E-01	4.7E 00
ZR-95	* -5.06E-01	4.0E 00
NB-95	* 2.86E-01	2.4E 00
I-131	* -4.25E-01	2.7E 00
CS-134	* -3.38E-01	2.2E 00
CS-137	* 2.88E-01	2.4E 00
BALA-140	* 5.50E-01	1.8E 00

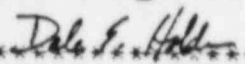
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:



REVIEWED BY:



DATE:

4-15-87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:19

Plant Name : CNS
Sample Number : 586
Type/Location : DW TRITIUM / 213
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 31DEC86 25MAR87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A-----

Approved by: Marcus Oppe-----

Date: 4/18/88-----

 4 JUN 1987 11:20:19 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA DRINKING WATER CMP. - 213
 TYPE: LIQUID QUANTITY: 1.000E 00
 COLLECTION DATE(S): 3/25-4/22/87 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 0.00E-01	2.9E-01
BETA-T	2.10E 00	4.3E-01 N/A
LOW-LEVEL I-131		
ANAL#1	* 0.00E-01	2.9E-01
ANAL#2	* -1.73E-01	4.1E-01
GAMMA SPEC		
MN-54	* 1.60E 00	2.2E 00
FE-59	* 1.83E 00	4.1E 00
CO-58	* 0.00E-01	2.1E 00
CO-60	4.38E 00	2.2E 00 1.52
ZN-65	* -9.80E 00	5.4E 00
ZR-95	* -2.21E 00	3.8E 00
NB-95	5.13E 00	2.3E 00 1.28
I-131	* 1.12E 00	2.7E 00
CS-134	* 2.97E-01	2.6E 00
CS-137	* 0.00E-01	2.3E 00
BALA-140	* 1.03E 00	2.0E 00
NI ³ K-40	7.00E 02	5.4E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Co-60 at 1332 keV, Mn-54 at 834 keV and Nb-95 at 760 keV, Mo-99 at 140 keV, not identified by Peak Search or NID. Np-239 at 1461 keV identified by Peak Search and NID.

BY: Jim Sigmund 6-4-87

REVIEWED BY: Dale F. Holden DATE: 6-5-87

 8 JUN 1987 3:27:41 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WAWBA DRINKING WATER CMP. - 213

TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 4/22-5/20/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
SPECIFIC		
ALPHA-T	* -2.99E-01	4.7E-01
BETA-T	2.80E 00	4.8E-01
LOW-LEVEL I-131		
ANAL#1	* 2.35E-01	3.0E-01
ANAL#2	* -1.87E-01	3.1E-01
GAMMA SPEC		
MN-54	* 0.00E-01	2.1E 00
FE-59	* -2.84E 00	4.4E 00
CO-58	* -6.47E-01	1.9E 00
CO-60	* 0.00E-01	2.6E 00
ZN-65	* -2.37E 00	4.1E 00
ZR-95	* 3.27E 00	4.2E 00
NB-95	* -1.85E 00	2.3E 00
I-131	* 1.09E 00	2.7E 00
CS-134	* 0.00E-01	2.6E 00
CS-137	* 1.23E 00	2.4E 00
BALA-140	* -1.81E 00	2.3E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

JUN 8 1987

BY: *LGS*

REVIEWED BY: *Dale E. Alden*

DATE: *6-10-87*

14

13 JUL 1987 4:44:43 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA DRINKING WATER CMP. - 213

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/3-6/17/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* -2.99E-01	2.1E-01
BETA-T	2.56E 00	4.4E-01
LOW-LEVEL I-131		
ANAL#1	* 7.97E-02	2.4E-01
ANAL#2	* 8.38E-02	2.4E-01
GAMMA SPEC		
MN-54	* -3.29E-01	2.2E 00
FE-59	* -1.42E 00	4.4E 00
CO-58	* -2.27E 00	2.1E 00
CO-60	* -1.40E 00	2.4E 00
ZN-65	* -2.37E 00	4.1E 00
ZR-95	* 0.00E-01	3.6E 00
NB-95	* 9.27E-01	2.4E 00
I-131	* -1.10E 00	2.4E 00
CS-134	* 0.00E-01	2.5E 00
CS-137	* 0.00E-01	2.1E 00
BALA-140	* 0.00E-01	1.9E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: The composite period from 6/3-6/17/87 was a deviation and a grab sample was obtained on 6/12/87. For the composite period from 6/3-6/17/87, the sample was not collected for the entire composite period. The actual period was from 6/12-6/17/87 due to repairs required at this collection site.

BY: *[Signature]*

REVIEWED BY: *Dale E. Hold*

DATE: 7-14-87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:24

Plant Name : CNS
Sample Number : 589
Type/Location : DW TRITIUM / 213
Sample Date : 17-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 25MAR 17JUN87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A -----

Approved by: Marcia Dyne -----

Date: 7/18/88 -----

12 AUG 1987 1:05:03 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA DRINKING WATER CMP. - 213

TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 6/17-7/15/87 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 3.18E-01	5.5E-01
BETA-T	3.42E 00	5.9E-01
LOW-LEVEL I-131		
ANAL#1	* 9.44E-02	3.8E-01
ANAL#2	* 1.22E-01	3.8E-01
GAMMA SPEC		
MN-54	* -1.31E 00	2.8E 00
FE-59	* -1.42E 00	4.3E 00
CO-58	* 1.94E 00	3.4E 00
CO-60	* -9.32E-01	3.4E 00
ZN-65	* -6.31E 00	5.5E 00
ZR-95	* -2.18E 00	4.9E 00
NB-95	* 1.85E 00	3.0E 00
I-131	* 0.00E-01	3.6E 00
CS-134	* 5.14E 00	3.7E 00
CS-137	* 2.46E 00	3.1E 00
BALA-140	* 0.00E-01	1.7E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *L.A. Crockett*

 REVIEWED BY: *Dale G. Hall* DATE: *8-12-87*

9 SEP 1987 10:17:31 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

AWBA DRINKING WATER CMP. - 213

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/15-8/12/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 0.00E-01	4.5E-01
BETA-T	3.26E 00	5.0E-01 N/A
LOW-LEVEL I-131		
ANAL#1	* -1.85E-01	4.2E-01
ANAL#2	* -5.63E-02	3.6E-01
GAMMA SPEC		
MN-54	* -6.57E-01	2.5E 00
FE-59	* -1.42E 00	5.5E 00
CO-58	7.12E 00	3.6E 00 .72
CO-60	* 2.80E 00	3.6E 00
ZN-65	* -6.31E 00	7.1E 00
ZR-95	* 3.27E 00	5.7E 00
NB-95	* 3.70E 00	3.8E 00
I-131	* -3.94E 00	3.7E 00
CS-134	* 7.34E-01	3.4E 00
CS-137	* 0.00E-01	3.1E 00
BALA-140	* -1.21E 00	4.4E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No Peak identified for Co-58 at 811 keV, MDA = 11 net counts

SEP 11 1987

BY: *Jim Bigon*

REVIEWED BY: *De S. Hall*

DATE: 9-11-87

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 16:32:54

Plant Name : CNS
Sample Number : 128
Type/Location : DRINKING WATER / 213
Sample Date : 9-SEP-1987 12:00:00
Acq. Start Time : 30-SEP-1987 16:28:16
Sample Quantity : 3.50000 LITERS
Sample ID : 12AUG TO 9SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.956	0.000E+00		
ANAL2-LL	364.48	< 0.838	0.000E+00		
ALPHA-T	1.00	<-0.214	0.570		
BETA-T	1.00	6.36	0.630		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 1.97	0.000E+00		
CO-58	810.76	< 2.45	0.000E+00		
FE-59	1099.22	< 6.04	0.000E+00		
CO-60	1332.47	< 2.59	0.000E+00		
ZN-65	1115.52	< 4.82	0.000E+00		
NB-95	765.78	< 3.02	0.000E+00		
ZR-95	756.72	< 4.13	0.000E+00		
I-131	364.48	< 13.2	0.000E+00		
CS-134	604.66	< 1.94	0.000E+00		
CS-137	661.65	3.34	0.964		6.677E-02
BALA-140	1596.49	< 6.62	0.000E+00		
K-40	1460.75	66.4	13.4		

Total Fraction of Reporting Level 6.677E-02

Analyzed by: 

Approved by: 

Date: 12/17/87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:29

Plant Name : CNS
Sample Number : 592
Type/Location : DW TRITIUM / 213
Sample Date : 9-SEP-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 17JUN 9SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00 <	350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Spina-----

Date: 4/1/88-----

Plant Name : CNS
Sample Number : 143
Type/Location : DRINKING WATER / 213
Sample Date : 7-OCT-1987 12:00:00
Acq. Start Time : 7-OCT-1987 18:33:54
Sample Quantity : 3.50000 LITERS
Sample ID : 9SEP TO 7OCT87
Measurement Type : ROUTINE

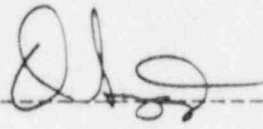
***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.991	0.000E+00		
ANAL2-LL	364.48	< 0.981	0.000E+00		
ALPHA-T	1.00	0.480	0.280		0.000E+00
BETA-T	1.00	2.42	0.530		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 6.98	0.000E+00		
CO-58	810.76	< 7.83	0.000E+00		
FE-59	1099.22	< 12.3	0.000E+00		
CO-60	1332.47	< 7.30	0.000E+00		
ZN-65	1115.52	< 14.3	0.000E+00		
NB-95	765.78	< 7.19	0.000E+00		
ZR-95	756.72	< 13.1	0.000E+00		
I-131	364.48	< 5.26	0.000E+00		
CS-134	604.66	< 7.03	0.000E+00		
CS-137	661.65	< 7.31	0.000E+00		
BALA-140	1596.49	< 4.82	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 230
Type/Location : DRINKING WATER / 213
Sample Date : 4-NOV-1987 12:00:00
Acq. Start Time : 4-NOV-1987 16:09:30
Sample Quantity : 3.50000 LITERS
Sample ID : 7OCT TO 4NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.960	0.000E+00		
ANAL2-LL	364.48	< 0.993	0.000E+00		
ALPHA-T	1.00	< 0.316	0.320		
BETA-T	1.00	3.53	0.550		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 5.37	0.000E+00		
CO-58	810.76	< 9.11	0.000E+00		
FE-59	1099.22	< 16.1	0.000E+00		
CO-60	1332.47	< 4.41	0.000E+00		
ZN-65	1115.52	< 13.3	0.000E+00		
NB-95	765.78	< 8.11	0.000E+00		
ZR-95	756.72	< 12.7	0.000E+00		
I-131	364.48	< 8.45	0.000E+00		
CS-134	604.66	< 4.99	0.000E+00		
CS-137	661.65	< 7.21	0.000E+00		
BALA-140	1596.49	< 5.43	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: John E. Hall

Date: 12/10/87

Plant Name : CNS
Sample Number : 320
Type/Location : DRINKING WATER / 213
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 8-DEC-1987 09:45:48
Sample Quantity : 3.50000 LITERS
Sample ID : 4NOV TO 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.874	0.000E+00		
ANAL2-LL	364.48	< 0.987	0.000E+00		
ALPHA-T	1.00	<-0.500	0.370		
BETA-T	1.00	3.18	0.530		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.12	0.000E+00		
CO-58	810.76	< 9.54	0.000E+00		
FE-59	1099.22	< 17.4	0.000E+00		
CO-60	1332.47	< 9.36	0.000E+00		
ZN-65	1115.52	< 19.8	0.000E+00		
NB-95	765.78	< 11.1	0.000E+00		
ZR-95	756.72	< 14.2	0.000E+00		
I-131	364.48	< 12.6	0.000E+00		
CS-134	604.66	< 7.36	0.000E+00		
CS-137	661.65	< 8.29	0.000E+00		
BALA-140	1596.49	< 13.2	0.000E+00		
K-40	1460.75	95.5	28.8		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Del S. Hall

Date: 12/14/87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:34

Plant Name : CNS
Sample Number : 595
Type/Location : DW TRITIUM / 213
Sample Date : 2-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 9SEP 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00		-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A -----

Approved by: Marcia Lane -----

Date: 4/18/88 -----

Plant Name : CNS
 Sample Number : 382
 Type/Location : DRINKING WATER / 213
 Sample Date : 30-DEC-1987 12:00:00
 Acq. Start Time : 31-DEC-1987 05:59:11
 Sample Quantity : 3.50000 LITERS
 Sample ID : 2DEC TO 30DEC87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.964	0.000E+00		
ANAL2-LL	364.48	< 0.985	0.000E+00		
ALPHA-T	1.00	< 0.000E+00	0.320		
BETA-T	1.00	3.29	0.500		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 5.92	0.000E+00		
CO-58	810.76	< 6.27	0.000E+00		
FE-59	1099.22	< 11.4	0.000E+00		
CO-60	1332.47	< 7.79	0.000E+00		
ZN-65	1115.52	< 12.1	0.000E+00		
NB-95	765.78	< 7.22	0.000E+00		
ZR-95	756.72	< 12.7	0.000E+00		
I-131	364.48	< 6.31	0.000E+00		
CS-134	604.66	< 6.30	0.000E+00		
CS-137	661.65	< 7.41	0.000E+00		
BALA-140	1596.49	< 7.34	0.000E+00		
K-40	1460.75	117.	29.2		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale G. Holt

Date: 1/20/88

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:39

Plant Name : CNS
Sample Number : 598
Type/Location : DW TRITIUM / 213
Sample Date : 30-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 2DEC 30DEC
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A

Approved by: Marcia Jones Date: 4/18/88

11 FEB 1987 11:39:24 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA DRINKING WATER CMP. - 214
TYPE: LIQUID QUANTITY: 3.500E 00
COLLECTION DATE(S): 12/31-1/28/87 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 2.43E-01	3.0E-01
BETA-T	3.06E 00	4.7E-01
LOW-LEVEL I-131		
ANAL#1	* -7.11E-02	2.8E-01
ANAL#2	* -1.08E-01	2.0E-01
GAMMA SPEC		
MN-54	* -3.19E-01	1.9E 00
FE-59	* -7.30E-01	4.3E 00
CO-58	* -1.27E 00	2.5E 00
CO-60	* 4.70E-01	1.9E 00
ZN-65	* -4.00E 00	5.7E 00
ZR-95	* -2.16E 00	3.8E 00
NB-95	7.69E 00	2.8E 00 1.92
I-131	* -1.65E 00	3.1E 00
CS-134	* -1.07E 00	2.3E 00
CS-137	* 0.00E-01	2.3E 00
BALA-140	* 0.00E-01	2.5E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: 

REVIEWED BY: 

DATE: 2-18-87

 11 MAR 1987 1:17:35 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

PATAWBA DRINKING WATER CMP. - 214

: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 1/28-2/25/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
SPECIFIC		
ALPHA-T	* 0.00E-01	2.1E-01
BETA-T	2.29E 00	4.4E-01
LOW-LEVEL I-131		
ANAL#1	* -2.16E-01	2.4E-01
ANAL#2	* -9.66E-02	2.3E-01
GAMMA SPEC		
MN-54	* 0.00E-01	2.1E 00
FE-59	* 7.25E-01	4.0E 00
CO-58	* -9.84E-01	2.2E 00
CO-60	* 1.87E 00	2.5E 00
ZN-65	* -4.75E 00	5.3E 00
ZR-95	* -5.54E-01	3.7E 00
NB-95	* -9.51E-01	2.3E 00
I-131	* 1.97E 00	2.7E 00
CS-134	* 1.84E 00	2.6E 00
CS-137	* 1.23E 00	2.4E 00
BALA-140	* 0.00E-01	2.1E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigman

MAR 11 1987

REVIEWED BY:

Dale G. Holler

DATE:

3/12/87

 14 APR 1987 10:27:53 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

ATAWBA DRINKING WATER CMP. - 214

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/25-3/25/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 0.00E-01	0.0E-01
BETA-T	1.70E 00	4.6E-01
LOW-LEVEL I-131		
ANAL#1	* 0.00E-01	2.3E-01
ANAL#2	* 2.11E-01	3.3E-01
GAMMA SPEC		
MN-54	* -9.14E-01	1.5E 00
FE-59	* 1.32E 00	3.2E 00
CO-58	* 0.00E-01	1.5E 00
CO-60	* 0.00E-01	2.1E 00
ZN-65	* -7.32E-01	3.5E 00
ZR-95	* -5.08E-01	2.9E 00
NB-95	* 1.44E 00	1.8E 00
I-131	* -1.43E 00	1.9E 00
CS-134	* 0.00E-01	2.0E 00
CS-137	* -2.88E-01	1.9E 00
BALA-140	* -5.74E-01	1.5E 00

Deviation

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

[Signature]

REVIEWED BY:

[Signature]

DATE:

4-15-87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:21

Plant Name : CNS
Sample Number : 587
Type/Location : DW TRITIUM / 214
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 31DEC86 25MAR87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00		-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Agne-----

Date: 4/18/88-----

 4 JUN 1987 11:18:56 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA DRINKING WATER CMP. - 214

TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 3/25-4/22/87 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
ALPHA-T	* 1.43E-01	3.2E-01
BETA-T	2.30E 00	4.3E-01 N/A
LOW-LEVEL I-131		
ANAL#1	* 4.01E-01	3.2E-01
ANAL#2	* 8.70E-02	4.7E-01
GAMMA SPEC		
MN-54	* 3.29E-01	1.9E 00
FE-59	* -2.14E 00	4.3E 00
CO-58	* -6.49E-01	1.9E 00
CO-60	* -1.86E 00	2.5E 00
ZN-65	* -2.37E 00	4.3E 00
ZR-95	* 3.83E 00	4.1E 00
NB-95	* 2.17E 00	2.4E 00
I-131	* -8.91E-01	2.8E 00
CS-134	* -7.34E-01	2.6E 00
CS-137	* -1.23E 00	2.5E 00
BALA-140	* 0.00E-01	1.7E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman 6-4-87*

REVIEWED BY: *Del E. Hold* DATE: *6-5-87*

 8 JUN 1987 3:28:31 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

TAWBA DRINKING WATER CMP. - 214

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/22-5/20/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* -3.19E-01	5.1E-01
BETA-T	2.40E 00	4.8E-01
LOW-LEVEL I-131		
ANAL#1	* -8.66E-02	4.3E-01
ANAL#2	* 7.34E-02	1.0E-01
GAMMA SPEC		
MN-54	* -6.09E-01	1.5E 00
FE-59	* 6.59E-01	3.3E 00
CO-58	* -6.01E-01	1.4E 00
CO-60	* -4.44E-01	1.7E 00
ZN-65	* 7.32E-01	3.4E 00
ZR-95	* 3.55E 00	3.3E 00
NB-95	* 5.74E-01	1.9E 00
I-131	* 1.63E 00	2.0E 00
CS-134	* 2.05E 00	2.2E 00
CS-137	* 2.88E-01	2.1E 00
BALA-140	* -5.73E-01	1.9E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

JUN 8 1987

BY: *S. J. B.*

 REVIEWED BY: *Dale S. Holder* DATE: *6-10-87*

15

 13 JUL 1987 4:45:10 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

TAWBA DRINKING WATER CMP. - 214

PE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 5/20-6/17/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 3.76E-01	4.6E-01
BETA-T	1.95E 00	4.7E-01
LOW-LEVEL I-131		
ANAL#1	* 1.12E-01	3.3E-01
ANAL#2	* 3.23E-01	2.6E-01
GAMMA SPEC		
MN-54	* 0.00E-01	2.2E 00
FE-59	* -2.63E 00	3.9E 00
CO-58	* 2.98E-01	2.0E 00
CO-60	* 0.00E-01	1.8E 00
ZN-65	* -1.46E 00	4.1E 00
ZR-95	* -5.05E-01	3.9E 00
NB-95	* 0.00E-01	2.3E 00
I-131	* 3.80E 00	2.8E 00
CS-134	* 2.37E 00	2.5E 00
CS-137	* 1.15E 00	2.4E 00
BALA-140	* 1.54E 00	2.4E 00
NPK-40	9.65E 01	4.3E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1961 keV identified by Peak Search and NID.

BY: *mg*

 REVIEWED BY: *Dale E. Hold* DATE: 7-14-87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:25

Plant Name : CNS
Sample Number : 590
Type/Location : DW TRITIUM / 214
Sample Date : 17-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 25MAR 17JUN87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	780.	90.0		3.900E-02
Total Fraction of Reporting Level					3.900E-02

Analyzed by: N/A

Approved by: Marsia D'Agne

Date: 4/18/88

12 AUG 1987 1:05:58 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA DRINKING WATER CMP. - 214

E: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/17-7/15/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 5.49E-01	9.5E-01
BETA-T	3.83E 00	6.5E-01
LOW-LEVEL I-131		
ANAL#1	* 2.39E-01	3.3E-01
ANAL#2	* 6.01E-02	3.6E-01
GAMMA SPEC		
MN-54	* 1.83E 00	2.5E 00
FE-59	* 3.95E 00	4.7E 00
CO-58	* 0.00E-01	2.5E 00
CO-60	* -8.88E-01	2.4E 00
ZN-65	* 1.46E 00	5.7E 00
ZR-95	* -2.03E 00	4.3E 00
NB-95	* 0.00E-01	2.4E 00
I-131	* 0.00E-01	3.0E 00
CS-134	* -2.04E 00	3.4E 00
CS-137	* 2.88E 00	2.9E 00
BALA-140	* 0.00E-01	2.8E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *L. K. Erdman*

REVIEWED BY: *Dale E. Hill*

DATE: *8-12-87*

 9 SEP 1987 10:17:44 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA DRINKING WATER CMP. - 214

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/15-8/12/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 2.27E-01	5.1E-01
BETA-T	2.77E 00	4.9E-01 N/A
LOW-LEVEL I-131		
ANAL#1	* -1.70E-01	4.1E-01
ANAL#2	* -1.80E-01	3.9E-01
GAMMA SPEC		
MN-54	* 3.71E 00	2.8E 00
FE-59	* -1.38E 00	3.6E 00
CO-58	* -1.83E 00	2.5E 00
CO-60	* 9.27E-01	3.1E 00
ZN-65	* -6.11E 00	6.8E 00
ZR-95	* -1.04E 00	4.0E 00
NB-95	* 4.10E 00	3.2E 00
I-131	* -2.09E 00	3.4E 00
CS-134	* 2.08E 00	3.3E 00
CS-137	* 1.79E 00	3.2E 00
BALA-140	* -2.30E 00	2.8E 00
NPK-40	1.83E 02	6.1E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Siganca

SEP 11 1987

REVIEWED BY:

Del E. Felt

DATE:

9-11-87

Plant Name : CNS
Sample Number : 130
Type/Location : DRINKING WATER / 214
Sample Date : 9-SEP-1987 12:00:00
Acq. Start Time : 1-OCT-1987 17:16:07
Sample Quantity : 3.50000 LITERS
Sample ID : 12AUG TO 9SEP87
Measurement Type : ROUTINE


***** Alternate Analysis *****

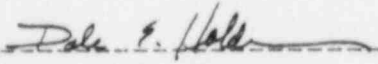
Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.889	0.000E+00		
ANAL2-LL	364.48	< 0.839	0.000E+00		
ALPHA-T	1.00	<-0.429	0.530		
BETA-T	1.00	2.75	0.510		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.41	0.000E+00		
CO-58	810.76	< 2.48	0.000E+00		
FE-59	1099.22	< 5.55	0.000E+00		
CO-60	1332.47	< 2.68	0.000E+00		
ZN-65	1115.52	< 5.17	0.000E+00		
NB-95	765.78	< 2.94	0.000E+00		
ZR-95	756.72	< 4.22	0.000E+00		
I-131	364.48	< 15.0	0.000E+00		
CS-134	604.66	< 2.05	0.000E+00		
CS-137	661.65	< 2.66	0.000E+00		
BALA-140	1506.49	< 8.47	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12 / 17 / 87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:30

Plant Name : CNS
Sample Number : 593
Type/Location : DW TRITIUM / 214
Sample Date : 9-SEP-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 17JUN 9SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: A/B -----

Approved by: *Marcia Jones* -----

Date: 4/18/88 -----

Plant Name : CNS
 Sample Number : 145
 Type/Location : DRINKING WATER / 214
 Sample Date : 7-OCT-1987 12:00:00
 Acq. Start Time : 7-OCT-1987 19:00:06
 Sample Quantity : 3.50000 LITERS
 Sample ID : 9SEP TO 7OCT87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.980	0.000E+00		
ANAL2-LL	364.48	< 0.826	0.000E+00		
ALPHA-T	1.00	0.491	0.280		0.000E+00
BETA-T	1.00	1.69	0.500		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	4.48	2.73		4.481E-03
CO-58	810.76	< 7.90	0.000E+00		
FE-59	1099.22	< 15.8	0.000E+00		
CO-60	1332.47	17.6	4.11		5.861E-02
ZN-65	1115.52	< 15.9	0.000E+00		
NB-95	765.78	< 7.76	0.000E+00		
ZR-95	756.72	< 14.1	0.000E+00		
I-131	364.48	< 8.20	0.000E+00		
CS-134	604.66	< 7.27	0.000E+00		
CS-137	661.65	< 9.27	0.000E+00		
BALA-140	1596.49	< 7.16	0.000E+00		
K-40	1460.75	315.	49.8		

Total Fraction of Reporting Level 6.309E-02

Analyzed by: 

Approved by: Dale E. Hold

Date: 12/17/87

Plant Name : CNS
 Sample Number : 231
 Type/Location : DRINKING WATER / 214
 Sample Date : 4-NOV-1987 12:00:00
 Acq. Start Time : 4-NOV-1987 16:13:40
 Sample Quantity : 3.50000 LITERS
 Sample ID : 7OCT TO 4NOV87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.728	0.000E+00		
ANAL2-LL	364.48	< 0.673	0.000E+00		
ALPHA-T	1.00	< 0.000E+00	0.220		
BETA-T	1.00	3.14	0.530		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.55	0.000E+00		
CO-58	810.76	< 5.94	0.000E+00		
FE-57	1099.22	< 13.7	0.000E+00		
CO-60	1332.47	< 8.04	0.000E+00		
ZN-65	1115.52	< 11.3	0.000E+00		
NB-95	765.78	< 6.31	0.000E+00		
ZR-95	755.72	< 14.7	0.000E+00		
I-131	364.48	< 5.62	0.000E+00		
CS-134	604.66	< 5.40	0.000E+00		
CS-137	661.65	< 6.13	0.000E+00		
BALA-140	1596.49	< 6.70	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: John E. Hold

Date: 12/10/87

Plant Name : CNS
 Sample Number : 321
 Type/Location : DRINKING WATER / 214
 Sample Date : 2-DEC-1987 12:00:00
 Acq. Start Time : 8-DEC-1987 09:52:41
 Sample Quantity : 3.50000 LITERS
 Sample ID : 4NOV TO 2DEC87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.998	0.000E+00		
ANAL2-LL	364.48	< 0.994	0.000E+00		
ALPHA-T	1.00	< 0.000E+00	0.690		
BETA-T	1.00	4.01	0.610		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.07	0.000E+00		
CO-58	810.76	< 9.81	0.000E+00		
FE-59	1099.22	< 9.43	0.000E+00		
CO-60	1332.47	< 13.3	0.000E+00		
ZN-65	1115.52	< 18.9	0.000E+00		
NR-95	765.78	< 10.0	0.000E+00		
ZR-95	756.72	< 14.6	0.000E+00		
I-131	364.48	< 12.8	0.000E+00		
CS-134	604.66	< 8.22	0.000E+00		
CS-137	661.65	< 10.8	0.000E+00		
BALA-140	1596.49	< 8.08	0.000E+00		
K-40	1460.75	92.5	26.7		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: LJB

Approved by: Dale S. Hold

Date: 12/14/87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:36

Plant Name : CNS
Sample Number : 596
Type/Location : DW TRITIUM / 214
Sample Date : 2-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 9SEP 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00 <	350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A-----

Approved by: Miranda-----

Date: 4/18/88-----

Plant Name : CNS
 Sample Number : 381
 Type/Location : DRINKING WATER / 214
 Sample Date : 30-DEC-1987 12:00:00
 Acq. Start Time : 31-DEC-1987 06:09:24
 Sample Quantity : 3.50000 LITERS
 Sample ID : 16DEC TO 30DEC87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.960	0.000E+00		
ANAL2-LL	364.48	< 0.931	0.000E+00		
ALPHA-T	1.00	<-0.155	0.270		
BETA-T	1.00	3.69	0.510		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.80	0.000E+00		
CO-58	810.76	< 8.59	0.000E+00		
FE-59	1099.22	< 9.84	0.000E+00		
CO-60	1332.47	< 9.85	0.000E+00		
ZN-65	1115.52	< 13.8	0.000E+00		
NB-95	765.78	< 10.8	0.000E+00		
ZR-95	756.72	< 11.1	0.000E+00		
I-131	364.48	< 8.77	0.000E+00		
CS-134	604.66	< 7.69	0.000E+00		
CS-137	661.65	< 10.2	0.000E+00		
BALA-140	1596.49	< 9.99	0.000E+00		
K-40	1460.75	95.5	28.8		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale E. Hill

Date: 1/20/88

The sample for 2 Dec - 16 Dec 87 was a grab sample collected on 16 Dec 87 for ANAL2-LL data.

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:41

Plant Name : CNS
Sample Number : 599
Type/Location : DW TRITIUM / 214
Sample Date : 30-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 16DEC 30DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00	-	-
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A

Approved by: Marcia Gene

Date: 4/11/88

11 FEB 1987 11:39:50 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

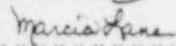
CATAWBA DRINKING WATER CMP. - 218
TYPE: LIQUID QUANTITY: 3.500E 00
COLLECTION DATE(S): 12/31-1/28/87 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 1.01E-01	2.3E-01
BETA-T	2.56E 00	4.3E-01
LOW-LEVEL I-131		
ANAL#1	* 1.60E-01	3.2E-01
ANAL#2	* -1.64E-02	2.2E-01
GAMMA SPEC		
MN-54	* 0.00E-01	2.2E 00
FE-59	* -2.16E 00	2.8E 00
CO-58	* -9.81E-01	2.3E 00
CO-60	* 9.32E-01	2.2E 00
ZN-65	* -1.58E 00	5.0E 00
ZR-95	* 5.52E-01	3.4E 00
NB-95	* -3.15E-01	2.3E 00
I-131	* -4.79E-01	2.8E 00
CS-134	* -7.35E-01	2.4E 00
CS-137	* 9.24E-01	2.4E 00
BALA-140	* 0.00E-01	2.4E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: 

REVIEWED BY: 

DATE: 2-18-87

 11 MAR 1987 1:17:52 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

POTAWBA DRINKING WATER CMP. - 218
 : LIQUID
 COLLECTION DATE(S): 1/28-2/25/87

QUANTITY: 3.500E 00
 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 1.01E-01	2.3E-01
BETA-T	2.06E 00	4.3E-01
LOW-LEVEL I-131		
ANAL#1	* 1.29E-01	2.9E-01
ANAL#2	* 2.80E-01	3.2E-01
GAMMA SPEC		
MN-54	* 3.06E-01	1.8E 00
FE-59	* 0.00E-01	3.0E 00
CO-58	* 1.52E 00	1.9E 00
CO-60	* -8.89E-01	1.9E 00
ZN-65	* 0.00E-01	2.5E 00
ZR-95	* 1.55E 00	3.3E 00
NB-95	* 5.90E-01	1.8E 00
I-131	* 1.61E 00	2.1E 00
CS-134	* 3.41E-01	1.8E 00
CS-137	* 8.65E-01	2.0E 00
BALA-140	* -1.24E 00	2.3E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigma

MAR 11 1987

REVIEWED BY:

Dale E. H...

DATE:

3/12/87

14 APR 1987 10:28:13 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

DATAWBA DRINKING WATER CMP. - 218

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/25-3/25/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	3.09E-01	1.8E-01
BETA-T	1.91E 00	4.5E-01
LOW-LEVEL I-131		
ANAL#1	* -6.14E-02	4.2E-01
ANAL#2	* 3.10E-01	3.7E-01
GAMMA SPEC		
MN-54	* -6.04E-01	2.0E 00
FE-59	* 4.60E 00	3.8E 00
CO-58	* 0.00E-01	2.2E 00
CO-60	* -1.28E 00	2.0E 00
ZN-65	* 0.00E-01	3.9E 00
ZR-95	* 0.00E-01	2.9E 00
NB-95	* 2.57E 00	2.1E 00
I-131	* -1.90E 00	2.6E 00
CS-134	* 0.00E-01	2.3E 00
CS-137	* 2.88E-01	2.3E 00
BALA-140	* 1.64E 00	2.1E 00

Deviation

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: *4-15-87*

Plant Name : CNS
Sample Number : 588
Type/Location : DW TRITIUM / 218
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 31DEC86 25MAR87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00	-	-----

Total Fraction of Reporting Level 0.000E+00

Analyzed by: ----- *N/A* -----

Approved by: ----- *Marcia D. [Signature]* ----- Date: *4/26/88* -----

 4 JUN 1987 11:19:32 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA DRINKING WATER CMP. - 218
 PE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 3/25-4/22/87 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* 1.41E-01	3.2E-01
BETA-T	4.65E 00	5.1E-01
LOW-LEVEL I-131		
ANAL#1	* -1.70E-01	3.5E-01
ANAL#2	* 1.75E-01	4.9E-01
GAMMA SPEC		
MN-54	* 2.75E 00	2.0E 00
FE-59	* 6.68E-01	3.2E 00
CO-58	* -3.03E-01	1.9E 00
CO-60	* -8.89E-01	1.7E 00
ZN-65	* 2.94E 00	4.3E 00
ZR-95	* 2.05E 00	3.8E 00
NB-95	* 2.92E-01	2.1E 00
I-131	* 6.60E-01	2.3E 00
CS-134	* 1.02E 00	2.2E 00
CS-137	* 1.15E 00	2.1E 00
BALA-140	* 6.02E-01	2.2E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman 6-4-87*

REVIEWED BY: *Dale S. Holden* DATE: *6-5-87*

 8 JUN 1987 3:29:21 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 YAWBA DRINKING WATER CMP. - 218
 TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 4/22-5/20/87 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* -5.90E-01	4.2E-01
BETA-T	1.73E 00	4.4E-01
LOW-LEVEL I-131		
ANAL#1	* -1.54E-01	5.1E-01
ANAL#2	* 8.04E-03	1.1E-01
GAMMA SPEC		
MN-54	* 1.30E 00	2.3E 00
FE-59	* 1.45E 00	4.0E 00
CO-58	* -3.21E-01	2.4E 00
CO-60	* 2.38E 00	2.4E 00
ZN-65	* -8.06E 00	6.3E 00
ZR-95	* -1.09E 00	4.1E 00
NB-95	* 2.46E 00	2.6E 00
I-131	* 2.20E-01	3.2E 00
CS-134	* -1.09E 00	2.3E 00
CS-137	* 1.25E 00	2.6E 00
BALA-140	* -1.19E 00	2.8E 00
NPK-40	3.45E 02	5.6E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *SPZ.*

JUN 8 1987

 REVIEWED BY: *Dale S. Holden* DATE: *6.10.87*

16

 13 JUL 1987 4:45:58 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

TAWBA DRINKING WATER - 218
 TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 5/20-6/17/87 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 0.00E-01	3.5E-01
BETA-T	2.48E 00	4.6E-01
LOW-LEVEL I-131		
ANAL#1	* -5.69E-02	3.0E-01
ANAL#2	* 3.15E-01	2.3E-01
GAMMA SPEC		
MN-54	* -3.02E-01	1.9E 00
FE-59	* 2.63E 00	4.0E 00
CO-58	* -5.98E-01	2.1E 00
CO-60	* 8.52E-01	2.3E 00
ZN-65	* 1.46E 00	4.3E 00
ZR-95	* 2.02E 00	3.9E 00
NE-95	* 2.58E 00	2.2E 00
I-131	* 1.92E 00	2.8E 00
CS-134	* -6.77E-01	2.5E 00
CS-137	* 1.44E 00	2.4E 00
BALA-140	* 1.10E 00	2.1E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *g/hay*

 REVIEWED BY: *Dale E. Held*

DATE: *7-14-87*

Plant Name : CNS
Sample Number : 591
Type/Location : DW TRITIUM / 218
Sample Date : 17-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 25MAR 17JUN87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	480.	90.0		2.400E-02
Total Fraction of Reporting Level					2.400E-02

Analyzed by: N/A-----

Approved by: Marcia Spivey-----

Date: 4/15/88-----

12 AUG 1987 1:05:35 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA DRINKING WATER CMP. - 218

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/17-7/15/87

UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
ALPHA-T	* 5.30E-01	5.3E-01
BETA-T	1.75E 00	4.9E-01
LOW-LEVEL I-131		
ANAL#1	* -3.43E-01	4.2E-01
ANAL#2	* -1.22E-01	3.0E-01
GAMMA SPEC		
MN-54	* -5.82E-01	2.3E 00
FE-59	* -1.30E 00	3.8E 00
CO-58	* -5.75E-01	2.5E 00
CO-60	* 1.28E 00	2.2E 00
ZN-65	* -7.21E 00	4.7E 00
ZR-95	* 3.90E 00	4.3E 00
NB-95	* 3.03E 00	2.4E 00
I-131	* 1.56E 00	2.9E 00
CS-134	* 6.53E-01	2.7E 00
CS-137	* -2.79E-01	2.5E 00
BALA-140	* -1.59E 00	2.2E 00
NPK-40	2.30E 02	5.6E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 141 keV identified by Peak Search and NID.

BY: *J. J. Bretherton*

REVIEWED BY: *Dale E. Hall*

DATE: *8-12-87*

 9 SEP 1987 10:17:56 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA DRINKING WATER CMP. - 21B
 TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 7/15-8/12/87 UNITS: LITERS

RADIONUCLIDE SPECIFIC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
ALPHA-T	* -2.44E-01	4.2E-01
BETA-T	3.05E 00	5.1E-01 N/A
LOW-LEVEL I-131		
ANAL#1	* 1.72E-02	1.7E-01
ANAL#2	* 3.43E-01	3.7E-01
GAMMA SPEC		
MN-54	* -1.24E 00	2.4E 00
FE-59	* -1.79E 00	3.6E 00
CO-58	* 8.13E-01	2.2E 00
CO-60	* 5.81E-01	1.7E 00
ZN-65	* 0.00E-01	4.9E 00
ZR-95	* 3.44E 00	4.2E 00
NB-95	* 3.11E 00	2.7E 00
I-131	* -5.70E-01	3.0E 00
CS-134	* 1.38E 00	3.0E 00
CS-137	* 1.96E 00	2.6E 00
BALA-140	* 0.00E-C1	2.6E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigmen*

SEP 11 1987

REVIEWED BY: *Dob E. Holt*

DATE: *7-11-87*

Plant Name : CNS
Sample Number : 131
Type/Location : DRINKING WATER / 218
Sample Date : 9-SEP-1987 12:00:00
Acq. Start Time : 1-OCT-1987 17:20:22
Sample Quantity : 3.50000 LITERS
Sample ID : 12AUG TO 9SEP87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.983	0.000E+00		
ANAL2-LL	364.48	< 0.949	0.000E+00		
ALPHA-T	1.00	<-0.663	0.490		
BETA-T	1.00	1.57	0.470		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.28	0.000E+00		
CO-58	810.76	< 2.70	0.000E+00		
FE-59	1099.22	< 5.25	0.000E+00		
CO-60	1332.47	< 2.33	0.000E+00		
ZN-65	1115.52	< 5.43	0.000E+00		
NB-95	765.78	< 3.63	0.000E+00		
ZR-95	756.72	< 4.94	0.000E+00		
I-131	364.48	< 15.0	0.000E+00		
CS-134	604.66	< 2.16	0.000E+00		
CS-137	661.65	< 2.60	0.000E+00		
BALA-140	1596.49	< 9.68	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____



Approved by: _____



Date: 12/17/87

Plant Name : CNS
Sample Number : 594
Type/Location : DW TRITIUM / 218
Sample Date : 9-SEP-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 17JUN 9SEP87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A -----

Approved by: Marcia Jones -----

Date: 4/18/88 -----

Plant Name : CNS
Sample Number : 144
Type/Location : DRINKING WATER / 218
Sample Date : 7-OCT-1987 12:00:00
Acq. Start Time : 7-OCT-1987 19:04:14
Sample Quantity : 3.50000 LITERS
Sample ID : 9SEP TO 7OCT87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.985	0.000E+00		
ANAL2-LL	364.48	< 0.826	0.000E+00		
ALPHA-T	1.00	0.610	0.300		0.000E+00
BETA-T	1.00	2.91	0.540		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.20	0.000E+00		
CO-58	810.76	< 9.33	0.000E+00		
FE-59	1099.22	< 19.9	0.000E+00		
CO-60	1332.47	< 10.8	0.000E+00		
ZN-65	1115.52	< 16.2	0.000E+00		
NB-95	765.78	< 7.44	0.000E+00		
ZR-95	756.72	< 8.75	0.000E+00		
I-131	364.48	< 6.02	0.000E+00		
CS-134	604.66	< 6.63	0.000E+00		
CS-137	661.65	< 6.40	0.000E+00		
BALA-140	1596.49	< 12.9	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Bigman

Approved by: Dale S. [Signature]

Date: 11 / 23 / 87

Plant Name : CNS
Sample Number : 232
Type/Location : DRINKING WATER / 218
Sample Date : 4-NOV-1987 12:00:00
Acq. Start Time : 4-NOV-1987 17:02:08
Sample Quantity : 3.50000 LITERS
Sample ID : 7OCT TO 4NOV87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.964	0.000E+00		
ANAL2-LL	364.48	< 0.984	0.000E+00		
ALPHA-T	1.00	< 0.167	0.290		
BETA-T	1.00	2.43	0.510		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.19	0.000E+00		
CO-58	810.76	< 6.79	0.000E+00		
FE-59	1099.22	< 13.7	0.000E+00		
CO-60	1332.47	< 8.55	0.000E+00		
ZN-65	1115.52	< 15.4	0.000E+00		
NB-95	765.78	< 7.03	0.000E+00		
ZR-95	756.72	< 11.2	0.000E+00		
I-131	364.48	< 7.91	0.000E+00		
CS-134	604.66	< 6.35	0.000E+00		
CS-137	661.65	< 8.54	0.000E+00		
BALA-140	1596.49	< 6.93	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale G. Holl

Date: 12/9/87

Plant Name : CNS
 Sample Number : 322
 Type/Location : DRINKING WATER / 218
 Sample Date : 2-DEC-1987 12:00:00
 Acq. Start Time : 8-DEC-1987 09:55:18
 Sample Quantity : 3.50000 LITERS
 Sample ID : 4NOV TO 2DEC87
 Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.970	0.000E+00		
ANAL2-LL	364.48	< 0.969	0.000E+00		
ALPHA-T	1.00	<-0.353	0.430		
BETA-T	1.00	2.51	0.520		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.73	0.000E+00		
CO-58	810.76	< 5.42	0.000E+00		
FE-59	1099.22	< 16.4	0.000E+00		
CO-60	1332.47	< 9.26	0.000E+00		
ZN-65	1115.52	< 14.0	0.000E+00		
NB-95	765.78	< 7.07	0.000E+00		
ZR-95	756.72	< 15.0	0.000E+00		
I-131	364.48	< 11.6	0.000E+00		
CS-134	604.66	< 6.62	0.000E+00		
CS-137	661.65	< 8.69	0.000E+00		
BALA-140	1596.49	< 13.5	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dale S. Hall

Date: 12 / 4 / 87

Plant Name : CNS
Sample Number : 597
Type/Location : DW TRITIUM / 218
Sample Date : 2-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 9SEP 2DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00		-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A -----

Approved by: Marcia Lopez -----

Date: 4/18/88 -----

Plant Name : CNS
 Sample Number : 390
 Type/Location : DRINKING WATER / 218
 Sample Date : 30-DEC-1987 12:00:00
 Acq. Start Time : 5-JAN-1988 13:36:59
 Sample Quantity : 3.50000 LITERS
 Sample ID : 2DEC TO 30DEC87
 Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.907	0.000E+00		
ANAL2-LL	364.48	< 0.980	0.000E+00		
ALPHA-T	1.00	<-0.132	0.230		
BETA-T	1.00	2.13	0.440		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.62	0.000E+00		
CO-58	810.76	< 3.67	0.000E+00		
FE-59	1099.22	< 7.89	0.000E+00		
CO-60	1332.47	< 3.68	0.000E+00		
ZN-65	1115.52	< 7.43	0.000E+00		
NB-95	765.78	< 4.02	0.000E+00		
ZR-95	756.72	< 6.31	0.000E+00		
I-131	364.48	< 5.34	0.000E+00		
CS-134	604.66	< 3.13	0.000E+00		
CS-137	661.65	< 3.42	0.000E+00		
BALA-140	1596.49	< 5.25	0.000E+00		
K-40	1460.75	85.1	19.5		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: D. F. Hall

Date: 1/20/88

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:21:43

Plant Name : CNS
Sample Number : 600
Type/Location : DW TRITIUM / 218
Sample Date : 30-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 2DEC 30DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00 <	350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A-----

Approved by: Marcid Opus-----

Date: 4/18/88-----

25

30 JAN 1987 3:30:14 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 208

: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 12/31-1/28/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 2.16E-01	4.0E-01
ANAL#2	4.14E-01	2.2E-01
GAMMA SPEC		
MN-54	* -6.05E-01	2.0E 00
FE-59	* 2.00E 00	4.0E 00
CO-58	* 6.02E-01	2.1E 00
CO-60	* 1.28E 00	1.8E 00
ZN-65	* -1.46E 00	3.4E 00
ZR-95	* 2.55E 00	3.6E 00
NB-95	* 8.71E-01	2.1E 00
I-131	* 4.08E 00	3.0E 00
CS-134	* 6.77E-01	2.2E 00
CS-137	* 2.88E-01	2.3E 00
BALA-140	* 0.00E-01	1.4E 00

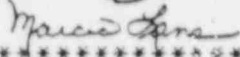
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:



REVIEWED BY:



DATE: 2/5/87

10 MAR 1987 11:48:08 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 208

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 1/28-2/25/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.0 E-01	3.2E-01
ANAL#2	* 2.5 E-01	3.5E-01
GAMMA SPEC		
MN-54	* -1.40E-01	8.9E-01
FE-59	* -1.29E 00	1.8E 00
CO-58	* 1.40E 00	9.8E-01
CO-60	* 2.60E-01	9.3E-01
ZN-65	* -2.60E 00	1.7E 00
ZR-95	* 2.56E 00	1.7E 00
NB-95	2.14E 00	1.1E 00 0.5
I-131	* -1.20E 00	2.6E 00
CS-134	1.85E 00	1.0E 00 6.7
CS-137	* 4.28E-02	9.2E-01
BALA-140	* 4.62E-01	1.7E 00
		<u>7.22</u>

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Nb-95 at 766 keV and Cs-134 at 796 keV not identified by Peak Search or MID.
 Nb-95 MDA = 40 net counts; Cs-134 MDA = 36 net counts.

BY: *Jim Sigman*

MAR 10 1987

REVIEWED BY: *Dale E. Hilde*

DATE: 3/10/87

 6 APR 1987 10:48:05 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

* *****
 C WBA SURFACE WATER CMP. - 208
 TYPE: LIQUID QUANTITY: 1.000E 00
 COLLECTION DATE(S): 2/25-3/25/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 2.30E-01	3.1E-01
ANAL#2	* 1.30E-01	3.1E-01
GAMMA SFEC		
MN-54	* 0.00E-01	3.6E 00
FE-59	* 3.04E 00	9.6E 00
CO-58	* -2.62E 00	5.1E 00
CO-60	* 9.95E-01	3.9E 00
ZN-65	* -3.38E 00	1.3E 01
ZR-95	* -5.51E 00	8.0E 00
NB-95	* 2.49E 00	5.1E 00
I-131	* 8.51E-01	5.9E 00
CS-134	* -1.48E 00	5.7E 00
CS-137	9.95E 00	5.8E 00
BALA-140	* -7.54E 00	4.4E 00
NPK-40	5.86E 02	1.1E 02

Deviation

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *nPk-40 at 1461 keV identified by Peak Search and NID.*
Co-137 at 662 keV not identified by Peak Search or NID. MDA = 16 net counts.

BY: *Jim Sigman*

REVIEWED BY: *John F. Hilde*

DATE: *4.7-87*

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:33

Plant Name : CNS
Sample Number : 571
Type/Location : SW TRITIUM / 208
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 31DEC86 25MAR87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	2.350E+03	100.		0.117

Total Fraction of Reporting Level 0.117

Analyzed by: N/A

Approved by: Marcia Lane

Date: 4/18/88

 28 APR 1987 11:12:43 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 208

E: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/8-4/22/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.32E-01	2.6E-01
ANAL#2	* 1.43E-01	1.3E-01
GAMMA SPEC		
MN-54	* 9.06E-01	1.7E 00
FE-59	* 0.00E-01	3.8E 00
CO-58	* 2.98E-01	2.3E 00
CO-60	* 4.26E-01	1.6E 00
ZN-65	* 2.19E 00	5.1E 00
ZR-95	* 3.53E 00	3.9E 00
NB-95	5.13E 00	2.4E 00 1.32
I-131	* -4.19E-01	2.5E 00
CS-134	* 1.02E 00	2.5E 00
CS-137	* 2.88E-01	2.2E 00
BALA-140	* 0.00E-01	2.3E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Nb-95 at 766 keV not identified by Peak Search or NID, MCA = 10 net counts.
 Sampler malfunction required a grab sample on 4/6/87 for the composite period of
 3/25 - 4/8/87.

BY:

Jim Simon

APR 28 1987

REVIEWED BY:

Dale G. Holt

DATE:

4/28/87

22 MAY 1987 1:30:09 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 208

E: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/22-5/20/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 4.39E-02	4.0E-01
ANAL#2	* -1.84E-02	9.3E-02
GAMMA SPEC		
MN-54	* -1.22E 00	1.9E 00
FE-59	* -6.58E-01	2.9E 00
CO-58	* 1.20E 00	1.9E 00
CO-60	3.11E 00	2.0E 00 1.02
ZN-65	* 7.32E-01	3.7E 00
ZR-95	* -1.01E 00	3.0E 00
NB-95	* 0.00E-01	1.7E 00
I-131	* 2.02E-01	1.9E 00
CS-134	* 3.41E-01	2.0E 00
CS-137	* -8.65E-01	2.0E 00
BALA-140	* 2.28E 00	2.1E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Co-60 at 1332 keV, MDA = 7 net counts.

BY:

Jim Sigman

MAY 22 1987

REVIEWED BY:

Dale E. Holder

DATE:

5-22-87

13

23 JUN 1987 11:42:25 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 208

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 5/20-6/17/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.18E-01	3.3E-01
ANAL#2	3.20E-01	1.9E-01
GAMMA SPEC		
MN-54	* 9.86E-01	2.3E 00
FE-59	* 7.10E-01	4.2E 00
CO-58	* 1.62E 00	2.3E 00
CO-60	* -2.33E 00	2.0E 00
ZN-65	* -2.37E 00	4.5E 00
ZR-95	* 0.00E-01	3.0E 00
NB-95	* 2.78E 00	2.3E 00
I-131	* 6.57E-01	2.6E 00
CS-134	* 4.04E 00	2.8E 00
CS-137	* 9.24E-01	2.4E 00
BALA-140	* 0.00E-01	2.7E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Anal #2 - I-131 at 364 keV, No Peak identified For Anal #2. MDA: 17 net counts.

BY:

Jim Sigmund

JUN 23 1987

REVIEWED BY:

Dale S. Hall

DATE:

6-24-87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:37

Plant Name : CNS
Sample Number : 574
Type/Location : SW TRITIUM / 208
Sample Date : 17-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 8APR 17JUN87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	4.480E+03	120.		- 0.224

Total Fraction of Reporting Level					0.224

Analyzed by: ----- *N/A* -----

Approved by: ----- *4/18/88* -----

Date: *4/18/88* -----

10 *****
17 JUL 1987 1:27:24 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 208

E: LIQUID

QUANTITY: 3.500E 00

LECTION DATE(S): 6/17-7/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 8.64E-02	1.6E-01
ANAL#2	* 2.45E-02	3.0E-01
GAMMA SPEC		
MN-54	* 3.29E 00	3.4E 00
FE-59	* -4.26E 00	6.5E 00
CO-58	* -2.59E 00	2.7E 00
CO-60	* -2.80E 00	3.6E 00
ZN-65	* -3.16E 00	7.1E 00
ZR-95	* 0.00E-01	6.4E 00
NB-95	* 6.16E-01	3.3E 00
I-131	* 1.31E 00	3.8E 00
CS-134	* 2.94E 00	4.2E 00
CS-137	* -1.85E 00	3.2E 00
BALA-140	* 3.62E 00	3.6E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *mz*

REVIEWED BY: *Dale F. Holt*

DATE: *7-20-87*

14 AUG 1987 1:35:06 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 208

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/15-8/12/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)	
W-LEVEL I-131			
ANAL#1	9.15E-01	4.1E-01	46.6%
ANAL#2	1.07E 00	3.3E-01	53.5%
SPEC			
54	* -1.31E 00	3.7E 00	
59	* -1.42E 00	5.1E 00	
J-58	* -1.29E 00	3.3E 00	
CO-60	* -2.80E 00	3.6E 00	
ZN-65	* -3.16E 00	6.3E 00	
ZR-95	* 1.09E 00	5.2E 00	
NB-95	* 0.00E-01	3.1E 00	
I-131	* 0.00E-01	3.7E 00	
CS-134	* 2.20E 00	3.2E 00	
CS-137	* 6.16E-01	3.6E 00	
BALA-140	* 0.00E-01	2.4E 00	

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Anal #1 I-131 - 364 keV, not identified by Peak Search or NID, MDA: 16 net counts.
 Anal #2 I-131 - 364 keV, identified by Peak Search and NID.

BY: *SM* (Notified JSI at CNS by phone on 8/14/87 about I-131 Anal #2) *ndane*

REVIEWED BY: *Dale J. Hall* DATE: 8/17/87

Plant Name : CMS
Sample Number : 58
Type/Location : SURFACE WATER / 208
Sample Date : 9-SEP-1987 12:00:00
Acq. Start Time : 21-SEP-1987 09:47:41
Sample Quantity : 3.50000 LITERS
Sample ID : 12AUG TO 9SEP87
Measurement Type : ROUTINE

**** Alternate Analysis ****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.977	0.000E+00		
ANAL2-LL	364.48	< 0.830	0.000E+00		

**** Gamma-Spectroscopy Analysis ****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.21	0.000E+00		
CO-58	810.76	< 2.64	0.000E+00		
FE-59	1099.22	< 4.96	0.000E+00		
CO-60	1332.47	< 2.05	0.000E+00		
ZN-65	1115.02	< 4.38	0.000E+00		
NB-95	765.70	< 2.66	0.000E+00		
ZR-95	756.72	< 3.91	0.000E+00		
I-131	364.48	< 5.81	0.000E+00		
CS-134	604.66	< 2.10	0.000E+00		
CS-137	661.65	< 2.32	0.000E+00		
BALA-140	537.27	< 14.9	0.000E+00		
K-40	1460.75	71.5	16.4		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: JD

Approved by: Marcelo Lopez Date: 4/1/88

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:42

Plant Name : CNS
Sample Number : 577
Type/Location : SW TRITIUM / 208
Sample Date : 9-SEP-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : JUN17 9SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	6.100E+03	140.		0.305

Total Fraction of Reporting Level 0.305

Analyzed by: N/A -----

Approved by: Marcio Spina ----- Date: 4/18/88 -----

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 16:11:11

Plant Name : CNS
Sample Number : 140
Type/Location : SURFACE WATER / 208
Sample Date : 7-OCT-1987 12:00:00
Acq. Start Time : 7-OCT-1987 18:10:51
Sample Quantity : 3.50000 LITERS
Sample ID : 23SEP TO 7OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.934	0.000E+00		
ANAL2-LL	364.48	< 0.704	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 6.63	0.000E+00		
CO-58	810.76	< 8.68	0.000E+00		
FE-59	1099.22	< 18.8	0.000E+00		
CO-60	1332.47	< 6.23	0.000E+00		
ZN-65	1115.52	< 23.1	0.000E+00		
NB-95	765.78	< 8.42	0.000E+00		
ZR-95	756.72	< 14.7	0.000E+00		
I-131	364.48	< 6.97	0.000E+00		
CS-134	604.66	< 7.52	0.000E+00		
CS-137	661.65	< 8.10	0.000E+00		
BALA-140	1596.49	< 12.9	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____

Approved by: _____

Date: 12/17/87

The gamma composite from 9/9-10/2/87 was a grab sample collected on 9/23/87 instead of the normal biweekly period of 9/9 - 9/20/87.

Plant Name : CNS
 Sample Number : 233
 Type/Location : SURFACE WATER / 208
 Sample Date : 4-NOV-1987 12:00:00
 Acq. Start Time : 4-NOV-1987 17:33:03
 Sample Quantity : 3.50000 LITERS
 Sample ID : 7OCT TO 4NOV87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.995	0.000E+00		
ANAL2-LL	364.48	0.765	0.322		0.382 → peak accompanied with a 42.1% 1-sigma error.

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.24	0.000E+00		
CO-58	810.76	< 11.1	0.000E+00		
FE-59	1099.22	< 11.6	0.000E+00		
CO-60	1332.47	< 11.6	0.000E+00		
ZN-65	1115.52	< 19.5	0.000E+00		
NB-95	765.78	< 9.74	0.000E+00		
ZR-95	756.72	< 11.6	0.000E+00		
I-131	364.48	< 8.79	0.000E+00		
CS-134	604.66	< 6.63	0.000E+00		
CS-137	661.65	< 6.89	0.000E+00		
BALA-140	1596.49	< 10.7	0.000E+00		

Total Fraction of Reporting Level 0.382

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 310
Type/Location : SURFACE WATER / 208
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 7-DEC-1987 10:55:25
Sample Quantity : 3.50000 LITERS
Sample ID : 4NOV TO 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.958	0.000E+00		
ANAL2-LL	364.48	< 0.919	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.59	0.000E+00		
CO-58	810.76	< 10.8	0.000E+00		
FE-59	1099.22	< 15.2	0.000E+00		
CO-60	1332.47	< 11.6	0.000E+00		
ZN-65	1115.52	< 14.5	0.000E+00		
NB-95	765.78	< 7.04	0.000E+00		
ZR-95	756.72	< 13.1	0.000E+00		
I-131	364.48	< 11.4	0.000E+00		
CS-134	604.66	< 6.43	0.000E+00		
CS-137	661.65	< 9.91	0.000E+00		
BALA-140	1596.49	< 13.0	0.000E+00		
K-40	1460.75	191.	60.1		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Pat S. Hla

Date: 12/10/87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:47

Plant Name : CN3
Sample Number : 580
Type/Location : SW TRITIUM / 20B
Sample Date : 2-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 9SEP 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	6.020E+03	130.		- 0.301

Total Fraction of Reporting Level 0.301

Analyzed by: N/A

Approved by: Marcia Fine

Date: 4/18/88

Plant Name : CNS
 Sample Number : 378
 Type/Location : SURFACE WATER / 208
 Sample Date : 30-DEC-1987 12:00:00
 Acq. Start Time : 31-DEC-1987 04:42:09
 Sample Quantity : 3.50000 LITERS
 Sample ID : 2DEC TO 30DEC87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.909	0.000E+00		
ANAL2-LL	364.48	< 0.953	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.92	0.000E+00		
CO-58	810.76	< 11.0	0.000E+00		
FE-59	1099.22	< 11.8	0.000E+00		
CO-60	1332.47	< 10.5	0.000E+00		
ZN-65	1115.52	< 18.2	0.000E+00		
NB-95	765.78	< 9.30	0.000E+00		
ZR-95	756.72	< 14.8	0.000E+00		
I-131	364.48	< 9.35	0.000E+00		
CS-134	604.66	< 7.84	0.000E+00		
CS-137	661.65	< 11.1	0.000E+00		
BALA-140	1596.49	< 9.54	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Dee E. [Signature]

Date: 1 / 12 / 88

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:52

Plant Name : CNS
Sample Number : 583
Type/Location : SW TRITIUM / 208
Sample Date : 30-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 2DEC 30DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	1.910E+03	100.		9.550E-02

Total Fraction of Reporting Level 9.550E-02

Analyzed by: N/A -----

Approved by: Marcia Opene ----- Date: 4/18/88 -----

 30 JAN 1987 3:32:20 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C:\WBA SURFACE WATER CMP. - 211

T : LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 12/31-1/28/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.04E-01	4.9E-01
ANAL#2	4.23E-01	2.2E-01
GAMMA SPEC		
MN-54	* -1.32E 00	2.0E 00
FE-59	* 0.00E-01	3.9E 00
CO-58	* -6.54E-01	2.0E 00
CO-60	* -1.40E 00	2.1E 00
ZN-65	* -2.37E 00	3.6E 00
ZR-95	* 0.00E-01	3.9E 00
NB-95	* 1.26E 00	2.3E 00
I-131	* -2.14E 00	2.9E 00
CS-134	* 0.00E-01	2.6E 00
CS-137	* 0.00E-01	2.3E 00
BALA-140	* 0.00E-01	2.7E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *D. A. B.*

REVIEWED BY: *Marcia Deane*

DATE: *2/5/87*

 3 MAR 1987 3:14:25 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 211

LIQUID QUANTITY: 1.000E 00
 COLLECTION DATE(S): 1/28-2/25/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 4.76E-02	2.8E-01
ANAL#2	* -1.29E-01	3.0E-01
GAMMA SPEC		
MN-54	* 8.33E-01	3.4E 00
FE-59	* 0.00E-01	5.3E 00
CO-58	* -3.31E 00	3.7E 00
CO-60	* 1.87E 00	3.8E 00
ZN-65	* -1.06E 01	9.5E 00
ZR-95	* -2.09E 00	6.3E 00
NB-95	* 4.77E 00	4.2E 00
I-131	* 2.91E-01	4.9E 00
CS-134	* 6.03E 00	4.8E 00
CS-137	* 1.94E 00	4.2E 00
BALA-140	* -8.40E-01	3.5E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *[Signature]*

REVIEWED BY: *[Signature]* DATE: 3/1/87

 6 APR 1987 10:49:29 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA SURFACE WATER CMP. - 211
 TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 2/25-3/25/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 0.00E-01	2.9E-01
ANAL#2	* 2.13E-01	3.4E-01
GAMMA SPEC		
MN-54	* 2.42E 00	2.1E 00
FE-59	* -1.31E 00	3.3E 00
CO-58	* -5.96E-01	1.9E 00
CO-60	* -1.28E 00	2.0E 00
ZN-65	* 7.29E-01	4.1E 00
ZR-95	* 1.01E 00	3.5E 00
NB-95	4.28E 00	2.2E 00
I-131	* 2.09E 00	2.6E 00
CS-134	* 1.35E 00	2.5E 00
CS-137	* -2.02E 00	2.3E 00
BALA-140	* 5.45E-01	2.0E 00

Deviation

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Nb-95 at 766 keV not identified by Peak Searcher NID, net counts

BY: *Jim Sigman*

REVIEWED BY: *Paul F. Holt*

DATE: 4-7-87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:34

Plant Name : CNS
Sample Number : 572
Type/Location : SW TRITIUM / 211
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 31DEC86 25MAR87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00		
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A

Approved by: Marcia Spive

Date: 4/18/88

28 APR 1987 11:13:32 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 211

E: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 3/25-4/22/87

UNITS: LITERS

RADIONUCLIDE ACTIVITY (PCI/UT) SIGMA (PCI/UT)
LOW-LEVEL I-131
 ANAL#1 * -2.74E-01 4.4E-01
 ANAL#2 * 4.18E-02 1.5E-01
GAMMA SPEC
 MN-54 * -6.04E-02 9.1E-01
 FE-59 * 0.00E-01 1.5E 00
 CO-58 * 5.97E-02 8.9E-01
 CO-60 * 1.11E 00 8.8E-01
 ZN-65 * 2.92E-01 1.7E 00
 ZR-95 * 2.02E-01 1.6E 00
 NB-95 * -1.72E-01 9.5E-01
 I-131 * -1.27E-01 1.2E 00
 CS-134 * 2.03E-01 1.0E 00
 CS-137 * -2.30E-01 9.8E-01
 BALA-140 * -3.30E-01 9.7E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Simer*

APR 28 1987

REVIEWED BY: *D. S. H. R.*

DATE: *4/28/87*

22 MAY 1987 1:32:15 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 211

3: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/22-5/20/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -2.33E-01	6.0E-01
ANAL#2	* -2.71E-02	9.0E-02
GAMMA SPEC		
MN-54	* 0.00E-01	8.0E-01
FE-59	* 0.00E-01	1.4E 00
CO-58	* 2.39E-01	9.1E-01
CO-60	* 5.11E-01	8.6E-01
ZN-65	* 4.38E-01	1.9E 00
ZR-95	* 2.12E 00	1.7E 00
NB-95	* 1.37E 00	9.8E-01
I-131	* 0.00E-01	1.2E 00
CS-134	* 1.35E-01	1.1E 00
CS-137	* 2.30E-01	1.0E 00
BALA-140	* 4.39E-01	1.0E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigman

MAY 22 1987

REVIEWED BY:

Dale G. Hold

DATE:

5-22-87

14

23 JUN 1987 11:43:50 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 211
TYPE: LIQUID QUANTITY: 3.500E 00
COLLECTION DATE(S): 5/20-6/17/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.14E-01	3.4E-01
ANAL#2	* 1.43E-01	2.4E-01
GAMMA SPEC		
MN-54	* -3.25E-01	2.5E 00
FE-59	* 5.82E 00	4.5E 00
CO-58	* -6.43E-01	2.1E 00
CO-60	* 2.86E 00	2.5E 00
ZN-65	* -4.84E 00	5.9E 00
ZR-95	8.18E 00	4.4E 00
NB-95	* 6.17E-01	2.5E 00
I-131	* 2.00E 00	3.2E 00
CS-134	* 1.82E 00	2.9E 00
CS-137	* -1.25E 00	2.7E 00
BALA-140	* -6.00E-01	2.5E 00
NPK-40	2.50E 02	5.6E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Zr-95 at 757 keV, MDA = 15 net counts, No peak identified.
NPK-40 at 1461 keV identified by Peak Search and W10.

BY: *Jim Sigmund* JUN 23 1987

REVIEWED BY: *Del F. Holt* DATE: 6-24-87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:39

Plant Name : CNS
Sample Number : 575
Type/Location : SW TRITIUM / 211
Sample Date : 17-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 25MAR 17JUN87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00		-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Oline-----

Date: 4/18/88-----

17

17 JUL 1987 1:27:57 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 211

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/17-7/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 8.18E-02	3.7E-01
ANAL#2	* 6.55E-02	4.9E-01
GAMMA SPEC		
MN-54	* -6.09E-01	2.2E 00
FE-59	* 1.32E 00	5.1E 00
CO-58	* 1.20E 00	2.4E 00
CO-60	* -8.88E-01	2.4E 00
ZN-65	* -2.93E 00	5.9E 00
ZR-95	* -3.04E 00	5.5E 00
NB-95	* 2.29E 00	3.0E 00
I-131	* 8.10E-01	2.5E 00
CS-134	* 0.00E-01	2.6E 00
CS-137	* -1.15E 00	2.4E 00
BALA-140	* 0.00E-01	0.0E-01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *mg*

REVIEWED BY:

Dale F. Hold

DATE:

7-20-87

14 AUG 1987 1:36:33 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 211

TYPE: LIQUID

QUANTITY: 3.500E 00

SECTION DATE(S): 7/15-8/12/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 2.55E-01	4.4E-01
ANAL#2	* 1.96E-01	4.8E-01
GAMMA SFEC		
MN-54	* 4.83E 00	3.4E 00
FE-59	* -2.62E 00	5.2E 00
CO-58	* -1.19E 00	3.3E 00
CO-60	* 1.70E 00	3.0E 00
ZN-65	* 2.92E 00	6.8E 00
ZR-95	* -1.01E 00	4.6E 00
NB-95	* 0.00E-01	2.8E 00
I-131	* -2.08E 00	3.8E 00
CS-134	* 6.77E-01	3.2E 00
CS-137	* 2.88E 00	3.3E 00
BALA-140	* -2.17E 00	3.4E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *my*

REVIEWED BY: *Dale E. Holder*

DATE: 8-17-87

Plant Name : CNS
Sample Number : 53
Type/Location : SURFACE WATER / 211
Sample Date : 9-SEP-1987 12:00:00
Acq. Start Time : 16-SEP-1987 10:47:57
Sample Quantity : 3.50000 LITERS
Sample ID : 12AUG TO 9SEP87
Measurement Type : ROUTINE

**** Alternate Analysis ****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.861	0.000E+00		
ANAL2-LL	364.48	< 0.885	0.000E+00		

**** Gamma-Spectroscopy Analysis ****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.70	0.000E+00		
CO-58	810.76	< 2.72	0.000E+00		
FE-59	1099.22	< 6.11	0.000E+00		
CO-60	1332.47	< 3.22	0.000E+00		
ZN-65	1115.52	< 5.97	0.000E+00		
NB-95	765.78	< 2.77	0.000E+00		
ZR-95	756.72	< 5.26	0.000E+00		
I-131	364.48	< 5.17	0.000E+00		
CS-134	604.66	< 2.51	0.000E+00		
CS-137	661.65	< 3.08	0.000E+00		
BALA-140	537.27	< 14.7	0.000E+00		
K-40	1460.75	74.8	16.8		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: LS

Approved by: Marcia Spive

Date: 4/1/88

Plant Name : CNS
Sample Number : 578
Type/Location : SW TRITIUM / 211
Sample Date : 9-SEP-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 17JUN 9SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	860.	90.0		4.300E-02
Total Fraction of Reporting Level					4.300E-02

Analyzed by: ----- *N/A* -----

Approved by: ----- *Marcia Lane* -----

Date: *4/18/88* -----

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 16:11:13

Plant Name : CNS
Sample Number : 141
Type/Location : SURFACE WATER / 211
Sample Date : 7-OCT-1987 12:00:00
Acq. Start Time : 7-OCT-1987 18:25:55
Sample Quantity : 3.50000 LITERS
Sample ID : 9SEP TO 7OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.924	0.000E+00		
ANAL2-LL	364.48	< 0.634	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.73	0.000E+00		
CO-58	810.76	< 6.79	0.000E+00		
FE-59	1099.22	< 16.1	0.000E+00		
CO-60	1332.47	< 8.35	0.000E+00		
ZN-65	1115.52	< 10.9	0.000E+00		
NB-95	765.78	< 7.50	0.000E+00		
ZR-95	756.72	< 9.01	0.000E+00		
I-131	364.48	< 8.86	0.000E+00		
CS-134	604.66	< 6.01	0.000E+00		
CS-137	661.65	< 10.2	0.000E+00		
BALA-140	1596.49	< 5.45	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____

Approved by: _____

Date: 12/12/87

Plant Name : CNS
Sample Number : 234
Type/Location : SURFACE WATER / 211
Sample Date : 4-NOV-1987 12:00:00
Acq. Start Time : 4-NOV-1987 17:35:21
Sample Quantity : 3.50000 LITERS
Sample ID : 7OCT TO 4NOV87
Measurement Type : ROUTINE


***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.983	0.000E+00		
ANAL2-LL	364.48	< 0.950	0.000E+00		

***** Gamma-Spe troscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.14	0.000E+00		
CO-58	810.76	< 5.59	0.000E+00		
FE-59	1099.22	< 13.8	0.000E+00		
CO-60	1332.47	< 7.35	0.000E+00		
ZN-65	1115.52	< 13.8	0.000E+00		
NB-95	765.78	< 6.98	0.000E+00		
ZR-95	756.72	< 8.31	0.000E+00		
I-131	364.48	< 7.17	0.000E+00		
CS-134	604.66	< 9.75	0.000E+00		
CS-137	661.65	< 5.35	0.000E+00		
BALA-140	1596.49	< 8.27	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 314
Type/Location : SURFACE WATER / 211
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 7-DEC-1987 11:06:36
Sample Quantity : 3.50000 LITERS
Sample ID : 4NOV TO 2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.997	0.000E+00		
ANAL2-LL	364.48	< 0.939	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.79	0.000E+00		
CO-58	810.76	< 8.00	0.000E+00		
FE-59	1099.22	< 12.1	0.000E+00		
CO-60	1332.47	< 7.18	0.000E+00		
ZN-65	1115.52	< 16.6	0.000E+00		
NB-95	765.78	< 6.54	0.000E+00		
ZR-95	756.72	< 13.7	0.000E+00		
I-131	364.48	< 9.18	0.000E+00		
CS-134	604.66	< 6.13	0.000E+00		
CS-137	661.65	< 7.95	0.000E+00		
BALA-140	1596.49	< 11.7	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Bigman

Approved by: Del E. Hold

Date: 12/12/87

Plant Name : CNS
Sample Number : 581
Type/Location : SW TRITIUM / 211
Sample Date : 2-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 9SEP-2DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00		-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A -----

Approved by: Marcia Apice -----

Date: 4/18/88 -----

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:36:32

Plant Name : CNS
Sample Number : 380
Type/Location : SURFACE WATER / 211
Sample Date : 30-DEC-1987 12:00:00
Acq. Start Time : 31-DEC-1987 04:44:20
Sample Quantity : 3.50000 LITERS
Sample ID : 2DEC TO 30DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.932	0.000E+00		
ANAL2-LL	364.48	< 0.927	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.02	0.000E+00		
CO-58	810.76	< 10.2	0.000E+00		
FE-59	1099.22	< 16.6	0.000E+00		
CO-60	1332.47	< 11.0	0.000E+00		
ZN-65	1115.52	< 17.4	0.000E+00		
NB-95	765.78	< 8.88	0.000E+00		
ZR-95	756.72	< 14.5	0.000E+00		
I-131	364.48	< 10.1	0.000E+00		
CS-134	604.66	< 8.72	0.000E+00		
CS-137	661.65	< 10.7	0.000E+00		
BALA-140	1596.49	< 8.13	0.000E+00		
K-40	1460.75	324.	61.8		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcus [Signature]-----

Date: 4/18/88-----

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:54

Plant Name : CNS
Sample Number : 584
Type/Location : SW TRITIUM / 211
Sample Date : 30-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 2DEC 30DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00 <	350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: ----- *N/A* -----

Approved by: ----- *Marcia Lane* -----

Date: *7/18/88* -----

30 JAN 1987 3:34:15 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 215

T : LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 12/31-1/28/87

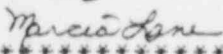
UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 0.00E-01	3.9E-01
ANAL#2	* 9.14E-02	1.8E-01
GAMMA SPEC		
MN-54	* -1.21E 00	2.0E 00
FE-59	* 6.66E-01	4.2E 00
CO-58	* -1.20E 00	1.9E 00
CO-60	* 2.13E 00	2.0E 00
ZN-65	* -7.31E-01	3.4E 00
ZR-95	* -5.10E-01	4.1E 00
NB-95	* 5.82E-01	2.2E 00
I-131	* 1.83E 00	2.9E 00
CS-134	* 1.35E 00	2.2E 00
CS-137	* -1.15E 00	2.3E 00
BALA-140	3.46E 00	2.2E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: 

REVIEWED BY: 

DATE: 2/5/87

 3 MAR 1987 3:11:41 FM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C: WBA SURFACE WATER CM
 215A

E: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 1/28-2/25/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 0.00E-01	2.4E-01
ANAL#2	* -2.62E-02	2.5E-01
GAMMA SPEC		
MN-54	* 0.00E-01	1.8E 00
FE-59	* -2.00E 00	3.5E 00
CO-58	* 3.01E-01	2.1E 00
CO-60	* 0.00E-01	2.1E 00
ZN-65	* 1.46E 00	3.9E 00
ZR-95	* -1.02E 00	3.5E 00
NR-95	* -2.91E-01	2.0E 00
I-131	* 4.58E-01	2.8E 00
CS-134	* 3.39E-01	2.4E 00
CS-137	* 1.15E 00	2.3E 00
BALA-140	* -5.77E-01	2.1E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *[Signature]*

 REVIEWED BY: *[Signature]*

DATE: 3/6/87

 6 APR 1987 10:50:44 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA SURFACE WATER CMP. - 215
 E: LIQUID QUANTITY: 1.000E 00
 COLLECTION DATE(S): 2/25-3/25/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.13E-01	3.7E-01
ANAL#2	* 0.00E-01	3.5E-01
GAMMA SPEC		
MN-54	* 2.83E-01	3.1E 00
FE-59	* -3.24E 00	5.9E 00
CO-58	* -1.39E 00	3.0E 00
CO-60	* 0.00E-01	3.3E 00
ZN-65	* -1.44E 01	7.0E 00
ZR-95	* 1.41E 00	5.6E 00
NB-95	* 2.39E 00	3.2E 00
I-131	* 4.38E 00	3.8E 00
CS-134	* 6.31E-01	4.0E 00
CS-137	* 2.65E-01	3.4E 00
BALA-140	* 0.00E-01	2.3E 00
NPK-40	7.39E 02	8.0E 01

Deviation

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *NPK-40 at 1461 keV ident. find by Peak Search and NID.*

BY:

Jim Sigman

REVIEWED BY:

Dale E. Hales

DATE:

4.7.87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:36

Plant Name : CNS
Sample Number : 573
Type/Location : SW TRITIUM / 215
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 31DEC86 25MAR87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A -----

Approved by: Marcia Opus -----

Date: 4/18/88 -----

28 APR 1987 11:17:28 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 215

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 3/25-4/22/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 7.12E-02	2.9E-01
ANAL#2	* 3.41E-02	1.0E-01
GAMMA SPEC		
FE-59	* -6.61E-01	2.9E 00
CO-58	* -3.01E-01	1.7E 00
CO-60	* -4.44E-01	1.6E 00
ZN-65	* 2.93E 00	3.6E 00
ZR-95	* 1.02E 00	3.2E 00
NB-95	* -8.64E-01	1.7E 00
I-131	* -4.14E-01	2.1E 00
CS-134	* 1.02E 00	2.0E 00
CS-137	* 2.88E-01	2.0E 00
BALA-140	* 0.00E-01	1.4E 00
MN-54	* -3.05E-01	1.8E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

APR 28 1987

REVIEWED BY: *Ph. J. Hill*

DATE: *4/28/87*

 22 MAY 1987 1:31:07 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 215

E: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/22-5/20/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 3.61E-01	3.1E-01
ANAL#2	* -9.86E-02	3.2E-01
GAMMA SPEC		
MN-54	* -1.81E 00	2.2E 00
FE-59	* 4.59E 00	3.9E 00
CO-58	* 5.96E-01	2.3E 00
CO-60	* 8.52E-01	2.1E 00
ZN-65	* 1.46E 00	5.1E 00
ZR-95	* -1.01E 00	3.3E 00
NB-95	4.57E 00	2.2E 00 1.1 ⁹²
I-131	* -6.30E-01	2.6E 00
CS-134	* -3.38E-01	2.4E 00
CS-137	* 5.76E-01	2.2E 00
BALA-140	* -5.46E-01	1.6E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Nb-95 at 766 keV not identified by Peak Search or NID, MDA = 16 net counts.
 Anal #2 was a deviation. This sample was a "grab sample" due to a broken sampler.
 The sample was collected on the 5-20-87.

BY:

Dina Digner

MAY 22 1987

REVIEWED BY:

Dale S. Hold

DATE:

5-22-87

15

23 JUN 1987 11:45:08 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 215

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 5/20-6/17/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 3.14E-01	3.3E-01
ANAL#2	* 2.42E-01	2.4E-01
GAMMA SPEC		
MN-54	* 3.29E-01	2.2E 00
FE-59	* -2.85E 00	3.5E 00
CO-58	* -3.24E-01	2.3E 00
CO-60	* -2.80E 00	1.9E 00
ZN-65	* 7.90E-01	5.2E 00
ZR-95	* 4.37E 00	4.2E 00
NB-95	* 0.00E-01	2.0E 00
I-131	* 2.66E 00	2.8E 00
CS-134	* -7.34E-01	2.7E 00
CS-137	* -1.23E 00	2.2E 00
BALA-140	* 1.83E 00	2.9E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigmon* JUN 23 1987

REVIEWED BY: *Del S. Hold* DATE: 6-24-87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:40

Plant Name : CNS
Sample Number : 576
Type/Location : SW TRITIUM / 215
Sample Date : 17-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 25MAR 17JUN87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00 <	350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A -----

Approved by: Marsden -----

Date: 7/18/88 -----

18 *****
17 JUL 1987 1:28:31 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 215

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/17-7/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -2.06E-01	4.6E-01
ANAL#2	* -1.80E-01	3.7E-01
GAMMA SPEC		
MN-54	* 6.04E-01	2.6E 00
FE-59	* -1.31E 00	6.3E 00
CO-58	* 1.19E 00	3.3E 00
CO-60	* 1.70E 00	2.7E 00
ZN-65	* 1.46E 00	5.3E 00
ZR-95	* -3.03E 00	5.0E 00
NB-95	* 6.84E 00	3.3E 00
I-131	* 4.16E 00	3.8E 00
CS-134	* 0.00E-01	3.8E 00
CS-137	* 4.03E 00	3.2E 00
BALA-140	* 0.00E-01	1.5E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Nb-95 at 966 keV not identi: Fixed by Peak Search or NID, MDA = 12 net counts*
Anal #2: this sample was a "grab" taken on 7/15/87.

BY: *mg*

REVIEWED BY: *Dale S. Hild* DATE: *7-20-87*

18 AUG 1987 11:30:22 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA SURFACE WATER CMP. - 215

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/15-8/12/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.22E-01	3.0E-01
ANAL#2	* -7.08E-02	2.9E-01
GAMMA SPEC		
MN-54	* 3.66E 00	2.9E 00
FE-59	* 1.32E 00	4.4E 00
CO-58	* 3.00E 00	3.1E 00
CO-60	* -8.88E-01	2.4E 00
ZN-65	* 0.00E-01	5.5E 00
ZR-95	* 3.04E 00	3.9E 00
NB-95	* 5.73E-01	2.4E 00
I-131	* 2.43E 00	3.2E 00
CS-134	* -6.82E-01	2.6E 00
CS-137	* -1.15E 00	2.9E 00
BALA-140	* 1.14E 00	2.6E 00
NPK-40	8.08E 01	4.0E 01
CR-51	5.29E 01	2.3E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPK-40 at 1461 keV and Cr-51 at 320 keV, identified by Peak Search and NID.*

BY: *Jim Sigman*

AUG 18 1987

REVIEWED BY: *Del S. Halls*

DATE: *8.18.87*

Plant Name : CNS
Sample Number : 55
Type/Location : SURFACE WATER / 215
Sample Date : 9-SEP-1987 12:00:00
Acq. Start Time : 16-SEP-1987 10:50:47
Sample Quantity : 3.50000 LITERS
Sample ID : 12AUG TO 9SEP87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req	Frac. of LLD Rpt. Level
ANAL1-LL	364.48	< 0.996	0.000E+00		
ANAL2-LL	364.48	< 0.770	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req	Frac. of LLD Rpt. Level
MN-54	834.83	< 2.51	0.000E+00		
CO-58	810.76	< 2.54	0.000E+00		
FE-59	1099.22	< 5.69	0.000E+00		
CO-60	1332.47	< 3.06	0.000E+00		
ZN-65	1115.52	< 5.04	0.000E+00		
NB-95	765.78	< 3.15	0.000E+00		
ZR-95	756.72	< 4.71	0.000E+00		
I-131	364.48	< 4.82	0.000E+00		
CS-134	604.66	< 2.56	0.000E+00		
CS-137	661.65	< 2.74	0.000E+00		
BALA-140	537.27	< 14.6	0.000E+00		
K-40	1460.75	77.8	16.8		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: SB

Approved by: Spencer Date: 4/1/88

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:46

Plant Name : CNS
Sample Number : 579
Type/Location : SW TRITIUM / 215
Sample Date : 9-SEP-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 17JUN 9SEP87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	620.	90.0		3.100E-02
Total Fraction of Reporting Level					3.100E-02

Analyzed by: N/A

Approved by: Marcia Ojeda

Date: 4/18/88

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 16:11:19

Plant Name : CNS
Sample Number : 142
Type/Location : SURFACE WATER / 215
Sample Date : 7-OCT-1987 12:00:00
Acq. Start Time : 7-OCT-1987 18:36:27
Sample Quantity : 3.50000 LITERS
Sample ID : 9SEP TO 7OCT87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.922	0.000E+00		
ANAL2-LL	364.48	< 0.684	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 5.65	0.000E+00		
CO-58	810.76	< 6.74	0.000E+00		
FE-59	1099.22	< 14.5	0.000E+00		
CO-60	1332.47	< 9.47	0.000E+00		
ZN-65	1115.52	< 15.5	0.000E+00		
NB-95	765.78	< 6.31	0.000E+00		
ZR-95	756.72	< 14.7	0.000E+00		
I-131	364.48	< 6.70	0.000E+00		
CS-134	604.66	< 8.20	0.000E+00		
CS-137	661.65	< 7.94	0.000E+00		
BALA-140	1596.49	< 10.0	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: -----

Approved by: -----

Date: 12/12/87-----

Plant Name : CNS
Sample Number : 235
Type/Location : SURFACE WATER / 215
Sample Date : 4-NOV-1987 12:00:00
Acq. Start Time : 5-NOV-1987 09:18:05
Sample Quantity : 3.50000 LITERS
Sample ID : 7OCT TO 4NOV87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.618	0.000E+00		
ANAL2-LL	364.48	< 0.498	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

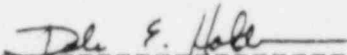
Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.89	0.000E+00		
CO-58	810.76	< 6.64	0.000E+00		
FE-59	1099.22	< 8.41	0.000E+00		
CO-60	1332.47	< 7.44	0.000E+00		
ZN-65	1115.52	< 10.3	0.000E+00		
NB-95	765.78	< 8.37	0.000E+00		
ZR-90	756.72	< 10.2	0.000E+00		
I-131	364.48	< 10.1	0.000E+00		
CS-134	604.66	< 9.12	0.000E+00		
CS-137	661.65	< 7.57	0.000E+00		
BALA-140	1596.49	< 10.9	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: _____



Approved by: _____



Date: 11/17/87

Plant Name : CNS
Sample Number : 315
Type/Location : SURFACE WATER / 215
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 7-DEC-1987 11:20:15
Sample Quantity : 3.50000 LITERS
Sample ID : 4NOV TO 2DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.995	0.000E+00		
ANAL2-LL	364.48	< 0.931	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 8.72	0.000E+00		
CO-58	810.76	< 6.96	0.000E+00		
FE-59	1099.22	< 15.5	0.000E+00		
CO-60	1332.47	< 8.40	0.000E+00		
ZN-65	1115.52	< 15.7	0.000E+00		
NB-95	765.78	< 8.93	0.000E+00		
ZR-95	756.72	< 14.5	0.000E+00		
I-131	364.48	< 12.2	0.000E+00		
CS-134	604.66	< 7.38	0.000E+00		
CS-137	661.65	< 8.09	0.000E+00		
BALA-140	1596.49	< 11.2	0.000E+00		
K-40	1460.75	373.	52.9		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmen

Approved by: Dr. S. Hall

Date: 12/10/87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:51

Plant Name : CNS
Sample Number : 582
Type/Location : SW TRITIUM / 215
Sample Date : 2-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 9SEP 2DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00	-	-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A -----

Approved by: marcia cyne ----- Date: 4/18/88 -----

Plant Name : CNS
 Sample Number : 379
 Type/Location : SURFACE WATER / 215
 Sample Date : 30-DEC-1987 12:00:00
 Acq. Start Time : 31-DEC-1987 04:46:47
 Sample Quantity : 3.50000 LITERS
 Sample ID : 2DEC TO 30DEC87
 Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
ANAL1-LL	364.48	< 0.985	0.000E+00		
ANAL2-LL	364.48	< 0.997	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 7.17	0.000E+00		
CO-58	810.76	< 6.72	0.000E+00		
FE-59	1099.22	< 12.9	0.000E+00		
CO-60	1332.47	< 8.32	0.000E+00		
ZN-65	1115.52	< 11.4	0.000E+00		
NB-95	765.78	< 7.13	0.000E+00		
ZR-95	756.72	< 14.8	0.000E+00		
I-131	364.48	< 6.37	0.000E+00		
CS-134	604.66	< 6.49	0.000E+00		
CS-137	661.65	< 6.87	0.000E+00		
BALA-140	1596.49	< 10.3	0.000E+00		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: D. S. Hill

Date: 1/12/88

VAX/VMS Sample Analysis Report generated : 18-APR-1988 17:36:55

Plant Name : CNS
Sample Number : 585
Type/Location : SW TRITIUM / 215
Sample Date : 30-DEC-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 1.000000E-03 LITERS
Sample ID : 2DEC 30DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
H-3	0.00	< 350.	0.000E+00		-----
Total Fraction of Reporting Level					0.000E+00

Analyzed by: N/A

Approved by: *Marcus Jones*

Date: 4/18/88

 16 JAN 1987 3:53:40 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

LA WBA MILK (WOODS) - 209

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 1/14/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -4.60E-02	1.7E-02
GAMMA SPEC		
MN-54	* 0.00E-01	2.4E 00
FE-59	* -2.92E 00	5.4E 00
CO-58	* 1.59E 00	2.7E 00
CO-60	* -1.88E 00	2.0E 00
ZN-65	* -4.00E 00	6.3E 00
ZR-95	* 2.70E 00	5.0E 00
NB-95	4.77E 00	2.1E 00
I-131	* -1.17E 00	3.4E 00
CS-134	* 4.29E 00	3.1E 00
CS-137	5.19E 00	2.8E 00
BALA-140	* -6.27E-01	2.4E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *LKB*

REVIEWED BY: *Marcation*

DATE: 1-18-87

Plant Name : CNS
Sample Number : 1130
Type/Location : MILK / 209
Sample Date : 28-JAN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 8.00000 LITERS
Sample ID : 28-JAN-1987
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA	Frac. of Rpt. Level
LLI-131	0.00	< 0.334	0.340		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: M. J. O'Brien Date: 4/7/88

Unavailable analysis for gross gamma.

23 FEB 1987 1:33:14 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA MILK (WOODS) - 209
: LIQUID
COLLECTION DATE(S): 2/11/87

QUANTITY: 3.500E 00
UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.16E-01	3.0E-01
GAMMA SPEC		
MN-54	* 9.97E-01	2.6E 00
FE-59	* -5.38E 00	4.9E 00
CO-58	* -3.40E-01	2.7E 00
CO-60	* -1.47E 00	3.1E 00
ZN-65	* -1.60E 00	6.1E 00
ZR-95	* 1.73E 00	4.4E 00
NB-95	* 0.00E-01	2.6E 00
I-131	* -2.72E 00	4.5E 00
CS-134	* -3.69E-01	3.0E 00
CS-137	* 4.00E 00	2.8E 00
BALA-140	* -7.97E-01	3.1E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *LXS*

FEB 23 1987

REVIEWED BY: *Marcia*

DATE: *2-24-87*

4 MAR 1987 4:02:18 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (WOODS) - 209

T : LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/25/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 9.25E-02	2.4E-01
GAMMA SPEC		
MN-54	* -1.22E 00	2.3E 00
FE-59	* 7.20E-01	5.0E 00
CO-58	* 9.48E-01	2.3E 00
CO-60	* -4.27E-01	2.0E 00
ZN-65	* -3.71E 00	5.6E 00
ZR-95	* -3.23E 00	4.2E 00
NB-95	* 3.53E 00	2.7E 00
I-131	* -1.05E 00	4.7E 00
CS-134	* 6.80E-01	3.0E 00
CS-137	* 2.88E-01	2.5E 00
BALA-140	* 7.53E-01	3.1E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 3/5/87

 13 MAR 1987 7:50:01 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 (WBA MILK (WOOD'S) - 209
 E: LIQUID
 COLLECTION DATE(S): 3/11/87

QUANTITY: 3.500E 00
 UNITS: LITERS

RADICNUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -4.61E-02	1.9E-01
GAMMA SPEC		
MN-54	* -1.31E 00	2.2E 00
FE-59	* 2.13E 00	3.9E 00
CO-58	* -1.29E 00	2.4E 00
CO-60	* -1.86E 00	1.9E 00
ZN-65	* -3.95E 00	5.7E 00
ZR-95	* -1.09E 00	4.5E 00
NB-95	* 3.08E 00	2.8E 00
I-131	* 0.00E-01	2.8E 00
CS-134	* -1.10E 00	2.7E 00
CS-137	* 2.46E 00	2.7E 00
BALA-140	* -1.21E 00	2.7E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *Jim Sigman*

MAR 13 1987

REVIEWED BY: *Dale E. Hold*

DATE: *3/13/87*

9

 6 APR 1987 10:13:56 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 WBA MILK (WOODS) - 209
 : LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 3/25/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.41E-01	3.3E-01
GAMMA SPEC		
MN-54	* -1.55E 00	2.1E 00
FE-59	* 0.00E-01	4.4E 00
CO-58	* -9.66E-01	1.9E 00
CO-60	* 0.00E-01	1.8E 00
ZN-65	* -2.24E 00	4.2E 00
ZR-95	* -1.10E 00	3.4E 00
NB-95	* 6.60E-01	2.2E 00
I-131	* 1.12E 00	3.9E 00
CS-134	* 2.40E 00	2.6E 00
CS-137	* 8.65E-01	2.3E 00
BALA-140	* 2.52E 00	3.3E 00
NPK-40	1.38E 03	8.0E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: npk-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigmam*

REVIEWED BY: *Del E. Holden*

DATE: *4-6-87*

14

 APR 17 1987 9:25:56 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (WOOD'S) - 209
 TYPE: LIQUID
 COLLECTION DATE(S): 4/15/87

QUANTITY: 1.000E 00
 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.74E-01	2.3E-01
GAMMA SPEC		
MN-54	* 2.10E 00	3.9E 00
FE-59	* 9.53E 00	7.9E 00
CO-58	* 0.00E-01	3.9E 00
CO-60	* -1.57E 00	3.5E 00
ZN-65	* -5.33E 00	1.0E 01
ZR-95	1.04E 01	6.5E 00
NB-95	1.63E 01	4.3E 00
I-131	* 3.66E 00	4.3E 00
CS-134	* -1.17E 00	4.4E 00
CS-137	7.20E 00	4.3E 00
BALA-140	* 0.00E-01	4.3E 00
NPK-40	2.04E 03	1.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified by Nb-95 at 766 keV, MDA= 50 net counts. Zr-95 at 757 keV,
 MDA= 18 and Cs-137 at 662 keV, MDA= 22 net counts. NPK-40 at 1461 keV
 identified by Peak Search and NID.

BY: Lynn Bretherton 4-17-87

 REVIEWED BY: Dale S. Holden DATE: 4-17-87

17

1 MAY 1987 10:50:32 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (WOOD'S) - 209

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/29/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 5.41E-02	3.4E-01
GAMMA SPEC		
MN-54	* -6.04E-01	2.1E 00
FE-59	* 0.00E-01	4.7E 00
CO-58	* -1.19E 00	2.0E 00
CO-60	* 0.00E-01	2.1E 00
ZN-65	* -2.92E 00	5.3E 00
ZR-95	* -1.01E 00	4.1E 00
NB-95	6.36E 00	2.1E 00 N/A
I-131	* 1.04E 00	2.8E 00
CS-134	* -6.77E-01	2.5E 00
CS-137	* -2.59E 00	2.6E 00
BALA-140	* 2.72E 00	2.7E 00
NPK-40	1.51E 03	9.4E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NB-95 at 266 keV and NPK-40 at 1461 keV, identified by Peak Starhand N10.

BY: *Jim Sigmer*

MAY 01 1987

REVIEWED BY: *Dale E. Holden*

DATE: 5-1-87

15 MAY 1987 10:06:08 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (WOODS) - 209

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 5/13/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 3.06E-02	2.2E-01
GAMMA SPEC		
MN-54	* -9.76E-01	2.8E 00
FE-59	* -1.45E 00	4.6E 00
CO-58	* -2.57E 00	2.5E 00
CO-60	* 4.77E-01	2.7E 00
ZN-65	* -4.84E 00	7.0E 00
ZR-95	* -2.18E 00	4.7E 00
NB-95	* 1.23E 00	2.6E 00
I-131	* 1.32E 00	3.4E 00
CS-134	* -1.82E 00	3.3E 00
CS-137	* 1.87E 00	3.0E 00
BALA-140	* -5.98E-01	2.0E 00
NPK-40	1.61E 03	9.7E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *K40 identified by NID*

BY: 

REVIEWED BY: *Marcia Lana*

DATE: *5-19-87*

25 *****
 2 JUN 1987 10:01:13 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

TAWBA MILK (WOODS) - 209
 PE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 5/27/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -5.40E-02	2.0E-01
GAMMA SPEC		
MN-54	5.85E 00	2.8E 00
FE-59	* 3.62E 00	5.6E 00
CO-58	* -1.61E 00	2.6E 00
CO-60	* -1.91E 00	2.7E 00
ZN-65	* -8.86E 00	6.1E 00
ZR-95	* 3.81E 00	4.7E 00
NB-95	5.83E 00	2.9E 00
I-131	* 1.74E 00	3.3E 00
CS-134	* 4.01E 00	3.6E 00
CS-137	* 9.34E-01	2.9E 00
BALA-140	* 0.00E-01	2.4E 00
NPK-40	1.71E 03	9.8E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Nb-95 at 766 keV, MDA = 18¹⁹ and Mn-54 at 835 keV, MDA = 18 net counts, not identified
 by Peak Search or NID.
 NPK-40 at 861 keV identified by Peak Search and NID.

BY:



REVIEWED BY:

Dale S. Holden

DATE:

6-2-87

17 JUN 1987 12:51:42 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (WOODS) - 209

E: LIQUID

QUANTITY: 3.500E 00

SECTION DATE(S): 6/10/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.01E-01	2.6E-01
GAMMA SPEC		
MN-54	* 1.81E 00	2.3E 00
FE-59	* 2.62E 00	4.6E 00
CO-58	* 1.79E 00	2.5E 00
CO-60	* 1.28E 00	2.0E 00
ZN-65	* -1.46E 00	5.4E 00
ZR-95	* -2.52E 00	3.8E 00
NB-95	* 3.42E 00	2.5E 00
I-131	* 2.09E-01	3.0E 00
CS-134	* -1.35E 00	2.7E 00
CS-137	5.18E 00	2.7E 00
BALA-140	* -1.09E 00	1.7E 00
NPK-40	1.33E 03	8.6E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV not identified by Peak Search or NID, MDA = 18 net counts.
 NPK-40 at 1961 keV identified by Peak Search and NID.

BY: *Lynn D. Bretherton* JUN 17 1987

REVIEWED BY: *Dale S. Holden* DATE: 6-22-87

33

26 JUN 1987 8:15:27 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (WOOD'S) - 209

E: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/24/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -2.56E-01	3.9E-01
GAMMA SPEC		
MN-54	* -9.14E-01	2.3E 00
FE-59	* 3.95E 00	4.4E 00
CO-58	* -6.01E-01	1.9E 00
CO-60	* 1.78E 00	2.1E 00
ZN-65	* -2.20E 00	3.8E 00
ZR-95	* 1.01E 00	3.7E 00
NB-95	* -5.73E-01	2.1E 00
I-131	* 2.64E 00	2.4E 00
CS-134	* 2.04E 00	2.3E 00
CS-137	* 2.31E 00	2.3E 00
BALA-140	* -5.72E-01	1.5E 00
NPK-40	1.29E 03	8.0E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1461 keV identified by Peak Search and MID.

JUN 26 1987

BY:

Jim Sigman

REVIEWED BY:

Dale S. Gator

DATE:

6-26-87

30

17 JUL 1987 8:28:43 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (WOODS) - 209

TYPE: LIQUID

QUANTITY: 3.500E 00

SECTION DATE(S): 7/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 3.99E-01	3.2E-01
GAMMA SPEC		
MN-54	* 2.60E 00	3.8E 00
FE-59	* -4.36E 00	7.8E 00
CO-58	* 1.93E 00	3.9E 00
CO-60	* -2.86E 00	3.9E 00
ZN-65	* -8.06E 00	1.1E 01
ZR-95	* -1.09E 00	7.5E 00
NB-95	* 4.31E 00	4.1E 00
I-131	* 2.20E 00	4.6E 00
CS-134	* -2.19E 00	4.1E 00
CS-137	* 4.98E 00	4.2E 00
BALA-140	* 0.00E-01	4.5E 00
NPK-40	1.60E 03	1.4E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *mmg*

REVIEWED BY: *Dale S. Hull* DATE: 7-21-87

 5 AUG 1987 10:57:19 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CRAWBA MILK (WOODS) - 209

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/29/87

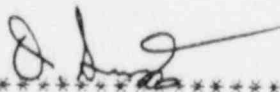
UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -4.31E-02	2.9E-01
GAMMA SPEC		
MN-54	* -1.52E 00	1.8E 00
FE-59	* 5.92E 00	4.4E 00
CO-58	* -1.80E 00	1.8E 00
CO-60	* -4.44E-01	2.2E 00
ZN-65	* -2.20E 00	4.5E 00
ZR-95	* 3.55E 00	3.5E 00
NB-95	* -5.73E-01	2.0E 00
I-131	* 1.82E 00	2.3E 00
CS-134	* -6.82E-01	2.5E 00
CS-137	5.82E 00	2.5E 00
BALA-140	* 0.00E-01	1.1E 00
NPK-40	1.10E 03	7.5E 01

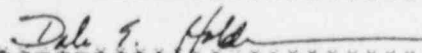
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65 * SIGMA)

 COMMENTS: Cs-137 at 662 keV and NPK-40 at 1161 keV, identified by Peak Search and NID.

BY:



REVIEWED BY:



DATE:

8-2-87

49

14 AUG 1987 4:58:21 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (WOODS) - 209

TYPE: LIQUID

QUANTITY: 3.500E 00

LECTION DATE(S): 8/12/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -2.23E-01	3.4E-01
GAMMA SPEC		
MN-54	* -6.09E-01	2.8E 00
FE-59	* 3.95E 00	5.7E 00
CO-58	* 6.01E-01	3.1E 00
CO-60	6.22E 00	3.2E 00 N/A
ZN-65	* 0.00E-01	6.5E 00
ZR-95	* -2.03E 00	4.5E 00
NB-95	* 2.87E 00	3.2E 00
I-131	* -1.22E 00	3.1E 00
CS-134	* 2.05E 00	2.5E 00
CS-137	* -1.15E 00	3.6E 00
BALA-140	* 0.00E-01	2.3E 00
NPK-40	1.33E 03	1.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *No peak identified at Co-60 at 1332 keV, MDA. 7 net counts.
 NPK-40 at 1161 keV identified by Peak Search and NID.*

BY: *MZ*

REVIEWED BY: *Dale F. Hobb*

DATE: *8-17-87*

 28 AUG 1987 4:11:00 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 C. TAWBA MILK (WOODS) - 209
 TYPE: LIQUID
 COLLECTION DATE(S): 8/26/87

QUANTITY: 3.500E 00
 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)	
LOW-LEVEL I-131			
ANAL#1	* -1.84E-01	4.6E-01	-
GAMMA SPEC			
MN-54	* -3.09E-01	2.4E 00	-
FE-59	* 5.50E 00	4.7E 00	
CO-58	* 2.14E 00	2.3E 00	
CO-60	* -9.27E-01	2.1E 00	
ZN-65	* -2.29E 00	6.2E 00	
ZR-95	* -5.19E-01	4.1E 00	
NB-95	* 3.51E 00	2.5E 00	
I-131	* -2.09E-01	2.7E 00	
CS-134	* 1.04E 00	2.9E 00	1.72
CS-137	* 3.27E 00	2.5E 00	4.62
BALA-140	* -1.15E 00	2.0E 00	
NFK-40	1.40E 03	8.8E 01	

6.5

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NFK-40 at 1411 keV identified by Peak Search and NID.

BY: *LJB*

REVIEWED BY: *Dale J. Hill*

DATE: 9-4-87

Plant Name : CNS
 Sample Number : 57
 Type/Location : MILK / 209
 Sample Date : 9-SEP-1987 12:00:00
 Acq. Start Time : 18-SEP-1987 16:11:04
 Sample Quantity : 3.50000 LITERS
 Sample ID : 9SEP87
 Measurement Type : ROUTINE

***** Alternate Analysis *****


Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.996	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.21	0.000E+00		
CO-58	810.76	< 2.52	0.000E+00		
FE-59	1099.22	< 5.49	0.000E+00		
CO-60	1332.47	< 2.68	0.000E+00		
ZN-65	1115.52	< 5.75	0.000E+00		
NB-95	765.78	< 2.66	0.000E+00		
ZR-95	756.72	< 4.16	0.000E+00		
I-131	364.48	< 4.57	0.000E+00		
CS-134	604.66	< 2.22	0.000E+00		
CS-137	661.65	3.87	0.974		5.522E-02
BALA-140	537.27	< 13.1	0.000E+00		
K-40	1460.75	1.433E+03	29.3		

Total Fraction of Reporting Level 5.522E-02

Analyzed by:  _____

Approved by:  _____

Date: 11/18/87

Plant Name : CNS
 Sample Number : 99
 Type/Location : MILK / 209
 Sample Date : 23-SEP-1987 12:00:00
 Acq. Start Time : 26-SEP-1987 07:31:16
 Sample Quantity : 3.50000 LITERS
 Sample ID : 23SEP87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.975	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.96	0.000E+00		
CO-58	810.76	< 3.60	0.000E+00		
FE-59	1099.22	< 8.91	0.000E+00		
CO-60	1332.47	< 4.04	0.000E+00		
ZN-65	1115.52	< 9.00	0.000E+00		
NB-95	765.78	< 4.09	0.000E+00		
ZR-95	756.72	< 6.85	0.000E+00		
I-131	364.48	< 4.42	0.000E+00		
CS-134	604.66	< 3.36	0.000E+00		
CS-137	661.65	< 4.09	0.000E+00		
BALA-140	537.27	< 15.0	0.000E+00		
K-40	1460.75	1.463E+03	48.9		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: M. S. Hall

Approved by: Dal S. Hall Date: 10 / 1 / 87

K-40 at 1461 keV identified by Peak Search & NID.

Corrected results

Plant Name : CNS
Sample Number : 177
Type/Location : MILK / 209
Sample Date : 14-OCT-1987 12:00:00
Acq. Start Time : 15-OCT-1987 13:01:40
Sample Quantity : 3.50000 LITERS
Sample ID : 14OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.651	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.30	0.000E+00		
CO-58	810.76	< 4.50	0.000E+00		
FE-59	1099.22	< 11.3	0.000E+00		
CO-60	1332.47	< 4.10	0.000E+00		
ZN-65	1115.52	< 10.0	0.000E+00		
NB-95	765.78	< 4.13	0.000E+00		
ZR-95	756.72	< 6.88	0.000E+00		
I-131	364.48	< 4.45	0.000E+00		
CS-134	604.66	< 4.38	0.000E+00		
CS-137	661.65	< 5.22	0.000E+00		
BALA-140	1596.49	< 4.60	0.000E+00		
K-40	1460.75	1.377E+03	54.1		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmur

Approved by: Dale E. Helle

Date: 10 / 17 / 87

Plant Name : CNS
Sample Number : 214
Type/Location : MILK / 209
Sample Date : 28-OCT-1987 12:00:00
Acq. Start Time : 29-OCT-1987 11:43:17
Sample Quantity : 3.50000 LITERS
Sample ID : 28OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
LLI-131	364.00	< 0.676	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.70	0.000E+00		
CO-58	810.76	< 4.44	0.000E+00		
FE-59	1099.22	< 11.0	0.000E+00		
CO-60	1332.47	< 4.88	0.000E+00		
ZN-65	1115.52	< 10.2	0.000E+00		
NB-95	765.78	< 5.00	0.000E+00		
ZR-95	756.72	< 8.66	0.000E+00		
I-131	364.48	< 4.84	0.000E+00		
CS-134	604.66	< 3.88	0.000E+00		
CS-137	661.65	< 4.34	0.000E+00		
BALA-140	1596.49	< 4.96	0.000E+00		
K-40	1460.75	1.305E+03	58.4		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 10 / 30 / 87 -----

Plant Name : CNS
Sample Number : 252
Type/Location : MILK / 209
Sample Date : 11-NOV-1987 12:00:00
Acq. Start Time : 11-NOV-1987 15:32:16
Sample Quantity : 3.50000 LITERS
Sample ID : 11NOV87
Measurement Type : ROUTINE

**** * Alternate Analysis ****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.932	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.59	0.000E+00		
CO-58	810.76	< 2.57	0.000E+00		
FE-59	1099.22	< 5.59	0.000E+00		
CO-60	1332.47	< 2.77	0.000E+00		
ZN-65	1115.52	< 6.15	0.000E+00		
NB-95	765.78	< 2.52	0.000E+00		
ZR-95	756.72	< 4.41	0.000E+00		
I-131	364.48	< 2.34	0.000E+00		
CS-134	604.66	< 2.17	0.000E+00		
CS-137	661.65	< 2.69	0.000E+00		
BALA-140	1596.49	< 2.56	0.000E+00		
K-40	1460.75	1.419E+03	31.2		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia D. Jones-----

Date: 4/18/88-----

Plant Name : CNS
 Sample Number : 295
 Type/Location : MILK / 209
 Sample Date : 25-NOV-1987 08:00:00
 Acq. Start Time : 30-NOV-1987 14:14:45
 Sample Quantity : 3.50000 LITERS
 Sample ID : 25NOV87
 Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
LLI-131	364.00	< 0.999	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.10	0.000E+00		
CO-58	810.76	< 3.04	0.000E+00		
FE-59	1099.22	< 6.48	0.000E+00		
CO-60	1332.47	< 3.48	0.000E+00		
ZN-65	1115.52	< 6.89	0.000E+00		
NB-95	765.78	< 3.06	0.000E+00		
ZR-95	756.72	< 5.24	0.000E+00		
I-131	364.48	< 4.13	0.000E+00		
CS-134	604.66	< 2.56	0.000E+00		
CS-137	661.65	4.30	1.34		6.140E-02
BALA-140	1596.49	< 3.89	0.000E+00		
K-40	1460.75	1.408E+03	38.4		

Total Fraction of Reporting Level 6.140E-02

Analyzed by: Jim Sigman

Approved by: Marcia Speer

Date: 12/11/87

Plant Name : CNS
Sample Number : 333
Type/Location : MILK / 209
Sample Date : 9-DEC-1987 12:00:00
Acq. Start Time : 9-DEC-1987 16:35:58
Sample Quantity : 3.50000 LITERS
Sample ID : 9DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.778	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.33	0.000E+00		
CO-58	810.76	< 2.88	0.000E+00		
FE-59	1099.22	< 6.57	0.000E+00		
CO-60	1332.47	< 3.72	0.000E+00		
ZN-65	1115.52	< 7.59	0.000E+00		
NB-95	765.78	< 3.29	0.000E+00		
ZR-95	756.72	< 5.22	0.000E+00		
I-131	364.48	< 2.89	0.000E+00		
CS-134	604.66	< 2.90	0.000E+00		
CS-137	661.65	< 3.67	0.000E+00		
BALA-140	1596.49	< 3.43	0.000E+00		
K-40	1460.75	1.410E+03	37.7		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A -----

Approved by: Mencia Apax -----

Date: 4/18/88 -----

Plant Name : CNS
Sample Number : 376
Type/Location : MILK / 209
Sample Date : 23-DEC-1987 12:00:00
Acq. Start Time : 29-DEC-1987 05:52:54
Sample Quantity : 3.50000 LITERS
Sample ID : 23DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.955	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.05	0.000E+00		
CO-58	810.76	< 3.09	0.000E+00		
FE-59	1099.22	< 7.12	0.000E+00		
CO-60	1332.47	< 3.71	0.000E+00		
ZN-65	1115.52	< 7.42	0.000E+00		
NB-95	765.78	< 3.50	0.000E+00		
ZR-95	756.72	< 5.86	0.000E+00		
I-131	364.48	< 4.99	0.000E+00		
CS-134	604.66	< 2.87	0.000E+00		
CS-137	661.65	3.12	1.43		4.459E-02
BALA-140	1596.49	< 4.01	0.000E+00		
K-40	1460.75	1.616E+03	34.2		

Total Fraction of Reporting Level 4.459E-02

Analyzed by: N/A -----

Approved by: Marcia O'Neil -----

Date: 4/18/88 -----

57

 16 JAN 1987 3:54:51 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 LAWBA MILK (PURSLEY) - 219
 TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 1/14/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 2.40E-01	2.4E-01
GAMMA SPEC		
MN-54	* 2.59E-01	2.9E 00
FE-59	* 4.56E 00	5.2E 00
CO-58	* 3.35E 00	2.9E 00
CO-60	* 3.29E 00	2.9E 00
ZN-65	* 1.25E 00	5.9E 00
ZR-95	* 4.80E 00	5.1E 00
NB-95	* -9.95E-01	2.8E 00
I-131	* 4.06E 00	3.7E 00
CS-134	* 2.61E 00	3.3E 00
CS-137	* 2.47E 00	3.0E 00
BALA-140	* -9.79E-01	3.1E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *L.H.B.*

REVIEWED BY: *Marcia*

DATE: *1-18-87*

3 FEB 1987 9:16:11 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219
: LIQUID
COLLECTION DATE(S): 1/28/87

QUANTITY: 3.500E 00
UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 0.00E-01	2.0E-01
GAMMA SPEC		
MN-54	* 0.00E-01	2.4E 00
FE-59	* 3.83E 00	5.8E 00
CO-58	* -1.64E 00	2.8E 00
CO-60	* 0.00E-01	2.5E 00
ZN-65	* -6.46E 00	6.9E 00
ZR-95	* -2.23E 00	4.2E 00
NB-95	* 2.61E 00	2.9E 00
I-131	* -1.85E 00	4.3E 00
CS-134	* 2.15E 00	3.0E 00
CS-137	5.50E 00	2.8E 00
BALA-140	* -7.43E-01	2.2E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Siganu*

FEB 3 1987

REVIEWED BY: *marcia d'ne*

DATE: *2/5/87*

23 FEB 1987 1:33:57 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219

: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/11/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -2.79E-02	3.7E-01
GAMMA SPEC		
MN-54	* 3.08E-01	2.0E 00
FE-59	* -2.85E 00	4.3E 00
CO-58	* 3.16E-01	2.3E 00
CO-60	* 1.78E 00	2.3E 00
ZN-65	* 0.00E-01	5.0E 00
ZR-95	6.44E 00	4.2E 00
NB-95	* -6.34E-01	2.1E 00
I-131	* -1.58E 00	3.6E 00
CS-134	* -6.85E-01	2.1E 00
CS-137	* 2.59E 00	2.4E 00
BALA-140	* 0.00E-01	1.9E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

B.A.P.

FEB 23 1987

REVIEWED BY:

Marcia Lane

DATE: 2-24-87

4 MAR 1987 3:56:24 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (FURSLEY) - 219

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/25/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -7.14E-02	9.0E-02
GAMMA SPEC		
MN-54	* 1.33E 00	2.4E 00
FE-59	* -7.79E-01	5.2E 00
CO-58	* -1.03E 00	2.7E 00
CO-60	* -2.34E 00	2.0E 00
ZN-65	* -2.41E 00	5.5E 00
ZR-95	* -5.82E-01	4.7E 00
NB-95	* -6.94E-01	3.1E 00
I-131	* -1.83E 00	5.0E 00
CS-134	* -1.48E 00	2.6E 00
CS-137	4.62E 00	2.7E 00 <i>6.6</i>
BALA-140	* 0.00E-01	2.0E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Cs-137 at 662 keV not identified by Peak Search or MID.*

BY: *[Signature]*

REVIEWED BY: *[Signature]* DATE: *3/6/87*

 13 MAR 1987 7:50:36 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 (WBA MILK (PURSLEY) - 219

E: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 3/11/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.11E-01	2.2E-01
GAMMA SPEC		
MN-54	* 3.05E-01	2.0E 00
FE-59	* 3.29E 00	4.7E 00
CO-58	* 0.00E-01	1.9E 00
CO-60	* -4.44E-01	1.9E 00
ZN-65	* -7.32E-01	4.3E 00
ZR-95	* 0.00E-01	3.5E 00
NB-95	* 2.87E 00	2.2E 00
I-131	* 1.21E 00	2.2E 00
CS-134	* -6.82E-01	2.3E 00
CS-137	* 2.59E 00	2.3E 00
BALA-140	* 1.14E 00	2.4E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigmen

MAR 13 1987

REVIEWED BY:

Dale G. Hill

DATE:

3/13/87

 6 APR 1987 10:14:44 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

WBA MILK (PURSLEY) - 219
 TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 3/25/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 0.00E-01	3.4E-01
GAMMA SPEC		
MN-54	* 3.68E-01	1.1E 00
FE-59	* 2.05E 00	2.3E 00
CO-58	* -5.76E-01	1.1E 00
CO-60	* 5.13E-01	1.0E 00
ZN-65	* 1.19E 00	2.4E 00
ZR-95	* -6.55E-01	1.9E 00
NB-95	* 1.31E 00	1.2E 00
I-131	* -1.32E 00	2.3E 00
CS-134	* 0.00E-01	1.2E 00
CS-137	* 1.21E 00	1.1E 00
BALA-140	* 0.00E-01	1.2E 00
NPK-40	1.21E 03	3.7E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461keV was identified by Peak Search and NID.

BY: *Jim Sigmund*

REVIEWED BY: *De E. Hld*

DATE: *4-6-87*

 17 APR 1987 8:57:46 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 3.81E-02	2.4E-01
GAMMA SPEC		
MN-54	* 0.00E-01	1.7E 00
FE-59	* 1.31E 00	4.3E 00
CO-58	* 0.00E-01	1.6E 00
CO-60	* 1.78E 00	2.4E 00
ZN-65	* -1.46E 00	4.1E 00
ZR-95	* 0.00E-01	3.2E 00
NB-95	* -5.69E-01	2.1E 00
I-131	* -1.17E 00	2.1E 00
CS-134	4.09E 00	2.7E 00
CS-137	6.50E 00	2.8E 00
BALA-140	* -1.68E 00	2.2E 00
NPK-40	1.31E 03	8.1E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-134 at 796 keV not identified by Peak Search or NID, MDA = 12 net counts.
 Cs-137 at 662 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Simpson*

REVIEWED BY: *Dale G. Holden*

DATE: *7-17-87*

18 *****
1 MAY 1987 10:52:30 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/29/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.30E-01	3.1E-01
GAMMA SPEC		
MN-54	* 2.74E 00	2.1E 00
FE-59	* -1.97E 00	4.0E 00
CO-58	* -3.00E-01	2.0E 00
CO-60	* 0.00E-01	2.2E 00
ZN-65	* 1.46E 00	4.9E 00
ZR-95	* 1.52E 00	3.8E 00
NB-95	* 2.01E 00	2.3E 00
I-131	* 0.00E-01	2.0E 00
CS-134	* -1.70E 00	2.5E 00
CS-137	* 2.88E 00	2.2E 00
BALA-140	* 0.00E-01	8.1E-01
NPK-40	1.49E 03	8.5E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *nPK-40 at 1461 identified by Peak Search and NID.*

BY:

Jim Sigmur

MAY 01 1987

REVIEWED BY:

Dale E. Hall

DATE:

5-1-87

15 MAY 1987 10:07:13 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 5/13/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -3.69E-02	2.1E-01
GAMMA SPEC		
MN-54	* 1.51E 00	2.4E 00
FE-59	* 0.00E-01	3.3E 00
CO-58	* 3.28E 00	2.4E 00
CO-60	* -4.26E-01	2.5E 00
ZN-65	* 3.65E 00	5.9E 00
ZR-95	* 5.05E-01	3.6E 00
NB-95	* 2.00E 00	2.3E 00
I-131	* 0.00E-01	2.9E 00
CS-134	* 2.37E 00	2.6E 00
CS-137	* 2.30E 00	2.6E 00
BALA-140	* -1.09E 00	2.0E 00
NPK-40	1.23E 03	8.5E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: K-40 identified by NID.

BY: *[Signature]*

REVIEWED BY: *Marcia Lane*

DATE: 5-19-87

26

 2 JUN 1987 10:01:53 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA MILK (PURSLEY) - 219
 E: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 5/27/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 9.14E-02	1.6E-01
GAMMA SPEC		
MN-54	* -6.04E-01	2.4E 00
FE-59	* 1.96E 00	4.5E 00
CO-58	* -1.19E 00	2.2E 00
CO-60	* -4.26E-01	2.1E 00
ZN-65	* -7.29E-01	5.5E 00
ZR-95	* 0.00E-01	3.6E 00
NB-95	* 3.98E 00	2.7E 00
I-131	* -8.30E-01	2.8E 00
CS-134	* 1.35E 00	2.7E 00
CS-137	* 2.02E 00	2.9E 00
BALA-140	* 0.00E-01	2.2E 00
NPK-40	1.23E 03	8.8E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY:



REVIEWED BY:

Dale S. Holden

DATE:

6-2-87

17 JUN 1987 12:51:58 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/10/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.85E-02	2.3E-01
GAMMA SPEC		
MN-54	* -3.29E-01	2.6E 00
FE-59	* 0.00E-01	5.2E 00
CO-58	* -6.47E-01	2.3E 00
CO-60	* -9.32E-01	2.4E 00
ZN-65	* -2.37E 00	5.4E 00
ZR-95	* -1.09E 00	3.9E 00
NB-95	4.32E 00	2.8E 00
I-131	* 1.75E 00	2.9E 00
CS-134	* 1.10E 00	2.7E 00
CS-137	4.00E 00	2.5E 00
BALA-140	* -6.04E-01	1.6E 00
NPK-40	1.35E 03	9.1E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Nb-95 at 766 keV, MDA=14 and Cs-137 at 662 keV, MDA=13 net counts, not identified by Peak Search or NID. NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Larry D. Braxton* JUN 17 1987

REVIEWED BY: *Dale G. Halder* DATE: 6-22-87

32

26 JUN 1987 8:14:40 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/24/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -3.08E-01	4.2E-01
GAMMA SPEC		
MN-54	* 0.00E-01	2.5E 00
FE-59	* -4.25E 00	4.8E 00
CO-58	* -3.23E-01	2.4E 00
CO-60	* -1.86E 00	2.3E 00
ZN-65	* 1.58E 00	6.2E 00
ZR-95	* 1.63E 00	4.2E 00
NB-95	* -3.08E-01	2.4E 00
I-131	* 0.00E-01	2.5E 00
CS-134	* 3.30E 00	2.9E 00
CS-137	* -1.23E 00	2.5E 00
BALA-140	* 6.02E-01	2.0E 00
NPK-40	1.19E 03	8.9E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigman*

JUN 26 1987

REVIEWED BY: *Dale F. Hold*

DATE: 6-26-87

37

17 JUL 1987 8:29:27 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 2.84E-01	2.9E-01
GAMMA SPEC		
MN-54	* -6.04E-01	3.4E 00
FE-39	* 2.63E 00	6.7E 00
CO-58	* -5.97E-01	3.0E 00
CO-60	5.96E 00	3.5E 00
ZN-65	* -7.29E 00	8.4E 00
ZR-95	* 0.00E-01	6.5E 00
NB-95	* 1.71E 00	3.7E 00
I-131	* 2.94E 00	4.3E 00
CS-134	* 6.77E-01	3.8E 00
CS-137	* 1.73E 00	3.8E 00
BALA-140	* 1.09E 00	3.3E 00
NPK-40	1.31E 03	1.3E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No peak identified for Co-60 at 1332 keV, MDA = 7 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 7-21-87

 5 AUG 1987 10:59:23 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/29/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 2.34E-01	3.4E-01
GAMMA SPEC		
MN-54	* -1.30E 00	2.7E 00
FE-59	* 0.00E-01	4.6E 00
CO-58	* 6.43E-01	2.6E 00
CO-60	* 4.77E-01	2.3E 00
ZN-65	* -8.86E 00	6.8E 00
ZR-95	7.62E 00	4.8E 00
NB-95	* 2.77E 00	2.8E 00
I-131	* 0.00E-01	3.3E 00
CS-134	* -2.55E 00	2.9E 00
CS-137	* -9.34E-01	3.0E 00
BALA-140	* 5.96E-01	2.5E 00
NPK-40	1.33E 03	9.1E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: ^{not} Zr-95 at 757 keV identified by Peak Search and NID, MDA = 14 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY:

[Signature]

REVIEWED BY:

[Signature]

DATE:

8-7-87

14 AUG 1987 4:58:54 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (PURSLEY) - 219

TYPE: LIQUID

QUANTITY: 3.500E 00

LECTION DATE(S): 8/12/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 0.00E-01	4.0E-01
GAMMA SPEC		
MN-54	* -1.97E 00	3.2E 00
FE-59	* -4.26E 00	7.1E 00
CO-58	* -6.48E-01	3.6E 00
CO-60	* -9.32E-01	4.1E 00
ZN-65	* -4.74E 00	8.2E 00
ZR-95	* 0.00E-01	5.8E 00
NB-95	* 0.00E-01	3.0E 00
I-131	* 8.78E-01	3.7E 00
CS-134	* 7.34E-01	3.7E 00
CS-137	* 0.00E-01	3.5E 00
BALA-140	* -1.21E 00	2.7E 00
NPK-40	1.18E 03	1.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *npk-40 at 1461 keV identified by Peak Search and NID.*

BY: *mg*

REVIEWED BY: *Dale E. Hilde*

DATE: *8-17-87*

 28 AUG 1987 4:11:12 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

LAJAWBA MILK (PURSLEY) - 219

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 8/26/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -5.53E-02	3.8E-01
GAMMA SPEC		
MN-54	* 1.31E 00	2.5E 00
FE-59	* -2.84E 00	5.0E 00
CO-58	* 0.00E-01	2.5E 00
CO-60	* -2.80E 00	2.6E 00
ZN-65	* 1.58E 00	5.9E 00
ZR-95	* -1.64E 00	4.5E 00
NB-95	* 0.00E-01	2.7E 00
I-131	* 2.19E 00	2.7E 00
CS-134	* -1.47E 00	2.7E 00
CS-137	* 3.39E 00	2.7E 00
BALA-140	* 0.00E-01	1.9E 00
NPK-40	1.21E 03	8.9E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and N/D.

BY: *LSB*

 REVIEWED BY: *De S. Holl* DATE: *9-4-87*

Plant Name : CNS
Sample Number : 98
Type/Location : MILK / 219
Sample Date : 23-SEP-1987 12:00:00
Acq. Start Time : 26-SEP-1987 07:33:53
Sample Quantity : 3.50000 LITERS
Sample ID : 23SEP87
Measurement Type : ROUTINE

***** Alternate Analysis *****


Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.997	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.78	0.000E+00		
CO-58	810.76	< 3.47	0.000E+00		
FE-59	1099.22	< 10.4	0.000E+00		
CO-60	1332.47	< 6.08	0.000E+00		
ZN-65	1115.52	< 10.5	0.000E+00		
NB-95	765.78	< 4.13	0.000E+00		
ZR-95	756.72	< 7.52	0.000E+00		
I-131	364.48	< 4.64	0.000E+00		
CS-134	604.66	< 3.24	0.000E+00		
CS-137	661.65	5.44	1.69		7.778E-02
BALA-140	537.27	< 14.4	0.000E+00		
K-40	1460.75	1.513E+03	57.9		

Total Fraction of Reporting Level 7.778E-02

Analyzed by: 

Approved by: 

Date: 12/18/87

Plant Name : CNS
Sample Number : 178
Type/Location : MILK / 219
Sample Date : 14-OCT-1987 12:00:00
Acq. Start Time : 15-OCT-1987 14:24:38
Sample Quantity : 3.50000 LITERS
Sample ID : 14OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.991	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.39	0.000E+00		
CO-58	810.76	< 3.28	0.000E+00		
FE-59	1099.22	< 9.99	0.000E+00		
CO-60	1332.47	< 4.08	0.000E+00		
ZN-65	1115.52	< 9.91	0.000E+00		
NB-95	765.78	< 3.62	0.000E+00		
ZR-95	756.72	< 5.95	0.000E+00		
I-131	364.48	< 3.55	0.000E+00		
CS-134	604.66	< 3.11	0.000E+00		
CS-137	661.65	< 3.87	0.000E+00		
BALA-140	1596.49	< 4.42	0.000E+00		
K-40	1460.75	1.571E+03	50.5		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: John S. Hill

Date: 16/17/87

Plant Name : CNS
Sample Number : 216
Type/Location : MILK / 219
Sample Date : 28-OCT-1987 12:00:00
Acq. Start Time : 29-OCT-1987 11:46:48
Sample Quantity : 3.50000 LITERS
Sample ID : 28OCT87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.00	< 0.613	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.92	0.000E+00		
CO-58	810.76	< 4.16	0.000E+00		
FE-59	1099.22	< 10.1	0.000E+00		
CO-60	1332.47	< 4.96	0.000E+00		
ZN-65	1115.52	< 10.9	0.000E+00		
NB-95	765.78	< 4.50	0.000E+00		
ZR-95	756.72	< 7.50	0.000E+00		
I-131	364.48	< 4.14	0.000E+00		
CS-134	604.66	< 4.15	0.000E+00		
CS-137	661.65	< 5.24	0.000E+00		
BALA-140	1596.49	< 4.70	0.000E+00		
K-40	1460.75	1.478E+03	51.1		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Foxe

Date: 4/18/88

Plant Name : CMS
Sample Number : 253
Type/Location : MILK / 219
Sample Date : 11-NOV-1987 12:00:00
Acq. Start Time : 11-NOV-1987 15:35:16
Sample Quantity : 3.50000 LITERS
Sample ID : 11NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req	Frac. of LLD Rpt. Level
LLI-131	364.48	< 0.700	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req	Frac. of LLD Rpt. Level
MN-54	834.83	< 2.27	0.000E+00		
CO-58	810.76	< 2.27	0.000E+00		
FE-59	1099.22	< 5.53	0.000E+00		
CO-60	1332.47	< 2.44	0.000E+00		
ZN-65	1115.52	< 5.64	0.000E+00		
NB-95	765.78	< 2.36	0.000E+00		
IR-95	756.72	< 4.02	0.000E+00		
I-131	364.48	< 2.23	0.000E+00		
CS-134	604.66	< 1.93	0.000E+00		
CS-137	661.65	1.96	0.898		2.795E-02
BALA-140	1596.49	< 2.28	0.000E+00		
K-40	1460.75	1.431E+03	31.1		

Total Fraction of Reporting Level 2.795E-02

Analyzed by: LB-----

Approved by: Marcia----- Date: 4/1/88

Plant Name : CNS
Sample Number : 291
Type/Location : MILK / 219
Sample Date : 25-NOV-1987 08:00:00
Acq. Start Time : 25-NOV-1987 11:13:39
Sample Quantity : 3.50000 LITERS
Sample ID : 25NOV87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.00	< 0.927	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.47	0.000E+00		
CO-58	810.76	< 4.47	0.000E+00		
FE-59	1099.22	< 9.64	0.000E+00		
CO-60	1332.47	< 4.90	0.000E+00		
ZN-65	1115.52	< 11.2	0.000E+00		
NB-95	765.78	< 4.11	0.000E+00		
ZR-95	756.72	< 7.41	0.000E+00		
I-131	364.48	< 4.06	0.000E+00		
CS-134	604.66	< 3.56	0.000E+00		
CS-137	661.65	< 4.93	0.000E+00		
BALA-140	1596.49	< 3.86	0.000E+00		
K-40	1460.75	1.474E+03	53.5		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigman

Approved by: Del S. Holt

Date: 12/8/87

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:39:03

Plant Name : CNS
Sample Number : 335
Type/Location : MILK / 219
Sample Date : 9-DEC-1987 12:00:00
Acq. Start Time : 9-DEC-1987 16:48:52
Sample Quantity : 3.50000 LITERS
Sample ID : 9DEC87
Measurement Type : ROUTINE

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.973	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.64	0.000E+00		
CO-58	810.76	< 2.56	0.000E+00		
FE-59	1099.22	< 5.88	0.000E+00		
CO-60	1332.47	< 2.72	0.000E+00		
ZN-65	1115.52	< 6.33	0.000E+00		
NB-95	765.78	< 2.45	0.000E+00		
ZR-95	756.72	< 4.49	0.000E+00		
I-131	364.48	< 2.35	0.000E+00		
CS-134	604.66	< 2.15	0.000E+00		
CS-137	661.65	< 2.89	0.000E+00		
BALA-140	1596.49	< 2.52	0.000E+00		
K-40	1460.75	1.514E+03	32.9		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Spaa----- Date: 4/18/88-----

50

16 JAN 1987 3:51:29 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

WBA MILK (SCISM) - 220

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 1/14/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 2.18E-01	2.1E-01
GAMMA SPEC		
MN-54	* 1.77E 00	2.2E 00
FE-59	* -1.66E 00	4.0E 00
CO-58	* -5.03E-01	2.4E 00
CO-60	* -2.15E 00	2.0E 00
ZN-65	* -3.04E 00	5.2E 00
ZR-95	* -1.27E 00	3.3E 00
NB-95	* 9.66E-01	2.2E 00
I-131	* 4.00E 00	2.6E 00
CS-134	* -2.83E-01	2.3E 00
CS-137	3.79E 00	2.5E 00
BALA-140	* 0.00E-01	2.5E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *LKB*

REVIEWED BY: *Marcia Lane*

DATE: 1-18-87

3 FEB 1987 9:17:02 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220
: LIQUID
COLLECTION DATE(S): 1/28/87

QUANTITY: 3.500E 00
UNITS: LITERS

RADIONUCLIDE	ACTIVITY (FCI/UT)	SIGMA (FCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.02E-01	1.7E-01
GAMMA SPEC		
MN-54	* 9.14E-01	2.3E 00
FE-59	* -6.99E-01	4.7E 00
CO-58	* 1.55E 00	2.5E 00
CO-60	* 2.56E 00	2.3E 00
ZN-65	* 0.00E-01	5.6E 00
ZR-95	* 5.28E-01	4.4E 00
NB-95	* 1.24E 00	2.7E 00
I-131	* -8.94E-01	4.0E 00
CS-134	* 6.79E-01	3.0E 00
CS-137	* 2.88E 00	2.5E 00
BALA-140	* 3.40E 00	2.6E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

FEB 3 1987

REVIEWED BY: *Marcia Lane*

DATE: *2/5/87*

23 FEB 1987 1:34:30 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220
: LIQUID
COLLECTION DATE(S): 2/11/87

QUANTITY: 3.500E 00
UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -5.13E-02	3.2E-01
GAMMA SPEC		
MN-54	* 2.33E 00	2.3E 00
FE-59	* -7.78E-01	5.7E 00
CO-58	* -1.03E 00	2.5E 00
CO-60	4.20E 00	2.7E 00
ZN-65	* -8.03E-01	6.9E 00
ZR-95	* -4.07E 00	4.6E 00
NB-95	* 2.08E 00	2.9E 00
I-131	* -4.00E 00	4.6E 00
CS-134	* -1.11E 00	2.5E 00
CS-137	* 3.70E 00	2.6E 00
BALA-140	* -8.31E-01	3.2E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *L.A.B.*

FEB 23 1987

REVIEWED BY: *Marcia Spina*

DATE: *2.27.87*

4 MAR 1987 3:58:24 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/25/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.90E-01	1.7E-01
GAMMA SPEC		
MN-54	* 0.00E-01	1.7E 00
FE-59	* -7.23E-01	3.6E 00
CO-58	* -1.27E 00	2.1E 00
CO-60	* -8.90E-01	1.7E 00
ZN-65	* -7.45E-01	5.5E 00
ZR-95	* 1.08E 00	3.9E 00
NB-95	* 9.69E-01	2.4E 00
I-131	* -6.82E-01	3.4E 00
CS-134	* 1.71E 00	2.4E 00
CS-137	* 2.02E 00	2.4E 00
BALA-140	4.76E 00	3.0E 00 1.6

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Bala-140 at 1516 keV not identified by Peak Search or NID.

BY: *J. A. [Signature]*

REVIEWED BY: *D. E. [Signature]*

DATE: 3/6/87

 13 MAR 1987 7:53:41 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C WBA MILK (SCISM) - 220
 E: LIQUID
 COLLECTION DATE(S): 3/11/87

QUANTITY: 3.500E 00
 UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -5.11E-02	2.0E-01
GAMMA SPEC		
MN-54	* 3.02E-01	2.1E 00
FE-59	* 1.31E 00	4.1E 00
CO-58	* 0.00E-01	2.1E 00
CO-60	* 2.56E 00	2.4E 00
ZN-65	* 0.00E-01	4.5E 00
ZR-95	* 5.05E-01	4.1E 00
NB-95	* 3.13E 00	2.3E 00
I-131	* -8.34E-01	2.8E 00
CS-134	* 2.03E 00	2.8E 00
CS-137	* 3.17E 00	2.6E 00
BALA-140	* -1.09E 00	1.7E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigman

MAR 13 1987

REVIEWED BY:

Dale G. Holden

DATE:

3/13/87

6 APR 1987 10:16:49 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

WBA MILK (SCISM) - 220
LIQUID QUANTITY: 3.500E 00
COLLECTION DATE(S): 3/25/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 3.70E-01	3.4E-01
GAMMA SPEC		
MN-54	* -3.34E-01	1.1E 00
FE-59	* -1.43E 00	2.4E 00
CO-58	* -1.88E 00	1.2E 00
CO-60	* -4.67E-01	1.2E 00
ZN-65	* -1.93E 00	2.4E 00
ZR-95	* 8.25E-01	2.1E 00
NB-95	* 7.11E-01	1.3E 00
I-131	* 2.04E 00	2.4E 00
CS-134	* 2.22E-01	1.3E 00
CS-137	2.37E 00	1.0E 00
BALA-140	* -5.36E-01	1.5E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV was identified by Peak Search and NID.

BY: *Jim Sigmur*

REVIEWED BY: *Del S. Hold* DATE: *4-6-87*

15
17 APR 1987 1:32:36 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 3.69E-02	2.0E-01
GAMMA SPEC		
MN-54	* 1.21E 00	2.5E 00
FE-59	* 1.30E 00	5.0E 00
CO-58	* 3.56E 00	2.4E 00
CO-60	* 0.00E-01	2.3E 00
ZN-65	* 0.00E-01	4.6E 00
ZR-95	* 5.03E-01	4.2E 00
NB-95	* -1.70E 00	2.1E 00
I-131	* 2.43E 00	2.8E 00
CS-134	* -1.01E 00	2.9E 00
CS-137	* 3.74E 00	2.8E 00
BALA-140	* 5.34E-01	2.2E 00
NPK-40	1.19E 03	8.2E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPK-40 at 1461 keV not identified by Peak Search and NID.*

BY: *[Signature]*

REVIEWED BY: *Dale G. Holden*

DATE: *4-21-87*

19

1 MAY 1987 10:53:29 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/29/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.20E-01	3.9E-01
GAMMA SPEC		
MN-54	* -1.64E 00	2.5E 00
FE-59	* -3.55E 00	5.2E 00
CO-58	* 1.94E 00	2.4E 00
CO-60	* -1.86E 00	2.6E 00
ZN-65	* -7.89E-01	6.0E 00
ZR-95	* 2.18E 00	4.2E 00
NB-95	* 3.08E-01	2.5E 00
I-131	* -4.38E-01	2.7E 00
CS-134	* 7.34E-01	2.9E 00
CS-137	* 3.39E 00	2.7E 00
BALA-140	* 1.21E 00	2.8E 00
NPK-40	1.05E 03	8.8E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *Jim Sigman*

MAY 01 1987

REVIEWED BY: *Dr. G. Heller*

DATE: *5-1-87*

15 MAY 1987 10:08:20 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 5/13/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 5.08E-02	2.2E-01
GAMMA SPEC		
MN-54	* -9.86E-01	2.5E 00
FE-59	* 0.00E-01	4.9E 00
CO-58	* 2.92E 00	2.4E 00
CO-60	* 0.00E-01	3.0E 00
ZN-65	* -1.58E 00	5.5E 00
ZR-95	* -3.28E 00	4.2E 00
NB-95	* 2.78E 00	2.6E 00
I-131	* -1.76E 00	2.8E 00
CS-134	* 0.00E-01	2.5E 00
CS-137	* -3.08E-01	2.8E 00
BALA-140	* -6.07E-01	2.0E 00
NPK-40	1.12E 03	9.3E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: K-40 identified by ND

BY: *[Signature]*

REVIEWED BY: *Marcia Lane*

DATE: 5-19-87

27

 2 JUN 1987 10:02:40 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

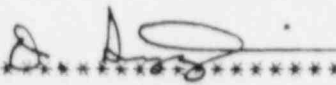
TAWBA MILK (SCISM) - 220
 PE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 5/27/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.63E-02	2.2E-01
GAMMA SPEC		
MN-54	* 0.00E-01	2.1E 00
FE-59	* -1.42E 00	4.6E 00
CO-58	* -1.29E 00	2.7E 00
CO-60	* -2.33E 00	2.5E 00
ZN-65	* -3.16E 00	5.5E 00
ZR-95	* -2.72E 00	4.2E 00
NB-95	* 3.08E-01	2.7E 00
I-131	* -4.35E-01	2.8E 00
CS-134	* 3.67E-01	2.8E 00
CS-137	* 1.85E 00	2.8E 00
BALA-140	* -6.02E-01	2.3E 00
NPK-40	1.26E 03	9.0E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY:



REVIEWED BY: Dale F. Holden

DATE: 6-2-87

17 JUN 1987 12:52:15 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220

STATE: LIQUID

COLLECTION DATE(S): 6/10/87

QUANTITY: 3.500E 00

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.28E-01	3.5E-01
GAMMA SPEC		
MN-54	* 1.22E 00	1.9E 00
FE-59	* -2.63E 00	4.2E 00
CO-58	* 9.01E-01	2.0E 00
CO-60	* 1.33E 00	2.4E 00
ZN-65	* 2.93E 00	5.2E 00
ZR-95	* 0.00E-01	3.6E 00
NB-95	* 8.61E-01	2.1E 00
I-131	* 0.00E-01	2.0E 00
CS-134	* 0.00E-01	1.9E 00
CS-137	* 1.15E 00	2.3E 00
BALA-140	* 5.73E-01	1.5E 00
NPK-40	1.19E 03	7.6E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Npk-40 at 1461 keV identified by Peak Search and NID.*

BY: *Lynn A. Gauthier*

JUN 17 1987

REVIEWED BY: *Dale G. Hald*

DATE: *6-22-87*

35

26 JUN 1987 8:16:52 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/24/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (FCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 4.01E-01	3.1E-01
GAMMA SPEC		
MN-54	* 0.00E-01	2.2E 00
FE-59	* -7.25E-01	4.6E 00
CO-58	* -1.93E 00	2.5E 00
CO-60	* 1.43E 00	2.7E 00
ZN-65	* -8.86E 00	6.7E 00
ZR-95	* -2.18E 00	4.1E 00
NB-95	* 2.77E 00	2.8E 00
I-131	* 2.18E-01	3.3E 00
CS-134	* 2.19E 00	3.2E 00
CS-137	4.67E 00	3.0E 00
BALA-140	* 0.00E-01	2.2E 00
NPK-40	1.71E 03	9.7E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV not identified by Peak Search or NID, MDA = 15 net counts.
APk-90 at 161 keV identified by Peak Search and NID.

BY: *Jim Sigms*

JUN 26 1987

REVIEWED BY: *Dale S. Hall*

DATE: 6-26-87

30

17 JUL 1987 8:30:10 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -7.66E-02	2.1E-01
GAMMA SPEC		
MN-54	* 2.63E 00	4.1E 00
FE-59	* -2.84E 00	7.8E 00
CO-58	* 1.94E 00	3.9E 00
CO-60	* -1.86E 00	4.0E 00
ZN-65	* -1.58E 00	6.9E 00
ZR-95	* 0.00E-01	6.9E 00
NB-95	* 0.00E-01	3.4E 00
I-131	* 1.32E 00	3.8E 00
CS-134	5.14E 00	3.5E 00
CS-137	* 6.16E-01	3.2E 00
BALA-140	* 0.00E-01	2.4E 00
NFK-40	1.02E 03	1.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No Peak identified for Cs-134 at 796 KeV, MDA = 7 net counts.
 NFK-40 at 1461 KeV identified by Peak Search as 'NID.'

BY: *mg*

REVIEWED BY: *Dale S. Hold*

DATE: *7.21.87*

 5 AUG 1987 11:00:33 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (SCISM) - 220

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/29/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 9.55E-02	2.6E-01
GAMMA SPEC		
MN-54	* -3.02E-01	2.2E 00
FE-59	* -2.62E 00	4.4E 00
CO-58	* -5.96E-01	2.1E 00
CO-60	* 0.00E-01	2.2E 00
ZN-65	* 3.65E 00	5.1E 00
ZR-95	* -5.05E-01	3.8E 00
NB-95	* -8.55E-01	2.0E 00
I-131	* 1.05E 00	2.9E 00
CS-134	4.74E 00	2.7E 00
CS-137	* -1.15E 00	2.7E 00
BALA-140	* -1.63E 00	2.2E 00
NPK-40	1.03E 03	7.9E 01

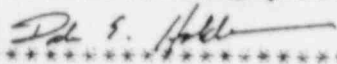
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-134 at 946 keV, MDA=14net counts, not identified by Peak Search or NID. NPK-40 at 1861 keV identified by Peak Search and NID.

BY:



REVIEWED BY:



DATE: 8-7-87

59

 16 JAN 1987 3:52:34 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA MILK (DATES) - 221
 TYPE: LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 1/14/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.42E-01	1.5E-01
GAMMA SPEC		
MN-54	* 2.97E-01	2.2E 00
FE-59	* 3.21E 00	4.1E 00
CO-58	* 2.06E 00	2.1E 00
CO-60	* 2.63E 00	2.6E 00
ZN-65	* 0.00E-01	4.0E 00
ZR-95	* 1.49E 00	3.2E 00
NB-95	* -5.65E-01	1.8E 00
I-131	* -1.89E 00	2.2E 00
CS-134	* 3.31E-01	2.4E 00
CS-137	5.81E 00	2.5E 00
BALA-140	* 2.88E 00	2.4E 00

NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: 1-18-87

3 FEB 1987 9:17:57 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 221

: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 1/28/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.03E-01	1.4E-01
GAMMA SPEC		
MN-54	* 6.63E-01	2.7E 00
FE-59	* -4.54E 00	5.2E 00
CO-58	* -6.74E-01	2.3E 00
CO-60	* 0.00E-01	2.6E 00
ZN-65	* 0.00E-01	5.5E 00
ZR-95	* 0.00E-01	4.6E 00
NB-95	* 3.34E 00	3.0E 00
I-131	* -1.56E 00	3.9E 00
CS-134	5.16E 00	3.2E 00
CS-137	5.89E 00	2.5E 00
BALA-140	* 0.00E-01	3.4E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

FEB 3 1987

REVIEWED BY: *Marcia Fine*

DATE: *2/5/87*

23 FEB 1987 1:35:13 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 221

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/11/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.17E-01	3.1E-01
GAMMA SPEC		
MN-54	* 2.16E 00	2.0E 00
FE-59	* 1.44E 00	4.6E 00
CO-58	* 0.00E-01	2.3E 00
CO-60	* 2.23E 00	2.1E 00
ZN-65	* -2.23E 00	4.4E 00
ZR-95	* 3.25E 00	3.7E 00
NB-95	* 1.29E 00	2.3E 00
I-131	* 1.01E 00	3.8E 00
CS-134	* 3.43E-01	2.3E 00
CS-137	* 5.77E-01	2.2E 00
BALA-140	* 0.00E-01	2.7E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *LKB*

FEB 23 1987

REVIEWED BY: *Marcia Lane*

DATE: 2-24-87

4 MAR 1987 4:00:04 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CF WBA MILK (DATES) - 221

T : LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 2/25/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -3.26E-02	2.2E-01
GAMMA SPEC		
MN-54	* -2.45E 00	2.4E 00
FE-59	* 2.88E 00	5.5E 00
CO-58	* 1.58E 00	2.6E 00
CO-60	* -8.54E-01	2.3E 00
ZN-65	* 0.00E-01	5.6E 00
ZR-95	* 4.85E 00	4.7E 00
NB-95	* 3.21E-01	2.8E 00
I-131	* -2.12E 00	4.5E 00
CS-134	* 1.70E 00	2.8E 00
CS-137	5.76E 00	3.0E 00 8.2
BALA-140	* 0.00E-01	3.0E 00

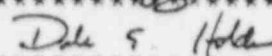
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV not identified by NID

BY:



REVIEWED BY:



DATE:

3/5/87

8

13 MAR 1987 7:52:52 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

C WBA MILK (DATES) - 221
E: LIQUID
COLLECTION DATE(S): 3/11/87

QUANTITY: 3.500E 00
UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 8.64E-02	1.7E-01
GAMMA SPEC		
MN-54	* 1.64E 00	2.6E 00
FE-59	* -3.55E 00	4.4E 00
CO-58	* -1.94E 00	2.1E 00
CO-60	* -4.66E-01	2.5E 00
ZN-65	* 7.89E-01	5.7E 00
ZR-95	* 0.00E-01	3.9E 00
NB-95	* 9.25E-01	2.5E 00
I-131	* 2.85E 00	3.0E 00
CS-134	* -1.47E 00	2.7E 00
CS-137	* 4.00E 00	2.9E 00
BALA-140	* 6.05E-01	2.5E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

MAR 13 1987

REVIEWED BY: *Dale G. Hilde*

DATE: *3/12/87*

 6 APR 1987 10:17:33 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

WBA MILK (OATES) - 221
 : LIQUID QUANTITY: 3.500E 00
 COLLECTION DATE(S): 3/25/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 5.70E-02	1.6E-01
GAMMA SPEC		
MN-54	* 0.00E-01	8.9E-01
FE-59	* 1.77E 00	2.2E 00
CO-58	* 0.00E-01	9.8E-01
CO-60	* 1.78E-01	8.8E-01
ZN-65	* -4.48E-01	1.9E 00
ZR-95	* -8.78E-01	1.8E 00
NB-95	* 6.61E-02	1.0E 00
I-131	* -2.27E-01	1.9E 00
CS-134	* 1.37E 00	1.1E 00
CS-137	5.04E 00	9.9E-01
BALA-140	* 1.52E 00	1.3E 00
NPK-40	1.29E 03	3.6E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 keV and NPK-40 at 1461 keV identified by Peak Search
 and NID.

BY: *Jim Sigman*

 REVIEWED BY: *Dale E. Halber* DATE: 4-6-87

130
16 3

17 APR 1987 6:02:22 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 221

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 4/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 3.58E-02	1.8E-01
GAMMA SPEC		
MN-54	* 2.30E 00	2.6E 00
FE-59	. -2.12E 00	5.4E 00
CO-58	* -2.90E 00	2.4E 00
CO-60	* -9.32E-01	2.7E 00
ZN-65	* -2.37E 00	5.8E 00
ZR-95	* -5.43E-01	4.5E 00
NB-95	* -6.12E-01	2.6E 00
I-131	* 2.76E 00	2.8E 00
CS-134	* 2.57E 00	2.9E 00
CS-137	* 4.31E 00	2.9E 00
BALA-140	* 0.00E-01	2.1E 00
NPK-40	1.37E 03	9.3E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPK-40 & N61 kW identified by Peak Search and NID.*

BY: *Lynn H. Breyer*

APR 17 1987

REVIEWED BY: *John E. Allen*

DATE: *4-17-87*

20

1 MAY 1987 10:54:05 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 221
TYPE: LIQUID QUANTITY: 3.500E 00
COLLECTION DATE(S): 4/29/87 UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 3.64E-01	3.3E-01
GAMMA SPEC		
MN-54	* 3.05E-01	2.2E 00
FE-59	* 3.95E 00	3.8E 00
CO-58	* -3.01E-01	2.0E 00
CO-60	* -1.33E 00	2.2E 00
ZN-65	* -2.20E 00	5.2E 00
ZR-95	* 0.00E-01	3.1E 00
NB-95	* 2.30E 00	2.1E 00
I-131	* 6.12E-01	2.2E 00
CS-134	* 6.82E-01	2.4E 00
CS-137	4.90E 00	2.4E 00 7.0%
BALA-140	* 5.74E-01	1.9E 00
NPK-40	1.20E 03	8.0E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 kev not identified by Peak Search or NID, MDA = 17 net counts.
NPK-40 at 1461 kev identified by Peak Search and NID.

BY:

Jim Siganer

MAY 01 1987

REVIEWED BY:

Dale S. Holter

DATE:

5-1-87

15 MAY 1987 10:09:31 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 22'

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 5/13/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 1.72E-02	1.7E-01
GAMMA SPEC		
MN-54	* 2.13E 00	2.0E 00
FE-59	* 2.64E 00	3.7E 00
CO-58	* 0.00E-01	1.3E 00
CO-60	* 0.00E-01	2.0E 00
ZN-65	* 0.00E-01	4.0E 00
ZR-95	* -2.03E 00	3.7E 00
NB-95	* 5.75E-01	2.2E 00
I-131	* -8.19E-01	2.3E 00
CS-134	* 1.36E 00	2.4E 00
CS-137	* 8.65E-01	2.1E 00
BALA-140	* 1.73E 00	2.2E 00
NPK-40	1.14E 03	7.6E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *K-40 identified by NID*

BY:

[Signature]

REVIEWED BY:

[Signature]

DATE: *5-19-87*

25

 2 JUN 1987 10:03:26 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

TAWBA MILK (DATES) - 221

E: LIQUID
 COLLECTION DATE(S): 5/27/87

QUANTITY: 3.500E 00
 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -9.84E-02	2.1E-01
GAMMA SPEC		
MN-54	* 9.14E-01	2.0E 00
FE-59	* 1.97E 00	3.7E 00
CO-58	* -1.20E 00	2.2E 00
CO-60	* 2.22E 00	2.3E 00
ZN-65	* 0.00E-01	4.3E 00
ZR-95	* 0.00E-01	3.7E 00
NB-95	* 2.86E 00	2.2E 00
I-131	* 0.00E-01	1.9E 00
CS-134	* 3.41E 00	2.4E 00
CS-137	1.04E 01	2.3E 00
BALA-140	* 0.00E-01	1.6E 00
NPK-40	1.23E 03	7.8E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 keV and NPK-40 at 1461 keV ident. find by Mark Searched NID.

BY:



REVIEWED BY:



DATE:

6-8-87

17 JUN 1987 12:52:32 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 221

E: LIQUID

QUANTITY: 3.500E 00

LECTION DATE(S): 6/10/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -7.08E-02	2.7E-01
GAMMA SPEC		
MN-54	* -6.04E-01	2.3E 00
FE-59	* -3.28E 00	4.2E 00
CO-58	* -5.96E-01	2.4E 00
CO-60	* 2.98E 00	2.3E 00
ZN-65	* -1.46E 00	5.3E 00
ZR-95	* 0.00E-01	4.6E 00
NB-95	* 1.43E 00	2.4E 00
I-131	* 1.05E 00	2.9E 00
CS-134	* 0.00E-01	2.7E 00
CS-137	* 1.15E 00	2.6E 00
BALA-140	* 2.19E 00	2.2E 00
NPK-40	1.04E 03	7.9E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Lynn L. Brubaker*

JUN 17 1987

REVIEWED BY: *Dale S. Holder* DATE: *6-22-87*

34

26 JUN 1987 8:16:06 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 221

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 6/24/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 5.75E-02	3.1E-01
GAMMA SPEC		
MN-54	* -6.04E-01	2.2E 00
FE-59	* 3.28E 00	4.8E 00
CO-58	* -5.96E-01	2.3E 00
CO-60	* 4.26E-01	2.2E 00
ZN-65	* 7.29E-01	5.3E 00
ZR-95	* 5.04E-01	4.2E 00
NB-95	* 0.00E-01	2.4E 00
I-131	* 3.75E 00	3.0E 00
CS-134	* 2.03E 00	2.9E 00
CS-137	5.18E 00	2.9E 00
BALA-140	* -1.09E 00	1.7E 00
NPK-40	1.44E 03	9.0E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV identified by Peak Search and NID, MDA = 18 net counts
NPK-40 at 1461 keV identified by Peak Search and NID.

BY:

Jim Sigman

JUN 26 1987

REVIEWED BY:

D. E. Holt

DATE:

6-26-87

39

17 JUL 1987 8:30:50 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 221

E: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/15/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -5.08E-02	2.1E-01
GAMMA SPEC		
MN-54	* 0.00E-01	2.9E 00
FE-59	* -2.64E 00	6.5E 00
CO-58	* 6.01E-01	2.6E 00
CO-60	* -8.89E-01	2.0E 00
ZN-65	* 1.46E 00	7.0E 00
ZR-95	* 4.06E 00	4.8E 00
NB-95	* 1.15E 00	2.8E 00
I-131	* 1.23E 00	3.1E 00
CS-134	* 0.00E-01	2.2E 00
CS-137	7.49E 00	4.2E 00
BALA-140	* 0.00E-01	2.3E 00
NPK-40	1.15E 03	1.0E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV, MDA = 13 net counts, not identified by Peak Search or NID.
NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *mg*

REVIEWED BY: *Dale F. Hold*

DATE: 7-21-87

 5 AUG 1987 11:01:36 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 CHIAWBA MILK (DATES) - 221
 TYPE: LIQUID
 COLLECTION DATE(S): 7/29/87

QUANTITY: 3.500E 00
 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -9.69E-02	2.7E-01
GAMMA SPEC		
MN-54	4.60E 00	2.3E 00
FE-59	* -1.42E 00	4.8E 00
CO-58	* -1.30E 00	2.6E 00
CO-60	* -3.26E 00	2.4E 00
ZN-65	* -3.16E 00	5.8E 00
ZR-95	* 1.09E 00	4.5E 00
NB-95	* -1.23E 00	2.7E 00
I-131	* 2.19E-01	2.8E 00
CS-134	* 0.00E-01	2.8E 00
CS-137	* 2.16E 00	2.6E 00
BALA-140	* 1.81E 00	2.6E 00
NPK-40	1.09E 03	8.5E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *Mn-54 at 835 keV, MDA=14 net counts, not identified by Peak Search or NID. NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: 

REVIEWED BY: *Dale S. Hold*

DATE: 8.4.87

 5 AUG 1987 11:01:36 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 221

TYPE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 7/29/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -9.69E-02	2.7E-01
GAMMA SPEC		
MN-54	4.60E 00	2.3E 00
FE-59	* -1.42E 00	4.8E 00
CO-58	* -1.30E 00	2.6E 00
CO-60	* -3.26E 00	2.4E 00
ZN-65	* -3.16E 00	5.8E 00
ZR-95	* 1.09E 00	4.5E 00
NB-95	* -1.23E 00	2.7E 00
I-131	* 2.19E-01	2.8E 00
CS-134	* 0.00E-01	2.8E 00
CS-137	* 2.16E 00	2.6E 00
BALA-140	* 1.81E 00	2.6E 00
NPK-40	1.09E 03	8.5E 01

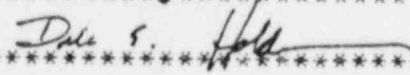
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *Mn-54 at 835 keV, MDA=14 net counts, not identified by Peak Search or NID. NPK-40 at 1461 keV identified by Peak Search and NID.*

BY:



REVIEWED BY:



DATE:

8.7-87

40

14 AUG 1987 4:59:26 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA MILK (DATES) - 221

STATE: LIQUID

QUANTITY: 3.500E 00

COLLECTION DATE(S): 8/12/87

UNITS: LITERS

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* 0.00E-01	3.3E-01
GAMMA SPEC		
MN-54	* 1.24E 00	3.2E 00
FE-59	* 0.00E-01	7.0E 00
CO-58	* 1.22E 00	3.5E 00
CO-60	* 1.85E 00	2.9E 00
ZN-65	* -6.11E 00	9.4E 00
ZR-95	* -1.04E 00	6.6E 00
NB-95	5.86E 00	4.0E 00 N/A
I-131	* -4.21E-01	3.9E 00
CS-134	* -1.39E 00	3.9E 00
CS-137	* 4.17E 00	4.1E 00
BALA-140	* 2.31E 00	4.3E 00
NPK-40	1.48E 03	1.4E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Nb-95 at 766 keV not identified by Peak Search or NID, MDA = 10 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *[Signature]*

REVIEWED BY: *Dale G. Holden*

DATE: 8-17-87

 28 AUG 1987 4:11:24 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 LAWA MILK (DATES) - 221
 TYPE: LIQUID
 COLLECTION DATE(S): 8/26/87

QUANTITY: 3.500E 00
 UNITS: LITERS

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
LOW-LEVEL I-131		
ANAL#1	* -1.67E-01	3.6E-01
GAMMA SPEC		
MN-54	* -5.02E-01	2.1E 00
FE-59	* -3.94E 00	4.8E 00
CO-58	* -8.95E-01	2.2E 00
CO-60	3.83E 00	2.4E 00 N/A
ZN-65	* -7.29E-01	5.1E 00
ZR-95	* -2.02E 00	3.7E 00
NB-95	4.00E 00	2.5E 00 N/A
I-131	* 0.00E-01	2.7E 00
CS-134	* 1.02E 00	2.9E 00
CS-137	* 2.88E-01	2.6E 00
BALA-140	* 2.73E 00	2.4E 00
NPK-40	1.23E 03	8.4E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Co-60 at 1332 keV, MDA = 9 net counts, not identified by Peak Search or NID.
 No Peak identified for Nb-95 at 766 keV, MDA = 14 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *LJB*

 REVIEWED BY: *Dale S. Hubble* DATE: *9-4-87*

Plant Name : CNS
Sample Number : 60
Type/Location : MILK / 221
Sample Date : 9-SEP-1987 12:00:00
Acq. Start Time : 21-SEP-1987 16:33:02
Sample Quantity : 3.50000 LITERS
Sample ID : 9SEP87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.977	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.27	0.000E+00		
CO-58	810.76	< 2.48	0.000E+00		
FE-59	1099.22	< 5.80	0.000E+00		
CO-60	1332.47	< 2.51	0.000E+00		
ZN-65	1115.52	< 5.44	0.000E+00		
NB-95	765.78	< 2.77	0.000E+00		
ZR-95	756.72	< 4.44	0.000E+00		
I-131	364.48	< 5.78	0.000E+00		
CS-134	604.66	< 1.98	0.000E+00		
CS-137	661.65	< 2.45	0.000E+00		
BALA-140	537.27	< 15.0	0.000E+00		
K-40	1460.75	1.551E+03	26.8		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 12/18/87

Plant Name : CNS
Sample Number : 101
Type/Location : MILK / 221
Sample Date : 23-SEP-1987 12:00:00
Acq. Start Time : 26-SEP-1987 14:44:05
Sample Quantity : 3.50000 LITERS
Sample ID : 23SEP87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.808	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.26	0.000E+00		
CO-58	810.76	< 3.34	0.000E+00		
FE-59	1099.22	< 7.51	0.000E+00		
CO-60	1332.47	< 3.97	0.000E+00		
ZN-65	1115.52	< 8.39	0.000E+00		
NB-95	765.78	< 3.43	0.000E+00		
ZR-95	756.72	< 6.13	0.000E+00		
I-131	364.48	< 4.08	0.000E+00		
CS-134	604.66	< 2.86	0.000E+00		
CS-137	661.65	< 3.87	0.000E+00		
BALA-140	537.27	< 13.7	0.000E+00		
K-40	1460.75	1.509E+03	42.4		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 12/18/87

Plant Name : CNS
Sample Number : 179
Type/Location : MILK / 221
Sample Date : 14-OCT-1987 12:00:00
Acq. Start Time : 15-OCT-1987 15:21:43
Sample Quantity : 3.50000 LITERS
Sample ID : 14OCT87
Measurement Type : CONTROL

***** Alternate Analysis *****


Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.843	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 3.97	0.000E+00		
CO-58	810.76	< 4.00	0.000E+00		
FE-59	1099.22	< 8.78	0.000E+00		
CO-60	1332.47	< 4.60	0.000E+00		
ZN-65	1115.52	< 10.4	0.000E+00		
NB-95	765.78	< 3.88	0.000E+00		
ZR-95	756.72	< 6.86	0.000E+00		
I-131	364.48	< 3.57	0.000E+00		
CS-134	604.66	< 3.58	0.000E+00		
CS-137	661.65	4.53	1.32		6.468E-02
BALA-140	1596.49	< 4.21	0.000E+00		
K-40	1460.75	1.450E+03	47.3		

Total Fraction of Reporting Level 6.468E-02

Analyzed by: _____



Approved by: _____



Date: 12/17/87

Plant Name : CNS
 Sample Number : 215
 Type/Location : MILK / 221
 Sample Date : 28-OCT-1987 12:00:00
 Acq. Start Time : 29-OCT-1987 11:50:48
 Sample Quantity : 3.50000 LITERS
 Sample ID : 28OCT87
 Measurement Type : CONTROL


***** Alternate Analysis *****

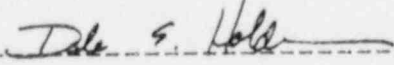
Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.00	< 0.531	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 4.20	0.000E+00		
CO-58	810.76	< 3.46	0.000E+00		
FE-59	1099.22	< 8.30	0.000E+00		
CO-60	1332.47	< 4.43	0.000E+00		
ZN-65	1115.52	< 9.42	0.000E+00		
NB-95	765.78	< 4.06	0.000E+00		
ZR-95	756.72	< 6.92	0.000E+00		
I-131	364.48	< 3.96	0.000E+00		
CS-134	604.66	< 3.59	0.000E+00		
CS-137	661.65	3.68	1.50		5.258E-02
BALA-140	1596.49	< 2.34	0.000E+00		
K-40	1460.75	1.371E+03	51.3		

Total Fraction of Reporting Level 5.258E-02

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 254
Type/Location : MILK / 221
Sample Date : 11-NOV-1987 12:00:00
Acq. Start Time : 11-NOV-1987 15:40:05
Sample Quantity : 3.50000 LITERS
Sample ID : 11NOV87
Measurement Type : CONTROL

**** Alternate Analysis ****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req	Frac. of LLD Rpt. Level
LLI-131	364.48	< 0.950	0.000E+00		

**** Gamma-Spectroscopy Analysis ****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req	Frac. of LLD Rpt. Level
MN-54	834.83	< 2.26	0.000E+00		
CO-58	810.76	< 2.22	0.000E+00		
FE-59	1099.22	< 4.85	0.000E+00		
CO-60	1332.47	< 2.42	0.000E+00		
ZN-65	1115.52	< 5.35	0.000E+00		
NB-95	765.78	< 2.06	0.000E+00		
ZR-95	756.72	< 3.57	0.000E+00		
I-131	364.48	< 2.05	0.000E+00		
CS-134	604.66	< 1.98	0.000E+00		
CS-137	661.65	2.94	1.04		4.200E-02
BALA-140	1596.49	< 2.07	0.000E+00		
K-40	1460.75	1.504E+03	29.3		

Total Fraction of Reporting Level 4.200E-02

Analyzed by: LB-----

Approved by: Marcia Spina----- Date: 4/11/88

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 10:10:43

Plant Name : CNS
Sample Number : 296
Type/Location : MILK / 221
Sample Date : 25-NOV-1987 08:00:00
Acq. Start Time : 30-NOV-1987 14:12:02
Sample Quantity : 3.50000 LITERS
Sample ID : 25NOV87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
LLI-131	364.00	< 0.990	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.96	0.000E+00		
CO-58	810.76	< 2.82	0.000E+00		
FE-59	1099.22	< 7.16	0.000E+00		
CO-60	1332.47	< 2.96	0.000E+00		
ZN-65	1115.52	< 7.24	0.000E+00		
NB-95	765.78	< 2.95	0.000E+00		
ZR-95	756.72	< 5.83	0.000E+00		
I-131	364.48	< 4.15	0.000E+00		
CS-134	604.66	< 2.71	1.64		6.824E-02
CS-137	661.65	< 4.78	0.000E+00		
BALA-140	1596.49	< 4.16	35.9		
K-40	1460.75	1.423E+03			

Total Fraction of Reporting Level 6.824E-02

Analyzed by: Jim Sigman

Approved by: John E. Holden

Date: 12/8/87

VAX/VMS Sample Analysis Report generated : 8-DEC-1987 10:10:43

Plant Name : CNS
Sample Number : 296
Type/Location : MILK / 221
Sample Date : 25-NOV-1987 08:00:00
Acq. Start Time : 30-NOV-1987 14:12:02
Sample Quantity : 3.50000 LITERS
Sample ID : 25NOV87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
LLI-131	364.00	< 0.990	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.96	0.000E+00		
CO-58	810.76	< 2.82	0.000E+00		
FE-59	1099.22	< 7.16	0.000E+00		
CO-60	1332.47	< 2.96	0.000E+00		
ZN-65	1115.52	< 7.24	0.000E+00		
NB-95	765.78	< 2.95	0.000E+00		
ZR-95	756.72	< 5.83	0.000E+00		
I-131	364.48	< 4.15	0.000E+00		
CS-134	604.66	< 2.71	0.000E+00		
CS-137	661.65	4.78	1.64		6.824E-02
BALA-140	1596.49	< 4.16	0.000E+00		
K-40	1460.75	1.423E+03	35.9		

Total Fraction of Reporting Level 6.824E-02

Analyzed by: Jim Sigman

Approved by: John E. Halls

Date: 12 / 8 / 87

Plant Name : CNS
Sample Number : 334
Type/Location : MILK / 221
Sample Date : 9-DEC-1987 12:00:00
Acq. Start Time : 9-DEC-1987 16:51:09
Sample Quantity : 3.50000 LITERS
Sample ID : 9DEC87
Measurement Type : CONTROL

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
LLI-131	364.48	< 0.982	0.000E+00		

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 2.68	0.000E+00		
CO-58	810.76	< 2.51	0.000E+00		
FE-59	1099.22	< 5.42	0.000E+00		
CO-60	1332.47	< 2.67	0.000E+00		
7N-65	1115.52	< 6.17	0.000E+00		
NB-95	765.78	< 2.56	0.000E+00		
ZR-95	756.72	< 4.43	0.000E+00		
I-131	364.48	< 2.37	0.000E+00		
CS-134	604.66	< 2.14	0.000E+00		
CS-137	661.65	< 2.96	0.000E+00		
BALA-140	1596.49	< 2.22	0.000E+00		
K-40	1460.75	1.541E+03	32.5		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Opere

Date: 4/28/88

19 JAN 1987 7:57:33 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 200

TYPE: VEGETATION

QUANTITY: 2.860E-01

COLLECTION DATE(S): 1/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	5.5E 00
FE-59	* -5.40E 00	1.1E 01
CO-58	* -3.23E 00	5.6E 00
CO-60	1.01E 01	5.7E 00
ZN-65	* -1.52E 01	1.4E 01
ZR-95	* 0.00E-01	9.1E 00
NB-95	1.42E 01	6.4E 00
I-131	* -4.00E 00	9.7E 00
CS-134	* 6.62E 00	7.0E 00
CS-137	* 2.29E 00	6.0E 00
BALA-140	* -8.14E-01	5.6E 00
CE-143	1.39E 03	2.8E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Unlikely that Ce-143 present due to 33 hour half-life.*

BY: *Ming*

REVIEWED BY: *Marcia Lane*

DATE: *1-20-87*

 6 FEB 1987 10:40:13 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CF : NBA BROAD-LEAF VEGETATION - 200
 T : VEGETATION QUANTITY: 2.110E-01
 COLLECTION DATE(S): 2/4/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.19E 00	6.4E 00
FE-59	* -9.00E-01	1.2E 01
CO-58	* -3.53E 00	6.3E 00
CO-60	* 4.53E 00	6.1E 00
ZN-65	* 0.00E-01	1.4E 01
ZR-95	2.77E 01	1.2E 01
NB-95	* 5.97E 00	6.8E 00
I-131	* 5.08E-01	7.4E 00
CS-134	3.81E 01	8.2E 00
CS-137	* 4.45E 00	7.4E 00
BALA-140	* -7.51E-01	6.2E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigmen

FEB 06 1987

REVIEWED BY:

Marcia Lane

DATE: 2/4/87

 11 MAR 1987 1:07:24 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C) WBA BROAD-LEAF VEGETATION - 200

T.: VEGETATION

QUANTITY: 2.310E-01

COLLECTION DATE(S): 3/4/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	1.60E 01	7.2E 00
FE-59	* 4.68E 00	1.4E 01
CO-58	* -5.92E 00	6.3E 00
CO-60	* 8.87E 00	6.7E 00
ZN-65	* -3.16E 01	1.6E 01
ZR-95	* -6.64E-01	1.2E 01
NB-95	2.12E 01	8.2E 00
I-131	* 1.68E 01	1.1E 01
CS-134	* 9.91E 00	8.4E 00
CS-137	* 9.22E 00	7.3E 00
BALA-140	* 1.04E 01	8.5E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *Mn-54 at 1099 keV not identified by Peak Search as NID.*
Nb-95 at 766 keV was identified by Peak Search & NID.

BY:

Jim Sigmon

MAR 11 1987

REVIEWED BY:

Dale G. Holden

DATE:

3/12/87

 17 APR 1987 1:07:59 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 ATAWBA BROAD-LEAF VEGETATION - 200
 TYPE: VEGETATION QUANTITY: 4.580E-01
 COLLECTION DATE(S): 4/8/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 9.95E-01	7.2E 00
FE-59	* 2.00E 01	1.9E 01
CO-58	* -2.06E 00	6.7E 00
CO-60	* -3.00E 00	8.7E 00
ZN-65	* 1.02E 01	2.2E 01
ZR-95	* -8.69E 00	1.5E 01
NB-95	* -7.32E 00	9.1E 00
I-131	* 1.19E 01	1.4E 01
CS-134	* 5.49E 00	9.5E 00
CS-137	* 7.23E 00	8.4E 00
BALA-140	* 0.00E-01	1.0E 01
NPBE-7	5.39E 02	9.1E 01
NPK-40	4.88E 03	3.3E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *JMS*

 REVIEWED BY: *De S. Hold* DATE: *4-16-87*

 21 MAY 1987 10:57:45 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA BROAD-LEAF VEGETATION - 200

E: VEGETATION

QUANTITY: 3.650E-01

COLLECTION DATE(S): 5/6/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 7.51E 00	1.0E 01
FE-59	* -3.19E 00	1.8E 01
CO-58	* -2.61E 00	9.2E 00
CO-60	* 3.76E 00	1.0E 01
ZN-65	* -9.62E 00	1.7E 01
ZR-95	* -2.21E 00	1.7E 01
NB-95	* -8.06E 00	1.1E 01
I-131	* -1.50E 01	1.6E 01
CS-134	* -4.14E 00	1.0E 01
CS-137	* 1.13E 00	9.4E 00
BALA-140	* -3.73E 00	1.3E 01
CE-141	3.52E 01	1.5E 00
NPBE-7	7.78E 02	1.0E 02
NPK-40	1.96E 03	2.6E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Ce-141, Be-7, K-40 all identified by NID.

BY:

Jim Simon

MAY 21 1987

REVIEWED BY:

Marcia Lane

DATE: 5-22-87

12 JUN 1987 8:18:02 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

AWBA BROAD-LEAF VEGETATION - 200
TYPE: VEGETATION QUANTITY: 2.980E-01
COLLECTION DATE(S): 6/3/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 2.69E 00	4.0E 00
FE-59	* -5.95E 00	8.9E 00
CO-58	* 0.00E-01	3.9E 00
CO-60	* -1.36E 00	4.4E 00
ZN-65	* 6.88E 00	9.9E 00
ZR-95	* 1.04E 00	7.6E 00
NB-95	8.36E 00	4.8E 00
I-131	* 4.24E 00	7.1E 00
CS-134	* 4.94E 00	5.1E 00
CS-137	* 4.85E 00	4.4E 00
BALA-140	* -8.07E-01	4.8E 00
NPBE-7	2.94E 02	4.8E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NB-95 at 766 keV, not identified by Peak Search or NID, mDA = 27 net counts
NPBE-7 at 478 keV identified by Peak Search and NID.

BY: *LXB*

JUN 12 1987

REVIEWED BY: *Dale G. Hall* DATE: 6-21-87

17

10 JUL 1987 3:17:48 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

COTAWBA BROAD-LEAF VEGETATION - 200

E: VEGETATION

QUANTITY: 3.220E-01

COLLECTION DATE(S): 7/8/87

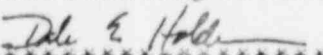
UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 7.11E 00	5.4E 00
FE-59	* -1.33E 00	1.0E 01
CO-58	* -2.52E 00	5.2E 00
CO-60	* 4.32E-01	4.8E 00
ZN-65	* -2.51E 01	1.3E 01
ZR-95	* -5.64E 00	9.0E 00
NB-95	* 6.66E 00	5.4E 00
I-131	* -1.08E 00	5.9E 00
CS-134	1.52E 01	6.5E 00
CS-137	* 3.95E 00	5.6E 00
BALA-140	* 0.00E-01	5.3E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-134 at 796 keV not identified by Peak Search or NID, MOA: 48 net counts

BY: 

REVIEWED BY: 

DATE: 7.13.87

12 AUG 1987 2:38:13 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 200

TYPE: VEGETATION

QUANTITY: 4.650E-01

SECTION DATE(S): 8/5/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 5.86E 00	8.9E 00
FE-59	* 9.58E 00	2.3E 01
CO-58	* -5.98E 00	1.1E 01
CO-60	* -2.95E 00	1.1E 01
ZN-65	* -9.99E 00	1.7E 01
ZR-95	* -6.72E 00	1.8E 01
NB-95	* 5.97E 00	1.1E 01
I-131	* 0.00E-01	1.7E 01
CS-134	* -6.48E 00	1.3E 01
CS-137	* 5.34E 00	1.2E 01
BALA-140	* -5.00E 00	1.3E 01
NPBE-7	9.89E 02	1.5E 02
NPK-40	1.74E 03	3.1E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 498 keV and NPK-40 at 1461 keV identified by Peak Search and NID*

BY: *MM*

REVIEWED BY: *D. S. [Signature]*

DATE: *8-13-87*

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:15:02

Plant Name : CNS
Sample Number : 37
Type/Location : BROAD LEAF VEGET / 200
Sample Date : 2-SEP-1987 12:00:00
Acq. Start Time : 15-SEP-1987 10:57:00
Sample Quantity : 0.403000 WET/KG
Sample ID : 02SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 41.6	0.000E+00		
CO-58	810.76	< 33.2	0.000E+00		
FE-59	1099.22	< 91.1	0.000E+00		
CO-60	1332.47	< 20.2	0.000E+00		
ZN-65	1115.52	< 70.3	0.000E+00		
NB-95	765.78	< 38.8	0.000E+00		
ZR-95	756.72	< 56.3	0.000E+00		
I-131	364.48	< 21.3	0.000E+00		
CS-134	604.66	< 22.1	0.000E+00		
CS-137	661.65	< 11.5	0.000E+00		
BALA-140	537.27	< 50.7	0.000E+00		
BE-7	477.59	1.398E+03	200.		
K-40	1460.75	4.575E+03	459.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Lopez

Date: 4/18/88

Plant Name : CNS
Sample Number : 160
Type/Location : BROAD LEAF VEGET / 200
Sample Date : 7-OCT-1987 12:00:00
Acq. Start Time : 14-OCT-1987 11:17:15
Sample Quantity : 0.314000 WET/KG
Sample ID : 7OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 68.5	0.000E+00		
CO-58	810.76	< 43.5	0.000E+00		
FE-59	1099.22	< 138.	0.000E+00		
CO-60	1332.47	< 51.0	0.000E+00		
ZN-65	1115.52	< 166.	0.000E+00		
NB-95	765.78	< 50.9	0.000E+00		
ZR-95	756.72	< 128.	0.000E+00		
I-131	364.48	< 20.5	0.000E+00		
CS-134	604.66	< 49.8	0.000E+00		
CS-137	661.65	< 39.5	0.000E+00		
BALA-140	1596.49	< 209.	0.000E+00		
BE-7	477.59	3.345E+03	234.		
K-40	1460.75	4.455E+03	380.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Jones

Date: 9/18/88

Plant Name : CNS
Sample Number : 256
Type/Location : BROAD LEAF VEGET / 200
Sample Date : 4-NOV-1987 12:00:00
Acq. Start Time : 12-NOV-1987 09:39:36
Sample Quantity : 0.231000 WET/KG
Sample ID : 4NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 36.2	0.000E+00		
CO-58	810.76	< 36.4	0.000E+00		
FE-59	1099.22	< 69.0	0.000E+00		
CO-60	1332.47	< 38.1	0.000E+00		
ZN-65	1115.52	< 96.3	0.000E+00		
NB-95	765.78	< 41.7	0.000E+00		
ZR-95	756.72	< 67.2	0.000E+00		
I-131	364.48	< 54.8	0.000E+00		
CS-134	604.66	< 33.9	0.000E+00		
CS-137	661.65	< 35.7	0.000E+00		
BALA-140	1596.49	< 66.8	0.000E+00		
BE-7	477.59	718.	166.		
K-40	1460.75	5.000E+03	357.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Opere

Date: 4/18/88

Plant Name : CNS
Sample Number : 316
Type/Location : BROAD LEAF VEGET / 200
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 7-DEC-1987 15:06:26
Sample Quantity : 0.210000 WET/KG
Sample ID : 2DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 16.2	0.000E+00		
CO-58	810.76	< 15.8	0.000E+00		
FE-59	1099.22	< 39.8	0.000E+00		
CO-60	1332.47	< 17.2	0.000E+00		
ZN-65	1115.52	< 37.4	0.000E+00		
NB-95	765.78	< 18.8	0.000E+00		
ZR-95	756.72	< 28.3	0.000E+00		
I-131	364.48	< 20.9	0.000E+00		
CS-134	604.66	< 14.1	0.000E+00		
CS-137	661.65	< 16.6	0.000E+00		
BALA-140	1596.49	< 20.4	0.000E+00		
BE-7	477.59	1.306E+03	72.7		
K-40	1460.75	5.660E+03	169.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Span

Date: 4/18/88

19 JAN 1987 7:58:24 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 201
TYPE: VEGETATION QUANTITY: 2.000E-01
COLLECTION DATE(S): 1/7/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	* 5.94E 00	7.1E 00
FE-59	* 4.12E 00	1.2E 01
CO-58	* -2.18E 00	6.4E 00
CO-60	1.56E 01	6.8E 00
ZN-65	* -7.48E 00	1.4E 01
ZR-95	* -1.18E 01	1.2E 01
NB-95	* -8.74E-01	7.5E 00
I-131	* -5.05E 00	1.2E 01
CS-134	2.12E 01	8.4E 00
CS-137	2.11E 01	7.6E 00
BALA-140	* 6.31E 00	8.4E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *mg*

REVIEWED BY: *Marcia Fine* DATE: 1-20-87

6 FEB 1987 10:40:36 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

WBA BROAD-LEAF VEGETATION - 201

VEGETATION

QUANTITY: 2.480E-01

COLLECTION DATE(S): 2/4/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 3.26E 00	5.6E 00
FE-59	* 0.00E-01	1.1E 01
CO-58	* -6.77E 00	5.7E 00
CO-60	* -3.31E 00	6.4E 00
ZN-65	* -9.24E 00	1.2E 01
ZR-95	* 1.20E 00	1.0E 01
NB-95	* 1.69E 00	5.8E 00
I-131	* 6.77E-01	6.1E 00
CS-134	2.66E 01	6.8E 00
CS-137	* 9.35E 00	6.5E 00
BALA-140	* 2.16E 00	5.3E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigmans

FEB 06 1987

REVIEWED BY:

Marcia Jones

DATE: 2/6/87

2

 11 MAR 1987 1:07:45 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C WBA BROAD-LEAF VEGETATION - 201

TYPE: VEGETATION

QUANTITY: 2.420E-01

COLLECTION DATE(S): 3/4/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.40E 00	5.7E 00
FE-59	* -1.67E 00	1.1E 01
CO-58	* -4.98E 00	5.8E 00
CO-60	* -2.47E 00	4.6E 00
ZN-65	* 6.16E 00	1.2E 01
ZR-95	* 1.50E 01	1.1E 01
NB-95	* 4.58E 00	6.3E 00
I-131	* -1.25E 00	9.2E 00
CS-134	* 9.31E 00	6.8E 00
CS-137	1.13E 01	6.3E 00
BALA-140	* 0.00E-01	5.9E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 keV not identified by Peak Search on M10. ADA = 35 total counts

BY:

Jim Signer

MAR 11 1987

VIEWED BY:

Dale G. Holt

DATE:

3/12/87

 17 APR 1987 1:08:15 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 TAWBA BROAD-LEAF VEGETATION - 201
 TYPE: VEGETATION QUANTITY: 2.460E-01
 COLLECTION DATE(S): 4/8/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.73E 00	1.2E 01
FE-59	* -4.28E 00	2.9E 01
CO-58	* -3.59E 00	1.1E 01
CO-60	* -2.43E 00	9.4E 00
ZN-65	* 3.05E 01	3.1E 01
ZR-95	3.65E 01	2.2E 01
NB-95	* 1.65E 01	1.3E 01
I-131	* -5.82E 00	2.4E 01
CS-134	* 1.91E 00	1.4E 01
CS-137	2.39E 01	1.4E 01
BALA-140	* -9.25E 00	1.5E 01
NPBE-7	5.09E 02	1.5E 02
NPK-40	3.15E 03	3.8E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: No Peak identified for Zr-95 at 759 keV, MDA= 12 net counts. Cs-137 at 662 keV not identified by Peak Search or NID, MDA= 15 net counts. NPK-40 at 1461 keV identified, and NPBE-7 at 478 keV identified by Peak Search and NID.
 BY: *L. G. J.*

 REVIEWED BY: *John S. Holden* DATE: *4-17-87*

15 MAY 1987 1:55:54 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

10 CATAWBA BROAD-LEAF VEGETATION - 201

VEGETATION

QUANTITY: 3.510E-01

COLLECTION DATE(S): 5/6/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 0.00E-01	7.4E 00
FE-59	* -3.25E 00	1.7E 01
CO-58	* -1.33E 00	7.6E 00
CO-60	* 1.35E 01	9.6E 00
ZN-65	* -3.26E 00	1.7E 01
ZR-95	* 6.72E 00	1.4E 01
NB-95	* 1.09E 01	9.6E 00
I-131	* -7.51E 00	1.6E 01
CS-134	* 1.26E 01	9.4E 00
CS-137	1.28E 02	1.5E 01 6.4
BALA-140	* 0.00E-01	7.5E 00
NPBE-7	4.30E 02	1.0E 02
NPK-40	2.83E 03	2.6E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137, Ge-7, K-40 identified by NID

Recount performed due to Cs-137 activity; second count showed 130.5 pCi/kg Cs-137 original count in annual database

BY: Dale F. Holden MAY 15 1987

REVIEWED BY: Marcia Lane DATE: 5-20-87

21 JUN 1987 2:58:31 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 201

E: VEGETATION

QUANTITY: 2.590E-01

COLLECTION DATE(S): 6/3/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 4.07E 00	1.0E 01
FE-59	* 2.61E 00	2.3E 01
CO-58	* -1.27E 01	1.0E 01
CO-60	2.13E 01	1.2E 01
ZN-65	* -1.85E 01	2.9E 01
ZR-95	* 1.25E 01	2.0E 01
NB-95	* 1.40E 01	1.2E 01
I-131	* 1.96E 01	2.2E 01
CS-134	* -8.97E 01	1.2E 01
CS-137	3.45E 01	1.3E 01
BALA-140	* 0.00E-01	1.6E 01
NPBE-7	4.12E 02	1.0E 02
NPK-40	4.58E 03	3.1E 02
NPTH-SER	3.53E 01	2.3E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Co-60 at 1332 keV not identified by Peak Search or NID, MDA: 14 net counts.
Cs-137 at 662 keV, NPBE-7 at 478 keV, NPK-40 at 1461 keV, NPTH-Ser at
234 keV, all identified by Peak Search and NID.

BY: LHB by JGH

REVIEWED BY: Dale G. Hill

DATE: 6-21-87

 10 JUL 1987 3:18:37 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

ATAWBA BROAD-LEAF VEGETATION - 201

PE: VEGETATION

QUANTITY: 2.860E-01

COLLECTION DATE(S): 7/8/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(FCI/UT)	SIGMA(PCI/UT)
MN-54	* 2.35E 00	4.9E 00
FE-59	* 9.96E 00	9.2E 00
CO-58	* 0.00E-01	4.3E 00
CO-60	* 5.01E 00	4.6E 00
ZN-65	* -2.21E 00	1.0E 01
ZR-95	* -4.38E 00	8.2E 00
NB-95	* -2.76E-01	4.9E 00
I-131	* -1.32E 00	5.6E 00
CS-134	* 5.56E 00	5.4E 00
CS-137	5.07E 01	7.2E 00
BALA-140	* -5.55E-01	4.3E 00
NPBE-7	1.14E 03	6.4E 01
NPK-40	2.82E 03	1.4E 02

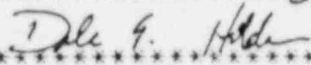
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 keV, NPBe-7 at 478 keV, NPK-40 at 1861 keV, all identified by Peak
 Search and NID.

BY:



REVIEWED BY:



DATE:

7.13.87

12 AUG 1987 2:37:37 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 201

E: VEGETATION

QUANTITY: 2.380E-01

COLLECTION DATE(S): 8/5/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 3.94E-01	6.1E 00
FE-59	* -1.56E 01	1.2E 01
CO-58	* -3.52E 00	5.9E 00
CO-60	* -9.60E 00	6.6E 00
ZN-65	* -1.21E 01	1.5E 01
ZR-95	* 4.59E 00	1.1E 01
NB-95	* 3.00E 00	6.3E 00
I-131	* -7.51E 00	7.4E 00
CS-134	1.49E 01	7.2E 00
CS-137	1.79E 02	1.1E 01
BALA-140	* 4.96E 00	6.9E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-134 at 796 keV, MDA = 34 net counts, not ident. by Peak Search or NLD.
 Cs-137 at 662 keV, identified by Peak Search and NLD.

BY: *mg*

REVIEWED BY: *John S. Hall*

DATE: 8-13-87

Plant Name : CNS
Sample Number : 31
Type/Location : BROAD LEAF VEGET / 201
Sample Date : 2-SEP-1987 12:00:00
Acq. Start Time : 14-SEP-1987 10:59:40
Sample Quantity : 0.454000 WET/KG
Sample ID : 2SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 31.2	0.000E+00		
CO-58	810.76	< 24.2	0.000E+00		
FE-59	1099.22	< 73.5	0.000E+00		
CO-60	1332.47	< 203.	0.000E+00		
ZN-65	1115.52	< 76.1	0.000E+00		
NB-95	765.78	< 41.8	0.000E+00		
ZR-95	756.72	< 56.2	0.000E+00		
I-131	364.48	< 24.6	0.000E+00		
CS-134	604.66	< 26.7	0.000E+00		
CS-137	661.65	< 18.8	0.000E+00		
BALA-140	537.27	< 40.3	0.000E+00		
BE-7	477.59	1.865E+03	175.		
K-40	1460.75	5.401E+03	415.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Opere

Date: 7/18/88

Plant Name : CMS
Sample Number : 157
Type/Location : BROAD LEAF VEGET / 201
Sample Date : 7-OCT-1987 12:00:00
Acq. Start Time : 12-OCT-1987 15:01:18
Sample Quantity : 0.322000 MET/KG
Sample ID : 7OCT87
Measurement Type : ROUTINE

**** Gamma-Spectroscopy Analysis ****

Nuclide	Energy	Activity (pCi/MET/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 35.4	0.000E+00		
CO-58	810.76	< 35.9	0.000E+00		
FE-59	1099.22	< 103.	0.000E+00		
CO-60	1332.47	< 0.000E+00	0.000E+00		
ZN-65	1115.52	< 90.4	0.000E+00		
NB-95	765.78	< 40.2	0.000E+00		
ZR-95	756.72	< 61.2	0.000E+00		
I-131	364.48	< 38.5	0.000E+00		
CS-134	604.66	< 47.6	0.000E+00		
CS-137	661.65	39.8	25.8		1.990E-02
BALA-140	1596.49	< 0.000E+00	0.000E+00		
BE-7	477.59	1.385E+03	211.		
K-40	1460.75	3.062E+03	452.		

Total Fraction of Reporting Level 1.990E-02

Analyzed by: LB

Approved by: Marcia Spivey Date: 4/1/88

Plant Name : CNS
Sample Number : 257
Type/Location : BROAD LEAF VEGET / 201
Sample Date : 4-NOV-1987 12:00:00
Acq. Start Time : 12-NOV-1987 09:42:38
Sample Quantity : 0.191000 WET/KG
Sample ID : 4NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 37.7	0.000E+00		
CO-58	810.76	< 37.4	0.000E+00		
FE-59	1099.22	< 81.9	0.000E+00		
CO-60	1332.47	< 50.5	0.000E+00		
ZN-65	1115.52	< 76.5	0.000E+00		
NB-95	765.78	< 40.9	0.000E+00		
ZR-95	756.72	< 64.9	0.000E+00		
I-131	364.48	< 58.2	0.000E+00		
CS-134	604.66	< 31.0	0.000E+00		
CS-137	661.65	66.7	18.0		3.336E-02
BALA-140	1596.49	< 61.7	0.000E+00		
BE-7	477.59	1.111E+03	131.		
K-40	1460.75	2.945E+03	245.		

Total Fraction of Reporting Level 3.336E-02

Analyzed by: 

Approved by: 

Date: 12/17/87

Plant Name : CNS
Sample Number : 317
Type/Location : BROAD LEAF VEGET / 201
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 7-DEC-1987 15:10:03
Sample Quantity : 0.202000 WET/KG
Sample ID : 2DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 25.5	0.000E+00		
CO-58	810.76	< 24.9	0.000E+00		
FE-59	1099.22	< 58.4	0.000E+00		
CO-60	1332.47	< 31.4	0.000E+00		
ZN-65	1115.52	< 53.1	0.000E+00		
NB-95	765.78	< 26.0	0.000E+00		
ZR-95	756.72	< 48.1	0.000E+00		
I-131	364.48	< 33.3	0.000E+00		
CS-134	604.66	< 21.6	0.000E+00		
CS-137	661.65	56.4	16.4		2.818E-02
BALA-140	1596.49	< 36.9	0.000E+00		
BE-7	477.59	741.	113.		
K-40	1460.75	5.463E+03	207.		

Total Fraction of Reporting Level 2.818E-02

Analyzed by: N/A

Approved by: Marcia Spina

Date: 4/18/88

19 JAN 1987 7:59: AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 217

TYPE: VEGETATION

QUANTITY: 3.300E-01

COLLECTION DATE(S): 1/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -1.38E 00	4.6E 00
FE-59	* -9.50E 00	1.0E 01
CO-58	* -4.51E 00	4.5E 00
CO-60	* -2.08E 00	5.4E 00
ZN-65	* -9.86E 00	1.1E 01
ZR-95	* 3.80E 00	8.3E 00
NB-95	* 6.78E 00	5.2E 00
I-131	* -5.33E-01	7.4E 00
CS-134	* 1.83E 00	5.1E 00
CS-137	* 3.51E 00	4.8E 00
BALA-140	* 7.18E-01	5.6E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *MM*

REVIEWED BY: *M. J. ...*

DATE: 1-20-87

6 FEB 1987 10:40:56 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

C WABA BROAD-LEAF VEGETATION - 217

VEGETATION

QUANTITY: 2.640E-01

COLLECTION DATE(S): 2/4/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.82E 00	4.0E 00
FE-59	* 8.34E 00	8.5E 00
CO-58	* 0.00E-01	3.8E 00
CO-60	* 2.33E 00	4.3E 00
ZN-65	1.54E 01	9.1E 00
ZR-95	* -2.49E 00	7.2E 00
NB-95	* -2.26E 00	3.9E 00
I-131	* 1.50E 00	4.1E 00
CS-134	* 6.06E 00	5.0E 00
CS-137	2.70E 01	5.1E 00
BALA-140	* 3.63E 00	4.3E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigman

FEB 06 1987

REVIEWED BY:

Marcelo J. Jara

DATE: *2/6/87*

11 MAR 1987 1:08:25 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C WBA BROAD-LEAF VEGETATION - 217

T : VEGETATION

QUANTITY: 2.260E-01

C COLLECTION DATE(S): 3/4/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -2.01E 00	1.2E 01
FE-59	* 0.00E-01	2.9E 01
CO-58	* 1.85E 01	1.6E 01
CO-60	* -1.52E 01	1.4E 01
ZN-65	* -1.03E 01	3.3E 01
ZR-95	* 0.00E-01	2.5E 01
NB-95	* 1.44E 01	1.5E 01
I-131	* 1.71E 01	2.3E 01
CS-134	2.89E 01	1.7E 01
CS-137	4.34E 01	1.5E 01
BALA-140	* -1.03E 01	1.8E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-134 at 496 keV not identified by Peak Search or NID. MDA = 13 total counts.
 Cs-137 at 662 keV was identified by Peak Search and NID.

BY: *Jim Sigmen*

MAR 11 1987

REVIEWED BY: *John E. Hold*

DATE: 3/2/87

 17 APR 1987 1:08:31 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 ATAWBA BROAD-LEAF VEGETATION - 217

TYPE: VEGETATION

QUANTITY: 2.900E-01

COLLECTION DATE(S): 4/8/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 3.14E 00	1.0E 01
FE-59	* 1.97E 01	2.4E 01
CO-58	* -1.14E 01	1.2E 01
CO-60	* 7.10E 00	1.2E 01
ZN-65	* -4.03E 00	2.3E 01
ZR-95	* -1.65E 01	1.8E 01
NB-95	* 1.65E 00	1.3E 01
I-131	* 1.72E 01	2.2E 01
CS-134	* 1.73E 00	1.2E 01
CS-137	* 1.43E 01	1.3E 01
BALA-140	* 0.00E-01	1.4E 01
NPBE-7	6.42E 02	1.7E 02
NPK-40	2.20E 03	3.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 470 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *[Signature]*

 REVIEWED BY:

[Signature]

DATE:

4-17-87

15 MAY 1987 1:56:13 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

|| *****
CATAWBA BROAD-LEAF VEGETATION - 217

VEGETATION

QUANTITY: 2.670E-01

COLLECTION DATE(S): 5/6/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	1.2E 01
FE-59	* 4.52E 00	2.8E 01
CO-58	* 3.65E 00	1.5E 01
CO-60	* -2.61E 00	1.1E 01
ZN-65	* -2.73E 01	3.6E 01
ZR-95	* -6.17E 00	2.1E 01
NB-95	* 2.06E 01	1.6E 01
I-131	* -2.12E 01	3.0E 01
CS-134	* -1.35E 01	1.6E 01
CS-137	* 1.75E 01	1.5E 01
BALA-140	* -5.12E 00	1.8E 01
NPBE-7	5.57E 02	1.5E 02
NPK-40	3.34E 03	3.9E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Be-7, K-40 identified by N10

BY: *Dale F. Holden*

MAY 15 1987

REVIEWED BY: *Marcia Lane*

DATE: *5-20-87*

 12 JUN 1987 8:10:28 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA BROAD-LEAF VEGETATION - 217
 TYPE: VEGETATION QUANTITY: 2.890E-01
 COLLECTION DATE(S): 6/3/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -4.42E 00	1.1E 01
FE-59	* -1.47E 01	2.1E 01
CO-58	* 4.60E 00	1.2E 01
CO-60	* 2.07E 00	9.0E 00
ZN-65	* -7.43E 00	2.1E 01
ZR-95	* 2.08E 01	1.9E 01
NB-95	* 6.27E 00	1.1E 01
I-131	* 1.70E 00	2.3E 01
CS-134	* 6.52E 00	1.3E 01
CS-137	8.68E 01	1.6E 01
BALA-140	* 0.00E-01	1.1E 01
NPBE-7	6.43E 02	1.2E 02
NPK-40	3.37E 03	3.5E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 at 662 keV, NPBE-7 at 478 keV, NPK-40 at 1461 keV, all identified
 by Peak Search and NID.

BY: *Lynn L. Brantner* JUN 12 1987

 REVIEWED BY: *Dale E. Holden* DATE: *6-21-87*

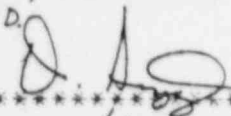
10 JUL 1987 3:19:43 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT


TAWBA BROAD-LEAF VEGETATION - 217
 TYPE: VEGETATION QUANTITY: 2.450E-01
 COLLECTION DATE(S): 7/8/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.83E 00	5.6E 00
FE-59	* -1.35E 01	1.2E 01
CO-58	* -5.42E 00	5.9E 00
CO-60	* 5.59E-01	6.6E 00
ZN-65	* -1.87E 00	1.3E 01
ZR-95	* -7.26E 00	1.0E 01
NB-95	* 3.09E 00	5.9E 00
I-131	* 3.67E 00	6.3E 00
CS-134	1.14E 01	6.5E 00
CS-137	7.64E 01	8.0E 00
BALA-140	* 0.00E-01	5.6E 00
NPBE-7	1.01E 03	7.3E 01
NPK-40	3.03E 03	1.8E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-134 at 796 keV not identified by Peak Search or NID, ADA: 28 net counts.
 Cs-137 at 662 keV, NPBE-7 at 478 keV and NPK-40 at 146 keV identified by Peak Search and NID.

BY: 

REVIEWED BY:  DATE: 7.13.87

23

12 AUG 1987 2:37:57 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 217

E: VEGETATION

QUANTITY: 3.590E-01

COLLECTION DATE(S): 8/5/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 2.56E 00	3.7E 00
FE-59	* 5.36E 00	7.6E 00
CO-58	* 1.01E 00	3.4E 00
CO-60	* 0.00E-01	3.9E 00
ZN-65	* 1.30E 00	8.0E 00
ZR-95	* 2.12E 00	6.1E 00
NB-95	* 4.61E 00	3.7E 00
I-131	* 3.42E-01	4.1E 00
CS-134	* 8.50E-01	3.9E 00
CS-137	1.37E 01	3.8E 00
BALA-140	* 1.60E 00	3.7E 00
NPBE-7	2.07E 03	6.5E 01
NPK-40	3.12E 03	1.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *cs-137 at 662 kev, NPBE-7 at 478 kev and NPK-40 at 1461 kev identified by Peak Search and NID.*

BY: *[Signature]*

REVIEWED BY: *[Signature]*

DATE: 8-13-87

Plant Name : CNS
 Sample Number : 39
 Type/Location : BROAD LEAF VEGET / 217
 Sample Date : 2-SEP-1987 12:00:00
 Acq. Start Time : 12-SEP-1987 15:17:35
 Sample Quantity : 0.267000 WET/KG
 Sample ID : 02SEP87
 Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 25.7	0.000E+00		
CO-58	810.76	< 27.7	0.000E+00		
FE-59	1099.22	< 84.2	0.000E+00		
CO-60	1332.47	< 30.2	0.000E+00		
ZN-65	1115.52	< 61.0	0.000E+00		
NB-95	765.78	< 25.0	0.000E+00		
ZR-95	756.72	< 53.3	0.000E+00		
I-131	364.48	< 57.5	0.000E+00		
CS-134	604.66	< 25.6	0.000E+00		3.4%
CS-137	661.65	68.5	13.4		0.000E+00
BALA-140	537.27	< 137.	0.000E+00		
BE-7	477.59	1.391E+03	174.		
K-40	1460.75	3.220E+03	275.		

Total Fraction of Reporting Level ~~0.000E+00~~
 3.4%

Analyzed by: Jim Sigman 9-12-87

Approved by: John E. Hill Date: 1/19/87

CS-137 at 662 keV, Be-7 at 478 keV, & K-40 at 1461 keV identified by Peak Search & NID.

Plant Name : CNS
Sample Number : 158
Type/Location : BROAD LEAF VEGET / 217
Sample Date : 7-OCT-1987 12:00:00
Acq. Start Time : 12-OCT-1987 15:05:45
Sample Quantity : 0.332000 WET/KG
Sample ID : 7OCT87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 54.3	0.000E+00		
CO-58	810.76	< 46.3	0.000E+00		
FE-59	1099.22	< 110.	0.000E+00		
CO-60	1332.47	< 69.7	0.000E+00		
ZN-65	1115.52	< 147.	0.000E+00		
NB-95	765.78	< 53.1	0.000E+00		
ZR-95	756.72	< 35.1	0.000E+00		
I-131	364.48	< 59.9	0.000E+00		
CS-134	604.66	< 41.1	0.000E+00		
CS-137	661.65	< 66.1	0.000E+00		
BALA-140	1596.49	< 0.000E+00	0.000E+00		
BE-7	477.59	2.343E+03	293.		
K-40	1460.75	3.556E+03	557.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: Jim Sigmen

Approved by: D. S. Hill

Date: 10 / 12 / 87

Plant Name : CNS
Sample Number : 261
Type/Location : BROAD LEAF VEGET / 217
Sample Date : 4-NOV-1987 12:00:00
Acq. Start Time : 12-NOV-1987 09:44:44
Sample Quantity : 0.182000 WET/KG
Sample ID : 4NOV87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 34.4	0.000E+00		
CO-58	810.76	< 35.8	0.000E+00		
FE-59	1099.22	< 89.4	0.000E+00		
CO-60	1332.47	< 45.8	0.000E+00		
ZN-65	1115.52	< 85.6	0.000E+00		
NB-95	765.78	< 39.3	0.000E+00		
ZR-95	756.72	< 69.5	0.000E+00		
I-131	364.48	< 59.8	0.000E+00		
CS-134	604.66	< 32.1	0.000E+00		
CS-137	661.65	31.9	13.5		1.597E-02
BALA-140	1596.49	< 73.7	0.000E+00		
BE-7	477.59	370.	128.		
K-40	1460.75	5.469E+03	303.		

Total Fraction of Reporting Level 1.597E-02

Analyzed by: N/A

Approved by: *Maria Jones*

Date: 4/26/88

Plant Name : CNS
Sample Number : 318
Type/Location : BROAD LEAF VEGET / 217
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 7-DEC-1987 15:13:00
Sample Quantity : 0.231000 WET/KG
Sample ID : 2DEC87
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 9.74	0.000E+00		
CO-58	810.76	< 10.6	0.000E+00		
FE-59	1099.22	< 23.8	0.000E+00		
CO-60	1332.47	< 12.6	0.000E+00		
ZN-65	1115.52	< 25.6	0.000E+00		
NB-95	765.78	< 12.1	0.000E+00		
ZR-95	756.72	< 21.1	0.000E+00		
I-131	364.48	< 15.4	0.000E+00		
CS-134	604.66	< 10.4	0.000E+00		
CS-137	661.65	62.2	5.42		3.110E-02
BALA-140	1596.49	< 13.2	0.000E+00		
BE-7	477.59	816.	55.1		
K-40	1460.75	2.626E+03	117.		

Total Fraction of Reporting Level 3.110E-02

Analyzed by: N/A

Approved by: Marcia Lopez

Date: 4/18/88

19 JAN 1987 7:59:58 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 226

TYPE OF VEGETATION

QUANTITY: 2.330E-01

COLLECTION DATE(S): 1/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	9.23E 00	4.1E 00
FE-59	2.22E 01	1.0E 01
CO-58	* 0.00E-01	4.4E 00
CO-60	* -5.29E-01	5.0E 00
ZN-65	* 0.00E-01	1.1E 01
ZP-95	* 1.19E 00	8.7E 00
NB-95	* 1.78E 00	5.3E 00
I-131	* 1.67E 00	7.7E 00
CS-134	2.07E 01	6.3E 00
CS-137	9.37E 00	5.6E 00
BALA-140	* -9.12E-01	6.0E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *m. y.*

REVIEWED BY: *Maria Lane*

DATE: 1-20-87

 6 FEB 1987 10:45:00 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

C WBA BROAD-LEAF VEGETATION - 226

1 : VEGETATION

QUANTITY: 2.250E-01

COLLECTION DATE(S): 2/4/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.59E 00	6.7E 00
FE-59	* 9.94E 00	1.3E 01
CO-58	* -6.63E 00	6.4E 00
CO-60	* 4.25E 00	6.4E 00
ZN-65	* -4.71E 01	1.5E 01
ZR-95	* 6.53E-01	1.2E 01
NB-95	1.78E 01	7.0E 00
I-131	* -3.99E 00	7.6E 00
CS-134	* 9.69E 00	8.4E 00
CS-137	4.29E 01	7.9E 00
BALA-140	* 0.00E-01	6.6E 00

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS:

BY:

Jim Sigmen

FEB 06 1987

REVIEWED BY:

Marcia Lane

DATE:

2/6/87

C WBA BROAD-LEAF VEGETATION - 226
 TYPE: VEGETATION QUANTITY: 2.640E-01
 COLLECTION DATE(S): 3/4/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 5.12E 00	1.4E 01
FE-59	* 8.32E 00	2.6E 01
CO-58	* 1.05E 01	1.4E 01
CO-60	* 5.19E 00	1.1E 01
ZN-65	* -2.60E 01	2.7E 01
ZR-95	* 1.17E 01	2.5E 01
NB-95	* 1.74E 00	1.5E 01
I-131	* -6.51E 00	2.2E 01
CS-134	* 1.13E 01	1.8E 01
CS-137	4.03E 01	1.6E 01
BALA-140	* -8.69E 00	2.0E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-137 not identified by Peak Search or NID.

BY: *Jim Sigman* MAR 11 1987

 REVIEWED BY: *Dale G. Hobbs* DATE: *3/12/87*

8

 17 APR 1987 1:08:47 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 KATAWBA BROAD-LEAF VEGETATION - 226

TYPE: VEGETATION

QUANTITY: 3.130E-01

COLLECTION DATE(S): 4/8/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* 5.10E 00	8.8E 00
FE-59	* 5.07E 00	1.6E 01
CO-58	* 0.00E-01	7.5E 0
CO-60	* 2.87E 00	7.3E 00
ZN-65	* 1.03E 01	1.9E 01
ZR-95	* 1.62E 01	1.7E 01
NB-95	* 8.67E 00	1.0E 01
I-131	* 2.11E 01	1.8E 01
CS-134	* 7.90E 00	1.1E 01
CS-137	* 5.62E 00	9.7E 00
BALA-140	* 8.32E 00	1.3E 01
NPBE-7	3.05E 02	9.9E 01
NPK-40	2.35E 03	2.8E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *LFB*

Dale S. Holch

4-17-87

12

15 MAY 1987 1:56:38 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CAT: WBA BROAD-LEAF VEGETATION - 226

E: VEGETATION

QUANTITY: 3.050E-01

COLLECTION DATE(S): 5/6/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (I CI/UT)
GAMMA SPEC		
MN-54	* 9.80E 00	1.0E 01
FE-59	* 7.03E 00	2.3E 01
CC-58	* -2.93E 00	9.7E 00
CO-60	* 1.96E 00	9.4E 00
ZN-65	* 0.00E-01	2E 01
ZR-95	* 7.45E 00	2.0E 01
NB-95	* 9.05E 00	1.2E 01
I-131	* -1.73E 01	2.2E 01
CS-134	* 1.39E 01	1.1E 01
CS-137	* 8.98E 00	1.1E 01
BALA-140	* 7.95E 00	1.6E 01
NPBE-7	4.63E 02	1.3E 02
NPK-40	4.77E 03	3.9E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Be-7, K-40 identified by NIB.

BY: *Dale S. Hall* MAY 15 1987

REVIEWED BY: *Marcia Stone* DATE: 5-20-87

 12 JUN 1987 8:10:43 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA BROAD-LEAF VEGETATION - 226
 TYPE: VEGETATION QUANTITY: 2.330E-01
 COLLECTION DATE(S): 6/3/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.17E 01	1.5E 01
FE-59	* -9.88E 00	2.5E 01
CO-58	* -1.22E 01	1.3E 01
CO-60	* -1.47E 01	1.6E 01
ZN-65	* -2.01E 01	3.5E 01
ZR-95	* -6.87E 00	2.7E 01
NB-95	* 2.07E 01	1.8E 01
I-131	* 8.81E 00	2.8E 01
CS-134	* -4.32E 00	1.5E 01
CS-137	* 8.89E 00	1.4E 01
BALA-140	* -5.60E 00	1.9E 01
NPBE-7	7.50E 02	1.6E 02
NPK-40	2.93E 03	3.9E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPBE-7 at 478 keV, and NPK-40 at 1461 keV, identified by Peak Search and N/A

BY: *Lynn H. Brotherton*

JUN 12 1987

 REVIEWED BY: *Dale E. Hill* DATE: 6-21-87

10 JUL 1987 3:19:13 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 226

TYPE: VEGETATION

QUANTITY: 2.180E-01

COLLECTION DATE(S): 7/8/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(FCI/UT)	SIGMA(FCI/UT)
MN-54	* 8.06E 00	5.7E 00
FE-59	* -8.34E 00	1.2E 01
CO-58	* -2.78E 00	5.5E 00
CO-60	* 3.10E 00	6.2E 00
ZN-65	* 3.08E 00	1.3E 01
ZR-95	* 1.26E 01	1.1E 01
NB-95	* -3.38E 00	5.9E 00
I-131	* 4.20E 00	5.9E 00
CS-134	* 4.92E 00	6.8E 00
CS-137	* 3.32E 01	6.7E 00
BALA-140	* 4.78E 00	6.0E 00
NPBE-7	1.11E 03	6.6E 01
NPK-40	5.12E 03	2.0E 02

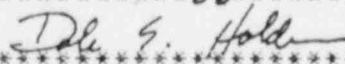
* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV, NPBE-7 at 978 keV and NPK-40 at 1461 keV, identified by
Pink Search and NID.

BY:



REVIEWED BY:



DATE:

7-13-87

12 AUG 1987 2:38:30 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA BROAD-LEAF VEGETATION - 226

TYPE: VEGETATION

QUANTITY: 3.180E-01

COLLECTION DATE(S): 8/5/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -8.57E 00	1.5E 01
FE-59	* -1.40E 01	2.6E 01
CO-58	* -2.92E 00	1.1E 01
CO-60	* 4.32E 00	1.7E 01
ZN-65	* -2.92E 01	2.9E 01
ZR-95	* 0.00E-01	3.0E 01
NB-95	* 1.16E 01	1.8E 01
I-131	* -5.38E 00	2.6E 01
CS-134	* -9.47E 00	1.8E 01
CS-137	* 0.00E-01	1.5E 01
BALA-140	* 2.20E 01	1.9E 01
NPBE-7	1.54E 03	2.5E 02
NPK-40	3.99E 03	5.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPBE-7 at 478 keV and NPK-40 at 1461 keV identified by Peak Search and NID.*

BY: *MY*

REVIEWED BY: *Dale S. Hall*

DATE: *8-13-87*

Plant Name : CNS
Sample Number : 32
Type/Location : BROAD LEAF VEGET / 226
Sample Date : 2-SEP-1987 12:00:00
Acq. Start Time : 13-SEP-1987 11:08:22
Sample Quantity : 0.279000 WET/KG
Sample ID : 2SEP87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 41.9	0.000E+00		
CO-58	810.76	< 27.9	0.000E+00		
FE-59	1099.22	< 59.1	0.000E+00		
CO-60	1332.47	< 20.0	0.000E+00		
ZN-65	1115.52	< 71.2	0.000E+00		
NB-95	765.78	< 49.0	0.000E+00		
ZR-95	756.72	< 57.8	0.000E+00		
I-131	364.48	< 21.4	0.000E+00		
CS-134	604.66	< 28.9	0.000E+00		
CS-137	661.65	< 19.7	0.000E+00		
BALA-140	537.27	< 45.7	0.000E+00		
BE-7	477.59	8.732E+03	185.		
K-40	1460.75	5.197E+03	423.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcus Jones-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 159
Type/Location : BROAD LEAF VEGET / 226
Sample Date : 7-OCT-1987 12:00:00
Acq. Start Time : 13-OCT-1987 11:10:51
Sample Quantity : 0.248000 WET/KG
Sample ID : 7OCT87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 70.0	0.000E+00		
CO-58	810.76	< 77.6	0.000E+00		
FE-59	1099.22	< 112.	0.000E+00		
CO-60	1332.47	< 86.8	0.000E+00		
ZN-65	1115.52	< 126.	0.000E+00		
NB-95	765.78	< 63.2	0.000E+00		
ZR-95	756.72	< 74.9	0.000E+00		
I-131	364.48	< 29.6	0.000E+00		
CS-134	604.66	< 55.7	0.000E+00		
CS-137	661.65	< 51.1	0.000E+00		
BALA-140	1596.49	< 221.	0.000E+00		
BE-7	477.59	519.	122.		
K-40	1460.75	5.622E+03	437.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Lane-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 255
Type/Location : BROAD LEAF VEGET / 226
Sample Date : 4-NOV-1987 12:00:00
Acq. Start Time : 16-NOV-1987 11:08:22
Sample Quantity : 0.181000 WET/KG
Sample ID : 4NOV87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 51.9	0.000E+00		
CO-58	810.76	< 49.9	0.000E+00		
FE-59	1099.22	< 145.	0.000E+00		
CO-60	1332.47	< 89.3	0.000E+00		
ZN-65	1115.52	< 126.	0.000E+00		
NB-95	765.78	< 69.9	0.000E+00		
ZR-95	756.72	< 108.	0.000E+00		
I-131	364.48	< 29.6	0.000E+00		
CS-134	604.66	< 55.8	0.000E+00		
CS-137	661.65	< 51.1	0.000E+00		
BALA-140	1596.49	< 29.5	0.000E+00		
BE-7	477.59	873.	185.		
K-40	1460.75	5.197E+03	185.		

Total Fraction of Reporting Level 0.000E+00
/

Analyzed by: N/A-----

Approved by: Marcia [Signature]-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 319
Type/Location : BROAD LEAF VEGET / 226
Sample Date : 2-DEC-1987 12:00:00
Acq. Start Time : 7-DEC-1987 15:38:36
Sample Quantity : 0.207000 WET/KG
Sample ID : 2DEC87
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 14.0	0.000E+00		
CO-58	810.76	< 13.7	0.000E+00		
FE-59	1099.22	< 28.5	0.000E+00		
CO-60	1332.47	< 14.4	0.000E+00		
ZN-65	1115.52	< 30.6	0.000E+00		
NB-95	765.78	< 15.2	0.000E+00		
ZR-95	756.72	< 25.3	0.000E+00		
I-131	364.48	< 18.4	0.000E+00		
CS-134	604.66	< 12.3	0.000E+00		
CS-137	661.65	< 14.7	0.000E+00		
BALA-140	1596.49	< 19.6	0.000E+00		
BE-7	477.59	555.	34.3		
K-40	1460.75	3.276E+03	130.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcus D. Spina

Date: 4/26/88

Plant Name : CNS
Sample Number : 705
Type/Location : SEDIMENT / 208
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 0.749000 KILOGRAMS (DRY)
Sample ID : SHORELINE 1S
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	27.6	14.5		0.000E+00
CO-58	0.00	24.3	15.6		0.000E+00
FE-59	0.00	< 0.000E+00	33.9		
CO-60	0.00	89.3	23.1		0.000E+00
ZN-65	0.00	< 19.4	32.0		
NB-95	0.00	38.1	19.4		0.000E+00
ZR-95	0.00	< -2.45	26.3		
I-131	0.00	< 32.8	63.3		
CS-134	0.00	39.4	15.9		0.000E+00
CS-137	0.00	86.5	16.5		0.000E+00
BALA-140	0.00	< 6.95	26.9		
NPK-40	0.00	1.355E+04	536.		
NPTH-SER	0.00	954.	37.9		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia D. Spivey-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 712
Type/Location : SEDIMENT / 208
Sample Date : 24-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 0.830000 KILOGRAMS (DRY)
Sample ID : SHORELINE-1S
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	0.00	< 5.36	9.41		
CO-58	0.00	< 13.2	9.99		
FE-59	0.00	< 10.7	21.7		
CO-60	0.00	22.8	10.6		0.000E+00
ZN-65	0.00	< -5.49	22.0		
NB-95	0.00	< 6.67	10.5		
ZR-95	0.00	< -7.43	15.3		
I-131	0.00	< 7.60	15.8		
CS-134	0.00	35.5	11.9		0.000E+00
CS-137	0.00	42.4	9.68		0.000E+00
BALA-140	0.00	< 0.000E+00	10.8		
NPK-40	0.00	1.387E+04	481.		
NPTH-SER	0.00	597.	27.5		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia [Signature]

Date: 4/18/88

Plant Name : CNS
Sample Number : 92
Type/Location : SEDIMENT / 208
Sample Date : 23-SEP-1987 12:00:00
Acq. Start Time : 26-SEP-1987 03:43:40
Sample Quantity : 0.807000 DRY/KG
Sample ID : SHORELINE-1S
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	132.	28.6		0.000E+00
CO-58	810.76	882.	55.6		0.000E+00
FE-59	1099.22 <	139.	0.000E+00		
CO-60	1332.47	272.	32.4		0.000E+00
ZN-65	1115.52 <	117.	0.000E+00		
NB-95	765.78 <	69.2	0.000E+00		
CR-95	756.72 <	112.	0.000E+00		
I-131	364.48 <	63.6	0.000E+00		
CS-134	604.66 <	70.6	0.000E+00		
CS-137	661.65	217.	39.6		0.000E+00
BALA-140	537.27 <	220.	0.000E+00		
BE-7	477.59	417.	208.		
K-40	1460.75	1.332E+04	659.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Spine

Date: 4/18/88

Plant Name : CNS
Sample Number : 569
Type/Location : SEDIMENT / 208
Sample Date : 23-DEC-1987 12:00:00
Acq. Start Time : 21-JAN-1988 13:09:35
Sample Quantity : 0.790000 DRY/KG
Sample ID : SHORELINE-1S
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	119.	13.4		0.000E+00
CO-58	810.76	534.	41.3		0.000E+00
FE-59	1099.22	< 168.	0.000E+00		
CO-60	1332.47	170.	30.9		0.000E+00
ZN-65	1115.52	< 125.	0.000E+00		
NB-95	765.78	< 92.3	0.000E+00		
ZR-95	756.72	< 129.	0.000E+00		
I-131	364.48	< 495.	0.000E+00		
CS-134	604.66	87.7	21.9		0.000E+00
CS-137	661.65	94.7	25.0		0.000E+00
BALA-140	1596.49	< 141.	0.000E+00		
K-40	1460.75	1.414E+04	628.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia [Signature]

Date: 4/18/88

Plant Name : CNS
Sample Number : 706
Type/Location : SEDIMENT / 208
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 0.842000 KILOGRAMS (DRY)
Sample ID : SHORELINE 2S
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	0.00	< 5.21	12.5		
CO-58	0.00	< -5.96	13.8		
FE-59	0.00	< 12.3	32.5		
CO-60	0.00	24.3	12.0		0.000E+00
ZN-65	0.00	< 10.6	29.0		
NB-95	0.00	< 9.69	17.9		
ZR-95	0.00	< 16.4	24.4		
I-131	0.00	< 24.6	66.2		
CS-134	0.00	49.8	14.5		0.000E+00
CS-137	0.00	< 10.2	12.4		
BALA-140	0.00	< -16.5	27.5		
NPK-40	0.00	1.567E+04	494.		
NPTH-SER	0.00	1.330E+03	40.2		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Fine-----

Date: 4/15/88-----

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 2 JUL 1987 7:49:11 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

 AWBA SHORELINE SEDIMENT (2S) - 208
 E: SOLID QUANTITY: 7.990E-01
 COLLECTION DATE(S): 6/24/87 UNITS: KILOGRAMS (DRY)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 4.26E 00	1.2E 01
FE-59	* 7.83E 00	2.4E 01
CO-58	4.89E 01	1.4E 01
CO-60	6.59E 01	1.6E 01
ZN-65	2.99E 02	4.5E 01
ZR-95	* -9.29E 00	1.8E 01
NB-95	* 4.44E 00	1.2E 01
I-131	* 7.89E 00	1.7E 01
CS-134	2.24E 01	1.3E 01
CS-137	3.97E 01	1.4E 01
BALA-140	* 5.49E 00	7.8E 00
NPK-40	1.59E 04	5.1E 02
NPTH-SER	4.52E 02	3.4E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-134 at 496 keV not identified by Peak Search or NID, MDA=19 net counts.
 Co-58 at 811 keV, Co-60 at 1332 keV, Zr-95 at 757 keV, Cs-137 at 662 keV,
 NPK-40 at 1461 keV, NPTH-Ser at 239 keV; all identified by Peak Search and
 NID.

BY: *gmy*

 REVIEWED BY: *Dale J. Hold* DATE: 7-3-87

Plant Name : CNS
Sample Number : 93
Type/Location : SEDIMENT / 208
Sample Date : 23-SEP-1987 12:00:00
Acq. Start Time : 26-SEP-1987 03:52:04
Sample Quantity : 0.767000 DRY/KG
Sample ID : SHORELINE-2S
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 92.8	0.000E+00		
CO-58	810.76	672.	53.0		0.000E+00
FE-59	1099.22	< 162.	0.000E+00		
CO-60	1332.47	170.	31.8		0.000E+00
ZN-65	1115.52	< 151.	0.000E+00		
NB-95	765.78	< 68.5	0.000E+00		
ZR-95	756.72	< 107.	0.000E+00		
I-131	364.48	< 64.8	0.000E+00		
CS-134	604.66	< 72.3	0.000E+00		
CS-137	661.65	127.	37.1		0.000E+00
BALA-140	537.27	< 244.	0.000E+00		
K-40	1460.75	2.027E+04	882.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Mascia-----

Date: 2/18/88-----

Plant Name : CNS
Sample Number : 565
Type/Location : SEDIMENT / 208
Sample Date : 23-DEC-1987 12:00:00
Acq. Start Time : 20-JAN-1988 15:39:51
Sample Quantity : 0.725000 DRY/KG
Sample ID : SHORELINE-2S
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	92.3	17.4		0.000E+00
CO-58	810.76	423.	30.2		0.000E+00
FE-59	1099.22	< 154.	0.000E+00		
CO-60	1332.47	252.	28.1		0.000E+00
ZN-65	1115.52	< 116.	0.000E+00		
NB-95	765.78	< 77.7	0.000E+00		
ZR-95	756.72	< 96.7	0.000E+00		
I-131	364.48	< 329.	0.000E+00		
CS-134	604.66	56.9	15.8		0.000E+00
CS-137	661.65	154.	18.7		0.000E+00
BALA-140	1596.49	< 163.	0.000E+00		
BE-7	477.59	276.	122.		
K-40	1460.75	1.884E+04	578.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Spina

Date: 4/18/88

Plant Name : CNS
 Sample Number : 704
 Type/Location : SEDIMENT / 208
 Sample Date : 25-MAR-1987 00:00:00
 Acq. Start Time : -----
 Sample Quantity : 0.675000 KILOGRAMS (DRY)
 Sample ID : SHORELINE 3S
 Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	0.00	68.7	18.7		0.000E+00
CO-58	0.00	82.7	26.8		0.000E+00
FE-59	0.00	< 7.64	40.8		
CO-60	0.00	279.	29.4		0.000E+00
ZN-65	0.00	< 0.000E+00	34.3		
NB-95	0.00	< 10.3	20.8		
ZR-95	0.00	< 5.10	29.8		
I-131	0.00	< -34.9	78.2		
CS-134	0.00	136.	21.9		0.000E+00
CS-137	0.00	359.	28.1		0.000E+00
BALA-140	0.00	< 13.7	36.2		
NI-K-40	0.00	1.945E+04	615.		
NI-TH-SER	0.00	1.017E+03	43.4		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcus D. Spive

Date: 4/18/88

 2 JUL 1987 7:49:27 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

AWBA SHORELINE SEDIMENT (3S) - 208

E: SOLID QUANTITY: 7.520E-01
 COLLECTION DATE(S): 6/24/87 UNITS: KILOGRAMS (DRY)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	3.88E 01	1.6E 01
FE-59	* -9.37E 00	3.1E 01
CO-58	1.11E 02	1.7E 01
CO-60	1.17E 02	2.0E 01
ZN-65	* -1.61E 01	3.5E 01
Zn-95	* -2.15E 01	2.4E 01
NB-95	4.63E 01	1.6E 01
I-131	* 2.58E 00	2.2E 01
CS-134	5.86E 01	1.8E 01
CS-137	1.00E 02	1.8E 01
BALA-140	* 0.00E-01	1.5E 01
NPK-40	1.89E 04	6.1E 02
NPTH-SER	9.55E 02	4.2E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Nb-95 at 766 keV, MDA = 36 net counts and Cs-134 at 796 keV, MDA = 43 net counts,
 not ident. fixed by Peak Search or NID. Mn-54 at 1099 keV, Co-58 at 811 keV,
 Co-60 at 1332 keV, Cs-137 at 662 keV, NPK-40 at 1461 keV, NPTH-Ser at 239 keV,
 all identified by Peak Search and NID.
 BY: *[Signature]*

 REVIEWED BY: *[Signature]* DATE: 7-3-87

Plant Name : CNS
Sample Number : 94
Type/Location : SEDIMENT / 208
Sample Date : 23-SEP-1987 12:00:00
Acq. Start Time : 26-SEP-1987 03:55:12
Sample Quantity : 0.789000 DRY/KG
Sample ID : SHORELINE-3S
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	98.5	20.5		0.000E+00
CO-58	810.76	691.	47.4		0.000E+00
FE-59	1099.22	< 118.	0.000E+00		
CO-60	1332.47	120.	38.3		0.000E+00
ZN-65	1115.52	< 124.	0.000E+00		
NB-95	765.78	< 68.1	0.000E+00		
ZR-95	756.72	< 91.1	0.000E+00		
I-131	364.48	< 48.7	0.000E+00		
CS-134	604.66	< 58.0	0.000E+00		
CS-137	661.65	89.1	21.9		0.000E+00
BALA-140	537.27	< 221.	0.000E+00		
K-40	1460.75	2.167E+04	823.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia D. O'Neil

Date: 4/26/88

Plant Name : CNS
Sample Number : 566
Type/Location : SEDIMENT / 208
Sample Date : 23-DEC-1987 12:00:00
Acq. Start Time : 20-JAN-1988 15:41:56
Sample Quantity : 0.756000 DRY/KG
Sample ID : SHORELINE-3S
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	129.	21.2		0.000E+00
CO-58	810.76	606.	42.9		0.000E+00
FE-59	1099.22	< 154.	0.000E+00		
CO-60	1332.47	347.	30.7		0.000E+00
ZN-65	1115.52	< 109.	0.000E+00		
NB-95	765.78	< 81.7	0.000E+00		
ZR-95	756.72	< 98.5	0.000E+00		
I-131	364.48	< 389.	0.000E+00		
CS-134	604.66	< 48.9	0.000E+00		
CS-137	661.65	79.8	21.1		0.000E+00
BALA-140	1596.49	< 150.	0.000E+00		
K-40	1460.75	1.913E+04	571.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marci Opere

Date: 4/18/88

Plant Name : CNS
Sample Number : 707
Type/Location : SEDIMENT / 210
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 0.856000 KILOGRAMS (DRY)
Sample ID : SHORELINE
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1- σ Error or req LLD	MDA	Frac. of Rpt. Level
MN-54	0.00	16.4	9.37		- 0.000E+00
CO-58	0.00	< -5.02	10.3		
FE-59	0.00	< 13.1	28.2		
CO-60	0.00	< 3.22	9.94		
ZN-65	0.00	< -14.2	22.8		
NB-95	0.00	< -1.45	12.4		
ZR-95	0.00	< 10.7	19.8		
I-131	0.00	< -7.21	47.6		
CS-134	0.00	22.6	10.4		0.000E+00
CS-137	0.00	< 13.6	9.59		
BALA-140	0.00	< 0.000E+00	19.3		
NPK-40	0.00	9.846E+03	422.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Lane-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 715
Type/Location : SEDIMENT / 210
Sample Date : 24-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 0.929000 KILOGRAMS (DRY)
Sample ID : SHORELINE
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	26.8	9.03		0.000E+00
CO-58	0.00	< 4.04	9.14		
FE-59	0.00	< 0.000E+00	20.4		
CO-60	0.00	< 1.48	8.99		
ZN-65	0.00	< -10.0	23.3		
NB-95	0.00	< 7.13	11.1		
ZR-95	0.00	< 13.6	17.0		
I-131	0.00	< 6.08	14.8		
CS-134	0.00	< 8.65	11.1		
CS-137	0.00	< 4.46	8.50		
BALA-140	0.00	< 7.99	11.6		
CE-141	0.00	43.9	13.5		
NPK-40	0.00	1.145E+04	435.		
NPTH-SER	0.00	599.	27.4		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia D. [Signature] Date: 7/25/88

Plant Name : CNS
Sample Number : 95
Type/Location : SEDIMENT / 210
Sample Date : 23-SEP-1987 12:00:00
Acq. Start Time : 26-SEP-1987 04:06:57
Sample Quantity : 0.861000 DRY/KG
Sample ID : SHORELINE
Measurement Type : ROUTINE

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 38.2	0.000E+00		
CO-58	810.76	< 35.6	0.000E+00		
FE-59	1099.22	< 83.1	0.000E+00		
CO-60	1332.47	< 42.9	0.000E+00		
ZN-65	1115.52	< 77.0	0.000E+00		
NB-95	765.78	< 40.0	0.000E+00		
ZR-95	756.72	< 76.2	0.000E+00		
I-131	364.48	< 32.5	0.000E+00		
CS-134	604.66	< 29.3	0.000E+00		
CS-137	661.65	< 37.0	0.000E+00		
BALA-140	537.27	< 109.	0.000E+00		
K-40	1460.75	9.971E+03	535.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Agne

Date: 4/18/88

Plant Name : CNS
Sample Number : 570
Type/Location : SEDIMENT / 210
Sample Date : 23-DEC-1987 12:00:00
Acq. Start Time : 21-JAN-1988 13:47:31
Sample Quantity : 0.845000 DRY/KG
Sample ID : SHORELINE
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 35.6	0.000E+00		
CO-58	810.76	< 56.5	0.000E+00		
FE-59	1099.22	< 137.	0.000E+00		
CO-60	1332.47	< 33.0	0.000E+00		
ZN-65	1115.52	< 105.	0.000E+00		
NB-95	765.78	< 66.6	0.000E+00		
ZR-95	756.72	< 94.6	0.000E+00		
I-131	364.48	< 372.	0.000E+00		
CS-134	604.66	< 32.3	0.000E+00		
CS-137	661.65	< 39.8	0.000E+00		
BALA-140	1596.49	< 157.	0.000E+00		
K-40	1460.75	9.597E+03	517.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcus [Signature]

Date: 4/18/88

Plant Name : CNS
Sample Number : 708
Type/Location : SEDIMENT / 215
Sample Date : 25-MAR-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 0.827000 KILOGRAMS (DRY)
Sample ID : SHORELINE
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	< 3.41	11.3		
CO-58	0.00	< -2.60	11.6		
FE-59	0.00	< 34.0	32.6		
CO-60	0.00	< 10.0	11.3		
ZN-65	0.00	< 0.000E+00	27.5		
NB-95	0.00	< 13.6	17.0		
ZR-95	0.00	< -2.22	22.1		
I-131	0.00	< 0.000E+00	49.6		
CS-134	0.00	18.5	11.9		0.000E+00
CS-137	0.00	< 14.0	10.8		
BALA-140	0.00	< -12.7	28.4		
NPK-40	0.00	1.496E+04	533.		
NPTH-SER	0.00	520.	29.0		

Total Fraction of Reporting Level: 0.000E+00

Analyzed by: N/A

Approved by: Marcia Spina

Date: 4/18/88

Plant Name : CNS
Sample Number : 716
Type/Location : SEDIMENT / 215
Sample Date : 24-JUN-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 0.906000 KILOGRAMS (DRY)
Sample ID : SHORELINE
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	0.00	12.8	7.92		0.000E+00
CO-58	0.00	16.2	7.84		0.000E+00
FE-59	0.00	< -12.2	20.0		
CO-60	0.00	< 4.48	8.58		
ZN-65	0.00	< 2.51	18.6		
NB-95	0.00	41.7	10.9		0.000E+00
ZR-95	0.00	< -1.70	13.5		
I-131	0.00	<-0.998	12.7		
CS-134	0.00	17.3	9.57		0.000E+00
CS-137	0.00	< -3.55	7.83		
BALA-140	0.00	< -7.96	9.57		
NPK-40	0.00	7.910E+03	352.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Spencer D. Stone

Date: 4/26/88

VAX/VMS Sample Analysis Report generated : 18-APR-1988 16:22:13

Plant Name : CNS
Sample Number : 96
Type/Location : SEDIMENT / 215
Sample Date : 23-SEP-1987 12:00:00
Acq. Start Time : 26-SEP-1987 04:16:28
Sample Quantity : 0.875000 DRY/KG
Sample ID : SHORELINE
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 32.8	0.000E+00		
CO-58	810.76	< 33.9	0.000E+00		
FE-59	1099.22	< 73.1	0.000E+00		
CO-60	1332.47	< 38.1	0.000E+00		
ZN-65	1115.52	< 88.2	0.000E+00		
ND-95	765.78	< 32.2	0.000E+00		
ZR-95	756.72	< 52.2	0.000E+00		
I-131	364.48	< 39.6	0.000E+00		
CS-134	604.66	< 28.2	0.000E+00		
CS-137	661.65	< 38.3	0.000E+00		
BALA-140	537.27	< 130.	0.000E+00		
K-40	1460.75	9.046E+03	514.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Spina-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 568
Type/Location : SEDIMENT / 215
Sample Date : 23-DEC-1987 12:00:00
Acq. Start Time : 20-JAN-1988 17:00:20
Sample Quantity : 0.813000 DRY/KG
Sample ID : SHORELINE
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 30.6	0.000E+00		
CO-58	810.76	< 36.8	0.000E+00		
FE-59	1099.22	< 94.2	0.000E+00		
CO-60	1332.47	< 36.5	0.000E+00		
ZN-65	1115.52	< 73.3	0.000E+00		
NB-95	765.78	< 54.7	0.000E+00		
ZR-95	756.72	< 71.7	0.000E+00		
I-131	364.48	< 250.	0.000E+00		
CS-134	604.66	< 26.0	0.000E+00		
CS-137	661.65	< 27.5	0.000E+00		
BALA-140	1596.49	< 140.	0.000E+00		
K-40	1460.75	6.397E+03	342.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia [Signature]

Date: 4/18/88

2

20 JAN 1987 12:55:29 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA FISH (LARGE MOUTH BASS) - 208

TYPE: LIQUID/SLURRY

QUANTITY: 4.720E-01

COLLECTION DATE(S): 1/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -1.36E 00	1.0E 01
FE-59	* -7.07E 00	2.2E 01
CO-58	* 4.38E 00	1.0E 01
CO-60	* 1.36E 01	9.7E 00
ZN-65	* -1.01E 01	2.3E 01
ZR-95	* -7.48E 00	1.8E 01
NB-95	2.66E 01	1.3E 01
I-131	9.46E 01	3.3E 01
CS-134	* 7.45E 00	1.3E 01
CS-137	3.56E 01	1.1E 01
BALA-140	* 0.00E-01	1.3E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigmen

JAN 20 1987

REVIEWED BY:

marc...

DATE: 1-16-87

20 JAN 1987 12:57:47 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA FISH (WHOLE SHAD/BONES AND INTERNALS) - 208
TYPE: LIQUID/SLURRY QUANTITY: 4.220E-01
COLLECTION DATE(S): 1/7/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -9.70E 00	1.3E 01
FE-59	* 4.33E 00	3.0E 01
CO-58	3.30E 01	1.6E 01
CO-60	3.55E 01	1.4E 01
ZN-65	* -2.48E 01	3.0E 01
ZR-95	* 8.92E 00	2.5E 01
NB-95	* 1.50E 01	1.6E 01
I-131	* 6.21E 01	4.2E 01
CS-134	* 1.78E 01	1.4E 01
CS-137	3.24E 01	1.5E 01
BALA-140	* -5.75E 00	2.2E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Dian Sigmsa

JAN 20 1987

REVIEWED BY:

Marcia Lane

DATE: 1-20-87

20 JAN 1987 12:54:55 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

AWBA FISH (CATFISH FILETS) - 208

TYPE: LIQUID/SLURRY

QUANTITY: 5.470E-01

COLLECTION DATE(S): 1/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
GAMMA SPEC		
MN-54	* -2.49E 00	9.0E 00
FE-59	* 3.34E 00	2.4E 01
CO-58	* 1.34E 00	1.1E 01
CO-60	* 1.83E 00	1.0E 01
ZN-65	* -1.92E 01	2.3E 01
ZR 95	* 4.58E 00	1.7E 01
NB-95	2.02E 01	1.2E 01
I-131	* 2.81E 01	3.0E 01
CS-134	* -4.11E 00	1.2E 01
CS-137	6.05E 01	1.3E 01
BALA-140	* 0.00E-01	1.2E 01

NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY: *Jim Sigman*

JAN 20 1987

REVIEWED BY: *Marcus Jones*

DATE: 1-20-87

16 APR 1987 12:47:18 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (BASS FILETS) - 208

TYPE: LIQUID/SLURRY

QUANTITY: 9.070E-01

COLLECTION DATE(S): 4/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -2.23E 00	5.1E 00
FE-59	* 1.49E 01	1.4E 01
CO-58	* -3.86E 00	6.6E 00
CO-60	* 9.90E 00	7.0E 00
ZN-65	* -5.70E 00	1.6E 01
ZR-95	* 1.31E 00	1.0E 01
NB-95	* 7.08E 00	6.6E 00
I-131	* 5.90E 00	1.2E 01
CS-134	* 7.41E 00	7.9E 00
CS-137	5.41E 01	9.4E 00
BALA-140	* 0.00E-01	7.0E 00
NPK-40	3.13E 03	2.3E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *Co-137 at 662 keV and NPK-40 at 1461 keV identified by Peak Search and NAD.*

BY:

Jim Sigman

APR 16 1987

REVIEWED BY:

Dale H. Smith

DATE:

4-16-87

16 APR 1987 12:47:58 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (WHOLE SHAD) - 208 (minus head and tail) m. Lane
 TYPE: LIQUID/SLURRY QUANTITY: 3.690E-01
 COLLECTION DATE(S): 4/7/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 1.46E 01	1.6E 01
FE-59	* -1.38E 01	2.9E 01
CO-58	1.22E 02	3.4E 01
CO-60	6.22E 01	1.9E 01
ZN-65	* -4.20E 01	3.5E 01
ZR-95	* 6.44E 00	3.0E 01
NB-95	* 1.16E 01	1.7E 01
I-131	* -1.47E 01	3.0E 01
CS-134	* 8.09E 00	1.8E 01
CS-137	* 2.19E 01	1.6E 01
BALA-140	* -5.02E 00	1.9E 01
NPK-40	4.09E 03	3.9E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Co-60 at 1332 keV not identified by Peak Search or NIO, MDA = 23 net counts.
 Co-58 at 511 keV and NPK-40 at 1461 keV identified by Peak Search and NIO.

BY: *Jim Sigman*

APR 16 1987

REVIEWED BY: *Dale E. Hotten*

DATE: 4-16-87

16 APR 1987 12:47:38 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (CATFISH FILETS) - 208

E: LIQUID/SLURRY

QUANTITY: 1.074E 00

COLLECTION DATE(S): 4/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.88E 00	5.0E 00
FE-59	* -7.87E 00	1.2E 01
CO-58	* 5.22E 00	5.7E 00
CO-60	* -2.79E 00	5.2E 00
ZN-65	* -1.28E 01	1.2E 01
ZR-95	* 0.00E-01	8.3E 00
NI-95	* 4.66E 00	6.1E 00
I-131	1.87E 01	1.1E 01
CS-134	* 2.09E 00	6.3E 00
CS-137	1.92E 01	7.7E 00
BALA-140	* 0.00E-01	4.2E 00
NPK-40	3.01E 03	1.8E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: I-131 at 364 keV not identified by Peak Search or NID, MDT = 26 net counts.
 Cs-134 keV at 662 keV and NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigmur*

APR 16 1987

REVIEWED BY: *Dale G. Holder*

DATE: *4-16-87*

14 JUL 1987 4:30:57 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA FISH (BASS FILLETS) - 208

E: LIQUID/SLURRY

QUANTITY: 1.107E 00

SECTION DATE(S): 7/8/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	6.2E 00
FE-59	* -9.36E 00	1.4E 01
CO-58	* -2.59E 00	7.8E 00
CO-60	* 0.00E-01	8.3E 00
ZN-65	* -6.50E 00	1.5E 01
ZR-95	* 4.37E 00	1.2E 01
NB-95	* 5.18E 00	8.2E 00
I-131	* -1.09E 01	1.0E 01
CS-134	2.38E 01	7.8E 00
CS-137	2.09E 01	9.0E 00
BALA-140	* 0.00E-01	1.0E 01
NPK-40	1.80E 03	2.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-134 at 946 keV, MDA = 17 net counts and Cs-137 at 662 keV, MDA = 18 net counts, not identified by Peak Search or N.I.D. NPK-40 at 1961 keV identified by Peak Search and N.I.D.

BY: *MM*

REVIEWED BY: *D. S. Hold* DATE: 7-15-87

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 14 JUL 1987 4:31:22 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (WHOLE SHAD - BONES & INTERNALS) - 208 (no head or tail)
 TYPE: LIQUID/SLURRY QUANTITY: 6.970E-01
 COLLECTION DATE(S): 7/8/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	8.69E 01	1.7E 01
FE-59	* -8.62E 00	2.4E 01
CO-58	1.00E 02	1.9E 01
CO-60	2.46E 02	3.0E 01
ZN-65	* 4.48E 00	1.8E 01
ZR-95	* -6.27E 00	2.3E 01
NB-95	* 1.30E 01	1.4E 01
I-131	* 1.84E 01	2.0E 01
CS-134	2.21E 01	1.4E 01
CS-137	4.92E 01	1.7E 01
BALA-140	* 0.00E-01	8.9E 00
NPK-40	2.04E 03	3.1E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Co-58 at 811 keV, MPA=54 net counts and Co-134 at 796 keV, MPA=11 net counts,
 not identified by Peak Search and NID. Mn-54 at 835 keV, Co-60 at 1332 keV,
 Cs-137 at 662 keV, and NPK-40 at 1461 keV, all identified by Peak Search and NID.

BY: *Mj*

REVIEWED BY: *Dale E. Holt*

DATE: *7-15-87*

 14 JUL 1987 4:30:06 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (CATFISH FILLETS) - 208

E: LIQUID/SLURRY

QUANTITY: 9.430E-01

COLLECTION DATE(S): 7/9/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 8.70E 00	7.9E 00
FE-59	* 0.00E-01	1.4E 01
CO-58	* 5.94E 00	7.9E 00
CO-60	1.73E 01	8.1E 00
ZN-65	* 0.00E-01	1.2E 01
ZR-95	4.02E 01	1.4E 01
NB-95	1.79E 01	6.2E 00
I-131	* 0.00E-01	1.1E 01
CS-134	* 8.04E 00	7.7E 00
CS-137	3.58E 01	1.1E 01
BALA-140	* 7.37E 00	9.0E 00
NPK-40	2.09E 03	2.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for Co-60 at 1332 keV, MDA = 8 net counts.
 Zr-95 at 75 keV, MDA = 16 net counts, and Nb-95 at 766 keV, MDA = 12 net counts,
 not identified by Peak Search or NID. Cs-137 at 662 keV and NPK-40 at 1461 keV
 identified by Peak Search and NID.

BY: *May*

REVIEWED BY: *Dale S. Holden* DATE: *7-15-87*

Plant Name : CNS
Sample Number : 170
Type/Location : FISH / 208
Sample Date : 6-OCT-1987 12:00:00
Acq. Start Time : 14-OCT-1987 08:48:03
Sample Quantity : 0.793000 WET/KG
Sample ID : LG BASS FILET
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 83.2	0.000E+00		
CO-58	810.76	< 83.2	0.000E+00		
FE-59	1099.22	< 179.	0.000E+00		
CO-60	1332.47	< 89.7	0.000E+00		
ZN-65	1115.52	< 161.	0.000E+00		
NB-95	765.78	< 90.7	0.000E+00		
ZR-95	756.72	< 155.	0.000E+00		
I-131	364.48	< 146.	0.000E+00		
CS-134	604.66	< 70.5	0.000E+00		
CS-137	661.65	122.	33.8		6.080E-02
BALA-140	1596.49	< 166.	0.000E+00		
K-40	1460.75	6.382E+03	687.		

Total Fraction of Reporting Level 6.080E-02

Analyzed by: N/A-----

Approved by: Mprcis Opine-----

Date: 4/18/88-----

Plant Name : CNS
Sample Number : 174
Type/Location : FISH / 208
Sample Date : 6-OCT-1987 12:00:00
Acq. Start Time : 14-OCT-1987 11:35:31
Sample Quantity : 0.426000 WET/KG
Sample ID : GR SHAD/BONES,IN
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 90.7	0.000E+00		
CO-58	810.76	531.	57.8		1.770E-02
FE-59	1099.22	< 209.	0.000E+00		
CO-60	1332.47	216.	54.0		2.157E-02
ZN-65	1115.52	< 164.	0.000E+00		
NB-95	765.78	< 99.9	0.000E+00		
ZR-95	756.72	< 137.	0.000E+00		
I-131	364.48	< 144.	0.000E+00		
CS-134	604.66	< 93.1	0.000E+00		
CS-137	661.65	< 98.1	0.000E+00		
BALA-140	1596.49	< 109.	0.000E+00		
K-40	1460.75	2.977E+03	497.		

Total Fraction of Reporting Level, 3.928E-02

Analyzed by: N/A

Approved by: S. J. G.

Date: 4/18/88

Plant Name : CNS
Sample Number : 171
Type/Location : FISH / 208
Sample Date : 6-OCT-1987 12:00:00
Acq. Start Time : 14-OCT-1987 08:50:54
Sample Quantity : 0.748000 WET/KG
Sample ID : CATFISH FILETS
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 33.1	0.000E+00	-	
CO-58	810.76	120.	27.8		4.006E-03
FE-59	1099.22	< 85.2	0.000E+00		
CO-60	1332.47	< 42.5	0.000E+00		
ZN-65	1115.52	< 98.4	0.000E+00		
NB-95	765.78	< 52.6	0.000E+00		
ZR-95	756.72	< 85.6	0.000E+00		
I-131	364.48	< 80.7	0.000E+00		
CS-134	604.66	< 58.9	0.000E+00		
CS-137	661.65	83.1	23.2		4.153E-02
BALA-140	1596.49	< 34.6	0.000E+00		
K-40	1460.75	3.160E+03	428.		

Total Fraction of Reporting Level 4.553E-02

Analyzed by: a/b -----

Approved by: [Signature] -----

Date: 4/18/88 -----

20 JAN 1987 12:57:28 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA FISH (LARGE MOUTH BASS) - 216

TYPE: LIQUID/SLURRY

QUANTITY: 4.860E-01

COLLECTION DATE(S): 1/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
GAMMA SPEC		
MN-54	* 1.31E 00	7.5E 00
FE-59	* 0.00E-01	1.6E 01
CO-58	* -1.41E 00	8.8E 00
CO-60	* 0.00E-01	6.8E 00
ZN-65	* -3.33E 00	1.8E 01
ZR-95	* 1.43E 01	1.6E 01
NB-95	* 1.50E 00	1.0E 01
I-131	* -1.33E 01	2.2E 01
CS-134	* -1.43E 00	1.0E 01
CS-137	1.99E 01	9.3E 00
BALA-140	3.29E 01	2.0E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigman

JAN 20 1987

REVIEWED BY:

Marcia Lane

DATE: 1-20-87

20 JAN 1987 12:58:07 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

TAWBA FISH (WHOLE GIZZARD SHAD / BONES AND INTERNALS) - 216
TYPE: LIQUID/SLURRY QUANTITY: 4.340E-01
COLLECTION DATE(S): 1/7/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* -1.47E 00	1.1E 01
FE-59	* -7.68E 00	2.4E 01
CO-58	* 4.77E 00	1.1E 01
CO-60	* 1.48E 01	1.1E 01
ZN-65	* -1.10E 01	2.5E 01
ZR-95	* -8.13E 00	2.0E 01
NB-95	2.90E 01	1.5E 01
I-131	1.03E 02	3.6E 01
CS-134	* 8.11E 00	1.4E 01
CS-137	3.87E 01	1.2E 01
BALA-140	* 0.00E-01	1.5E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

**** BY: *Jim Sigmey*

JAN 20 1987

Marcia Lane 1-20-87

3

20 JAN 1987 12:56:03 PM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

SAWBA FISH (CATFISH FILETS) - 216

TYPE: LIQUID/SLURRY

QUANTITY: 5.660E-01

COLLECTION DATE(S): 1/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -2.37E 00	8.5E 00
FE-59	* -9.45E 00	1.7E 01
CO-58	* 0.00E-01	9.4E 00
CO-60	* -8.64E 00	8.3E 00
ZN-65	* -1.51E 01	2.1E 01
ZR-95	* 8.65E 00	1.4E 01
NB-95	* 9.52E 00	1.1E 01
I-131	* 1.83E 01	2.6E 01
CS-134	* 2.59E 00	9.7E 00
CS-137	* 9.60E 00	9.7E 00
BALA-140	* -8.39E 00	1.8E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS:

BY:

Jim Sigman

JAN 20 1987

REVIEWED BY:

Marcus

DATE: 1-20-87

4

16 APR 1987 12:48:11 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (BASS FILLETS) - 216

E: LIQUID/SLURRY

QUANTITY: 5.800E-01

COLLECTION DATE(S): 4/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 6.98E 00	1.4E 01
FE-59	* 5.85E 00	2.7E 01
CO-58	* 4.84E 00	1.4E 01
CO-60	* 1.03E 01	1.0E 01
ZN-65	* -2.97E 01	3.2E 01
ZR-95	* -4.10E 00	2.4E 01
NB-95	* 9.88E 00	1.6E 01
I-131	* 1.35E 01	2.6E 01
CS-134	* -1.29E 01	1.6E 01
CS-137	* 1.07E 01	1.5E 01
BALA-140	* -6.42E 00	1.4E 01
NPK-40	4.82E 03	4.5E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: *NPK-40 at 1461 keV identified by Peak Search and NID.*

BY:

Jim Sigmund

APR 16 1987

REVIEWED BY:

Dale S. Holder

DATE:

4-16-87

6

16 APR 1987 12:48:40 AM
ENVIRONMENTAL RADIOLOGICAL LABORATORY
SAMPLE ANALYSIS REPORT

CATAWBA FISH (WHOLE SHAD) - 216 (minus head and tail) M. Lane
TYPE: LIQUID/SLURRY QUANTITY: 5.340E-01
COLLECTION DATE(S): 4/7/87 UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 0.00E-01	9.5E 00
FE-59	* 3.81E 01	3.4E 01
CO-58	* -7.88E 00	1.2E 01
CO-60	* 7.47E 00	1.3E 01
ZN-65	* -1.29E 01	3.4E 01
ZR-95	* 0.00E-01	2.5E 01
NB-95	* 2.42E 01	1.7E 01
I-131	* 8.81E 00	2.8E 01
CS-134	* 1.68E 01	1.9E 01
CS-137	* 1.16E 01	1.7E 01
BALA-140	* 0.00E-01	1.4E 01
NPK-40	3.15E 03	4.0E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: NPK-40 at 1461 keV identified by Peak Search and NID.

BY:

Jim Sigman

APR 16 1987

REVIEWED BY:

Dee S. Holm

DATE:

4-16-87

5

 16 APR 1987 12:48:26 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (CATFISH FILLETS) - 216

E: LIQUID/SLURRY

QUANTITY: 5.840E-01

COLLECTION DATE(S): 4/7/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.30E 01	1.2E 01
FE-59	* -5.30E 00	1.8E 01
CO-58	* 2.25E 00	1.3E 01
CO-60	* 0.00E-01	6.3E 00
ZN-65	* 0.00E-01	2.5E 01
ZR-95	* 3.82E 00	1.8E 01
NB-95	* 1.38E 01	1.4E 01
I-131	* 1.04E 01	2.5E 01
CS-134	* 4.80E 00	1.3E 01
CS-137	* 1.60E 01	1.2E 01
BALA-140	* -5.90E 00	1.6E 01
NPK-40	2.86E 03	3.6E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: NPK-40 at 1461 K18 identified by Paul Search and NID.

BY: *Jim Sigmund*

APR 16 1987

REVIEWED BY: *Dale F. Jahn*

DATE: *4-16-87*

8

14 JUL 1987 4:13:49 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (BASS FILLETS) - 216

E: LIQUID/SLURRY

QUANTITY: 8.250E-01

COLLECTION DATE(S): 7/8/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	* 0.00E-01	6.8E 00
FE-59	* 0.00E-01	2.0E 01
CO-58	* -1.74E 00	7.2E 00
CO-60	* -2.49E 00	8.3E 00
ZN-65	* 0.00E-01	2.0E 01
ZR-95	* 0.00E-01	1.7E 01
NB-95	* 3.47E 00	9.8E 00
I-131	* 3.25E 00	1.5E 01
CS-134	* 1.13E 01	1.0E 01
CS-137	3.27E 01	1.2E 01
BALA-140	* 1.70E 01	1.3E 01
NPK-40	2.33E 03	2.9E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: Cs-137 at 662 keV, MPA: 21 net counts, not identified by Peak Search or NID.
 K-40 at 1461 keV identified by Peak Search and NID.

BY: *my*

REVIEWED BY: *Dale S. Holder* DATE: *7-15-87*

7 *****
 14 JUL 1987 4:13:33 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (WHOLE SHAD - BONE & INTERNALS) - 216 (no head or tail)
 M: LIQUID/SLURRY QUANTITY: 6.840E-01
 COLLECTION DATE(S): 7/8/87 UNIT: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 1.84E 00	9.9E 00
FE-59	* 3.07E 01	2.3E 01
CO-58	* 0.00E-01	1.1E 01
CO-60	* 2.68E 00	8.9E 00
ZN-65	* 0.00E-01	1.8E 01
ZR-95	* 9.59E 00	1.9E 01
NB-95	* 5.67E 00	1.2E 01
I-131	* -9.32E 00	1.7E 01
CS-134	2.86E 01	1.4E 01
CS-137	2.22E 01	1.0E 01
BALA-140	* 0.00E-01	6.4E 00
CE-134	1.93E 02	8.3E 01
NPK-40	1.93E 03	3.0E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: Cs-134 at 796 keV, MDA = 14 net counts and Cs-137 at 662 keV, MDA = 13 net counts,
 not identified by Peak Search or NID. Ce-144 at 134 keV and NPK-40 at 1461
 keV identified by Peak Search and NID.

BY: *my*

 REVIEWED BY: *Dale E. Holden* DATE: *7-15-87*

 14 JUL 1987 4:14:05 PM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA FISH (CATFISH FILLETS) - 216

E: LIQUID/SLURRY

QUANTITY: 1.040E 00

COLLECTION DATE(S): 7/8/87

UNITS: KILOGRAMS (WET)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* -1.31E 00	6.0E 00
FE-59	2.26E 01	1.4E 01
CO-58	* -1.35E 00	6.5E 00
CO-60	9.81E 00	7.1E 00
ZN-65	* 0.00E-01	6.7E 00
ZR-95	* -2.28E 00	8.2E 00
NB-95	1.08E 01	7.4E 00
I-131	* -2.51E 00	8.1E 00
CS-134	* -2.92E 00	7.7E 00
CS-137	1.58E 01	7.0E 00
BALA-140	* -3.33E 00	7.5E 00
NPK-40	1.91E 03	2.2E 02

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: *no peak identified for Fe-59 at 1099 keV, MOA: 7 net counts or Co-60 at 1332 keV, MOA: 5 net counts. Nb-95 at 766 keV, MOA: 8 net counts and Cs-137 at 662 keV, MOA: 12 net counts, not identified by Peak Search or NID. NPK-40 at 1461 keV identified by*
 BY: *Peak Search and NID.*

 REVIEWED BY: *Dale S. Hold* DATE: *7-15-87*

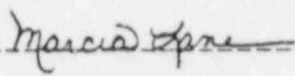
Plant Name : CNS
Sample Number : 172
Type/Location : FISH / 216
Sample Date : 6-OCT-1987 12:00:00
Acq. Start Time : 14-OCT-1987 11:09:24
Sample Quantity : 0.662000 WET/KG
Sample ID : LG BASS FILETS
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	< 35.3	0.000E+00		
CO-58	810.76	< 49.3	0.000E+00		
FE-59	1099.22	< 100.	0.000E+00		
CO-60	1332.47	< 33.8	0.000E+00		
ZN-65	1115.52	< 98.0	0.000E+00		
NB-95	765.78	< 62.1	0.000E+00		
ZR-95	756.72	< 74.2	0.000E+00		
I-131	364.48	< 73.1	0.000E+00		
CS-134	604.66	< 39.8	0.000E+00		
CS-137	661.65	< 52.6	0.000E+00		
BALA-140	1596.49	< 72.3	0.000E+00		
K-40	1460.75	3.983E+03	407.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by:  -----

Approved by:  -----

Date: 10/27/87

Plant Name : CNS
 Sample Number : 175
 Type/Location : FISH / 216
 Sample Date : 6-OCT-1987 12:00:00
 Acq. Start Time : 14-OCT-1987 12:54:31
 Sample Quantity : 0.343000 WET/KG
 Sample ID : GR SHAD/WHOLE (*whole fish without head and tail*)
 Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA req LLD	Frac. of Rpt. Level
MN-54	834.83	< 58.9	0.000E+00		
CO-58	810.76	< 49.8	0.000E+00		
FE-59	1099.22	< 77.5	0.000E+00		
CO-60	1332.47	< 46.2	0.000E+00		
ZN-65	1115.52	< 94.3	0.000E+00		
NB-95	765.78	< 74.3	0.000E+00		
ZR-95	756.72	< 112.	0.000E+00		
I-131	364.48	< 94.1	0.000E+00		
CS-134	604.66	< 52.7	0.000E+00		
CS-137	661.65	< 55.4	0.000E+00		
BALA-140	1596.49	< 70.8	0.000E+00		
K-40	1460.75	1.852E+03	477.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: *D. [Signature]*

Approved by: *Marcus [Signature]*

Date: 10/27/87

Plant Name : CNS
Sample Number : 173
Type/Location : FISH / 216
Sample Date : 6-OCT-1987 12:00:00
Acq. Start Time : 14-OCT-1987 11:23:13
Sample Quantity : 0.413000 WET/KG
Sample ID : CATFISH FILETS
Measurement Type : CONTROL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/WET/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	< 30.6	0.000E+00		
CO-58	810.76	< 45.6	0.000E+00		
FE-59	1099.22	< 107.	0.000E+00		
CO-60	1332.47	< 58.7	0.000E+00		
ZN-65	1115.52	< 136.	0.000E+00		
NB-95	765.78	< 36.2	0.000E+00		
ZR-95	756.72	< 63.3	0.000E+00		
I-131	364.48	< 83.0	0.000E+00		
CS-134	604.66	< 44.1	0.000E+00		
CS-137	661.65	< 42.6	0.000E+00		
BALA-140	1596.49	< 89.3	0.000E+00		
K-40	1460.75	3.172E+03	390.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: 

Approved by: 

Date: 10/27/87

Catawba N. S. ENVIRONMENTAL DATA REDUCTION REPORT

1ST QUARTER 1987

COLLECTION DATES

FROM 12/18/86 TO 3/19/87

PERFORMED BY *[Signature]*

REVIEWED BY *[Signature]* 3/23/87

NOTE: * INDICATES THE TLD WAS EITHER MISSING OR DAMAGED

TLDNO	LOCATION	DOSE (MR)	DOSE RATE (MR/HR)
900000574	200	15.0	0.007
900000575	201	19.4	0.009
900000576	202	23.2	0.011
900000577	203	21.9	0.010
900000578	204	21.9	0.010
900000579	205	20.2	0.009
900000580	206	21.2	0.010
*	207	*	* missing from location
900000582	212	17.4	0.008
900000583	217	13.3	0.006
900000584	222	12.6	0.006
*	223	*	* missing from location
*	224	*	* missing from location
900000587	225	23.1	0.011
900000627	226	19.2	0.009
900000588	227	21.1	0.010 missing from location
*	228	*	*
900000590	229	23.9	0.011
900000591	230	15.4	0.007
900000592	231	15.0	0.007
900000628	232	22.5	0.010
900000593	233	12.5	0.006
900000594	234	18.8	0.009
900000595	235	23.0	0.011
900000596	236	25.3	0.012
900000597	237	28.1	0.013
900000599	238	20.4	0.009
900000600	239	17.1	0.008
900000601	240	14.0	0.006
900000602	241	14.3	0.007
900000604	242	18.0	0.008
900000605	243	18.1	0.008
900000606	244	18.1	0.008
900000612	245	12.9	0.006
900000613	246	17.1 17	0.008
900000614	247	16.4 16	0.008
900000615	248	16.0	0.007
900000616	249	18.0	0.008
900000618	250	14.0	0.006
900000823	251	22.1	0.010

Rev. 3/27/87

Catawba N. S. ENVIRONMENTAL RAW DATA

1ST QUARTER 1987

COLLECTION DATES

FROM 12/18/86 TO 3/19/87

PERFORMED BY *[Signature]*

REVIEWED BY *[Signature]* 3/23/87

NOTE: * INDICATES THE TLD WAS EITHER MISSING OR DAMAGED

Catla N. S.
 ENVIRONMENTAL TA REDUCTION REPORT

14:16 TU

2nd QUARTER 19 *87*
 COLLECTION DATES
 FROM *3/19/87* TO *6/18/87*
 PERFORMED BY *Mymj. 6-30-87*

REVIEWED BY *Atll Gith 7/1/87*

NOTE: * INDICATES THE TLD WAS EITHER MISSING OR DAMAGED

TLDNO	LOCATION	DOSE (MR)	DOSE RATE (MR/HR)
900000897	200	23.3	0.011
900000898	201	*	*
900000901	202	27.2	0.012
900000902	203	*	*
900000903	204	28.1	0.013
900000904	205	26.8	0.012
900000905	206	21.8	0.010
900000906	207	28.8	0.013
900000907	212	23.0	0.011
900000908	217	18.7	0.009
900000909	222	20.7	0.009
900000910	223	*	*
900000911	224	28.1	0.013
900000912	225	28.1	0.013
900000913	226	24.6	0.011
900000914	227	26.8	0.012
900000915	228	26.2	0.012
900000916	229	28.1	0.013
900000917	230	21.9	0.010
900000918	231	22.3	0.010
900000919	232	31.7	0.015
900000920	233	25.1	0.011
900000921	234	25.5	0.012
900000922	235	27.8	0.013
900000925	236	30.1	0.014
900000926	237	33.2	0.015
900000927	238	26.8	0.012
900000928	239	24.2	0.011
900000929	240	19.1	0.009
900000930	241	20.4	0.009
900000931	242	23.3	0.011
900000932	243	24.2	0.011
900000935	244	23.6	0.011
900000936	245	18.1	0.008
900000938	246	20.4	0.009
900000939	247	22.0	0.010
900000940	248	23.6	0.011
900000941	249	23.6	0.011
900000942	250	20.7	0.009
900000943	251	30.0	0.014

New bag was used / changed sometime during the month.

Catawba N. S.
 ENVIRONMENTAL DATA REDUCTION REPORT
 3rd QUARTER 1987
 COLLECTION DATES

13157 MONDAY, OCTOBER 5, 1987

FROM 6/18/87 TO 9/17/87
 PERFORMED BY M. O. S. 10/5/87

REVIEWED BY J. H. G. 10/20/87

NOTE: * INDICATES THE TLD WAS EITHER MISSING OR DAMAGED

TLDNO	LOCATION	DOSE (MR)	DOSE RATE (MR/HR)
90000634	200	25.6	0.012

CNS N. S.
 ENVIRONMENTAL DATA REDUCTION REPORT
 3rd QUARTER 1987
 COLLECTION DATES

11140 TUESDAY, SEPTEMBER 29, 1987 1

FROM 6/18/87 TO 9/17/87
 PERFORMED BY M. O. S.

REVIEWED BY J. H. G. 9/24/87

NOTE: * INDICATES THE TLD WAS EITHER MISSING OR DAMAGED

TLDNO	LOCATION	DOSE (MR)	DOSE RATE (MR/HR)
90000635	201	26.7	0.012
90000640	202	33.1	0.015
90000643	203	30.4	0.014
90000645	204	29.2	0.013
90000646	205	28.6	0.013
90000647	206	28.9	0.013
90000648	207	31.8	0.015
90000649	212	25.7	0.012
90000650	217	22.3	0.010
90000651	222	21.9	0.010
90000652	223	26.7	0.012
90000653	224	30.8	0.014
90000654	225	28.9	0.013
90000655	226	26.3	0.012
90000656	227	30.7	0.014
90000658	228	29.0	0.013
90000659	229	30.1	0.014
90000660	230	25.4	0.012
90000661	231	26.3	0.012
90000662	232	33.8	0.015
90000633	233	25.6	0.012
90000664	234	23.7	0.011
90000665	235	33.1	0.015
90000666	236	21.6	0.010
90000670	237	33.7	0.015
90000672	238	32.4	0.015
90000673	239	30.0	0.014
90000674	240	22.3	0.010
90000675	241	24.3	0.011
90000676	242	27.3	0.013
90000679	243	25.6	0.012
90000680	244	28.7	0.013
90000681	245	22.3	0.010
90000682	246	24.6	0.011
90000684	247	25.4	0.012
90000685	248	23.4	0.011
90000686	249	27.6	0.013
90000688	250	22.7	0.010
90000690	251	34.4	0.016

*Recd. 10/1/87
JH*

Catawba N. S.
 ENVIRONMENTAL DATA REVISION REPORT
 4th QUARTER 1987
 COLLECTION DATES

8:06 MONDAY, JANUARY

FROM 9/17/87 TO 12/17/87
 PERFORMED BY S. Johnson

REVIEWED BY AMC 1/11/88

AMC
RMC

NOTE: * INDICATES THE TLD WAS EITHER MISSING OR DAMAGED

TLD NO	LOCATION	DOSE (MR)	DOSE RATE (MR/HR)
90000734	200	20.4	0.009
90000735	201	18.4	0.008
90000736	202	25.3	0.012
90000737	203	19.2	0.009
90000738	204	26.2	0.012
90000739	205	25.6	0.012
90000741	206	22.0	0.010
90000745	207	18.9	0.009
90000402	212	14.2	0.007
90000743	217	14.8	0.007
90000742	222	13.4	0.006
90000746	223	20.6	0.009
90000748	224	24.2	0.011
90000749	225	25.3	0.012
90000750	226	21.8	0.010
90000758	227	19.7	0.009
90000761	228	18.3	0.008
90000762	229	21.8	0.010
90000763	230	16.1	0.007
90000764	231	13.9	0.006
90000766	232	19.0	0.009
90000767	233	17.0	0.008
90000769	234	19.5	0.009
90000771	235	23.5	0.011
90000776	236	18.5	0.008
90000777	237	22.6	0.010
90000780	238	17.0	0.008
90000781	239	19.0	0.009
90000784	240	13.2	0.006
90000785	241	16.9	0.008
90000801	242	17.7	0.008
90000802	243	16.8	0.008
90000803	244	12.3	0.006
90000804	245	8.4	0.004
90000805	246	13.7	0.006
90000806	247	10.8	0.005
90000807	248	14.1	0.006
90000808	249	*	*
90000809	250	10.0	0.005
90000810	251	23.9	0.011

Catawba N. S. ENVIRONMENTAL RAW DATA
 4th QUARTER 1987
 COLLECTION DATES

8:06 MONDAY, JAN

FROM 9/17/87 TO 12/17/87

PERFORMED BY S. Johnson

REVIEWED BY AMC 1/11/88

NOTE: * INDICATES THE TLD WAS EITHER MISSING OR DAMAGED

Plant Name : CNS
Sample Number : 703
Type/Location : SEDIMENT / 208
Sample Date : 10-FEB-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 0.729000 KILOGRAMS (DRY)
Sample ID : BOTTOM-1M
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	948.	36.5		0.000E+00
CO-58	0.00	2.061E+03	57.5		0.000E+00
FE-59	0.00	< 30.9	48.0		
CO-60	0.00	1.417E+03	51.4		0.000E+00
ZN-65	0.00	< 23.6	39.8		
NB-95	0.00	83.6	25.8		0.000E+00
ZR-95	0.00	< 8.96	33.8		
I-131	0.00	< 49.6	85.6		
CS-134	0.00	143.	22.3		0.000E+00
CS-137	0.00	190.	22.7		0.000E+00
BALA-140	0.00	< 0.000E+00	29.0		
CO-57	0.00	24.5	9.03		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: marcio [signature]-----

Date: 4/18/88-----

19 MAY 1987 9:54:53 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA BOTTOM SEDIMENT - 208 (1M)

STATE: SOLID

QUANTITY: 6.130E-01

COLLECTION DATE(S): 5/12/87

UNITS: KILOGRAMS (DRY)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	7.49E 02	4.2E 01
FE-59	* 6.78E 01	5.7E 01
CO-58	2.38E 03	6.2E 01
CO-60	3.10E 03	8.7E 01
ZN-65	* -3.93E 00	6.2E 01
ZR-95	8.34E 01	4.9E 01
NB-95	8.54E 01	3.0E 01
I-131	* -1.58E 01	3.6E 01
CS-134	1.50E 02	3.2E 01
CS-137	5.01E 02	3.8E 01
BALA-140	* 7.63E 00	1.9E 01
NPBE-7	1.04E 03	2.2E 02
NPK-40	1.86E 04	7.1E 02
NPTH-SER	1.92E 03	6.4E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: The following were identified by Peak Search and NID: Mn-54 at 835 keV, Co-58 at 811 keV, Co-60 at 1332 keV, Nb-95 at 766 keV, Cs-134 at 996 keV, Cs-137 at 662 keV, NPBE-7 at 490 keV, NPK-40 at 1461 keV and NPTH-Ser at 239 keV. Zr-95 at 757 keV was not identified by Peak Search or NID, MDA = 32 net counts.

BY: *Gene Sigmund* MAY 19 1987

REVIEWED BY: *Dale S. Holt* DATE: 5-21-87

Plant Name : CNS
Sample Number : 272
Type/Location : SEDIMENT / 208
Sample Date : 12-NOV-1987 12:00:00
Acq. Start Time : 19-NOV-1987 16:23:28
Sample Quantity : 0.711000 DRY/KG
Sample ID : BOTTOM-1M
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	405.	40.5		0.000E+00
CO-58	810.76	2.827E+03	96.7		0.000E+00
FE-59	1099.22	< 196.	0.000E+00		
CO-60	1332.47	1.308E+03	72.4		0.000E+00
ZN-65	1115.52	< 193.	0.000E+00		
NB-95	765.78	< 110.	0.000E+00		
ZR-95	756.72	< 146.	0.000E+00		
I-131	364.48	< 124.	0.000E+00		
CS-134	604.66	200.	31.9		0.000E+00
CS-137	661.65	528.	59.4		0.000E+00
BALA-140	1596.49	< 80.2	0.000E+00		
K-40	1460.75	1.754E+04	737.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia Lopez

Date: 4/18/88

Plant Name : CNS
Sample Number : 702
Type/Location : SEDIMENT / 208
Sample Date : 10-FEB-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 0.462000 KILOGRAMS (DRY)
Sample ID : BOTTOM-2M
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	551.	48.5		0.000E+00
CO-58	0.00	998.	63.5		0.000E+00
FE-59	0.00	< 18.3	72.4		
CO-60	0.00	2.039E+03	81.1		0.000E+00
ZN-65	0.00	< 5.25	66.6		
NB-95	0.00	175.	43.6		0.000E+00
ZR-95	0.00	< 39.9	55.8		
I-131	0.00	< 74.9	142.		
CS-134	0.00	128.	34.0		0.000E+00
CS-137	0.00	453.	41.9		0.000E+00
BALA-140	0.00	< 22.9	48.5		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A -----

Approved by: *Marcia D. G...* -----

Date: 4/26/88 -----

10

 19 MAY 1987 9:55:30 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA BOTTOM SEDIMENT - 208 (2M)

STATE: SOLID

QUANTITY: 5.010E-01

COLLECTION DATE(S): 5/12/87

UNITS: KILOGRAMS (DRY)

RADIONUCLIDE GAMMA SPEC	ACTIVITY(PCI/UT)	SIGMA(PCI/UT)
MN-54	9.77E 02	5.1E 01
FE-59	* 1.02E 02	6.7E 01
CO-58	1.20E 03	5.7E 01
CO-60	3.74E 03	9.7E 01
ZN-65	* -8.53E 00	6.2E 01
ZR-95	1.46E 02	5.4E 01
NB-95	2.89E 02	3.9E 01
I-131	* 1.97E 01	4.0E 01
CS-134	1.88E 02	3.5E 01
CS-137	3.98E 02	4.3E 01
BALA-140	* 0.00E-01	1.7E 01
NPK-40	1.57E 04	6.7E 02
NPTH-SER	2.52E 03	7.7E 01

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

 COMMENTS: The following nuclides were identified by Peak Search and NID: Mn-54 at 835 keV, Co-58 at 811 keV, Co-60 at 1332 keV, Nb-95 at 766 keV, Cs-137 at 662 keV, NPK-40 at 1461 keV and NPTH-Ser at 239 keV. Er-95 at 757 keV MDA: 50 and Cs-134 at 796 keV MDA: 100 net counts, were not identified by Peak Search or NID.

BY:

Jim Sigmon

MAY 19 1987

REVIEWED BY:

Del E. Hobb

DATE:

5-21-87

Plant Name : CNS
Sample Number : 273
Type/Location : SEDIMENT / 208
Sample Date : 12-NOV-1987 12:00:00
Acq. Start Time : 19-NOV-1987 16:38:39
Sample Quantity : 0.452000 DRY/KG
Sample ID : BOTTOM-2M
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	1.278E+03	95.8		0.000E+00
CO-58	810.76	2.398E+03	135.		0.000E+00
FE-59	1099.22	< 423.	0.000E+00		
CO-60	1332.47	6.189E+03	177.		0.000E+00
ZN-65	1115.52	< 418.	0.000E+00		
NB-95	765.78	120.	53.2		0.000E+00
ZR-95	756.72	< 317.	0.000E+00		
I-131	364.48	< 221.	0.000E+00		
CS-134	604.66	< 160.	0.000E+00		
CS-137	661.65	531.	75.8		0.000E+00
BALA-140	1596.49	< 144.	0.000E+00		
K-40	1460.75	1.613E+04	1.022E+03		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A

Approved by: Marcia D. Fine

Date: 4/26/88

Plant Name : CNS
Sample Number : 701
Type/Location : SEDIMENT / 208
Sample Date : 10-FEB-1987 00:00:00
Acq. Start Time : -----
Sample Quantity : 5.600000E-02 KILOGRAMS (DRY)
Sample ID : BOTTOM-3M
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/KILOGR)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	0.00	< 138.	106.		
CO-58	0.00	< 177.	126.		
FE-59	0.00	356.	244.		0.000E+00
CO-60	0.00	467.	128.		0.000E+00
ZN-65	0.00	< 0.000E+00	185.		
NB-95	0.00	< 22.7	149.		
ZR-95	0.00	502.	214.		0.000E+00
I-131	0.00	< 178.	603.		
CS-134	0.00	186.	111.		0.000E+00
CS-137	0.00	372.	124.		0.000E+00
BALA-140	0.00	< -93.7	248.		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia D. Spr...-----

Date: 4/26/88-----

19 MAY 1987 9:56:05 AM
 ENVIRONMENTAL RADIOLOGICAL LABORATORY
 SAMPLE ANALYSIS REPORT

CATAWBA BOTTOM SEDIMENT - 208 (3M)

STATE: SOLID

QUANTITY: 4.300E-02

COLLECTION DATE(S): 5/12/87

UNITS: KILOGRAMS (DRY)

RADIONUCLIDE GAMMA SPEC	ACTIVITY (PCI/UT)	SIGMA (PCI/UT)
MN-54	* 8.24E 01	1.3E 02
FE-59	* -5.07E 01	2.3E 02
CO-58	* -2.10E 01	1.1E 02
CO-60	* 1.24E 02	1.4E 02
ZN-65	* -1.58E 02	2.5E 02
ZR-95	* 0.00E-01	2.2E 02
NB-95	* 2.08E 01	1.4E 02
I-131	4.00E 02	1.9E 02
CS-134	* -9.06E 01	1.3E 02
CS-137	2.38E 02	1.4E 02
BALA-140	* 0.00E-01	1.1E 02
NPK-40	1.18E 04	2.9E 03

* NET ACTIVITY < CRITICAL LEVEL. (LTL = ACTIVITY + 1.65*SIGMA)

COMMENTS: No peak identified for I-131 at 364 keV, MDA = 21 net counts.
 Cs-137 at 662 keV not identified by Peak Search or NID, MDA = 13 net counts.
 NPK-40 at 1461 keV identified by Peak Search and NID.

BY: *Jim Sigmon*

MAY 19 1987

REVIEWED BY: *Dale E. Holden*

DATE: 5.21.87

Plant Name : CNS
Sample Number : 274
Type/Location : SEDIMENT / 208
Sample Date : 12-NOV-1987 12:00:00
Acq. Start Time : 19-NOV-1987 16:45:19
Sample Quantity : 0.394000 DRY/KG
Sample ID : BOTTOM-3M
Measurement Type : SPECIAL

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy	Activity (pCi/DRY/KG)	1-Sigma Error	MDA > req LLD	Frac. of Rpt. Level
MN-54	834.83	156.	73.2		0.000E+00
CO-58	810.76	241.	91.3		0.000E+00
FE-59	1099.22	< 358.	0.000E+00		
CO-60	1332.47	1.388E+03	112.		0.000E+00
ZN-65	1115.52	< 374.	0.000E+00		
NB-95	765.78	< 205.	0.000E+00		
ZR-95	756.72	< 281.	0.000E+00		
I-131	364.48	< 234.	0.000E+00		
CS-134	604.66	< 141.	0.000E+00		
CS-137	661.65	416.	98.0		0.000E+00
BALA-140	1596.49	< 260.	0.000E+00		
K-40	1460.75	1.533E+04	1.273E+03		

Total Fraction of Reporting Level 0.000E+00

Analyzed by: N/A-----

Approved by: Marcia Lopez-----

Date: 4/18/88-----

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

May 27, 1988

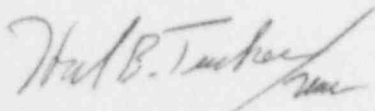
U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Subject: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414
Annual Radiological Environmental Operating Report

Gentlemen:

Pursuant to Technical Specification 6.9.1.6, please find enclosed the Catawba Nuclear Station Annual Radiological Environmental Operating Report for the calendar year of 1987.

Very truly yours,



Hal B. Tucker

JGT/29/sbn

Enclosure

xc: (w/o Enclosure)
Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. P. K. Van Doorn
NRC Resident Inspector
Catawba Nuclear Station

IE48
11