



Nebraska Public Power District

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April 09, 1992

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

**SUBJECT: Annual Radiological Environmental Report
Cooper Nuclear Station
NRC Docket No. 50-298, DPR-46**

Gentlemen:

In accordance with specification 6.5.1.E of the Cooper Nuclear Station Technical Specifications, Nebraska Public Power District submits the Cooper Nuclear Station Annual Radiological Environmental Report for the period January 1, 1991 through December 31, 1991.

In accordance with 10 CFR 50.4(b)(1), we are enclosing one signed original of the report for your use, one copy to the Regional Office, and one copy to the NRC Resident Inspector.

Should you have any questions or comments regarding this report, please contact my office.

Sincerely,

G. R. Horn
Nuclear Power Group Manager

GRH/dgl/gls(grh92)
Enclosures

cc: U.S. Nuclear Regulator Commission
Regional Office - Region IV

NRC Senior Resident Inspector
Cooper Nuclear Station

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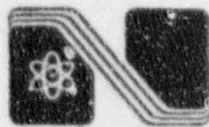
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Nebraska Public Power District
Cooper Nuclear Station

Annual Radiological Environmental Operating Report

Environmental Radiation Monitoring Program
January 1, 1991 - December 31, 1991

USNRC Docket Number 50-298



Prepared by

TELEDYNE
ISOTOPES

REPORT TO
NEBRASKA PUBLIC POWER DISTRICT
COLUMBUS, NEBRASKA
RADIATION ENVIRONMENTAL MONITORING PROGRAM
COOPER NUCLEAR STATION
NEMAHA COUNTY, NEBRASKA

ANNUAL REPORT
JANUARY 1 TO DECEMBER 31, 1991

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REPORT APPROVED BY: _____

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PREFACE

This report covers the period of January 1 through December 31, 1991. All sample collections were made by a contractor and personnel of the Nebraska Public Power District. Analyses were performed and reports of analyses were prepared by Teledyne Isotopes and forwarded to Nebraska Public Power District.

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L INTRODUCTION

This report contains a complete tabulation of data collected during the period January through December 1991, for the operational Radiological Environmental Monitoring Program performed for the Cooper Nuclear Station (CNS) of the Nebraska Public Power District (NPPD) by Teledyne Isotopes.

Cooper Nuclear Station is located in Nemaha County in the southeast corner of Nebraska on the Missouri River. A portion of the site extends into Missouri. The reactor is a 778 megawatt boiling water reactor. Initial criticality was attained on February 21, 1974. The reactor reached 50% power on June 25, 1974 and 100% power on November 20, 1974.

Radiological environmental monitoring began in 1971 before the plant became operational and has continued to the present. The program monitors radiation levels in air, terrestrial and aquatic environments. Most samples are collected by NPPD personnel. All are shipped for analysis to a contractor's laboratory where there exists special facilities required for measurements of extremely low levels of radioactivity. From 1971 through 1976 the contractor was Teledyne Isotopes, Westwood, New Jersey. NALCO Environmental Sciences assumed responsibility for the analyses effective January 1, 1977.

On November 1, 1978 Hazelton Environmental Sciences Corporation (HESC) assumed responsibility for the program. Prior to November 1, 1978 Hazelton Environmental Sciences operated as NALCO Environmental Sciences. Teledyne Isotopes again assumed responsibility for the analyses effective January 1, 1979 through December 31, 1991.

II. SUMMARY

Presented in this report are summaries and discussions of the data generated for the Radiological Environmental Monitoring Program (REMP) for the Cooper Nuclear Station (CNS) of the Nebraska Public Power District (NPPD) for 1991.

Part V, Table 3 presents the yearly summary of the program with the total number of samples of each type analyzed, the yearly average for all samples, the number of detections per total number of samples, the station with the highest average, the average of the control station, and the inclusive dates of the analyses.

Part VI is a discussion of each type of sample analyzed and its impact, if any, on the environment. Included also is a graph of the isotopes of interest since 1977 and the statistical results for each quarter of the year. This is followed by a complete tabulation of the data by sample type and station number.

The 1991 radiological environmental measurements for CNS indicates that there has been no residual fallout resulting from the explosion and fire at the Chernobyl Reactor in the Soviet Union which occurred on April 26, 1986. It may be concluded from all measurements taken that the operations of CNS had no detectable impact on the environment in the vicinity of CNS.

III. SAMPLING AND ANALYSES PROGRAM, STATIONS AND MAPS

The 1991 sampling and analysis program is described in Table 1. Teledyne Isotopes has a comprehensive quality assurance/quality control program designed to assure the reliability of data obtained. The results for 1991 of the Intercomparison Program conducted by the EPA Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, are contained in Appendix B.

Sampling locations are summarized in Table 2. The type or status of each location and its distance and direction from the reactor elevated release point are specified. A map of locations follows (Figure 1). Complete descriptions of current and earlier sampling locations are given in Appendix G.

The annual land use census for 1991 is described in Appendix A. There were no milk animals found within three miles of CNS in 1991. The number of gardens found in 1991 was more than the number found in 1990. Gardens were found in 11 sectors within 3 miles of CNS in 1990 while gardens were found in 12 sectors within 3 miles of CNS in 1991. Sector A did not contain a garden within 3 miles of CNS in 1990 but did contain a garden in 1991. The nearest garden to CNS is in Sector N, 1.0 miles from CNS.

All of the required samples were analyzed in 1991 except for the following:

PATHWAY	SAMPLE	STATION	COLLECTION PERIOD	REASON
Airborne	Air Particulate	02	03/26-04/02	Reported as lost.
Airborne	Air Particulate	01	04/23-04/30	Reported as lost.
Airborne	Air Particulate	05	06/25-07/02	Motor failure.
Airborne	Charcoal	05	06/25-07/02	Motor Failure
Airborne	Air Particulate	05	07/09-07/16	Electricity out.
Airborne	Charcoal	05	07/09-07/16	Electricity out.
Airborne	Air Particulate	07	07/09-07/16	Equipment Malfunction.

PATHWAY	SAMPLE	STATION	COLLECTION PERIOD	REASON
Airborne	Charcoal	07	07/09-07/16	Equipment Malfunction.
Airborne	Air Particulate	05	07/30-08/06	Equipment Malfunction.
Airborne	Charcoal	05	07/30-08/06	Equipment Malfunction.

TABLE 1

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 ENVIRONMENTAL RADIATION SURVEILLANCE PROGRAM

SAMPLING SCHEDULE AND ANALYSIS

ONCE PER 7 DAYS

<u>Sample Type</u>	<u>Station Nos.</u>	<u>Analyses</u>
Airborne - Particulate	1 - 10	Gross alpha, beta, Gamma isotopic on quarterly composite of each station and on each sample in which gross beta activity is > 10 times the yearly mean of control samples.
Airborne - Iodine	1-10	I-131

ONCE PER 15 DAYS

<u>Sample Type</u>	<u>Station Nos.</u>	<u>Analyses</u>
Milk - Nearest Producer (peak pasture only)	61	I-131 (low level) Gamma isotopic Sr-89, Sr-90, Elem. Ca. on monthly composite

ONCE PER 31 DAYS

<u>Sample Type</u>	<u>Station Nos.</u>	<u>Analyses</u>
River Water	12.28	Gross alpha - sus and dis Gross beta - sus and dis, Sr-89, Sr-90, Gamma isotopic Tritium on quarterly composite

ONCE PER 31 DAYS

<u>Sample Type</u>	<u>Station Nos.</u>	<u>Analyses</u>
Milk - Nearest Producer (except peak pasture season)	61	I-131 (low level) Sr-89, Sr-90 Elem. Ca Gamma isotopic
Food Products - Broad- leaf Vegetation (when available)	35, 44, 96	I-131 Gamma isotopic

ONCE PER 92 DAYS

<u>Sample Type</u>	<u>Station Nos.</u>	<u>Analyses</u>
Background Radiation	1 - 10, 20, 44, 56, 58, 59, 66, 67, 71, 79 - 91, 94	TLD Readout (gamma dose)
Groundwater	11, 47	Gross alpha, beta Gamma isotopic Tritium
Milk - Commercial and Other Milk Producers	42, 99	I-131 (low level) Sr-89, Sr-90 Elem. Ca Gamma isotopic

2 TIMES/YEAR

<u>Sample Type</u>	<u>Station Nos.</u>	<u>Analyses</u>
Fish (Summer and Fall)	28, 35	Gross beta Sr-89, Sr-90 Gamma isotopic
Shoreline Sediment	28	Gamma isotopic

TABLE 2

NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
BROWNVILLE, NEBRASKA

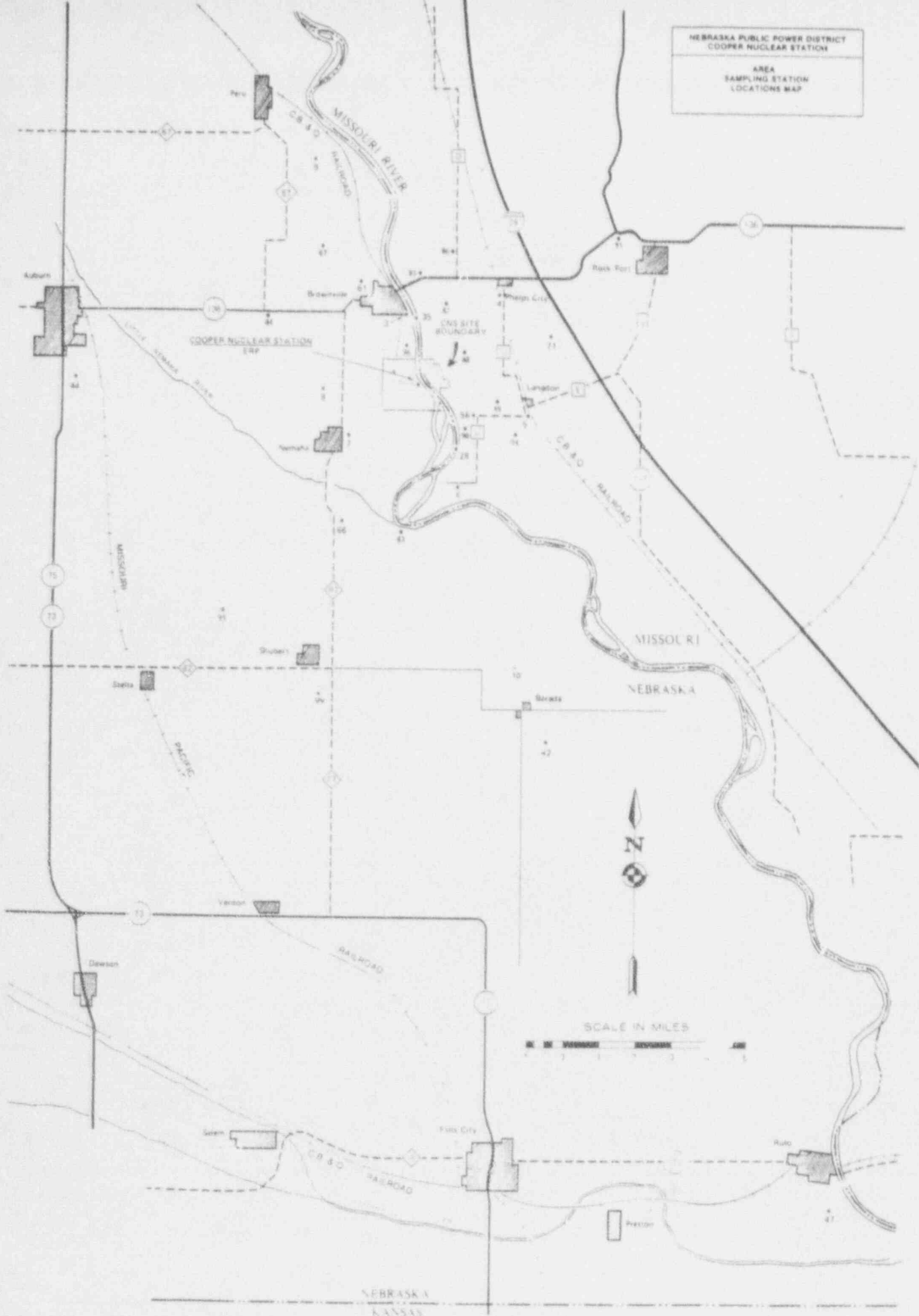
DISTANCE AND DIRECTION FROM THE ELEVATED RELEASE POINT (ERP) TO
THE SAMPLE STATION LOCATIONS

STATION NUMBER	DISTANCE ^a (MILES)	DIRECTION ^a (DEGREES)	CLASSIFICATION ^b
1	0.10	225	IND
2	0.75	225	IND
3	2.5	338	IND
4	3.0	43	IND
5	3.5	102	IND
6	3.0	165	IND
7	2.5	230	IND
8	2.5	260	IND
9	7.3	335	IND
10	10.0	160	IND
11	0.15	225	IND
12	0.10	360	CON
20	0.96	315	IND
28	1.8	150	IND
35	2.0	350	IND AND CON
42	12.9	156	IND
44	10.3	270	CON
47	25.8	154	IND
56	1.9	118	IND
58	1.1	219	IND
59	1.0	189	IND
61	3.5	326	IND
66	4.5	200	IND
67	4.8	325	IND
71	4.3	71	IND
79	0.85	299	IND
80	0.75	284	IND
81	0.80	265	IND
82	0.80	176	IND
83	4.4	189	IND
84	4.4	297	IND
85	3.1	3	IND
86	4.6	16	IND
87	1.75	20	IND
88	1.75	63	IND
89	2.0	86	IND
90	2.25	134	IND
91	6.9	54	IND
94	3.6	108	IND
96	1.25	334	IND
99	10.5	189	IND

^a Distance and direction are specified with respect to reactor elevated release point.

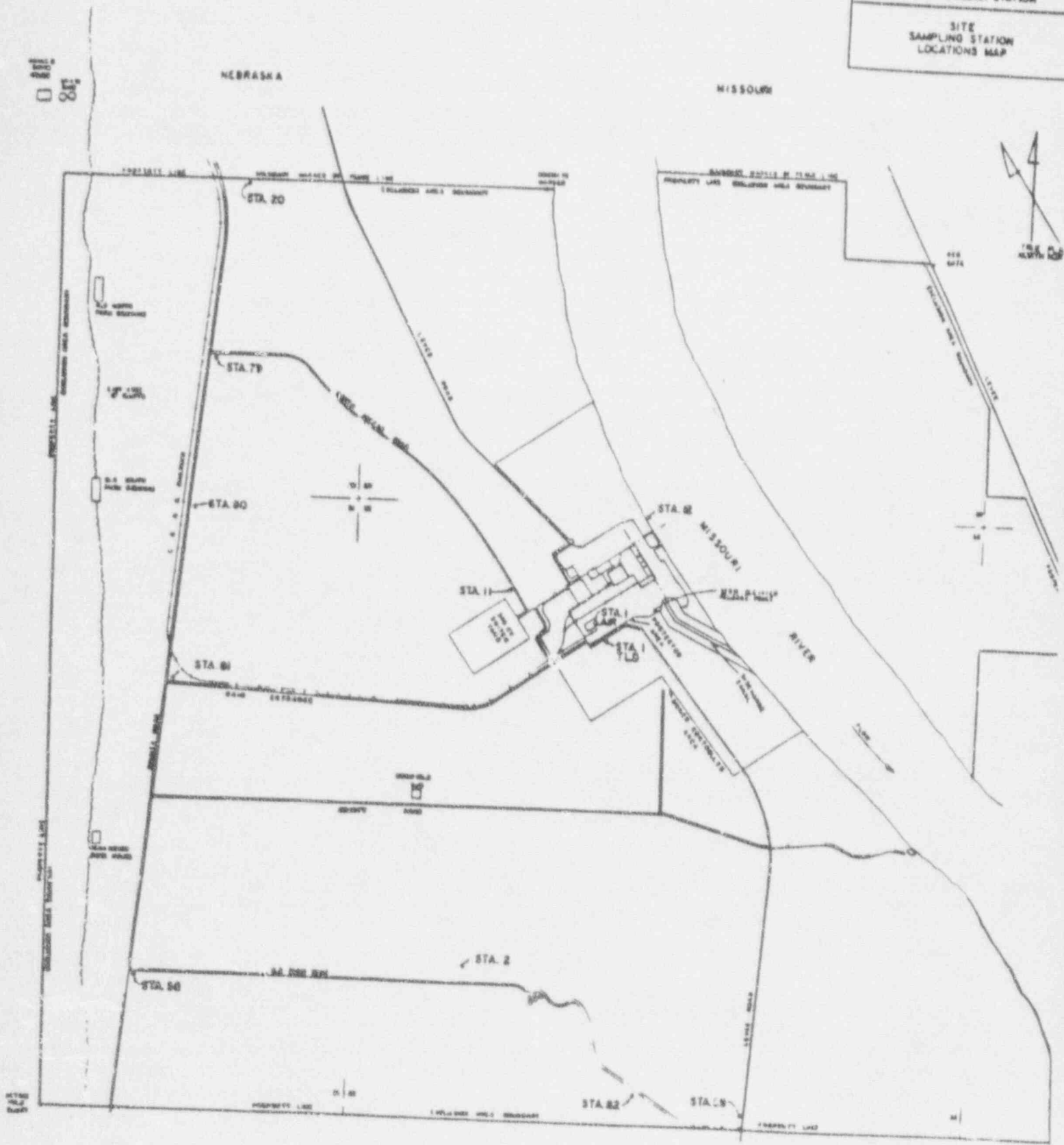
^b Classification codes: IND = indicator; CON = control; PO = pre-operational sampling site.

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 AREA
 SAMPLING STATION
 LOCATIONS MAP



NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION

SITE
SAMPLING STATION
LOCATIONS MAP



IV. DISCUSSION

A. Program Objectives and Data Interpretation

The objective of the monitoring program is to detect and assess the impact of possible releases to the environs of radionuclides from the operations of the Cooper Nuclear Station. This objective requires measurements of low levels of radioactivity equal to or lower than pre-determined limits of detection. In addition the source of the environmental radiation must be established. Sources of environmental radiation include:

- (1) Natural background radiation from cosmic rays (Be-7).
- (2) Terrestrial, primordial radionuclides from the environment (K-40, Ra-226, Th-228).
- (3) Fallout from atmospheric nuclear tests such as the September 1977 detonation by the Peoples' Republic of China and the atmospheric weapons test of October 16, 1980 (fission products and fusion products).
- (4) Releases from nuclear power plants such as CNS (fission products and neutron activation products).
- (5) Fallout from the Chernobyl Nuclear Reactor Accident.

Radiation levels measured in the vicinity of an operating power station are compared with preoperational measurements at the same locations to distinguish power plant effects from other sources. Also, results of the monitoring program are related to events known to cause elevated levels of radiation in the environment, e.g., atmospheric nuclear detonations or abnormal plant releases.

B. Atmospheric Nuclear Tests

Three atmospheric nuclear detonations in the People's Republic of China influenced program results significantly in late 1976 and in 1977. Two of these detonations occurred in late 1976 (September 26 and November 17) and one in late 1977 (September 17). As a consequence of these tests elevated activities of gross beta in air particulate filters and I-131 in milk were observed throughout most of the United States.

No atmospheric nuclear tests were conducted during 1979 thus no short-lived fission products were detected in air particulate samples. Also no I-131 was detected from radiogases from any sources.

On April 26, 1986 the fire and explosion of Chernobyl Reactor No. 4 in the Soviet Union resulted in the release of fission products to the atmosphere and worldwide fallout. Following the explosion, elevated levels of gross beta activities in air particulates and I-131 in charcoal filters and milk samples were measured. Additionally, in 1986, Cs-137 and the short-lived isotopes I-131, Ru-106, and Cs-134 were detected in broadleaf vegetation. Similar results occurred in other areas of the United States and the entire Northern Hemisphere.

V. RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM TABLES

Presented in Table 3 are the radiological environmental monitoring program summaries (REMPS) generated from the reports of analyses performed during 1991 for the NPPD sampling and analyses program. The REMPS tables conform to the requirements of Table 1 in Regulatory Guide 4.8 (Reference 6).

The average activity level for all samples collected for the year for each sample type are summarized in this table. The mean, range and fraction of detections to total samples assayed are presented. The station location and station number with the highest annual mean is also tabulated. If a control station is specified the comparable results of the control are listed.

From the REMPS table it is possible to determine the total number of each type of sample analyzed and the average activity of all samples from all stations of each nuclide. If there were no positive detections the maximum of the lowest levels of detection is listed. The station having the highest level of activity is specified. From this data it is possible to determine any high levels of activity and the source. The dose impact on the population can thus be evaluated.

TABLE 3
RADIOLOGICAL ENVIRONMENTAL
MONITORING PROGRAM SUMMARIES
(REMP)
1991

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - AIRBORNE
 SAMPLE - AIR PARTICULATE FILTERS
 UNITS - PCI/CU.M.

COMPILATION - ANNUAL SUMMARY

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION

ANALYSIS	NO LIMIT OF DETECTION MEAN X E-00	ALL INDICATOR SAMPLES		LOCATION WITH HIGHEST MEAN		CONTROL LOCATION		NON-ROUTINE REPORTING PERIOD
		MEAN X E-00 RANGE	FRACTION	STATION FRACTION	STATION DESCRIPTION	MEAN X E-00 RANGE	FRACTION	
GR-A	514 0.00200	0.00263	0.00011- 0.034	03	052/052 0.00100- 0.034	0.00302	0	12/31/90-12/31/91
		514/514			STATION 03 - 2.5 MI. 338 DEG. IND.			
GR-B	514 0.00300	0.0218	0.00100- 0.09700	05	049/049 0.00980- 0.0970	0.0235	0	12/31/90-12/31/91
		514/514			STATION 05 - 3.5 MI. 102 DEG. IND.			

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - AIRBORNE
 SAMPLE - CHARCOAL FILTERS
 UNITS - PCI/CU.M.

COMPILATION - ANNUAL SUMMARY
 CONTROL -

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION

ANALYSIS	NO	LIMIT OF DETECTION MEAN X E-00	ALL INDICATOR SAMPLES		LOCATION WITH HIGHEST MEAN		CONTROL LOCATION MEAN X E-00 RANGE	NON- ROUTINE	REPORTING PERIOD
			MEAN X E-00 RANGE	FRACTION	STATION FRACTION	MEAN X E-00 RANGE			
I-131	516		LT 0.06000					0	12/31/90-12/31/91
			LT 0.01000- 000/516	LT 0.06000					

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - AIRBORNE
 SAMPLE - COMPOSITE OF AIR PARTICULATE FILTERS
 UNITS - PCI/CU.M.

COMPILED - ANNUAL SUMMARY
 CONTROL -

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION

ANALYSIS	NO LIMIT OF DETECTION MEAN X E-00	ALL INDICATOR SAMPLES MEAN X E-00		LOCATION WITH HIGHEST MEAN MEAN X E-00		CONTROL LOCATION MEAN X E-00		NON-ROUTINE REPORTING PERIOD
		FRAC	RANGE	STATION	DESCRIPTION	RANGE	FRAC	
BE-7	40	0.05000	0.09640 0.06300-0.1350 040/040	05	004/004 STATION 05 - 3.5 MI. 102 DEG. IND.	0.1172 0.09910-0.0991	0	12/31/90-12/31/91
K-4C	40	0.06000	0.01700 0.01700-0.01700 001/040	08	001/004 STATION 08 - 2.5 MI. 260 DEG. IND.	0.01700 0.01700-0.01700	0	12/31/90-12/31/91
I-131	40		LT 0.4000 LT 0.1000-0.4000 000/040				0	12/31/90-12/31/91
CS-137	40	0.00360	LT 0.00090 LT 0.00040-0.00090 000/040					

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - INGESTION
 SAMPLE - FISH
 UNITS - PCI/GM WET

COMPILATION - ANNUAL SUMMARY
 CONTROL -

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION

ANALYSIS	NO	LIMIT OF DETECTION MEAN X E-00	ALL INDICATOR SAMPLES		LOCATION WITH HIGHEST MEAN		CONTROL LOCATION		NON- ROUTINE	REPORTING PERIOD
			MEAN X E-00 RANGE FRACTION	STATION FRACTION STATION DESCRIPTION	MEAN X E-00 RANGE	STATION FRACTION STATION DESCRIPTION	MEAN X E-00 RANGE FRACTION			
GR-B	10	0.250	2.9- 010/010	5.4 8.1	28 STATION 28 - 1.8 MI. 150 DEG. IND.	005/005 4.2- 8.1	6.0	0	0	07/08/91-09/05/91
SR-89	10	0.0300	LT 0.00200- 000/010	LT 0.03000 LT 0.03000				0	0	07/08/91-09/05/91
SR-90	10	0.0300	0.00120- 009/010	0.0075 0.0220	28 STATION 28 - 1.8 MI. 150 DEG. IND.	005/005 0.0013- 0.0220	0.0097	0	0	07/08/91-09/05/91
K-40	10	0.4700	2.11- 010/010	2.63 3.02	28 STATION 28 - 1.8 MI. 150 DEG. IND.	005/005 2.37- 3.02	2.70	0	0	07/08/91-09/05/91
I-131	10	0.03100	LT 0.08000- 000/010	LT 0.3000 LT 0.3000				0	0	07/08/91-09/05/91
CS-137	10	0.03100	LT 0.00400- 000/010	LT 0.00900 LT 0.00900				0	0	07/08/91-09/05/91

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - INGESTION
SAMPLE - MILK - NEAREST
UNITS - PCI/LITER

COMPILATION - ANNUAL SUMMARY
CONTROL -

NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION

ANALYSIS NO	LIMIT OF DETECTION MEAN X E-00	ALL INDICATOR SAMPLES MEAN X E-00		LOCATION WITH HIGHEST MEAN MEAN X E-00	CONTROL LOCATION MEAN X E-00	NON-ROUTINE ROUTINE	REPORTING PERIOD
		RANGE FRACTION	RANGE FRACTION				
				STATION DESCRIPTION			
-A (mg/l) 17		2.0- 017/017	2.1 2.1	61 017/017	2.0- 2.1	2.1	01/07/91-12/03/91
I-131 21		LT 0.100- 000/021	LT 0.500			0	01/07/91-12/03/91
SR-89 17		LT 0.8- 000/017	LT 3.0			0	01/07/91-12/03/91
SR-90 17		0.430- 014/017	0.980 1.9	61 014/017	0.430- 0.980	1.9	01/07/91-12/03/91
K-40 21		948- 021/021	1260- 1400	61 021/021	348- 1260	1400	01/07/91-12/03/91
I-131 21		LT 5.00- 000/021	LT 50.000			0	01/07/91-12/03/91
CS-137 21		LT 2.00- 000/021	LT 5.00			0	01/07/91-12/03/91

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - INGESTION SAMPLE - MILK OTHER PRODUCERS UNITS - PCI/LITER		ANNUAL SUMMARY CONTROL		NEBRASKA PUBLIC POWER DISTRICT COOPER NUCLEAR STATION	
ANALYSIS	NO LIMIT OF DETECTION MEAN X E-00	ALL INDICATOR SAMPLES MEAN X E-00 RANGE FRACTION	LOCATION WITH HIGHEST MEAN MEAN X E-00 RANGE STATION FRACTION STATION DESCRIPTION	CONTROL LOCATION MEAN X E-00 RANGE FRACTION	NON-ROUTINE ROUTINE REPORTING PERIOD
CA (mg/l)	8	2.1 008/008	42 004/004 2.1 2.1 STATION 42 - 12.85 MI. 156 DEG. IND.	0	01/14/91-10/15/91
F-131	8 0.780	LT 0.200 000/008	99 004/004 2.1 2.1 STATION 99 - 10.5 MI. 189 DEG. IND.	0	01/14/91-10/15/91
SR-89	8 2.0	LT 0.7 000/008		0	01/14/91-10/15/91
SR-90	8 1.4	0.260 008/008	99 004/004 0.600- 1.7 STATION 99 - MI. 189 DEG. IND.	0	01/14/91-10/15/91
K-40	8 140.0	1190. 008/008	99 (1330. STATION 99 - 10.5 MI. 189 DEG. IND.	0	01/14/91-10/15/91
F-131	8 0.7800	LT 7.00- 000/008		0	01/14/91-10/15/91
CS-137	8 9.00	LT 4.00- 000/008		0	01/14/91-10/15/91

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - WATERBORNE SAMPLE - WATER - GROUND UNITS - PCI/LITER		COMPILATION - ANNUAL SUMMARY CONTROL		NEBRASKA PUBLIC POWER DISTRICT COOPER NUCLEAR STATION		
ANALYSIS	NO LIMIT OF DETECTION MEAN X E-00	ALL INDICATOR SAMPLES MEAN X E-00 RANGE FRACTION	LOCATION WITH HIGHEST MEAN MEAN X E-00 RANGE STATION FRACTION STATION DESCRIPTION	CONTROL LOCATION MEAN X E-00 RANGE FRACTION	NON-ROUTINE ROUTINE	REPORTING PERIOD
GRA	8 4.0	LT 1.0- LT 5.0 000/008			0	01/21/91-10/15/91
GR-B	8 1.8	6.8- 8.3 008/008	11 004/004 8.2- 9.2 STATION 11 - 0.15 MI. 225 DEG. IND.		0	01/21/91-10/15/91
I-131	8 9.00	LT 20.00 7.00- LT 20.00 000/008			0	01/21/91-10/15/91
CS-137	8 9.00	LT 5.00 LT 3.00- LT 5.00 000/008			0	01/21/91-10/15/91
h ³	8 140.	140- 180. 002/008	47 002/004 140- 210. STATION 47 - 25.8 MI. 154 DEG. IND.		0	01/21/91-10/15/91

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - WATERBORN/
SAMPLE - WATER - RIVER
UNITS - PCI/LITER

COMPILATION - ANNUAL SUMMARY
CONTROL - STATION 12 - 0.1 MI. 360 DEG. CON.

NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION

ANALYSIS	NO LIMIT OF DETECTION %TAN X E-00	ALL INDICATOR SAMPLES		LOCATION WITH HIGHEST MEAN		CONTROL LOCATION		NON-ROUTINE	REPORTING PERIOD
		MEAN X E-00 RANGE FRACTION	STATION FRACTION	MEAN X E-00 RANGE STATION DESCRIPTION	STATION FRACTION	MEAN X E-00 RANGE FRACTION			
CA DIS 24	4.0	2.2-5.0 007/024	28 004/012	2.7-5.0 STATION 28 - 1.8 MI. 150 DEG. IND.	3.2-0.03/012	4.9-7.4	0	01/09/91-12/03/91	
GR-A SUS 24	4.0	0.09-6.3 014/024	28 005/012	8.1-34 STATION 28 - 1.8 MI. 150 DEG. IND.	0.09-0.09/012	5.3-21	0	01/09/91-12/03/91	
GR-B DIS 24	1.8	6.5-11.3 024/024	12 012/012	11.3-18.0 STATION 12 - 0.1 MI. 360 DEG. CON.	9.4-0.12/012	11.3-18.0	0	01/09/91-12/03/91	
GR-B SUS 24	1.8	1.4-15.0 022/024	28 011/012	16.4-88.0 STATION 28 - 1.8 MI. 150 DEG. IND.	1.4-0.11/012	13.6-54.0	0	01/09/91-12/03/91	
SR-89 24	1.1	LT 0.5- 006/024	LT 2.0 LT 2.0		LT 2.0 LT 0.600- 000/012	LT 2.0 LT 2.0	0	01/09/91-12/03/91	
SR-90 24	0.930	LT 0.300- 000/024	LT 1.0 LT 1.0		LT 1.0 LT 0.600- 000/012	LT 1.0 LT 1.0	0	01/09/91-12/03/91	
K-40 24	140.0	18.9-21.4 002/024	28 001/012	23.9-23.9 STATION 28 - 1.8 MI. 150 DEG. IND.	18.9-0.01/012	18.9-18.9	0	01/09/91-12/03/91	
I-131 24	9.00	LT 4.0- 000/024	LT 30.0 LT 30.0		LT 20.0 LT 4.0- 000/012	LT 20.0 LT 20.0	0	01/09/91-12/03/91	
CS-137 24	9.00	LT 1.0- 000/024	LT 5.0 LT 5.0		LT 5.0 LT 1.0- 000/012	LT 5.0 LT 5.0	0	01/09/91-12/03/91	
H-3 8	140.	110.-120. 002/008	28 001/004	130.-130. STATION 28 - 1.8 MI. 150 DEG. IND.	110.-0.01/004	110.-110.	0	01/09/91-12/03/91	

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - GAMMA EXPOSURE
 SAMPLE - ENVIRONMENTAL TLD
 UNITS - mR

COMPILATION - ANNUAL SUMMARY
 CONTROL -

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION

TLD	128	2mR	ALL INDICATOR SAMPLES		LOCATION WITH HIGHEST MEAN		CONTROL LOCATION		NON-ROUTINE	REPORTING PERIOD
			DETECTION	MEAN X E-00	STATION FRACTION	MEAN X E-00	MEAN X E-00	MEAN X E-00		
				RANGE		RANGE		RANGE		
			FRACTION		STATION DESCRIPTION		FRACTION			
Total Exposure/year			71.3 mR		112.0 mR		79.5		0	01/03/91-01/09/92
			62.8-128/128	:12.0	01-004/004	STATION 01 - 0.1 MI. 225 DEG. IND.	44-004/004	STATION 44 - 10.25 MI. 270 DEG. CON.		
Average Exposure/quarter			17.8 mR		28.0 mR		19.9 mR		0	01/03/91-01/09/92
			14.0-032/032	32.0	01-004/004	STATION 01 - 0.1 MI. 225 DEG. IND.	18.0-44-004/004	STATION 44 - 10.25 MI. 270 DEG. CON.		

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - INGESTION
 SAMPLE - BROADLEAF TERRESTRIAL VEGETATION
 UNITS - PCI/GM WET

COMPILATION - ANNUAL SUMMARY
 CONTROL - STATION 44 - 10.3 MI. 270 DEG. CON.

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION

ANALYSIS NO	LIMIT OF DETECTION MEAN X E-00	AL. INDICATOR SAMPLES MEAN X E-00 RANGE	LOCATION WITH HIGHEST MEAN MEAN X E-00 RANGE	CONTROL LOCATION		NON-ROUTINE	REPORTING PERIOD
				STATION FRACTION	STATION DESCRIPTION		
I-13	60 0.0500	LT 0.09 0.003- LT 0.09 000/060				0	05/14/91-10/16/91
BE-7	60 1.20	1.34 0.223- 4.390 058/060	44 019/020 0.2630- 4.39 STATION 44 - 10.25 MI. 270 DEG. CON.			0	05/14/91-10/16/91
K-40	60 0.9300	9.75 1.78- 37.50 060/060	96 020/020 3.14- 37.50 STATION 96 - 1.25 MI. 334 DEG. IND.			0	05/14/91-10/16/91
I-131	60 0.05000	LT 0.6000 0.04000- LT 0.6000 000/060				0	05/14/91-10/16/91
CS-137	60 0.1600	0.01960 0.00865- 0.04240 005/060	44 004/020 0.00869- 0.04240 STATION 44 - 10.25 MI. 270 DEG. CON.			0	05/14/91-10/16/91
TH-228	60 0.4700	0.2360 0.04570- 1.02 006/060	96 002/020 0.130- 1.02 STATION 96 - 1.25 MI. 334 DEG. IND.			0	05/14/91-10/16/91

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

PATHWAY - AQUATIC SAMPLE - SHORELINE SEDIMENT UNITS - PCI/GM DRY		ANNUAL SUMMARY CONTROL		NEBRASKA PUBLIC POWER DISTRICT COOPER NUCLEAR STATION	
ANALYSIS	NO LIMIT OF DETECTION MEAN X E-00	ALL INDICATOR SAMPLES MEAN X E-00 RANGE	LOCATION WITH HIGHEST MEAN MEAN X E-00 RANGE	CONTROL LOCATION MEAN X E-00 RANGE	NON-ROUTINE REPORTING PERIOD
		FRACTION	STATION FRACTION STATION DESCRIPTION	FRACTION	
BE-7	3 0.2300	0.8340 0.8340-0.8340 001/003	28 001/003 STATION 28 - 1.8 MI. 150 DEG. IND.	0.8340 0.8340 0.8340	0 05/09/91-10/15/91
K-40	3 0.4700	15.60 15.10-16.00 003/003	28 003/003 STATION 28 - 1.8 MI. 150 DEG. IND.	15.60 15.10 16.00	0 05/09/91-10/15/91
I-131	3 0.03100	LT 0.1000 LT 0.0700-0.100 000 .03			0 05/09/91-10/15/91
CS-137	3 0.03100	0.0904 0.0632-0.1420 003/003	28 003/003 STATION 28 - 1.8 MI. 150 DEG. IND.	0.0940 0.0632 0.1420	0 05/09/91-10/15/91
CE-141	3 0.04700	0.0377 0.0377-0.0377 001/003	28 001/003 STATION 28 - 1.8 MI. 150 DEG. IND.	0.0377 0.0377 0.0377	0 05/09/91-10/15/91
RA-226	3 0.1100	1.85 1.70-2.12 003/003	28 003/003 STATION 28 - 1.8 MI. 150 DEG. IND.	1.85 1.70 2.12	0 05/09/91-10/15/91
TH-228	3 0.1100	0.9610 0.9150-1.040 003/003	28 003/003 STATION 28 - 1.8 MI. 150 DEG. IND.	0.9610 0.9150 1.040	0 05/09/91-10/15/91

VI.

DISCUSSION, IMPACT ON THE ENVIRONMENT

GRAPHS OF RESULTS FROM 1977 -- 1991

AND

STATISTICAL TABLES

FOR

EACH QUARTER

Table B. AIR PARTICULATE SAMPLES - GROSS BETA AND GROSS ALPHA

(See Tables A-1 - A-4, B-1 - B-4)

STATIONS 01 to 10

Air particulates were collected on membrane filters at ten locations (01-10). The filters were changed weekly and analyzed for gross beta and gross alpha activities. Quarterly composites are analyzed for gamma emitting isotopes.

The average gross beta activity of all stations for each quarter of 1990 and 1991 is summarized below:

1990	First Quarter	0.021	pCi/Cu. M.
	Second Quarter	0.015	pCi/Cu. M.
	Third Quarter	0.021	pCi/Cu. M.
	Fourth Quarter	0.030	pCi/Cu. M.
	Average 1990	0.022	pCi/Cu. M.
1991	First Quarter	0.026	pCi/Cu. M.
	Second Quarter	0.015	pCi/Cu. M.
	Third Quarter	0.019	pCi/Cu. M.
	Fourth Quarter	0.028	pCi/Cu. M.
	Average 1991	0.028	pCi/Cu. M.

The level of beta activity was at normal environmental levels in 1991 showing the natural seasonal variations. There was a slight increase in the level of gross beta activity during the first quarter; there was a slight decrease from the third quarter of 1990; the fourth quarter was slightly higher as shown in Table A-4. The increase and decline in activity often occurs and is attributed to natural phenomena.

The gross alpha activity continued low and close to the limits of detection. Gross alpha activity is probably due to the alpha emitters found in soil and particulates drawn into the filters.

No effect attributable to the Cooper Nuclear Station was observed in the results of monitoring air particulates.

A and B. AIR PARTICULATE SAMPLES - GROSS BETA AND GROSS ALPHA

(See Tables A-1 - A-4, B-1 - B-4)

STATIONS 01 to 10

Figure A1, B1 shows the gross beta, gross alpha and Ce-144 activity in the environs of CNS. The results for 1986 through 1991 are on the second page of Figure A-1, B-1. The gross beta activity in 1991 was similar to previous years in which there were no nuclear atmospheric weapons tests or nuclear accidents. The gross alpha activity remained low and near the normal detection level. Cesium-144 was below the level of detection.

Figure A-2 shows the gross beta activity in air samples through April 1989 at Jefferson City, Missouri as reported by the Environmental Radiation Monitoring System (ERAMS) of the US Environmental Protection Agency. No more recent data was available. This data was taken from Environmental Radiation Data distributed by the Eastern Environmental Radiation Facility, Montgomery, Alabama. The measurements by ERAMS were made after a waiting period which may explain the somewhat lower results because of decay of the isotopes having a shorter half-life. Measurements of Ce-144 were no longer reported because the activity has approached the limit of detection by the analytical techniques now used.

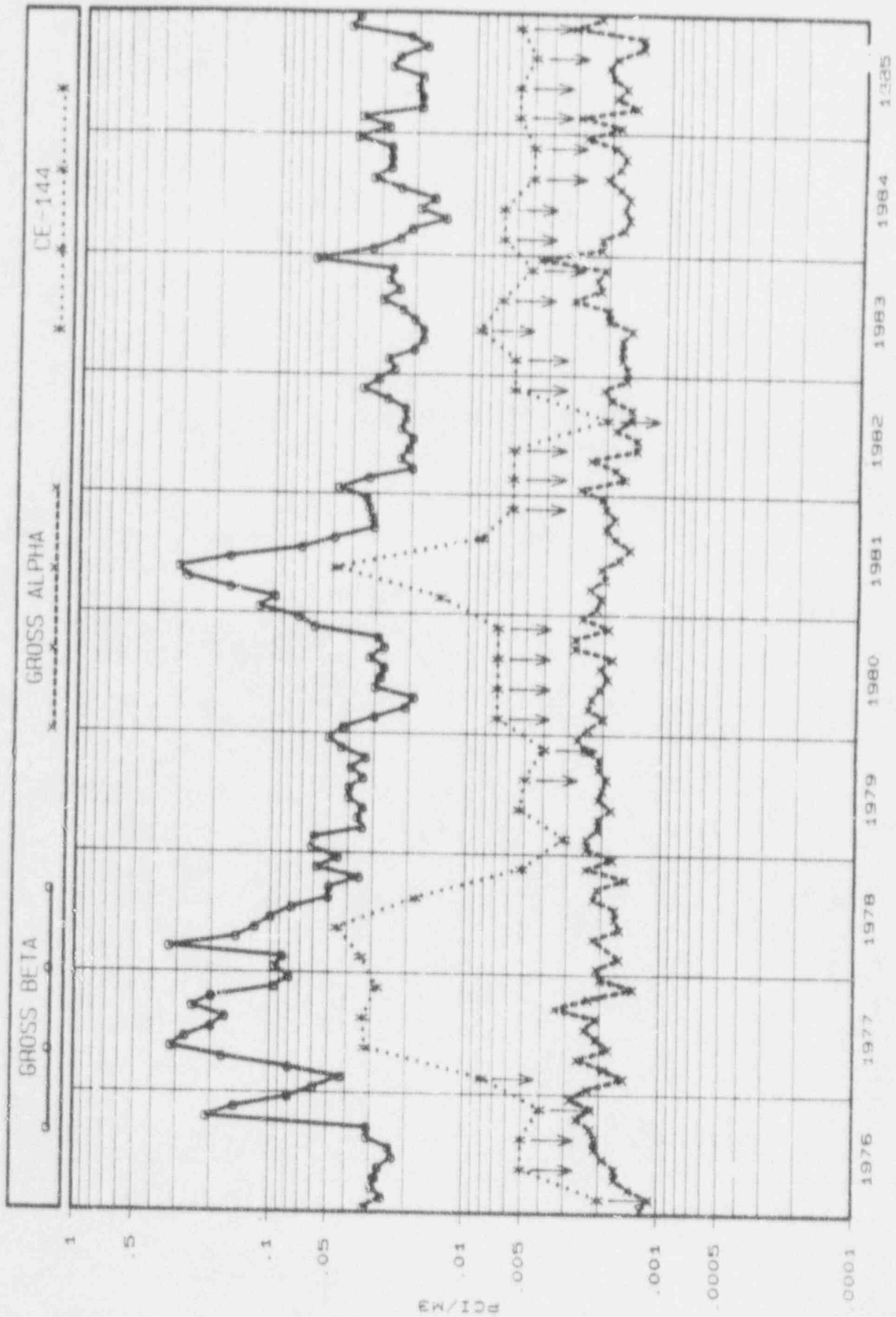
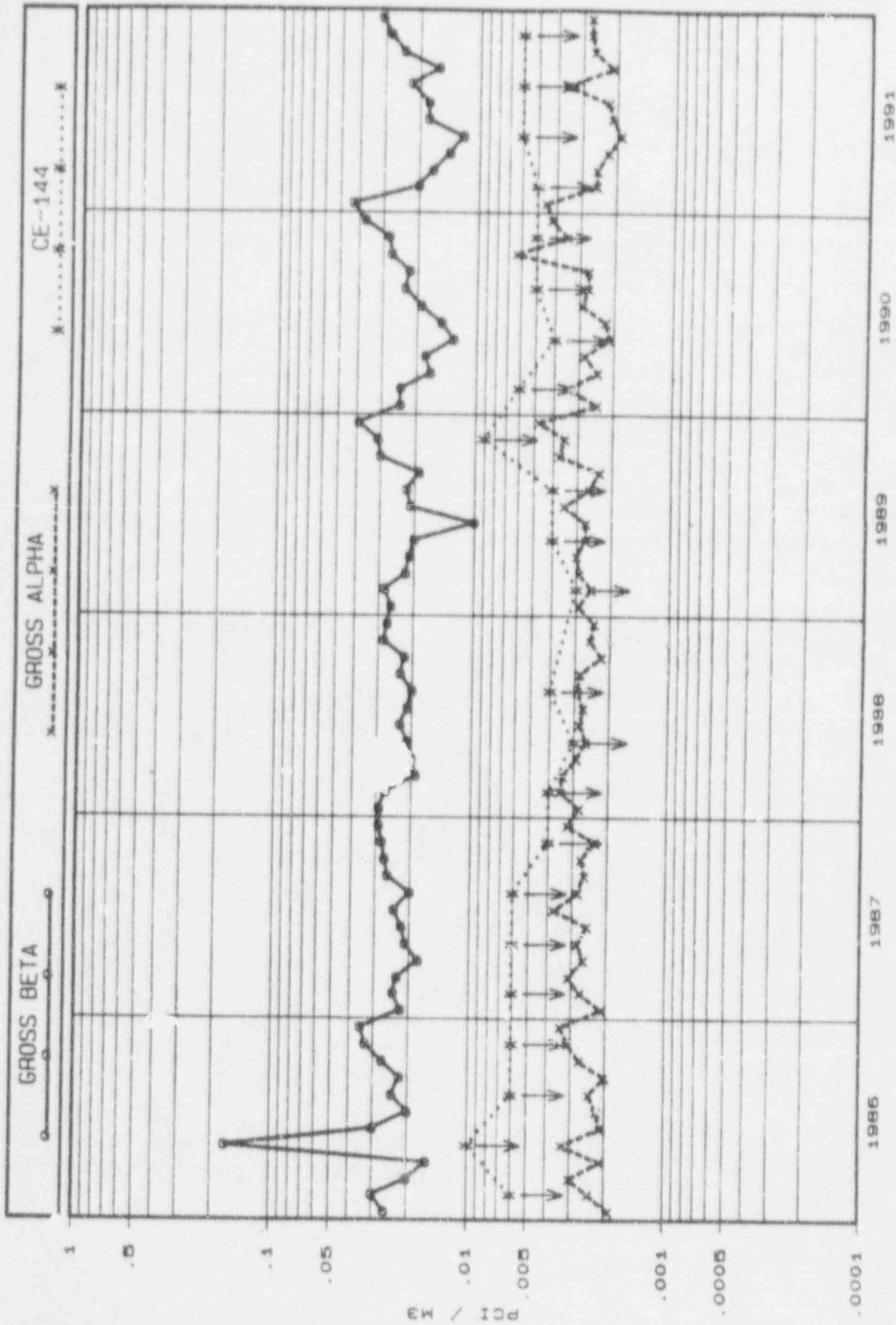
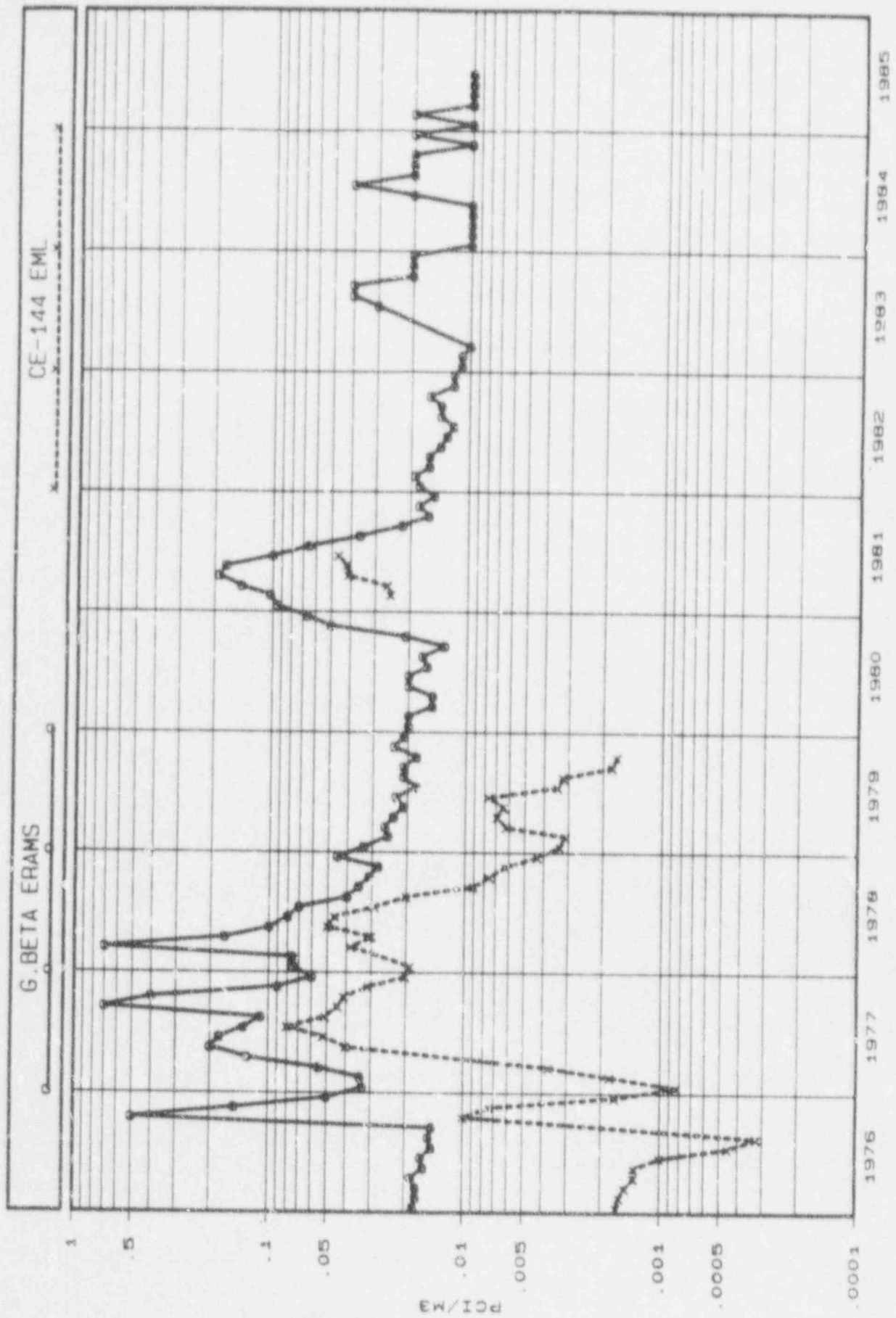


Figure A1, B1
 AIR PARTICULATES - CNS
 ALPHA AND BETA MONTHLY AVERAGE - ALL LOCATIONS
 CE-144 QUARTERLY AVERAGE - ALL LOCATIONS



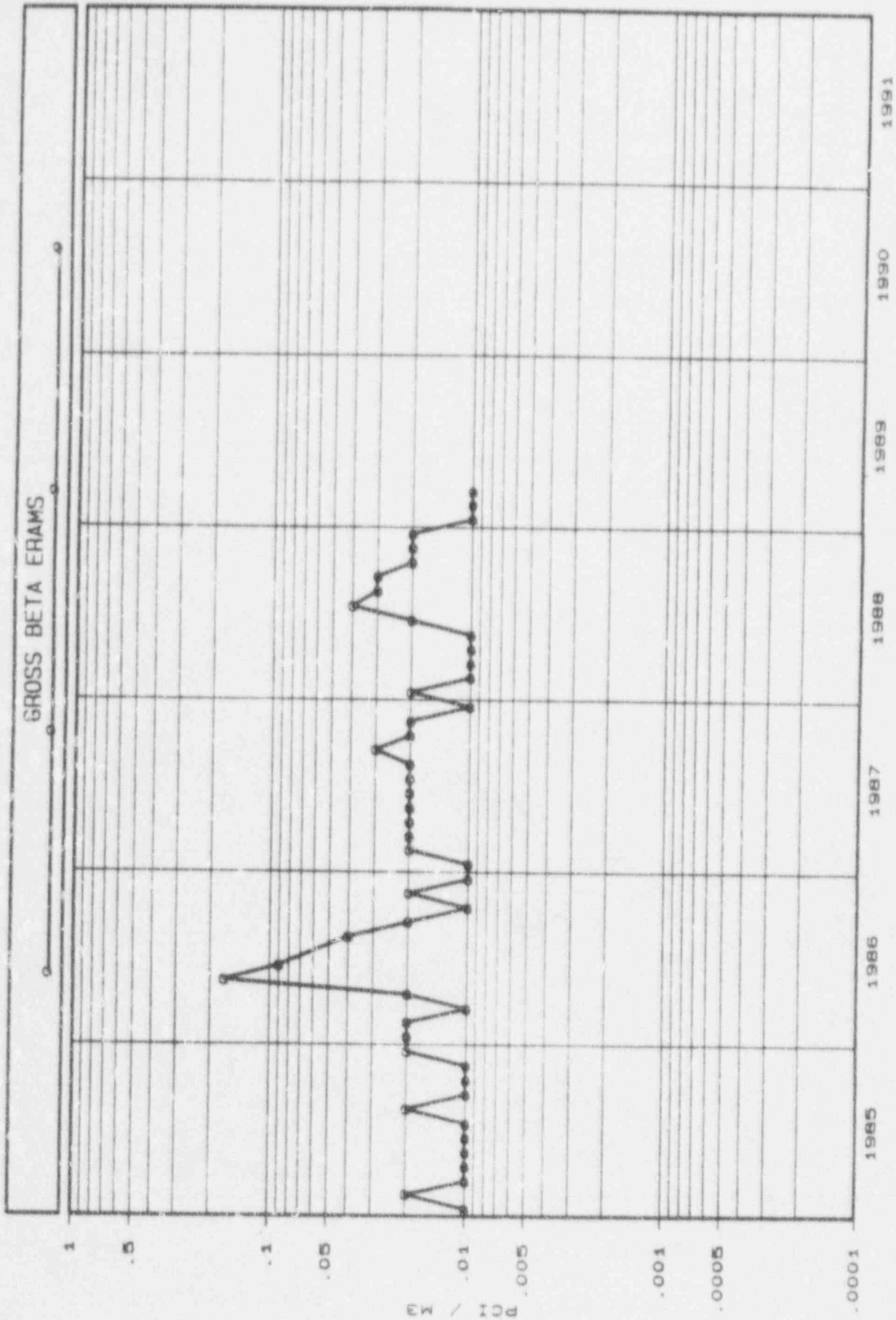
AIR PARTICULATES - CNS
 ALPHA AND BETA MONTHLY AVERAGE - ALL LOCATIONS
 CE-144 QUARTERLY AVERAGE - ALL LOCATIONS

Figure A1, 81



AIR PARTICULATES
 BETA MONTHLY AVERAGE - JEFFERSON CITY
 MISSOURI (ERAMS) EPA

Figure A-2



AIR PARTICULATES
 BETA MONTHLY AVERAGE - JEFFERSON CITY
 MISSOURI (ERAMS) EPA

Figure A-2

TABLE A-1
 WEEKLY COLLECTIONS FIRST QUARTER 1991
 NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE FILTERS
 pCi/Cu. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY 12/31-01/28	MONTHLY SUMMARY 01/28-02/26	MONTHLY SUMMARY 02/26-04/02	FIRST QUARTER SUMMARY 12/31-04/02
GROSS BETA	01	4.1 ± 2.4 E-02	2.0 ± 0.5 E-02	1.5 ± 0.6 E-02	2.5 ± 1.7 E-02
	02	4.1 ± 2.5 E-02	2.1 ± 0.4 E-02	1.7 ± 0.5 E-02	2.6 ± 1.8 E-02
	03	4.4 ± 2.6 E-02	2.1 ± 0.4 E-02	1.7 ± 0.3 E-02	2.6 ± 1.8 E-02
	04	4.3 ± 2.6 E-02	4.3 ± 2.6 E-02	1.7 ± 0.4 E-02	2.6 ± 1.8 E-02
	05	5.0 ± 3.3 E-02	5.0 ± 3.3 E-02	1.9 ± 0.3 E-02	2.9 ± 2.2 E-02
	06	4.5 ± 2.5 E-02	4.5 ± 2.5 E-02	1.7 ± 0.2 E-02	2.3 ± 0.7 E-02
	07	4.3 ± 2.6 E-02	4.3 ± 2.6 E-02	1.8 ± 0.5 E-02	2.7 ± 1.8 E-02
	08	4.5 ± 2.5 E-02	4.5 ± 2.5 E-02	1.8 ± 0.3 E-02	2.7 ± 1.8 E-02
	09	3.5 ± 2.1 E-02	3.5 ± 2.1 E-02	1.4 ± 0.3 E-02	2.1 ± 1.5 E-02
	10	4.4 ± 3.0 E-02	4.4 ± 3.0 E-02	1.7 ± 0.3 E-02	2.6 ± 1.9 E-02
AVERAGE ALL STATIONS	01-10	4.3 ± 2.3 E-02	2.0 ± 0.4 E-02	1.7 ± 0.4 E-02	2.6 ± 1.8 E-02

\bar{x} and s

Grand \bar{x} and s

TABLE A-2

WEEKLY COLLECTIONS SECOND QUARTER 1991

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AIRBORNE

AIR PARTICULATE FILTERS

pCi/Cu. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY 04/02-04/30	MONTHLY SUMMARY 04/30-05/28	MONTHLY SUMMARY 05/28-07/02	SECOND QUARTER SUMMARY 04/02-07/02
GROSS BETA	01	1.2 ± 0.5 E-02	1.1 ± 0.3 E-02	1.9 ± 0.4 E-02	1.5 ± 0.6 E-02
	02	1.4 ± 0.08E-02	1.3 ± 0.1 E-02	1.9 ± 0.4 E-02	1.6 ± 0.4 E-02
	03	1.6 ± 0.4 E-02	1.1 ± 0.3 E-02	1.7 ± 0.5 E-02	1.5 ± 0.4 E-02
	04	1.4 ± 0.5 E-02	1.3 ± 0.3 E-02	1.3 ± 0.3 E-02	1.5 ± 0.4 E-02
	05	1.5 ± 0.4 E-02	1.2 ± 0.3 E-02	1.2 ± 0.3 E-02	1.5 ± 0.4 E-02
	06	1.3 ± 0.4 E-02	1.1 ± 0.1 E-02	1.1 ± 0.1 E-02	1.3 ± 0.3 E-02
	07	1.4 ± 0.4 E-02	1.2 ± 0.1 E-02	1.2 ± 0.3 E-02	1.6 ± 0.5 E-02
	08	1.4 ± 0.5 E-02	1.3 ± 0.2 E-02	1.1 ± 0.2 E-02	1.5 ± 0.4 E-02
	09	1.0 ± 0.2 E-02	1.0 ± 0.2 E-02	1.0 ± 0.2 E-02	1.3 ± 0.4 E-02
	10	1.5 ± 0.5 E-02	1.2 ± 0.1 E-02	1.2 ± 0.1 E-02	1.5 ± 0.4 E-02
AVERAGE ALL STATIONS	01-10	1.4 ± 0.4 E-02	1.2 ± 0.2 E-02	1.8 ± 0.4 E-02	1.5 ± 0.4 E-02

\bar{x} and s

Grand \bar{x} and s

TABLE A-3

WEEKLY COLLECTIONS - THIRD QUARTER 1991

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AIRBORNE

AIR PARTICULATE FILTERS

PCl/Cu, M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY 07/02-07/30	MONTHLY SUMMARY 07/30-09/03	MONTHLY SUMMARY 09/03-10/01	THIRD QUARTER SUMMARY 07/02-10/01
GROSS BETA	01	1.8 ± 0.4 E-02	2.4 ± 0.5 E-02	1.7 ± 0.3 E-02	2.0 ± 0.5 E-02
	02	1.7 ± 0.4 E-02	2.3 ± 0.8 E-02	1.7 ± 0.4 E-02	1.9 ± 0.6 E-02
	03	1.9 ± 0.3 E-02	2.2 ± 0.8 E-02	1.7 ± 0.3 E-02	1.9 ± 0.5 E-02
	04	1.9 ± 0.3 E-02	2.5 ± 0.7 E-02	1.8 ± 0.3 E-02	2.1 ± 0.6 E-02
	05	2.0 ± 0.7 E-02	2.3 ± 0.8 E-02	1.8 ± 0.3 E-02	2.0 ± 0.6 E-02
	06	1.4 ± 0.4 E-02	1.5 ± 0.5 E-02	1.3 ± 0.4 E-02	1.4 ± 0.4 E-02
	07	2.0 ± 0.6 E-02	2.4 ± 0.8 E-02	1.7 ± 0.4 E-02	2.1 ± 0.7 E-02
	08	1.6 ± 0.5 E-02	2.0 ± 0.6 E-02	1.6 ± 0.4 E-02	1.8 ± 0.5 E-02
	09	1.6 ± 0.4 E-02	2.0 ± 0.4 E-02	1.5 ± 0.3 E-02	1.7 ± 0.4 E-02
	10	2.0 ± 0.5 E-02	2.4 ± 0.5 E-02	1.4 ± 0.8 E-02	1.9 ± 0.7 E-02
AVERAGE ALL STATIONS	01-10	1.8 ± 0.4 E-02	2.2 ± 0.7 E-02	1.6 ± 0.4 E-02	1.9 ± 0.6 E-02

\bar{x} and s

Grand x and s

TABLE A-6
 WEEKLY COLLECTIONS FOURTH QUARTER 1991
 NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE FILTERS
 pCi/Cu. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY 10/01-10/29	MONTHLY SUMMARY 10/29-12/03	MONTHLY SUMMARY 12/03-12/31	FOURTH QUARTER SUMMARY 10/01-12/31
GROSS BETA	01	2.1 ± 0.6 E-02	3.0 ± 0.5 E-02	3.2 ± 0.8 E-02	2.8 ± 0.7 E-02
	02	2.6 ± 0.3 E-02	2.2 ± 1.3 E-02	3.0 ± 0.6 E-02	2.6 ± 0.5 E-02
	03	2.4 ± 0.3 E-02	2.7 ± 0.6 E-02	2.9 ± 0.7 E-02	2.7 ± 0.6 E-02
	04	2.6 ± 0.5 E-02	3.2 ± 0.9 E-02	3.5 ± 0.7 E-02	3.1 ± 0.8 E-02
	05	2.4 ± 0.5 E-02	3.1 ± 0.7 E-02	3.1 ± 0.6 E-02	2.9 ± 0.7 E-02
	06	2.1 ± 0.3 E-02	2.9 ± 0.4 E-02	3.2 ± 0.7 E-02	2.7 ± 0.7 E-02
	07	2.7 ± 1.5 E-02	2.6 ± 0.5 E-02	3.0 ± 0.8 E-02	2.8 ± 0.9 E-02
	08	2.3 ± 0.5 E-02	2.6 ± 0.5 E-02	2.8 ± 0.7 E-02	2.5 ± 0.5 E-02
	09	2.2 ± 0.3 E-02	2.6 ± 0.5 E-02	3.1 ± 1.1 E-02	2.7 ± 0.7 E-02
	10	2.8 ± 0.3 E-02	3.0 ± 0.4 E-02	3.1 ± 0.6 E-02	3.0 ± 0.5 E-02
AVERAGE ALL STATIONS	01-10	2.4 ± 0.6 E-02	2.8 ± 0.7 E-02	3.1 ± 0.7 E-02	2.8 ± 0.7 E-02

\bar{x} and s

Grand \bar{x} and s

TABLE B-1
 WEEKLY COLLECTIONS FIRST QUARTER 1991
 NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AIRBORNE

AIR PARTICULATE FILTERS

pCi/Cu. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY 12/31-01/28	MONTHLY SUMMARY 01/28-02/26	MONTHLY SUMMARY 02/26-04/02	FIRST QUARTER SUMMARY 12/31-04/02
GROSS ALPHA	01	3.7 ± 3.4 E-03	3.0 ± 1.4 E-03	2.3 ± 1.0 E-03	2.9 ± 2.0 E-03
	02	4.5 ± 3.7 E-03	2.7 ± 0.6 E-03	2.4 ± 1.2 E-03	3.2 ± 2.3 E-03
	03	3.7 ± 2.4 E-03	2.4 ± 0.6 E-03	2.6 ± 0.6 E-03	2.9 ± 1.4 E-03
	04	4.8 ± 3.2 E-03	3.0 ± 1.1 E-03	2.8 ± 1.1 E-03	3.5 ± 2.0 E-03
	05	5.3 ± 3.9 E-03	2.8 ± 0.7 E-03	2.9 ± 1.1 E-03	3.6 ± 2.4 E-03
	06	5.2 ± 0.4 E-03	2.3 ± 1.3 E-03	2.9 ± 1.0 E-03	3.4 ± 2.5 E-03
	07	4.5 ± 2.7 E-03	2.2 ± 0.4 E-03	2.4 ± 1.0 E-03	3.0 ± 1.8 E-03
	08	4.1 ± 3.2 E-03	2.2 ± 0.7 E-03	2.2 ± 1.1 E-03	2.9 ± 2.0 E-03
	09	4.1 ± 2.9 E-03	2.0 ± 0.8 E-03	2.3 ± 0.6 E-03	2.7 ± 1.8 E-03
	10	4.9 ± 3.4 E-03	2.5 ± 0.6 E-03	2.6 ± 1.2 E-03	3.3 ± 2.2 E-03
AVERAGE ALL STATIONS	01-10	4.5 ± 1.7 E-03	2.5 ± 1.0 E-03	2.5 ± 1.0 E-03	3.1 ± 2.0 E-03

x and s

Grand x and s

TABLE B-2
 WEEKLY COLLECTIONS SECOND QUARTER 1991
 NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE FILTERS
 pCi/Cu. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY 04/02-04/30	MONTHLY SUMMARY 04/30-05/29	MONTHLY SUMMARY 05/29-07/02	SECOND QUARTER SUMMARY 04/02-07/02
GROSS ALPHA	01	2.6 ± 1.4 E-03	1.7 ± 0.5 E-03	2.5 ± 0.9 E-03	2.2 ± 0.9 E-03
	02	2.2 ± 1.0 E-03	2.0 ± 0.9 E-03	2.2 ± 1.3 E-03	2.1 ± 1.0 E-03
	03	2.5 ± 0.6 E-03	1.8 ± 0.7 E-03	2.2 ± 0.6 E-03	2.2 ± 0.7 E-03
	04	2.1 ± 1.2 E-03	1.7 ± 0.5 E-03	1.7 ± 0.6 E-03	1.8 ± 0.8 E-03
	05	2.7 ± 1.5 E-03	2.5 ± 0.8 E-03	1.7 ± 0.6 E-03	2.3 ± 1.0 E-03
	06	1.7 ± 1.2 E-03	1.8 ± 0.5 E-03	1.8 ± 0.5 E-03	1.8 ± 0.7 E-03
	07	1.8 ± 0.8 E-03	2.1 ± 0.8 E-03	2.1 ± 1.0 E-03	2.2 ± 0.8 E-03
	08	2.3 ± 2.1 E-03	1.8 ± 0.5 E-03	1.7 ± 0.4 E-03	1.9 ± 1.2 E-03
	09	1.7 ± 0.8 E-03	1.7 ± 0.3 E-03	1.8 ± 0.3 E-03	1.7 ± 0.5 E-03
	10	2.3 ± 1.6 E-03	2.3 ± 0.5 E-03	2.8 ± 0.8 E-03	2.5 ± 1.0 E-03
AVERAGE ALL STATIONS	01-10	2.2 ± 1.2 E-03	1.9 ± 0.6 E-03	2.1 ± 0.8 E-03	2.1 ± 0.9 E-03

\bar{x} and s

Grand \bar{x} and s

TABLE B-3

WEEKLY COLLECTIONS - THIRD QUARTER 1991

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AIRBORNE

AIR PARTICULATE FILTERS

pCi/Cu. M.

SAMPLE NUKLIDE	STATION NUMBER	MONTHLY SUMMARY 07/02-07/30	MONTHLY SUMMARY 07/30-09/03	MONTHLY SUMMARY 09/03-10/01	THIRD QUARTER SUMMARY 07/02-10/01
GROSS ALPHA	01	3.0 ± 2.2 E-03	3.5 ± 1.3 E-03	2.6 ± 0.3 E-03	3.1 ± 1.4 E-03
	02	1.9 ± 1.0 E-03	3.6 ± 1.0 E-03	2.6 ± 0.9 E-03	2.7 ± 1.2 E-03
	03	2.5 ± 1.4 E-03	9.0 ± 14.0E-03	7.1 ± 0.4 E-03	5.0 ± 8.8 E-03
	04	1.6 ± 0.7 E-03	2.6 ± 0.7 E-03	2.5 ± 0.8 E-03	2.3 ± 0.8 E-03
	05	3.2 ± 0.9 E-03	7.1 ± 0.2 E-03	1.2 ± 0.3 E-03	2.1 ± 0.9 E-03
	06	1.7 ± 1.0 E-03	7.7 ± 0.6 E-03	1.3 ± 0.2 E-03	2.0 ± 0.9 E-03
	07	3.0 ± 1.2 E-03	3.2 ± 0.8 E-03	2.6 ± 1.1 E-03	3.0 ± 1.0 E-03
	08	2.4 ± 1.9 E-03	3.6 ± 1.2 E-03	2.3 ± 0.4 E-03	2.8 ± 1.3 E-03
	09	1.5 ± 0.6 E-03	2.6 ± 0.8 E-03	1.4 ± 0.4 E-03	1.9 ± 0.8 E-03
	10	1.9 ± 1.0 E-03	2.4 ± 0.5 E-03	2.7 ± 1.7 E-03	2.4 ± 1.1 E-03
AVERAGE ALL STATIONS	01-10	2.2 ± 1.3 E-03	3.6 ± 5.0 E-03	2.1 ± 0.9 E-03	2.7 ± 3.0 E-03

x and s

Grand x and s

TABLE D-4
WEEKLY COLLECTIONS FOURTH QUARTER 1991
NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE FILTERS

pCi/Cu. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY	MONTHLY SUMMARY	MONTHLY SUMMARY	FOURTH QUARTER SUMMARY
		10/01-10/29	10/29-12/03	12/03-12/31	10/01-12/31
GROSS ALPHA	01	3.0 ± 1.9 E-03	3.1 ± 1.5 E-03	2.8 ± 0.8 E-03	2.9 ± 1.4 E-03
	02	2.9 ± 0.7 E-03	2.0 ± 1.4 E-03	2.6 ± 0.7 E-03	2.4 ± 1.1 E-03
	03	2.2 ± 0.7 E-03	2.1 ± 0.2 E-03	2.5 ± 0.8 E-03	2.2 ± 0.6 E-03
	04	2.3 ± 0.7 E-03	5.3 ± 6.0 E-03	4.2 ± 2.3 E-03	4.1 ± 3.9 E-03
	05	2.9 ± 1.3 E-03	2.3 ± 0.9 E-03	2.4 ± 0.3 E-03	2.5 ± 0.9 E-03
	06	2.5 ± 0.3 E-03	2.5 ± 0.8 E-03	2.5 ± 1.0 E-03	2.5 ± 0.7 E-03
	07	2.7 ± 1.6 E-03	2.2 ± 0.8 E-03	2.3 ± 0.3 E-03	2.4 ± 1.0 E-03
	08	2.3 ± 0.4 E-03	2.2 ± 0.4 E-02	2.3 ± 0.3 E-03	2.3 ± 0.5 E-03
	09	1.6 ± 0.5 E-03	2.2 ± 0.3 E-03	3.2 ± 1.4 E-03	2.3 ± 1.0 E-03
	10	3.1 ± 1.4 E-03	2.9 ± 0.9 E-03	2.4 ± 0.9 E-03	2.8 ± 1.0 E-03
AVERAGE ALL STATIONS	01-10	2.6 ± 1.1 E-03	2.7 ± 2.1 E-03	2.7 ± 1.1 E-03	2.6 ± 1.6 E-03

x and s

Grand x and s

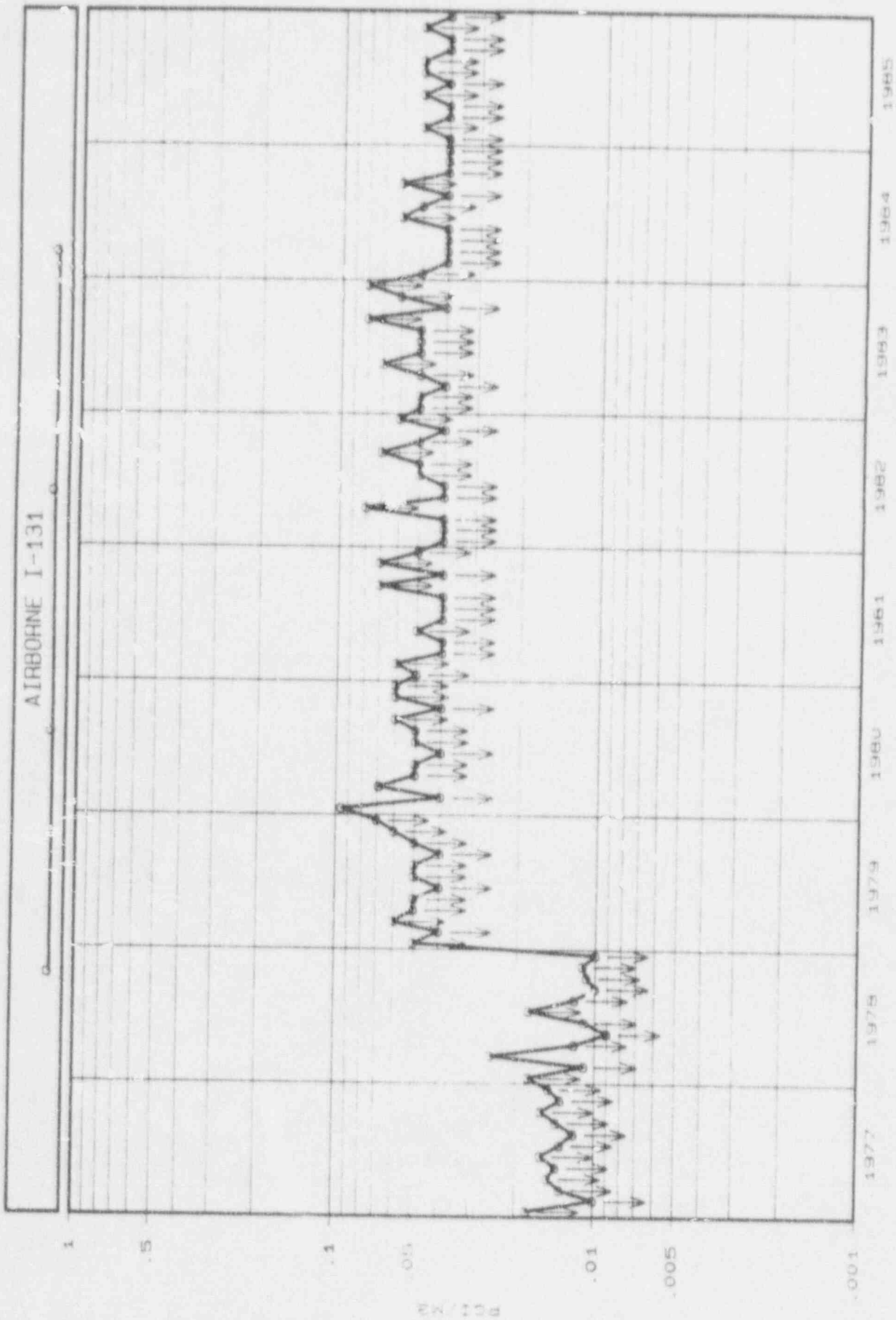
C. AIR RADIOIODINE - CHARCOAL FILTERS (See Tables C-1 through C-4)

STATIONS 01 TO 10

Charcoal filters used in series with air particulate filters were collected weekly during 1991 at stations 01 through 10 and monitored for radioiodine.

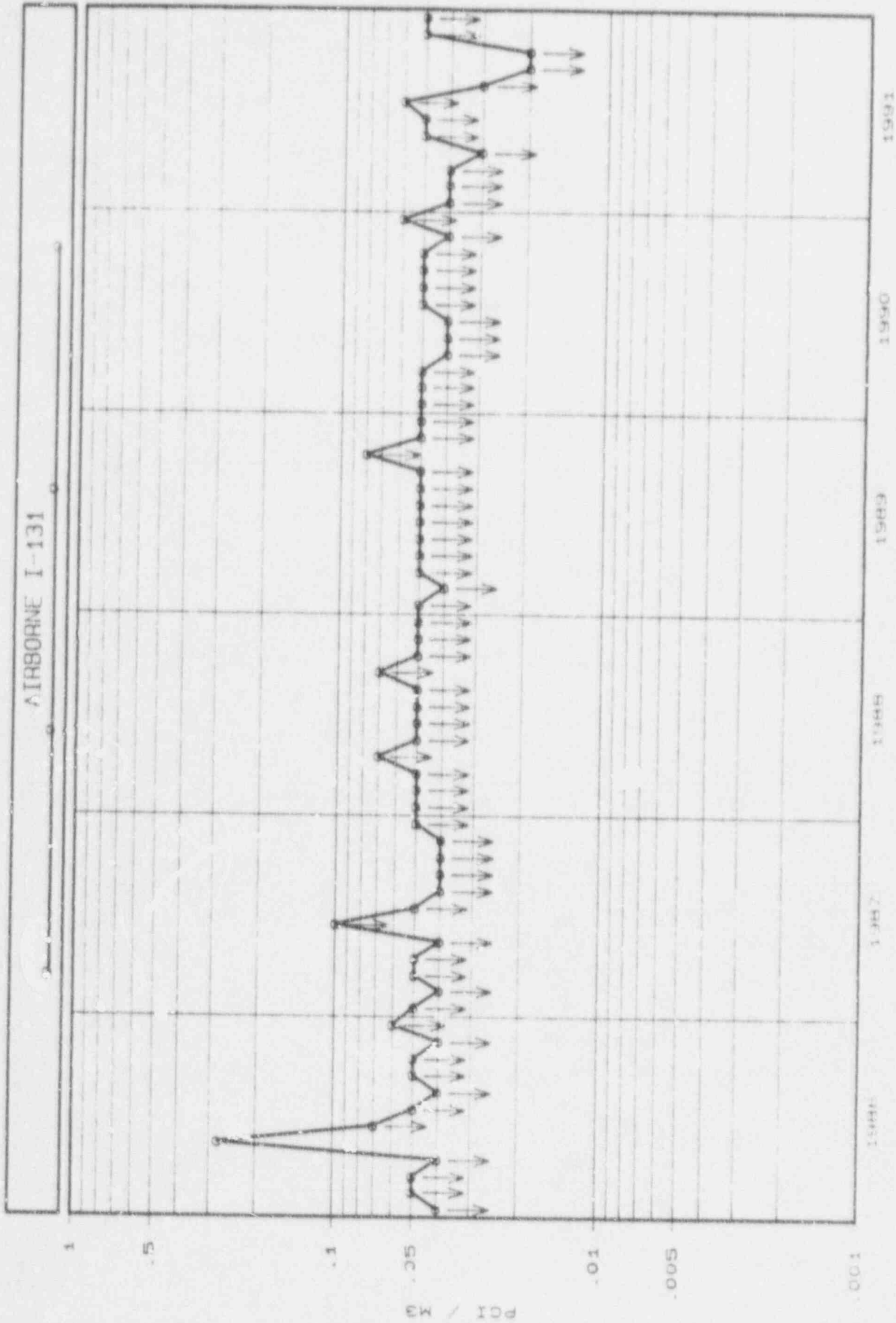
Tables C-1 through C-4 show the average monthly and quarterly results for each station and the average of all 10 stations. Airborne I-131 levels were below the limits of detection for all of 1991.

Figure C-1 plots the results of I-131 as monitored in charcoal filters and summarized monthly in 1991 compared with previous years. Results for 1991 were below the normal limits of detection indicating no atmospheric effect from the operations of CNS.



AIRBORNE I-131
MONTHLY AVERAGE ALL LOCATIONS

Figure C-1



AIRBORNE I-131
MONTHLY AVERAGE ALL LOCATIONS

Figure C-1

TABLE C-1

WEEKLY COLLECTIONS FIRST QUARTER 1991

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AIRBORNE

CHARCOAL FILTERS

pCi/Cu. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY 12/31-01/28	MONTHLY SUMMARY 01/28-02/26	MONTHLY SUMMARY 02/26-04/32	QUARTERLY SUMMARY 12/31-04/02	DET./ TOTAL	RANGE
IODINE-131	01	L.T. 4. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	02	L.T. 4. E-02	L.T. 4. E-02	L.T. 3. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	03	L.T. 4. E-02	L.T. 4. E-02	L.T. 3. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	04	L.T. 4. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 4. E-02	2/13	(L.T.2.-L.T.4.)E-02
	05	L.T. 3. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 3. E-02	0/13	(L.T.1.-L.T.3.)E-02
	06	L.T. 3. E-02	L.T. 3. E-02	L.T. 4. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	07	L.T. 3. E-02	L.T. 3. E-02	L.T. 4. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	08	L.T. 3. E-02	L.T. 3. E-02	L.T. 4. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	09	L.T. 3. E-02	L.T. 3. E-02	L.T. 4. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	10	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02	0/13	(L.T.1.-L.T.3.)E-02
01-10		L.T. 4. E-02	L.T. 4. E-02	L.T. 4. E-02	L.T. 4. E-02	---	---
DET./TOTAL		0/40	0/40	0/50	0/130	0/130	---
RANGE		(L.T.2.-L.T.4.)E-02	(L.T.1.-L.T.4.)E-02	(L.T.1.-L.T.4.)E-02	(L.T.1.-L.T.4.)E-02	---	(L.T.1.-L.T.4.)E-02

TABLE C-2

WEEKLY COLLECTIONS SECOND QUARTER 1991

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AIRBORNE

CHARCOAL FILTERS

pCi/Cu. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY 04/02-04/30	MONTHLY SUMMARY 04/30-05/29	MONTHLY SUMMARY 05/29-07/02	QUARTERLY SUMMARY 04/02-07/02	DET./ TOTAL	RANGE
IODINE-131	01	L.T. 3. E-02	L.T. 5. E-02	L.T. 4. E-02	L.T. 5. E-02	0/13	(L.T.2.-L.T.5.)E-02
	02	L.T. 3. E-02	L.T. 5. E-02	L.T. 5. E-02	L.T. 5. E-02	0/13	(L.T.2.-L.T.5.)E-02
	03	L.T. 3. E-02	L.T. 4. E-02	L.T. 4. E-02	L.T. 4. E-02	0/13	(L.T.3.-L.T.4.)E-02
	04	L.T. 3. E-02	L.T. 4. E-02	L.T. 5. E-02	L.T. 5. E-02	0/13	(L.T.2.-L.T.5.)E-02
	05	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02	0/13	(L.T.1.-L.T.3.)E-02
	06	L.T. 3. E-02	L.T. 5. E-02	L.T. 3. E-02	L.T. 5. E-02	0/13	(L.T.2.-L.T.5.)E-02
	07	L.T. 3. E-02	L.T. 4. E-02	L.T. 3. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	08	L.T. 3. E-02	L.T. 4. E-02	L.T. 3. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	09	L.T. 3. E-02	L.T. 4. E-02	L.T. 3. E-02	L.T. 4. E-02	0/13	(L.T.2.-L.T.4.)E-02
	10	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02	0/13	(L.T.1.-L.T.3.)E-02
01-10		L.T. 3. E-02	L.T. 5. E-02	L.T. 5. E-02	L.T. 5. E-02	--	--
DET./TOTAL		0/40	0/40	0/50	0/130	0/130	--
RANGE		(L.T.1.-L.T.3.)E-02	(L.T.1.-L.T.5.)E-02	(L.T.1.-L.T.5.)E-02	(L.T.1.-L.T.5.)E-02	--	(L.T.1.-L.T.5.)E-02

TABLE C-3

WEEKLY COLLECTIONS THIRD QUARTER 1991

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AIRBORNE

CHARCOAL FILTERS

PCI/Cg. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY 07/02-07/30	MONTHLY SUMMARY 07/30-09/03	MONTHLY SUMMARY 09/03-10/01	QUARTERLY SUMMARY 07/02-10/01	DET./ TOTAL	RANGE
IODINE-131	01	L.T. 3, E-02	L.T. 3, E-02	L.T. 2, E-02	L.T. 3, E-02	0/13	(L.T.2,-L.T.3.)E-02
	02	L.T. 3, E-02	L.T. 3, E-02	L.T. 2, E-02	L.T. 3, E-02	0/13	(L.T.2,-L.T.3.)E-02
	03	L.T. 3, E-02	L.T. 3, E-02	L.T. 2, E-02	L.T. 3, E-02	0/13	(L.T.2,-L.T.3.)E-02
	04	L.T. 3, E-02	L.T. 3, E-02	L.T. 2, E-02	L.T. 3, E-02	0/13	(L.T.2,-L.T.3.)E-02
	05	L.T. 3, E-02	L.T. 2, E-02	L.T. 1, E-02	L.T. 3, E-02	0/13	(L.T.1,-L.T.3.)E-02
	06	L.T. 4, E-02	L.T. 3, E-02	L.T. 2, E-02	L.T. 4, E-02	0/13	(L.T.2,-L.T.4.)E-02
	07	L.T. 6, E-02	L.T. 3, E-02	L.T. 2, E-02	L.T. 6, E-02	0/13	(L.T.2,-L.T.6.)E-02
	08	L.T. 4, E-02	L.T. 3, E-02	L.T. 2, E-02	L.T. 4, E-02	0/13	(L.T.2,-L.T.4.)E-02
	09	L.T. 4, E-02	L.T. 3, E-02	L.T. 2, E-02	L.T. 4, E-02	0/13	(L.T.2,-L.T.4.)E-02
	10	L.T. 3, E-02	L.T. 2, E-02	L.T. 1, E-02	L.T. 3, E-02	0/13	(L.T.1,-L.T.3.)E-02
01-10		L.T. 6, E-02	L.T. 3, E-02	L.T. 2, E-02	L.T. 6, E-02		
DET./TOTAL		0/36	0/49	0/40	0/127		
RANGE		(L.T.1.-L.T.6.)E-02	(L.T.1.-L.T.3.)E-02	(L.T.1.-L.T.2.)E-02	(L.T.1.-L.T.6.)E-02	--	(L.T.1.-L.T.6.)E-02

TABLE C-6

WEEKLY COLLECTIONS FOURTH QUARTER 1991

NEBFASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY: - AIRBORNE

CHARCOAL FILTERS

pCi/Cu. M.

SAMPLE NUCLIDE	STATION NUMBER	MONTHLY SUMMARY	MONTHLY SUMMARY	MONTHLY SUMMARY	QUARTERLY SUMMARY	DET./
		10/01-10/29	10/29-12/03	12/03-12/31	10/01-12/31	TOTAL
IODINE-131	01	L.T. 2. E-02	L.T. 5. E-02	L.T. 5. E-02	L.T. 5. E-02	0/13 (L.T.2.-L.T.5.)E-02
	02	L.T. 2. E-02	L.T. 5. E-02	L.T. 4. E-02	L.T. 5. E-02	0/13 (L.T.2.-L.T.5.)E-02
	03	L.T. 2. E-02	L.T. 5. E-02	L.T. 5. E-02	L.T. 5. E-02	0/13 (L.T.2.-L.T.5.)E-02
	04	L.T. 2. E-02	L.T. 5. E-02	L.T. 5. E-02	L.T. 5. E-02	0/13 (L.T.2.-L.T.5.)E-02
	05	L.T. 1. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02	0/13 (L.T.1.-L.T.3.)E-02
	06	L.T. 2. E-02	L.T. 5. E-02	L.T. 3. E-02	L.T. 5. E-02	0/13 (L.T.2.-L.T.5.)E-02
	07	L.T. 2. E-02	L.T. 5. E-02	L.T. 3. E-02	L.T. 5. E-02	0/13 (L.T.2.-L.T.5.)E-02
	08	L.T. 2. E-02	L.T. 5. E-02	L.T. 3. E-02	L.T. 5. E-02	0/13 (L.T.2.-L.T.5.)E-02
	09	L.T. 2. E-02	L.T. 5. E-02	L.T. 3. E-02	L.T. 5. E-02	0/13 (L.T.2.-L.T.5.)E-02
	10	L.T. 1. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 3. E-02	0/13 (L.T.1.-L.T.3.)E-02
01-10		L.T. 2. E-02	L.T. 5. E-02	L.T. 5. E-02	L.T. 5. E-02	0/130
DET./TOTAL		0/40	0/50	0/40	0/130	

RANGE (L.T.1.-L.T.2.)E-02 (L.T.3.-L.T.5.)E-02 (L.T.2.-L.T.5.)E-02 (L.T.3.-L.T.5.)E-02 (L.T.1.-L.T.5.)E-02

D. COMPOSITES OF AIR PARTICULATE FILTERS - GAMMA

(See Tables D-1 and D-2)

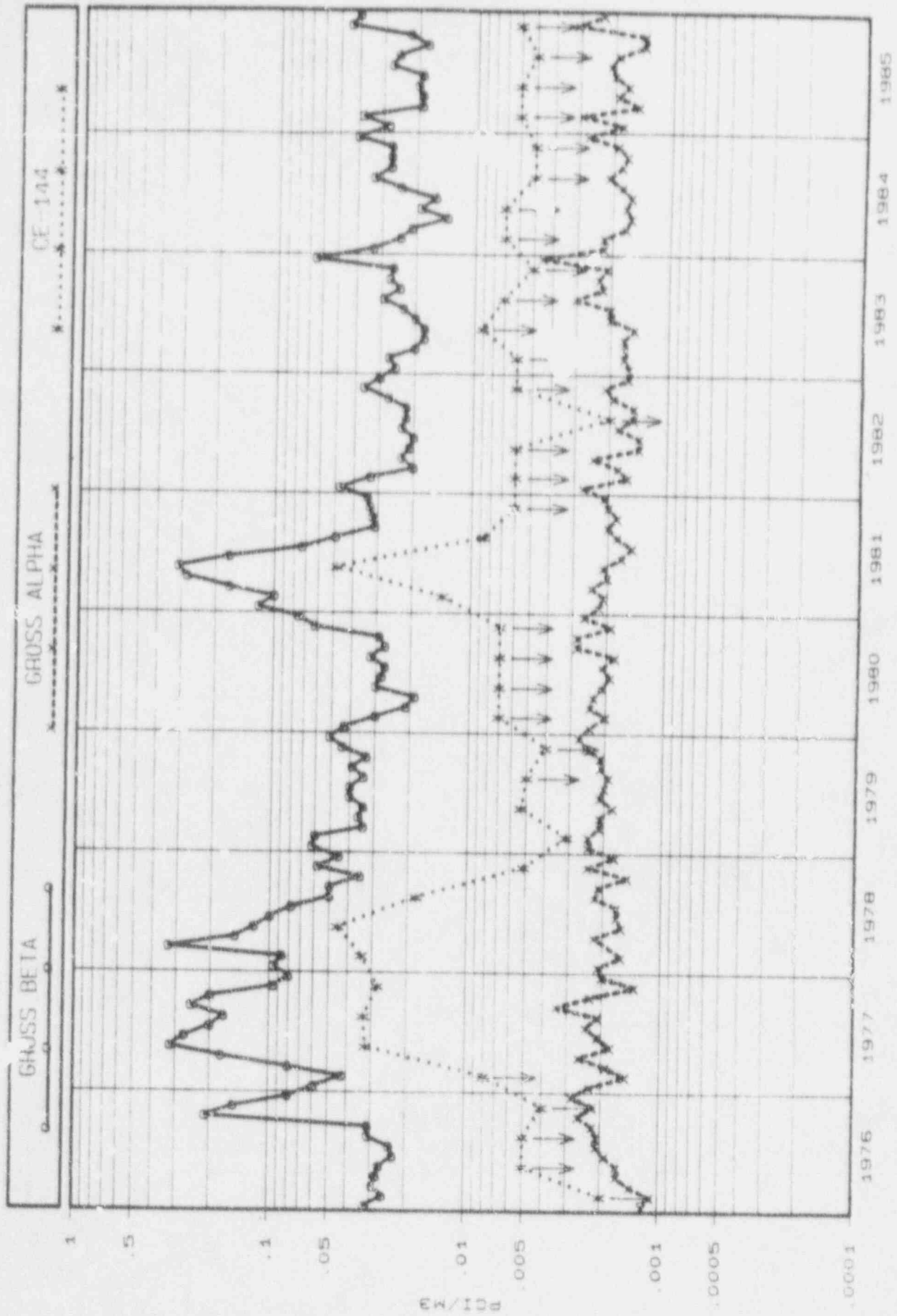
STATIONS 01 TO 10

Air Particulate Filters, which were collected weekly, were composited for each station for a quarterly gamma spectral analysis during the four quarters of 1991.

Beryllium-7, a naturally occurring cosmogenic nuclide, was detected in 40 of 40 samples at a level of 0.096 pCi per cubic meter which is similar to the levels of past years. Potassium-40, also a naturally occurring nuclide, was detected in one of 40 samples at a level near the normal level of detection.

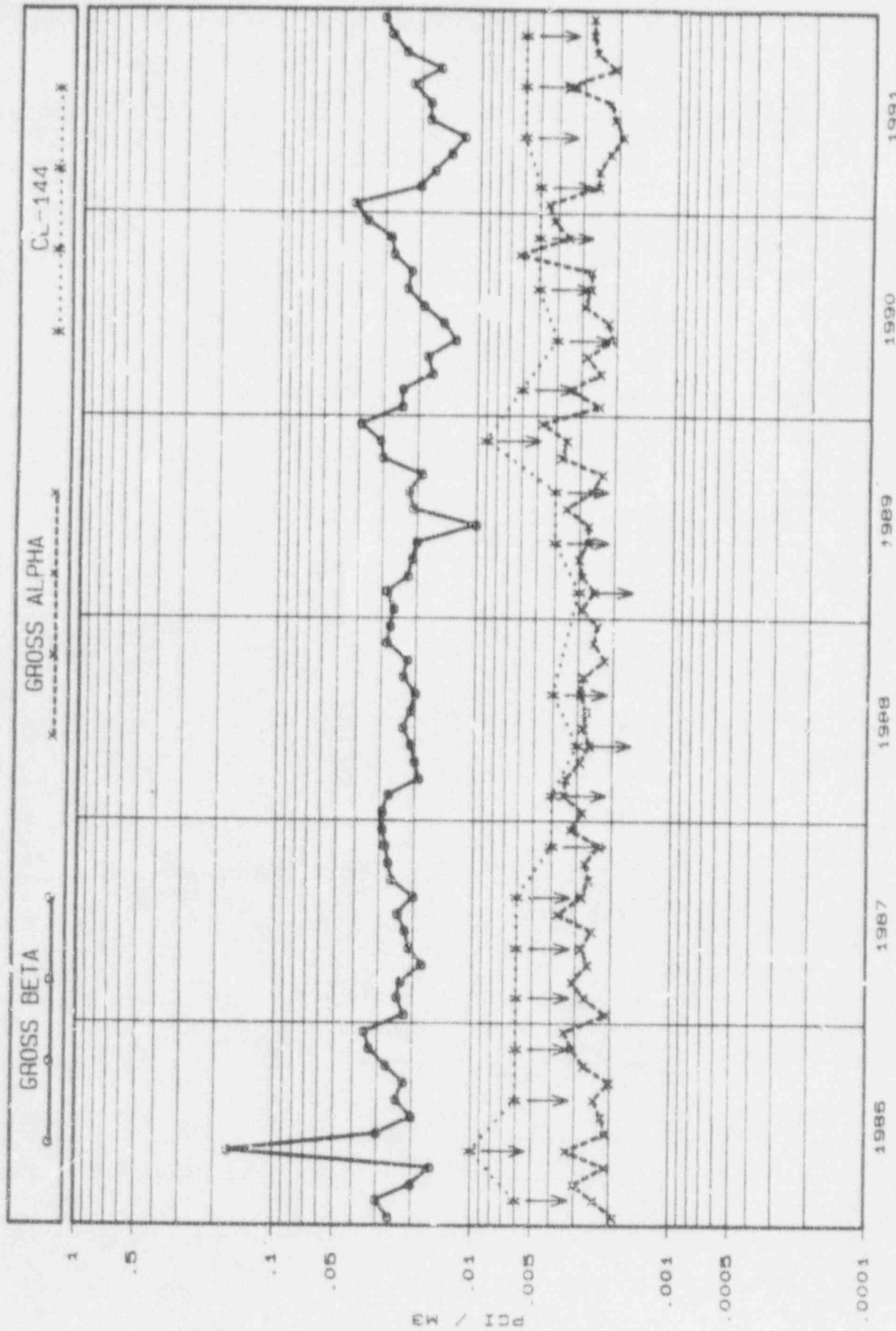
Figure D-1 graphs the gross beta, gross alpha and Ce-144 activity as measured on air particulate filters collected weekly at CNS. (This is the same as Figure A-1, B-1). The plot illustrates that there were no detections of Ce-144 above the normal level of detection as measured by the quarterly gamma scan of samples from CNS.

Figure D-2 shows that measurements of Ce-144 are no longer reported by the Environmental Measurements Laboratory of the US Department of Energy because the artificial nuclides such as Ce-144, have reached the limits of detection by the analytical techniques now used.



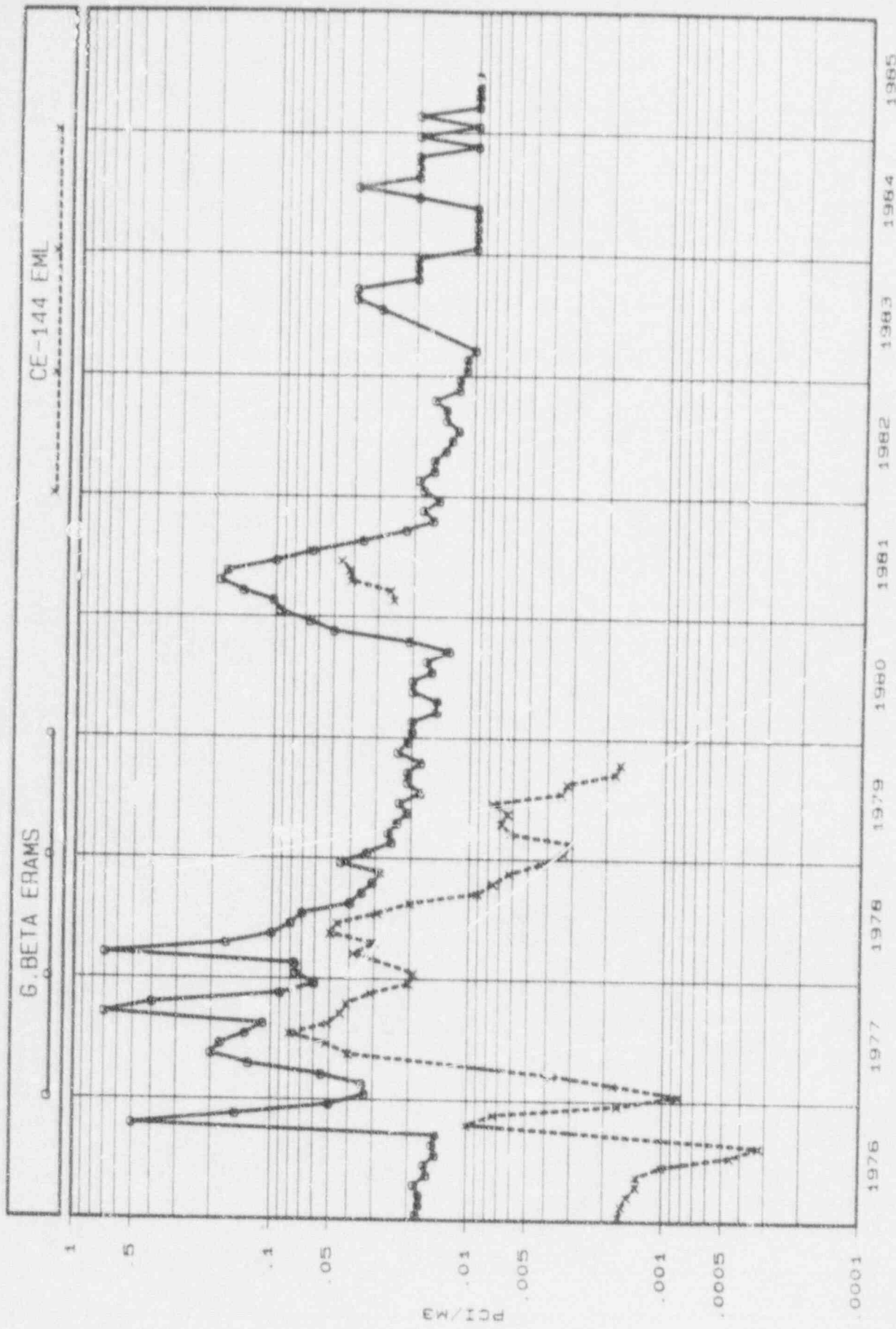
AIR PARTICULATES - CNS
 ALPHA AND BETA MONTHLY AVERAGE - ALL LOCATIONS
 CE-144 QUARTERLY AVERAGE - ALL LOCATIONS

Figure D-1



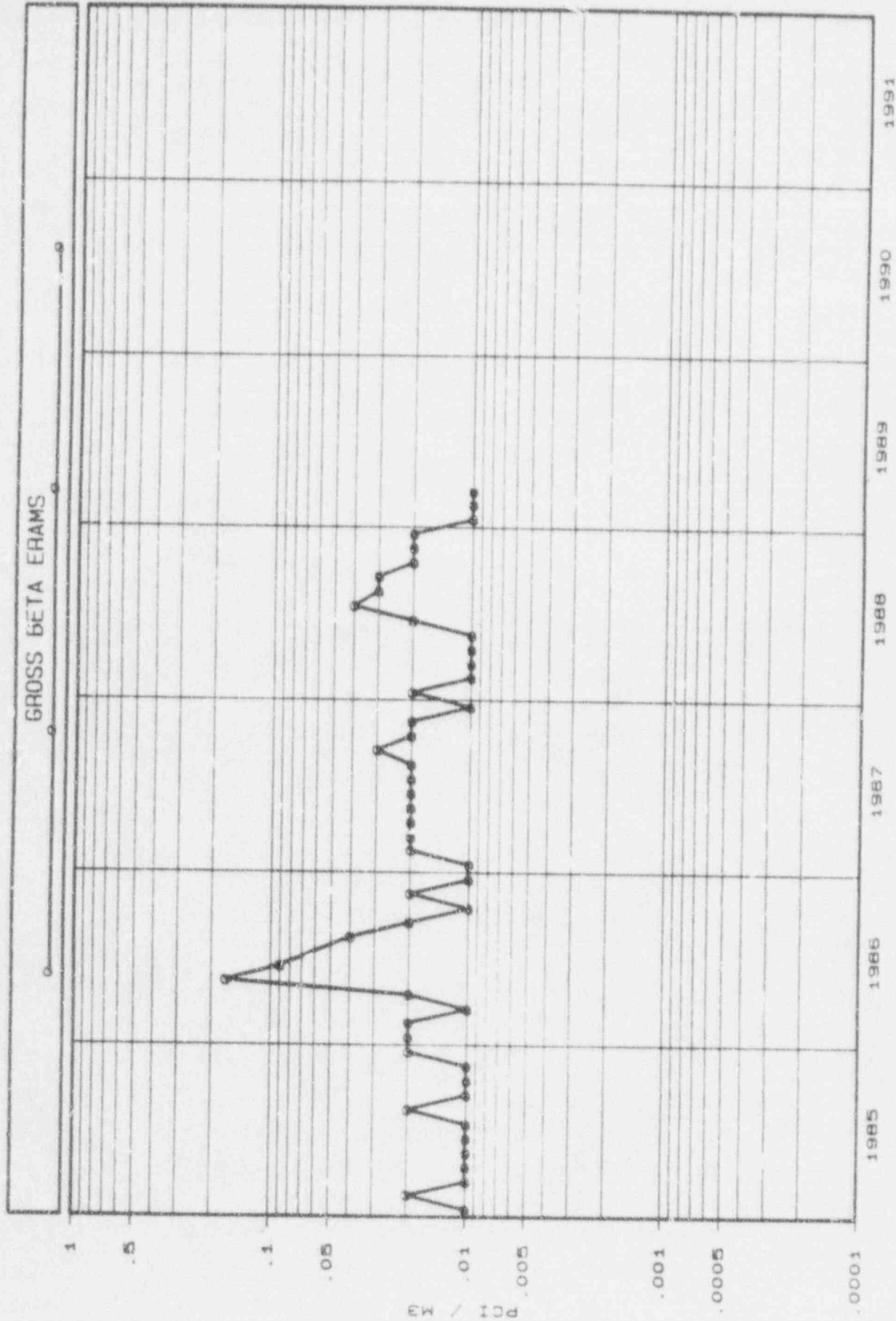
AIR PARTICULATER - CNS
 ALPHA AND BETA MONTHLY AVERAGE - ALL LOCATIONS
 CE-144 QUARTERLY AVERAGE - ALL LOCATIONS

Figure D-1



AIR PARTICULATES
 BETA MONTHLY AVERAGE - JEFFERSON CITY
 MISSOURI (ERAMS) EPA

Figure 0-2



-IR PARTICULATES
 BETA MONTHLY AVERAGE - JEFFERSON CITY
 MISSOURI (ERAMS) EPA

Figure D-2

TABLE D-1

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AIRBORNE

COMPOSITE OF WEEKLY AIR PARTICULATE FILTERS

PC1/Ce. M.

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 12/31-04/02	SECOND QUARTER 04/02-07/02	THIRD QUARTER 07/02-10/01	FOURTH QUARTER 10/01-12/31
BE-7	01-10	Mean/std.dev. det./total range 9.69 ± 1.4 E-02 10/10 (8.00-12.8)E-02	1.12 ± 0.2 E-01 10/10 (1.4-0.9)E-01	9.11 ± 1.7 E-02 10/10 (6.5-11)E-02	8.54 ± 1.1 E-02 10/10 6.3-9.9(E-02
K-40	01-10	Mean/std.dev. det./total range L.T. 2.0 E-02 0/10	L.T. 2.0 E-02 0/10	L.T. 3.0 E-02 0/10	1.70 ± 0.7 E-02 1/10
I-131 (by gamma spectroscopy)	01-10	Mean/std.dev. det./total range L.T. 4.0 E-01 0/10	L.T. 4.0 E-01 0/10	L.T. 3.0 E-01 0/10	L.T. 2.0 E-01 0/10
Cs-134	01-10	Mean/std.dev. det./total range L.T. 8.0 E-04 0/10	L.T. 8.0 E-04 0/10	L.T. 9.0 E-04 0/10	L.T. 7.0 E-04 0/10
Cs-137	01-10	Mean/std.dev. det./total range L.T. 7.0 E-04 0/10	L.T. 8.0 E-04 0/10	L.T. 9.0 E-04 0/10	L.T. 8.0 E-04 0/10
Ra-226	01-10	Mean/std.dev. det./total range L.T. 1.0 E-02 0/10	L.T. 2.0 E-02 0/10	L.T. 1.0 E-02 0/10	L.T. 1.0 E-02 0/10
Th-228	01-10	Mean/std.dev. det./total range L.T. 1.0 E-03 0/10	L.T. 1.0 E-03 0/10	L.T. 1.0 E-03 0/10	L.T. 1.0 E-03 0/10

TABLE D-2

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AIRBORNE

COMPOSITE OF WEEKLY AIR PARTICULATE FILTERS - PCI/CU.M.

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 12/31-04/02	SECOND QUARTER 04/02-07/02	THIRD QUARTER 07/02-10/01	FOURTH QUARTER 10/01-12/31
BE-7	1-10	9.69 ± 1.4E-02 (10/10)	1.12 ± 0.2E-01 (10/10)	9.11 ± 1.7 E-02 (16/10)	8.54 ± 1.1 E-02 (10/10)
K-40	1-10	L.T. 2. E-02 (0/10)	L.T. 2.0 E-02 (1/10)	L.T. 3. E-02 (0/10)	1.70 ± 0.7 E-02 (1/10)
Mn-54	1-10	L.T. 6. E-04 (0/10)	L.T. 9. E-04 (0/10)	L.T. 8. E-04 (0/10)	L.T. 8. E-04 (0/10)
Co-58	1-10	L.T. 1. E-03 (0/10)	L.T. 1 E-03 (0/10)	L.T. 1. E-03 (0/10)	L.T. 1. E-03 (0/10)
Fe-59	1-10	L.T. 3. E-03 (0/10)	L.T. 4. E-03 (0/10)	L.T. 4. E-03 (0/10)	L.T. 4. E-03 (0/10)
Co-60	1-10	L.T. 7. E-04 (0/10)	L.T. 8. E-04 (0/10)	L.T. 8. E-04 (0/10)	L.T. 8. E-04 (0/10)
Zn-65	1-10	L.T. 1. E-03 (0/10)	L.T. 2. E-03 (0/10)	L.T. 2. E-03 (0/10)	L.T. 2. E-03 (0/10)
Zr-95	1-10	L.T. 1. E-03 (0/10)	L.T. 2. E-03 (0/10)	L.T. 2. E-03 (0/10)	L.T. 2. E-03 (0/10)
Ru-103	1-10	L.T. 2. E-03 (0/10)	L.T. 2. E-03 (0/10)	L.T. 2. E-03 (0/10)	L.T. 2. E-03 (0/10)
Ru-106	1-10	L.T. 6. E-03 (0/10)	L.T. 7. E-03 (0/10)	L.T. 7. E-03 (0/10)	L.T. 7. E-03 (0/10)
I-131	1-10	L.T. 4. E-01 (0/10)	L.T. 4. E-01 (0/10)	L.T. 3. E-01 (0/10)	L.T. 2. E-01 (0/10)
Cs-134	1-10	L.T. 6. E-04 (0/10)	L.T. 8. E-04 (0/10)	L.T. 9. E-04 (0/10)	L.T. 7. E-04 (0/10)
Cs-137	1-10	L.T. 7. E-04 (0/10)	L.T. 8. E-04 (0/10)	L.T. 9. E-04 (0/10)	L.T. 8. E-04 (0/10)
Ba-140	1-10	L.T. 4. E-02 (0/10)	L.T. 6. E-02 (0/10)	L.T. 4. E-02 (0/10)	L.T. 3. E-02 (0/10)
Ce-141	1-10	L.T. 4. E-03 (0/10)	L.T. 5. E-03 (0/10)	L.T. 5. E-03 (0/10)	L.T. 5. E-03 (0/10)
Ce-144	1-10	L.T. 5. E-03 (0/10)	L.T. 6. E-03 (0/10)	L.T. 6. E-03 (0/10)	L.T. 6. E-03 (0/10)
Ra-226	1-10	L.T. 1. E-02 (0/10)	L.T. 2. E-02 (0/10)	L.T. 1. E-02 (0/10)	L.T. 1. E-02 (0/10)
Th-232	1-10	L.T. 1. E-03 (0/10)	L.T. 1. E-03 (0/10)	L.T. 1. E-03 (0/10)	L.T. 1. E-03 (0/10)

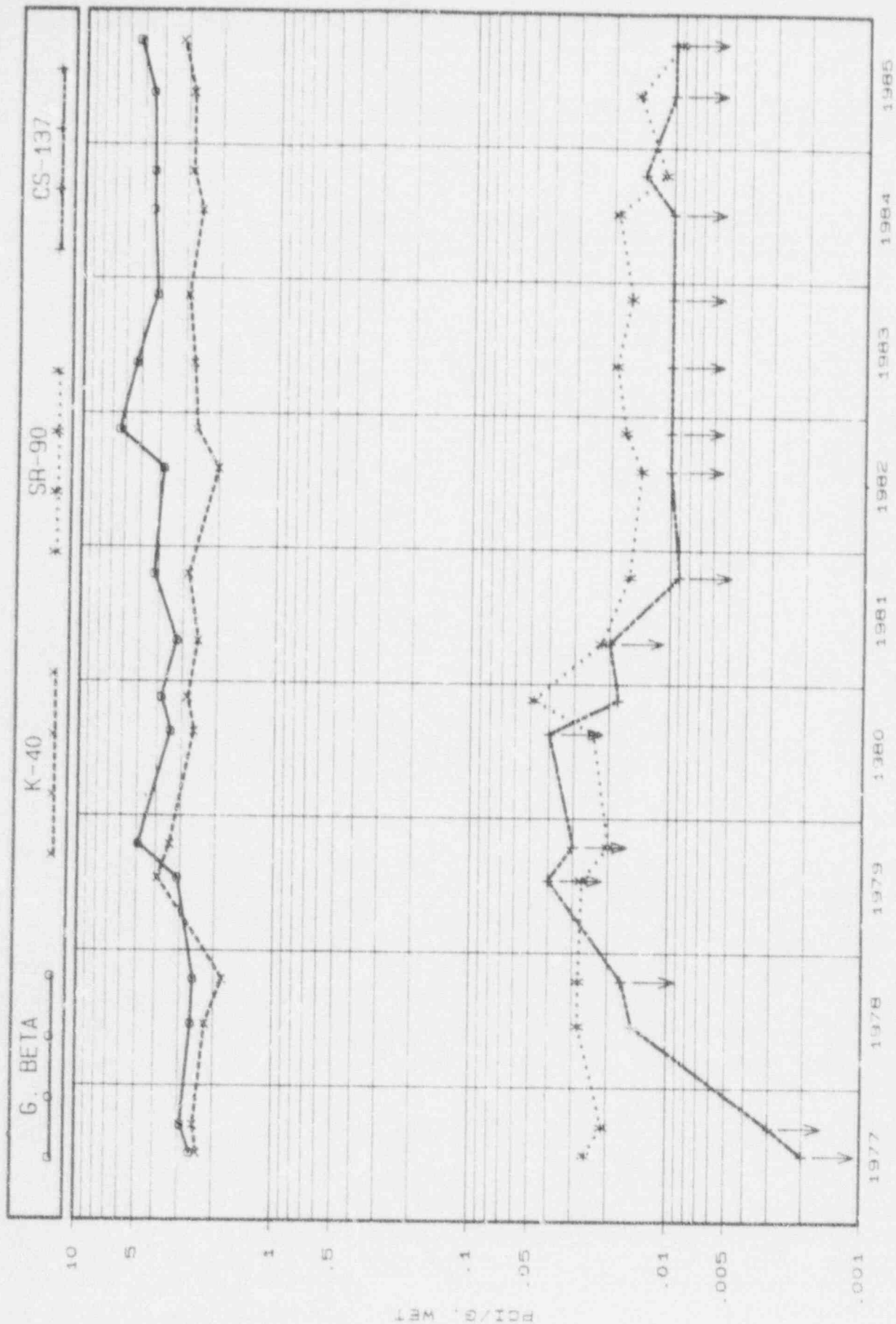
E. FISH (See Tables E-1, E-2)

STATIONS 28, 35

Fish samples were collected during the summer and fall at the above stations and analyzed for gross beta, Sr-89, Sr-90 and gamma emitting isotopes. The gross beta and Sr-90 activities were similar to the levels of previous years. Strontium-90 was detected in nine of ten samples at a level of 0.008 pCi/gram, wet, which is below the normal level of detection. There were no detections of Sr-89. Naturally occurring K-40 was detected in all samples at an average level of 2.63 pCi/gm, wet.

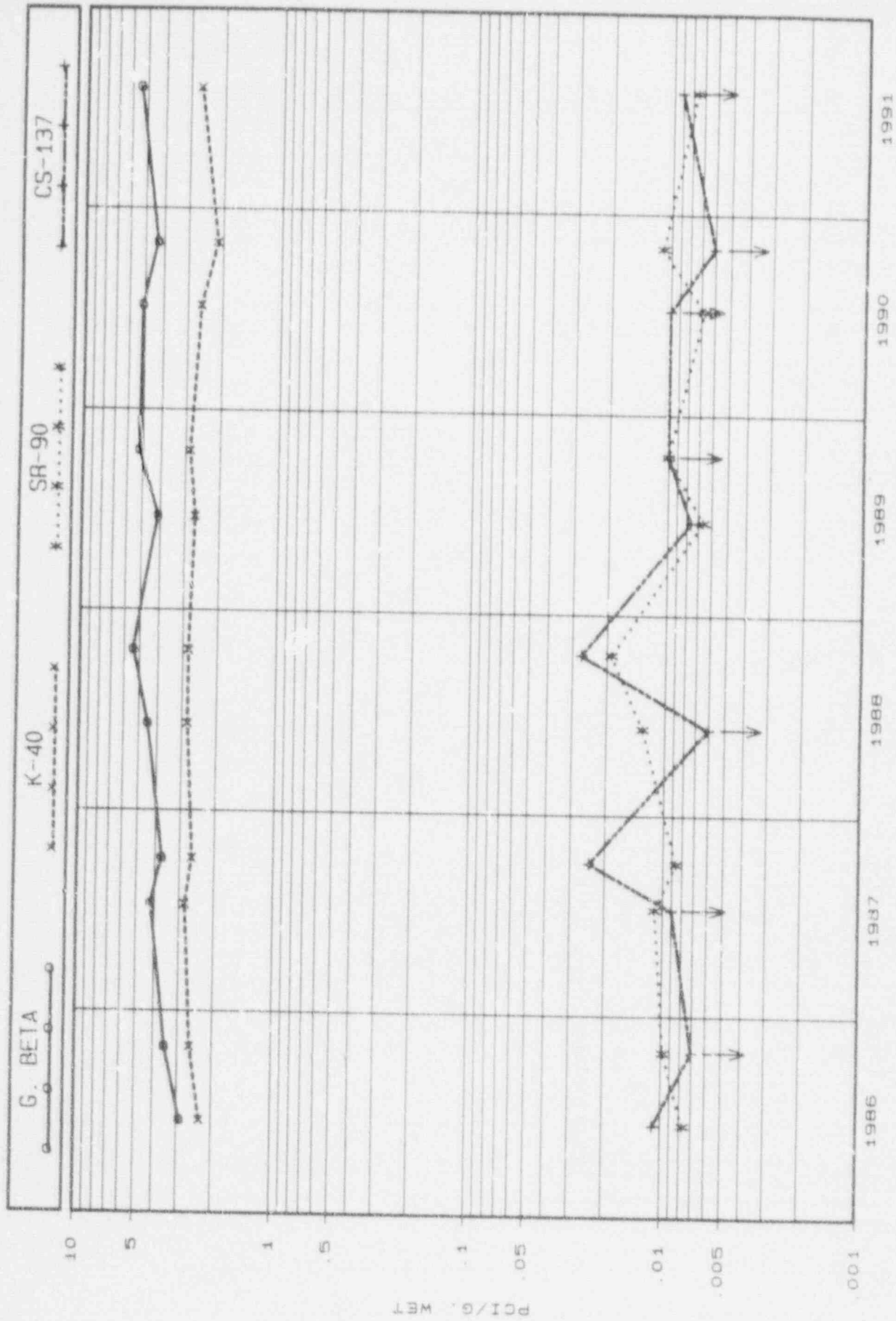
There were no detections of Cs-137 during 1991.

Plotted in Figure E-1 are the radionuclides gross beta, K-40, Sr-90 and Cs-137 monitored in fish samples which show no appreciable change from 1977 through 1991. The plot of the nuclides shows that most of the gross beta activity is due to the terrestrial nuclide K-40.



FISH
SEMIANNUAL AVERAGE - ALL LOCATIONS
GROSS BETA K-40 SR-90 CS-137

Figure E-1



FISH
SEMIANNUAL AVERAGE -- ALL LOCATIONS
GROSS BETA K-40 SR-90 CS-137

Figure E-1

TABLE E-1
 1991 QUARTERLY REPORT
 NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 FISH - PCI/GM, WET

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER 07/08-09/05	FOURTH QUARTER
Gross Beta	28, 35	Mean±std.dev. det./total range		5.4 ± 1.4E 00 10/10 (2.9-8.1)E 00	
Sr-89	28, 35	Mean±std.dev. det./total range		L.T. 3. E-02 0/10 --	
Sr-90	28, 35	Mean±std.dev. det./total range		7.5 ± 6.2E-03 10/10 (1.2-22)E-03	
K-40	28, 35	Mean±std.dev. det./total range		2.63±0.3E 00 10/10 (2.11-3.0)E 00	
Co-60	28, 35	Mean±std.dev. det./total range		L.T. 9. E-03 0/10 --	
I-131	28, 35	Mean±std.dev. det./total range		L.T. 3. E-01 0/10 --	
Cs-134	28, 35	Mean±std.dev. det./total range		L.T. 8. E-03 0/10 --	
Cs-137	28, 35	Mean±std.dev. det./total range		L.T. 9. E-03 0/10 --	

TABLE E-2

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - INGESTION

FISH - PCI/CM, WET

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER		FOURTH QUARTER
				07/08-09/05		
Be-7	28, 35			L.T. 1.	E-01 (0/10)	
K-40	28, 35			2.63±0.3	E 00 (10/10)	
Mn-54	28, 35			L.T. 8.	E-03 (0/10)	
Co-58	28, 35			L.T. 1.	E-02 (0/10)	
Fe-59	28, 35			L.T. 3.	E-02 (0/10)	
Co-60	28, 35			L.T. 9.	E-03 (0/10)	
Zn-65	28, 35			L.T. 2.	E-02 (0/10)	
Zr-95	28, 35			L.T. 1.	F-02 (0/10)	
Ru-103	28, 35			L.T. 1.	E-02 (0/10)	
Ru-106	28, 35			L.T. 7.	E-02 (0/10)	
I-131	26, 35			L.T. 3.	E-01 (0/10)	
Cs-134	28, 35			L.T. 8.	E-03 (0/10)	
Cs-137	28, 35			L.T. 9.	E-03 (0/10)	
Ba-140	28, 35			L.T. 8.	E-02 (0/10)	
Ce-141	28, 35			L.T. 3.	E-02 (0/10)	
Ce-144	28, 35			L.T. 6.	E-02 (0/10)	
Ra-226	28, 35			L.T. 2.	E-01 (0/10)	
Th-228	28, 35			L.T. 1.	E-02 (0/10)	

F. MILK (See Tables F-1, F-2)

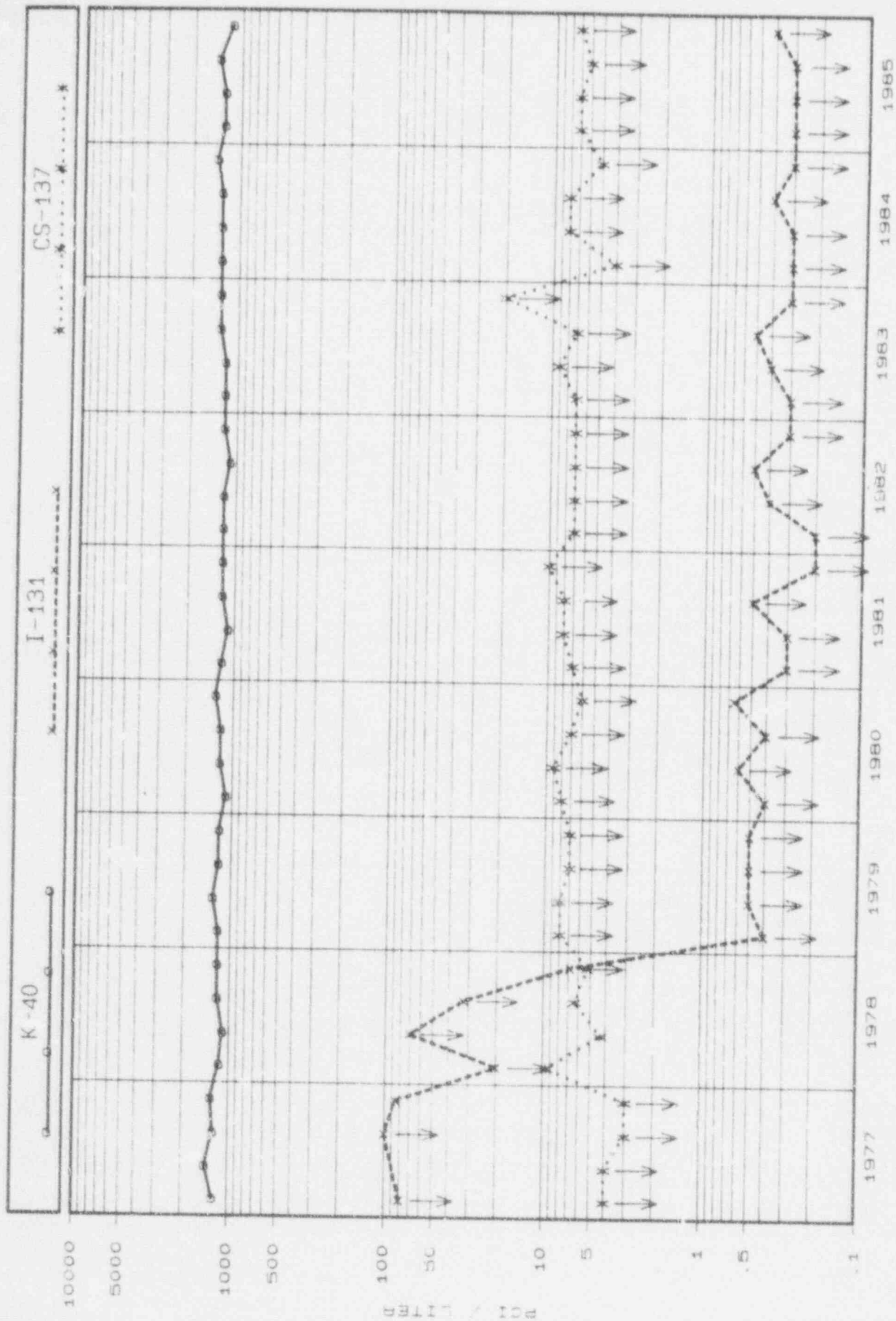
STATION 61 (NEAREST PRODUCER)

Milk samples from the nearest producer Station 61, 3.5 miles, 326 degrees from the elevated release point of CNS were collected once every 15 days in peak pasture season and once every 31 days the rest of the year. The monthly samples collected January through May and October through December were analyzed for I-131 by chemical separation, for elemental calcium and strontium 89 and 90. In addition they were analyzed for gamma emitting isotopes on a high resolution gamma spectrometer. The samples collected every 15 days during peak pasture season were analyzed upon receipt for I-131 and gamma emitting isotopes. A monthly composite was prepared and analyzed as described above.

There were no detections of I-131 in the twenty-one samples analyzed by chemical separation. There were no detections of Sr-89 in the samples analyzed. Strontium-90 was detected at an average level of 1.0 pCi/liter, which is a normal environmental level. Elemental calcium was found at an average level of 2.1 mg/liter. Potassium-40, a naturally occurring isotope, was detected at an average level of 1260 pCi/liter.

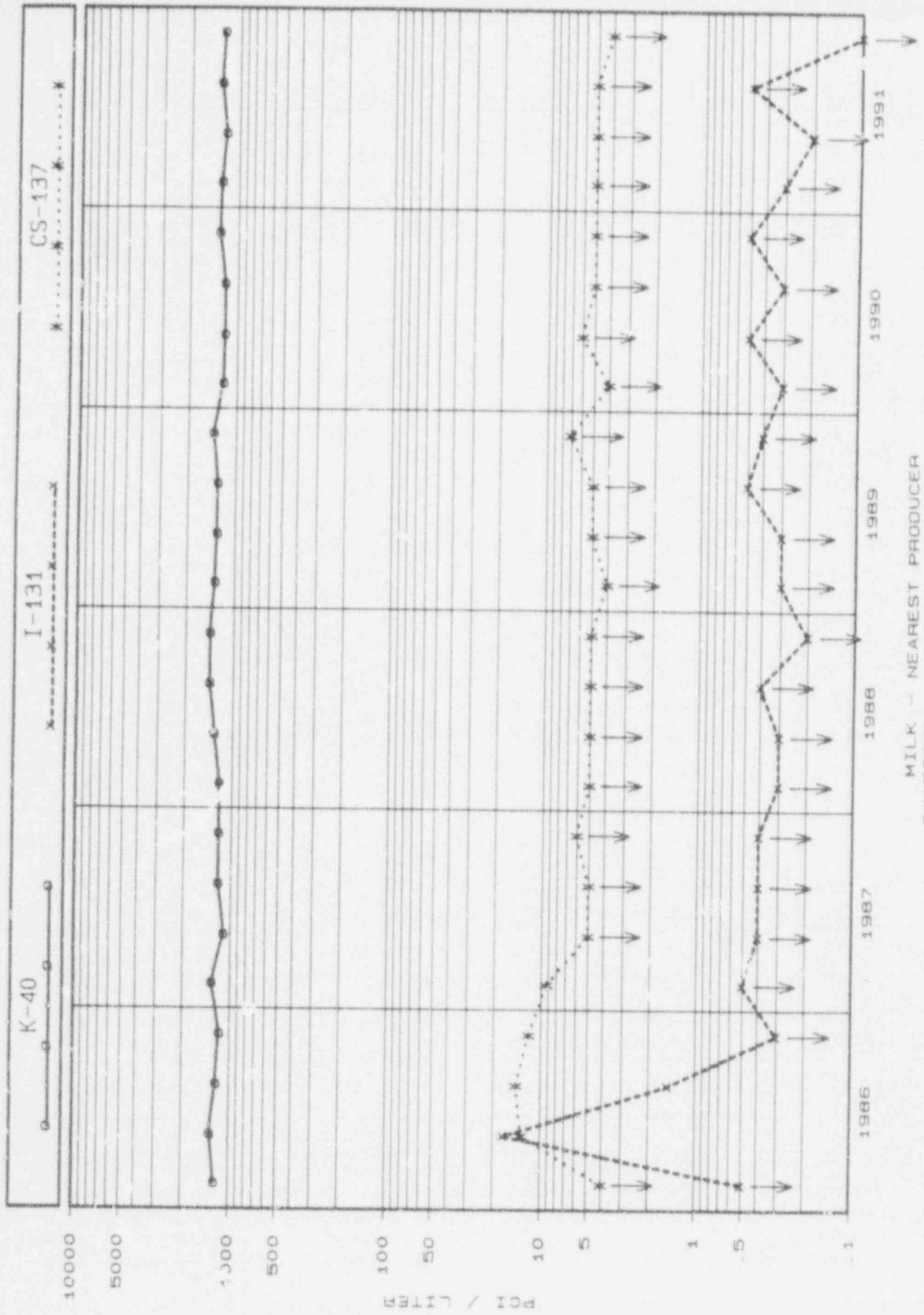
Cesium-137 was not detected in any of the samples analyzed. There was no indication of an effect on the milk of the producer nearest the plant from the operations of CNS.

Shown in Figure F-1 and F-2 are the plots of radionuclides monitored from 1977 through 1991 in milk samples from producers nearest the reactor. The levels of K-40, elemental calcium and Sr-90 remained stable. There were no detections of I-131, Sr-89 or Cs-137. This indicates no effect on milk samples from the operations of CNS.



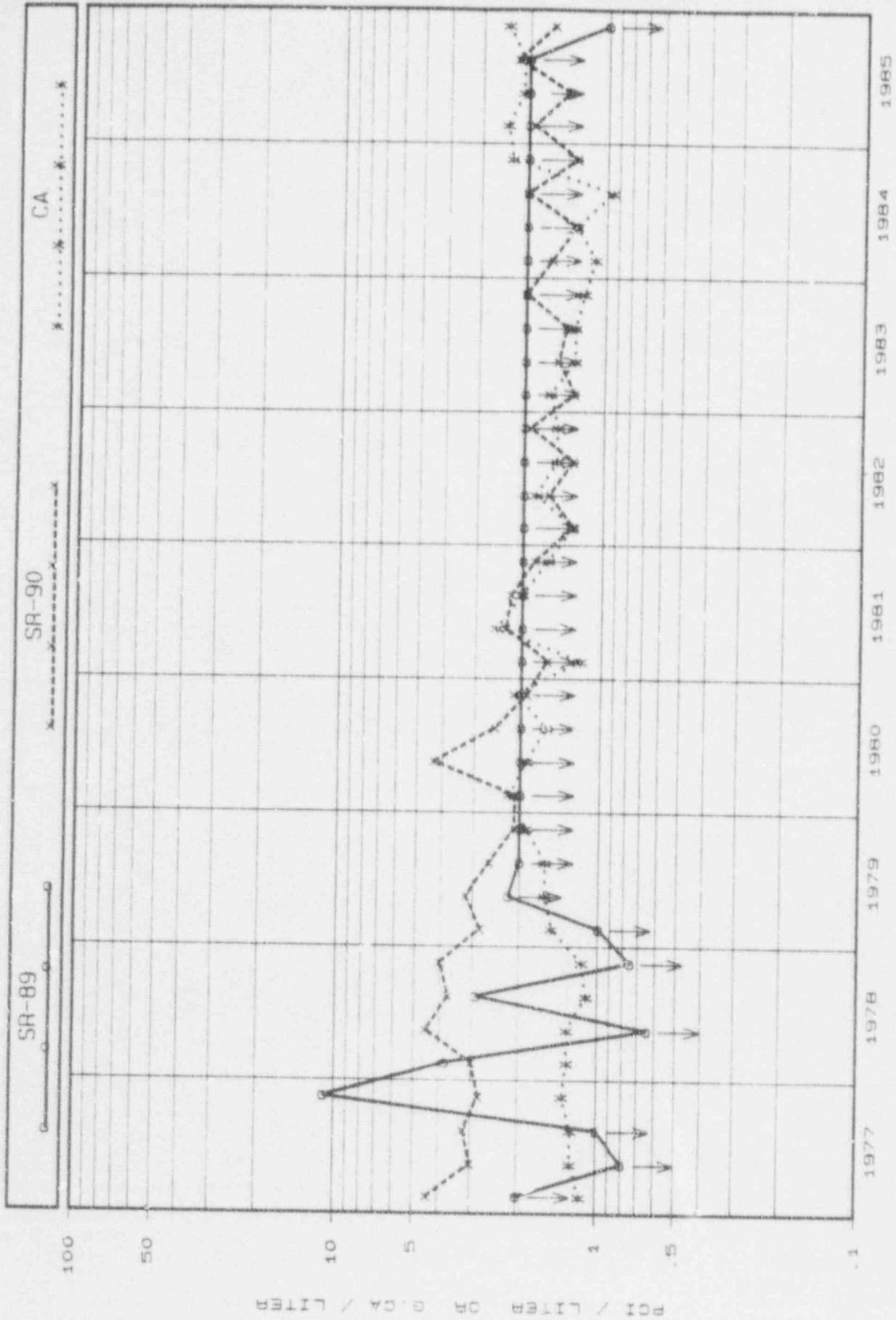
MILK - NEAREST PRODUCER
 QUARTERLY AVERAGE - STATION 61
 K-40 I-131 CS-137

Figure F-1



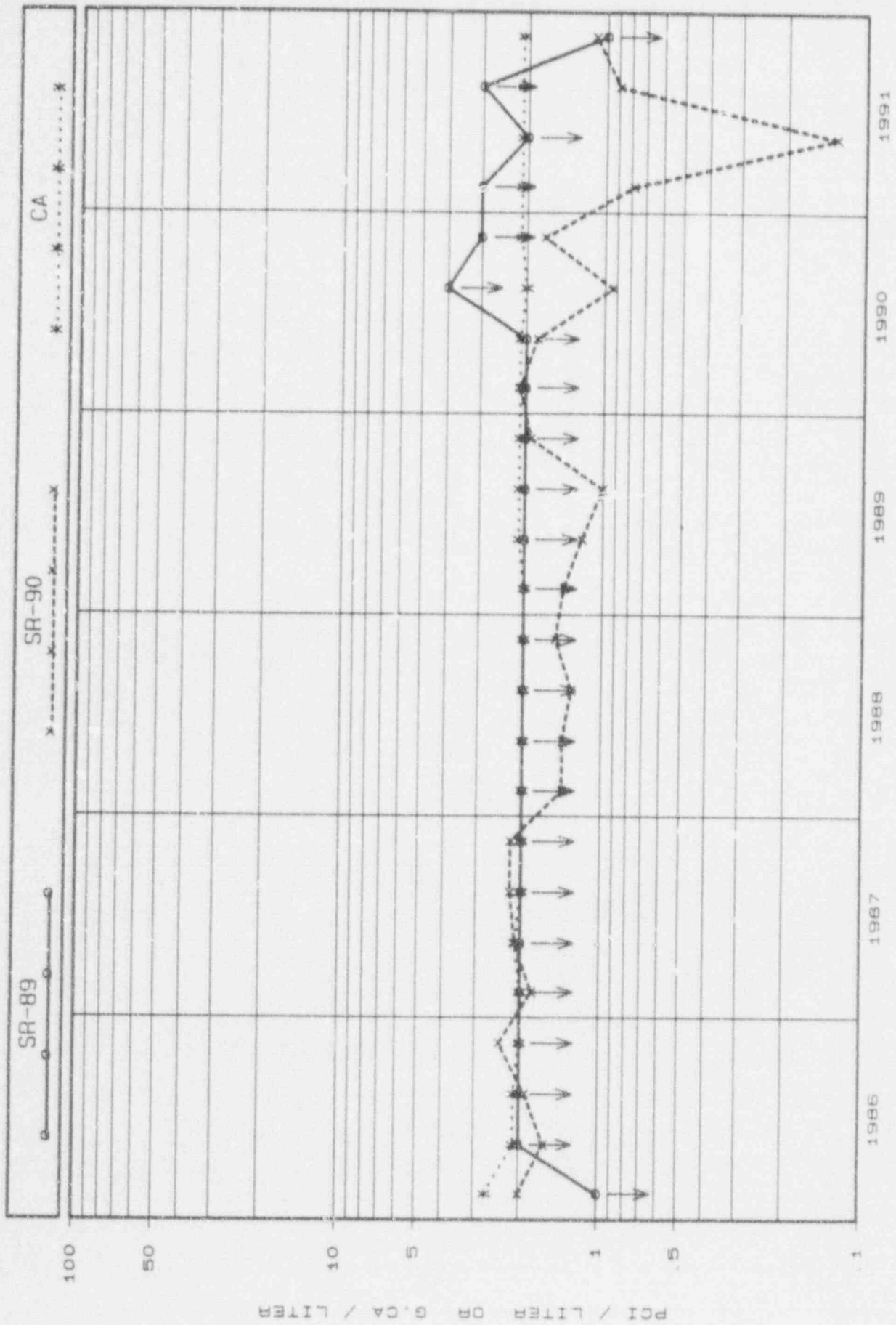
MILK - NEAREST PRODUCER
 QUARTERLY AVERAGE - STATION 61
 K-40 I-131 CS-137

Figure F-1



MILK - NEAREST PRODUCER
 QUARTERLY AVERAGE - STATION 61
 SR-89 SR-90 ELEM. CA.

Figure F-2



MILK - NEAREST PRODUCER
 QUARTERLY AVERAGE - STATION 51
 SR-89 SR-90 ELEM. CA.

Figure F-2

TABLE F-1
 1991 QUARTERLY REPORT
 NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK - NEAREST PRODUCER - PCI/LITER

SAMPLE NUCLIDE	STATION NUMBER		FIRST QUARTER 01/07-03/04	SECOND QUARTER 04/02-06/18	THIRD QUARTER 07/02-09/17	FOURTH QUARTER 10/08-12/03
SR-89	61	Mean/std.dev. det./total range	L.T. 3. E 00 0/4 --	L.T. 2. E 00 0/4 --	L.T. 3. E 00 0/6 --	L.T. 1. E 00 0/3 --
SR-90	61	Mean/std.dev. det./total range	7.8 ± 4.6 E-01 4/4 (0.43-1.4)E 00	1.3 ± 0.6 E-01 3/4 (.89-1.9)E 00	8.9 ± 1.3 E-01 4/6 (0.73-1.0)E 00	1.1 ± 0.1 E 00 3/3 (0.92-1.2)E 00
I-131 by chemical separation	61	Mean/std.dev. det./total range	L.T. 3. E-01 0/4 --	L.T. 2. E-01 0/5 --	L.T. 5. E-01 0/9 --	L.T. 1.0 E-01 0/3 --
Ca mg/liter	61	Mean/std.dev. det./total range	2.1 ± 0.1 E 00 4/4 (2.0-2.1) E 00	2.1 ± 0.1 E 00 4/4 (2.0-2.1)E 00	2.1 ± 0.0 E 00 6/6 (2.1-2.1)E 00	2.1 ± 0.1 E 00 3/3 (2.1-2.1)E 00
K-40	61	Mean/std.dev. det./total range	1.27 ± 0.09 E 03 4/4 (1.14-1.36)E 03	1.20 ± 0.17 E 03 5/5 (0.95-1.40)E 03	1.29 ± 0.08 E 03 9/9 (1.1-1.4) E 03	1.24 ± 0.2 E 03 3/3 (1.2-1.3)E 03
I-131 by gamma spectroscopy	61	Mean/std.dev. det./total range	L.T. 9. E 00 0/4 --	L.T. 9. E 00 0/5 --	L.T. 5. E 01 0/9 --	L.T. 8. E 00 0/3 --
Cs-134	61	Mean/std.dev. det./total range	L.T. 5. E 00 0/4 --	L.T. 5. E 00 0/5 --	L.T. 4. E 00 0/9 --	L.T. 4. E 00 0/3 --
Cs-137	61	Mean/std.dev. det./total range	L.T. 5. E 00 0/4 --	L.T. 5. E 00 0/5 --	L.T. 5. E 00 0/9 --	L.T. 4. E 00 0/3 --

TABLE F-2
 1991 QUARTERLY REPORT
 NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK - NEAREST PRODUCER - PCI/LITER

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 01/07-03/04	SECOND QUARTER 04/02-06/18	THIRD QUARTER 07/02-09/17	FOURTH QUARTER 10/08-12/03
BE-7	61	L.T. 4. E 01 (0/4)	L.T. 4. E 01 (0/5)	L.T. 4. E 01 (0/9)	L.T. 4. E 01 (0/3)
K-40	61	1.27±0.09 E 03 (4/4)	1.20±0.17 E 03 (5/5)	1.29 ± 0.08E 03 (9/9)	1.24 ± 0.2E 03 (3/3)
Mn-54	61	L.T. 4. E 00 (0/4)	L.T. 4. E 00 (0/5)	L.T. 4. E 00 (0/9)	L.T. 4. E 00 (0/3)
Co-58	61	L.T. 4. E 00 (0/4)	L.T. 4. E 00 (0/5)	L.T. 4. E 00 (0/9)	L.T. 4. E 00 (0/3)
Fe-59	61	L.T. 1. E 01 (0/4)	L.T. 1. E 01 (0/5)	L.T. 9. E 00 (0/9)	L.T. 9. E 00 (0/3)
Cu-60	61	L.T. 5. E 00 (0/4)	L.T. 5. E 00 (0/5)	L.T. 4. E 00 (0/9)	L.T. 4. E 00 (0/3)
Zn-65	61	L.T. 1. E 01 (0/4)	L.T. 1. E 01 (0/5)	L.T. 1. E 01 (0/9)	L.T. 9. E 00 (0/3)
Zr-95	61	L.T. 5. E 00 (0/4)	L.T. 5. E 00 (0/5)	L.T. 5. E 00 (0/9)	L.T. 4. E 00 (0/3)
Ru-103	61	L.T. 5. E 00 (0/4)	L.T. 5. E 00 (0/5)	L.T. 5. E 00 (0/9)	L.T. 4. E 00 (0/3)
Ru-106	61	L.T. 4. E 01 (0/4)	L.T. 4. E 01 (0/5)	L.T. 4. E 01 (0/9)	L.T. 4. E 00 (0/3)
I-131	61	L.T. 9. E 00 (0/4)	L.T. 9. E 00 (0/5)	L.T. 5. E 01 (0/9)	L.T. 4. E 01 (0/3)
Cs-134	61	L.T. 5. E 00 (0/4)	L.T. 5. E 00 (0/5)	L.T. 4. E 00 (0/9)	L.T. 4. E 00 (0/3)
Cs-137	61	L.T. 5. E 00 (0/4)	L.T. 5. E 00 (0/5)	L.T. 5. E 00 (0/9)	L.T. 4. E 00 (0/3)
Ba-140	61	L.T. 6. E 00 (0/4)	L.T. 7. E 00 (0/5)	L.T. 1.5 E 01 (0/9)	L.T. 6. E 00 (0/3)
Ce-141	61	L.T. 9. E 00 (0/4)	L.T. 9. E 00 (0/5)	L.T. 1. E 01 (0/9)	L.T. 8. E 00 (0/3)
Ce-144	61	L.T. 4. E 01 (0/4)	L.T. 4. E 01 (0/5)	L.T. 4. E 01 (0/9)	L.T. 8. E 00 (0/3)
Ra-226	61	L.T. 1. E 02 (0/4)	L.T. 1. E 02 (0/5)	L.T. 1. E 02 (0/9)	L.T. 8. E 01 (0/3)
Th-228	61	L.T. 8. E 00 (0/4)	L.T. 9. E 00 (0/5)	L.T. 9. E 00 (0/9)	L.T. 7. E 00 (0/3)

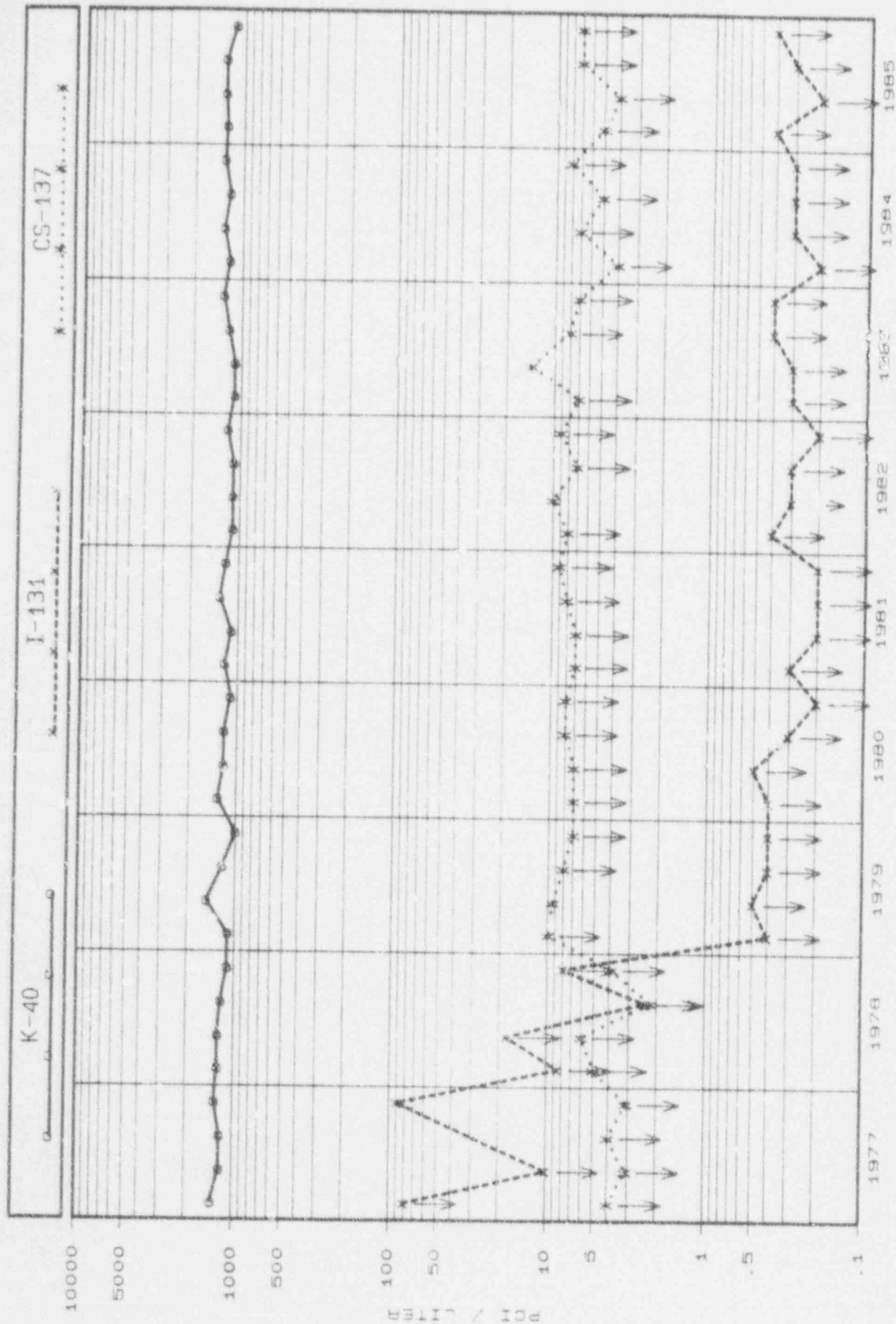
G. MILK (SEE TABLES G-1, G-2)

STATIONS 42, 99 (OTHER PRODUCERS)

Milk samples were collected quarterly from other producers within a ten mile radius of the plant. The samples were analyzed for I-131 by chemical separation, for elemental calcium, for Sr-89 and 90 and for gamma emitting isotopes. There were no detections of I-131 in the eight samples monitored.

There were no detections of Sr-89. Strontium-90 was found at an average level of 1.1 pCi/liter. There were 2.1 mg of calcium per liter of milk. Potassium-40 was detected at an average level of 1320. pCi/liter. The strontium-90, K-40 and elemental calcium were at normal environmental levels and were similar to the results obtained from analyses of milk from the nearest producer. There were no detections of Cs-137 in the samples collected. It can be concluded that the operations of CNS had no effect on milk samples and thus no dose impact on the population.

The levels of radioactivities of the nuclides K-40, I-131 and Cs-137 are plotted on Figure G-1. Potassium-40 was at normal environmental levels as in previous years. There were no detections of I-131 or Cs-137. Figure G-2 shows that Sr-90 and elemental calcium are at a level comparable to previous years and there were no detections of Sr-89. These graphs indicate that there was no appreciable difference between the levels of activity of the nearest producer and the commercial producers. This indicated no effect on milk samples from the operations of CNS.



MILK - COMMERCIAL PRODUCERS
 QUARTERLY AVERAGE - ALL LOCATIONS
 K-40 I-131 CS-137

Figure G-1

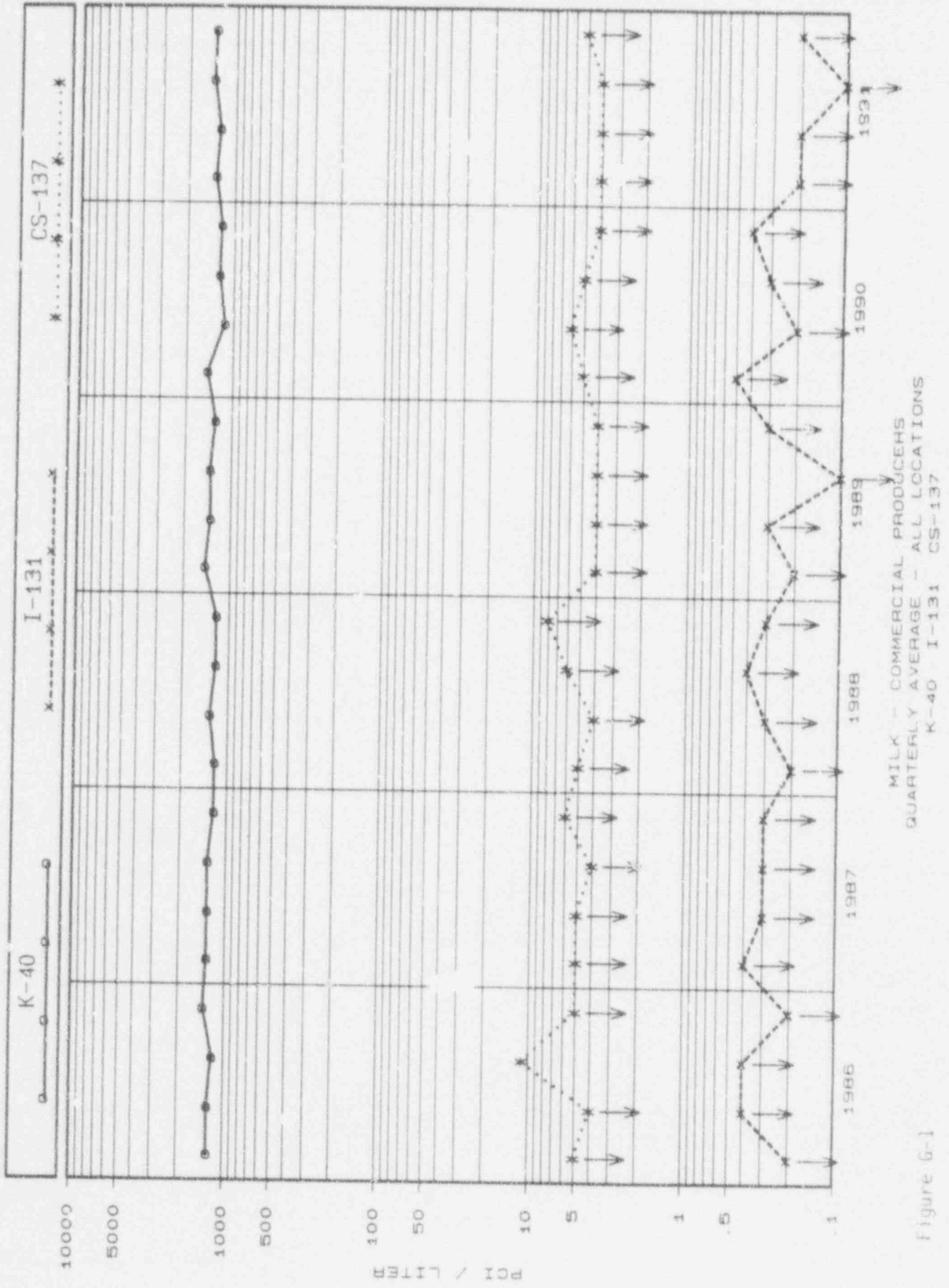
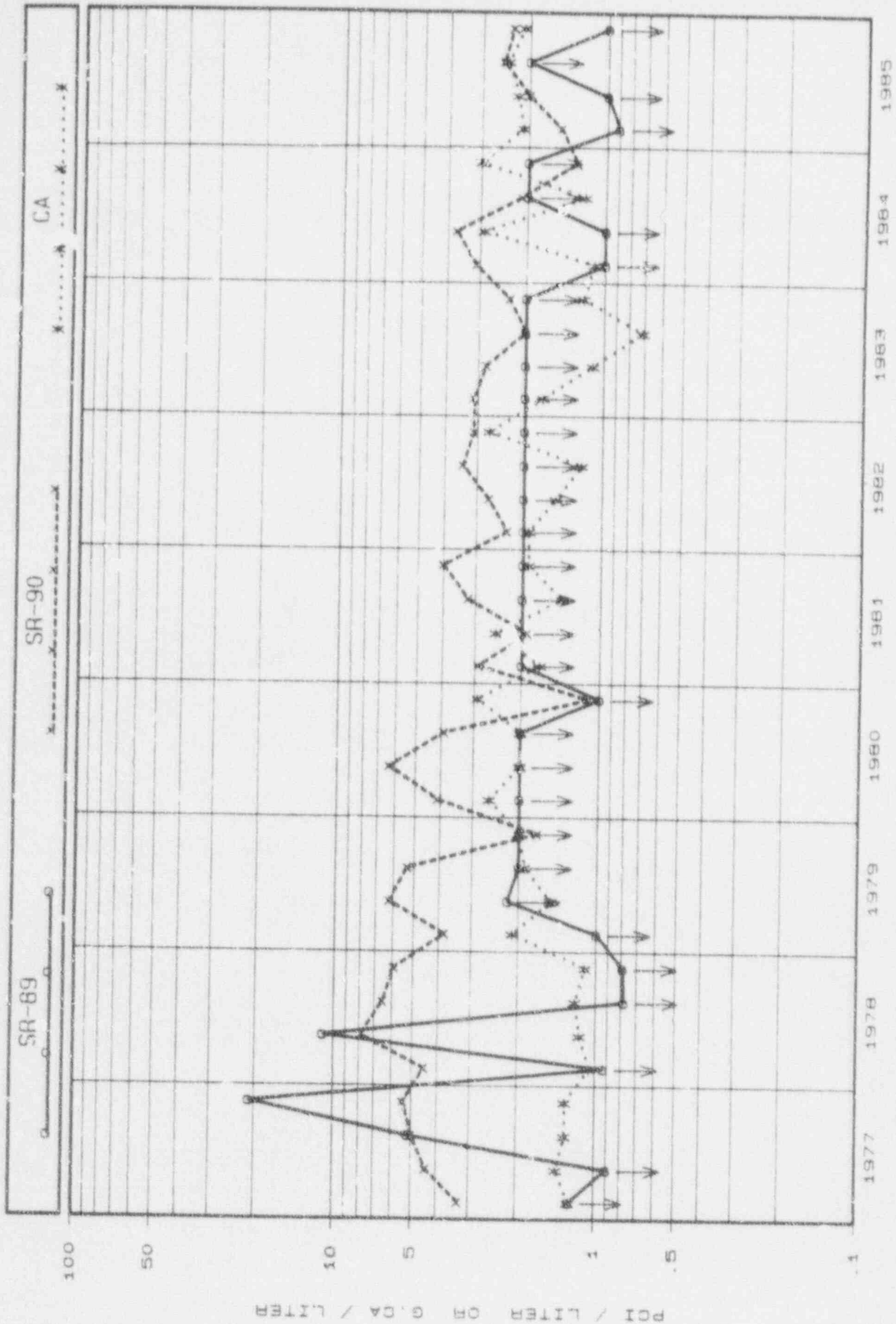
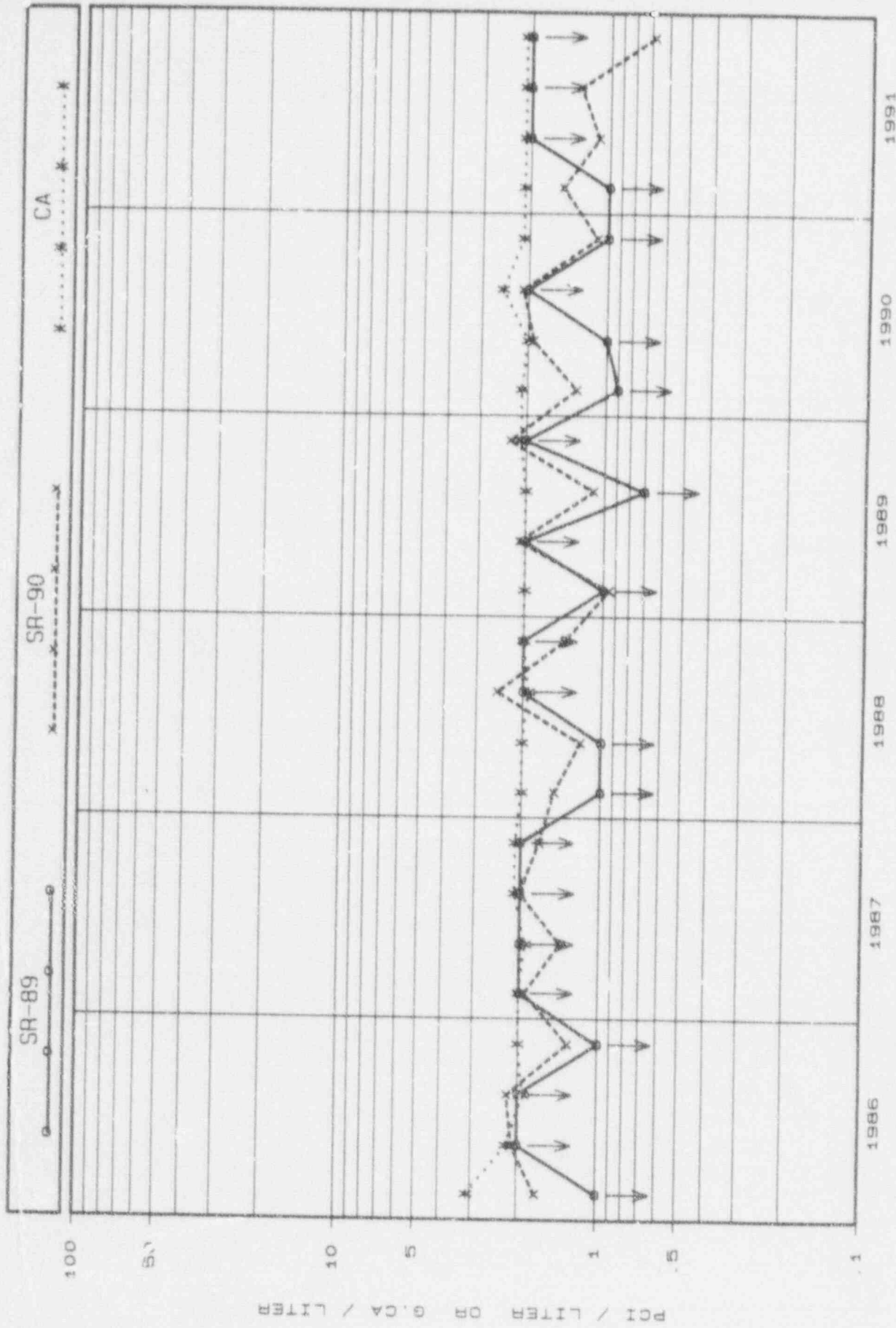


Figure 6-1



MILK - COMMERCIAL PRODUCERS
 QUARTERLY AVERAGE - ALL LOCATIONS
 SR-89 SR-90 ELEM. CA.

Figure G-2



MILK - COMMERCIAL PRODUCERS
 QUARTERLY AVERAGE - ALL LOCATIONS
 SR-89 SR-90 ELEM. CA.

Figure G-2

TABLE G-1
 1991 QUARTERLY REPORT
 NEBPASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK - OTHER PRODUCERS - PCI/LITER

SAMPLE NUCLIDE	STATION NUMBER		FIRST QUARTER 01/14	SECOND QUARTER 04/09	THIRD QUARTER 07/09	FOURTH QUARTER 10/15
SR-89	42, 99	Mean/std.dev. det./total range	L.T. 1. E 00 0/2 --	L.T. 2. E 00 0/2 --	L.T. 2. E 00 0/2 --	L.T. 2. E 00 0/2 --
SR-90	42, 99	Mean/std.dev. det./total range	1.5 ± 0.1 E 00 2/2 (1.3-1.5)E 00	1.1 ± 0.4 E 00 2/2 (0.6-1.1)E 00	1.3 ± 0.5 E 00 2/2 (0.9-1.7)E 00	6.8 ± 5.9 E-01 2/2 (0.3-1.1)E 00-
I-131 (by chemical separation)	42, 99	Mean/std.dev. det./total range	L.T. 2. E-01 0/2 --	L.T. 2. E-01 0/2 --	L.T. 1. E-01 0/2 --	L.T. 2. E-01 0/2 --
Ca mg/liter	42, 99	Mean/std.dev. det./total range	2.1 ± 0.0 E 00 2/2 (2.1-2.1) E 00	2.1 ± 0.0 E 00 2/2 (2.1-2.1) E 00	2.1 ± 0.0E 00 2/2 (2.1-2.1)E 00	2.1 ± 0.0 E 00 2/2 (2.1-2.1)E 00
K-40	42, 99	Mean/std.dev. det./total range	1.32 ± 0.1 E 03 2/2 (1.24-1.39)E 03	1.25 ± 0.08E 03 2/2 (1.2 -1.3)E 03	1.38 ± 0.1E 03 2/2 (1.33-1.43)E 03	1.34 ± 1.0 E 03 2/2 (1.3-1.4)E 03
I-131 (by gamma spectroscopy)	42, 99	Mean/std.dev. det./total range	L.T. 8. E 00 0/2 --	L.T. 9. E 00 0/2 --	L.T. 2. E 01 0/2 --	L.T. 2. E 01 0/2 --
Cs-137	42, 99	Mean/std.dev. det./total range	L.T. 4. E 00 0/2 --	L.T. 4. E 00 0/2 --	L.T. 4. E 00 0/2 --	L.T. 5. E 00 0/2 --

TABLE G-2
1991 QUARTERLY REPORT
NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
EXPOSURE PATHWAY - INGESTION
MILK - OTHER PRODUCERS - PCI/LITER

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 01/14			SECOND QUARTER 04/09			THIRD QUARTER 07/09			FOURTH QUARTER 10/15		
BE-7	42, 95	L.T.	4.	E 01 (0/2)	L.T.	4.	E 01 (0/2)	L.T.	4.	E 01 (0/2)	L.T.	4.	E 01(0/2)
K-40	42, 95	1.32 ± 0.1E 03	(2/2)		1.25±0.08 E 03	(2/2)		1.38±0.1 E 03	(2/2)		1.34 ± 1.0E 03	(2/2)	
Mn-54	42, 95	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00(0/2)
Co-58	42, 95	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00(0/2)
Fe-59	42, 95	L.T.	1.	E 01 (0/2)	L.T.	9.	E 00 (0/2)	L.T.	1.	E 01 (0/2)	L.T.	1.	E 01(0/2)
Co-60	42, 95	L.T.	5.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	5.	E 00 (0/2)	L.T.	4.	E 00(0/2)
Zn-65	42, 95	L.T.	1.	E 01 (0/2)	L.T.	9.	E 00 (0/2)	L.T.	1.	E 01 (0/2)	L.T.	1.	E 01(0/2)
Zr-95	42, 95	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	5.	E 00 (0/2)	L.T.	4.	E 00(0/2)
Ru-103	42, 95	L.T.	5.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	6.	E 00 (0/2)	L.T.	5.	E 00(0/2)
Ru-106	42, 95	L.T.	3.	E 01 (0/2)	L.T.	3.	E 01 (0/2)	L.T.	3.	E 01 (0/2)	L.T.	4.	E 01(0/2)
I-131	42, 95	L.T.	9.	E 00 (0/2)	L.T.	9.	E 00 (0/2)	L.T.	2.	E 01 (0/2)	L.T.	2.	E 01(0/2)
Cs-134	42, 95	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	5.	E 00(0/2)
Cs-137	42, 95	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	4.	E 00 (0/2)	L.T.	5.	E 00(0/2)
Ba-140	42, 95	L.T.	6.	E 00 (0/2)	L.T.	6.	E 00 (0/2)	L.T.	1.	E 01 (0/2)	L.T.	9.	E 00(0/2)
Ce-141	42, 95	L.T.	9.	E 00 (0/2)	L.T.	9.	E 00 (0/2)	L.T.	1.	E 01 (0/2)	L.T.	1.	E 01(0/2)
Ce-144	42, 95	L.T.	4.	E 01 (0/2)	L.T.	4.	E 01 (0/2)	L.T.	4.	E 01 (0/2)	L.T.	4.	E 01(0/2)
Ra-226	42, 95	L.T.	1.	E 02 (0/2)	L.T.	1.	E 02 (0/2)	L.T.	1.	E 02 (0/2)	L.T.	1.	E 02(0/2)
Th-228	42, 95	L.T.	9.	E 00 (0/2)	L.T.	9.	E 00 (0/2)	L.T.	8.	E 00 (0/2)	L.T.	9.	E 00(0/2)

H. GROUNDWATER (See Tables H-1 and H-2)

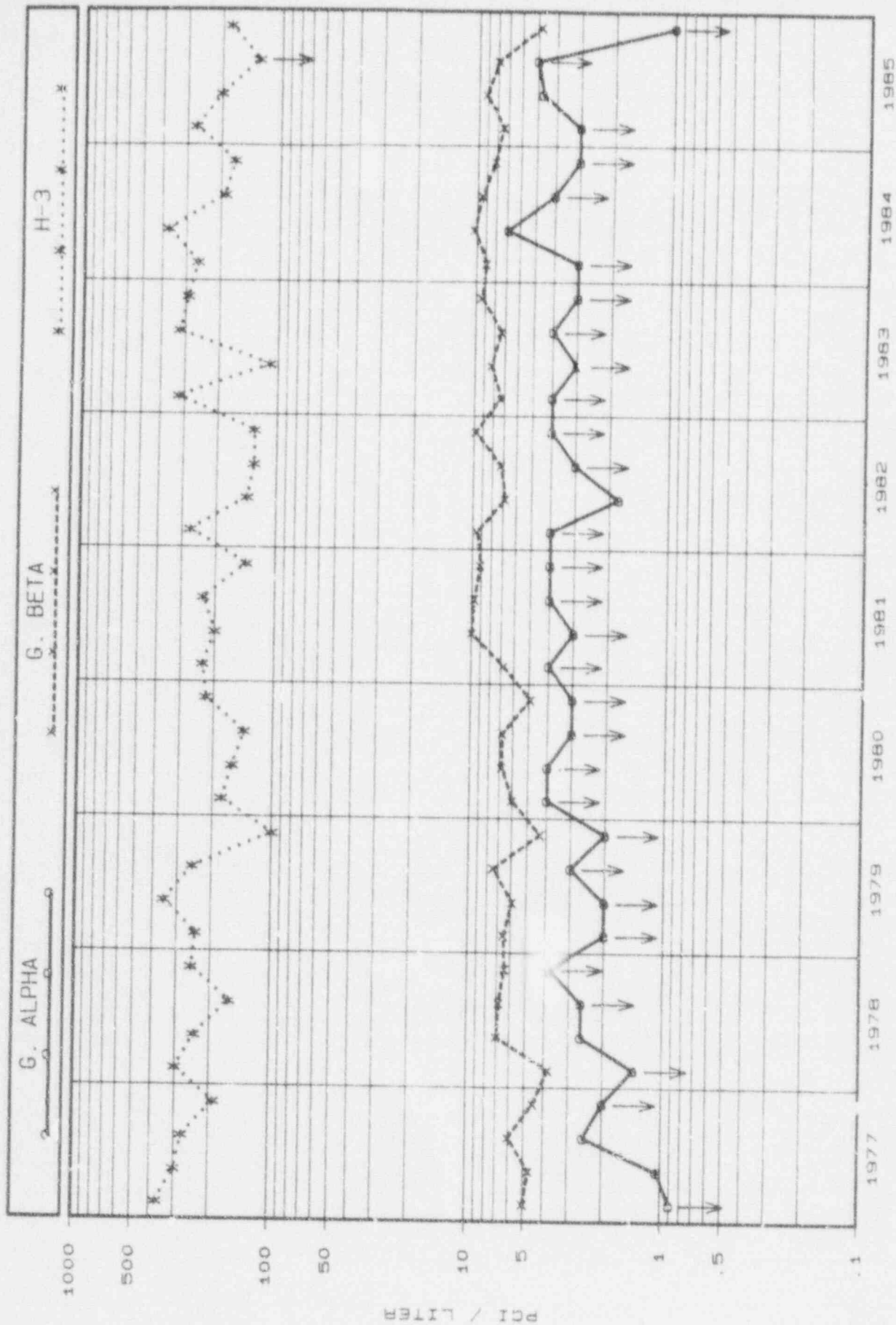
STATIONS 11, 47

Groundwater was collected from two stations quarterly and analyzed for gross beta and gross alpha activity, for tritium and for gamma emitting radionuclides. Station 11 is 0.15 miles from the plant and station 47 is 25.75 miles from the plant.

The gross beta activity averaged 8.3 pCi/liter which is statistically similar to past years. There were no detections of alpha activity in any of the samples collected. There were no detections of gamma emitters above the normal level of detection. The tritium level averaged 180 pCi/liter for the year which is the normal environmental level.

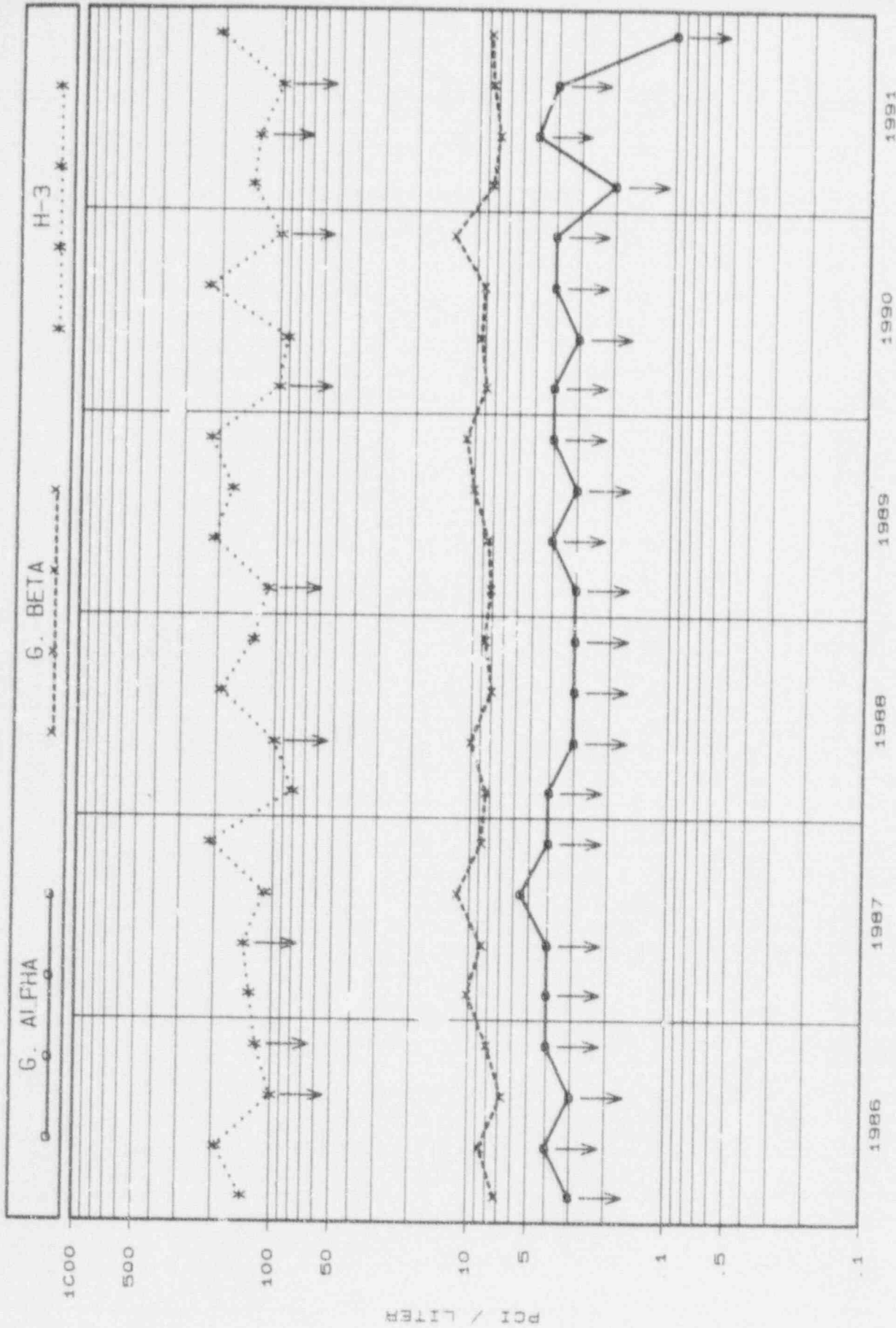
There was no difference in levels of beta activity or tritium for the station close to the plant as compared with the more distant station. It may be concluded that there was no impact from the operations of CNS on the environment as shown by measurements of radionuclides in groundwater.

Shown in Figure H-1 are the gross alpha, gross beta and tritium levels in groundwater. The levels of these activities have remained essentially unchanged.



GROUND WATER
 QUARTERLY AVERAGE - ALL LOCATIONS
 GROSS ALPHA GROSS BETA H-3

Figure H-1



G.F.OUND WATER
 QUARTERLY AVERAGE - ALL LOCATIONS
 GROSS ALPHA GROSS BETA H-3

Figure H-1

TABLE B-1

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - WATERBORNE

GROUNDWATER - PCI/LITER

SAMPLE NUCLIDE	STATION NUMBER	Mean/std.dev. det./total range	FIRST QUARTER 01/21		SECOND QUARTER 04/08-04/09		THIRD QUARTER 07/16		FOURTH QUARTER 10/15	
			L.T.	U.T.	L.T.	U.T.	L.T.	U.T.	L.T.	U.T.
GROSS ALPHA	11, 47	8.4 ± 0.6 E 00 2/2	2.0	2.0	5.0	5.0	4.0	4.0	1.0	1.0
GROSS BETA	11, 47	7.8 ± 1.4 E 00 2/2	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
K-40	11, 47	Mean/std.dev. det./total range	9.0	9.0	5.0	5.0	1.0	1.0	5.0	5.0
I-131 (by gamma spectroscopy)	11, 47	Mean/std.dev. det./total range	1.0	1.0	8.0	8.0	2.0	2.0	7.0	7.0
Cs-137	11, 47	Mean/std.dev. det./total range	4.0	4.0	3.0	3.0	5.0	5.0	3.0	3.0
H-3	11, 47	Mean/std.dev. det./total range	0.8	0.8	1.3	1.3	1.0	1.0	1.0	1.0

TABLE #2

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - WATERBORNE

GROUNDWATER - PCI/LITER

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 01/21				SECOND QUARTER 04/08-04/09				THIRD QUARTER 07/16				FOURTH QUARTER 10/15								
		L.T.	E 01	(0/2)		L.T.	E 01	(0/2)		L.T.	E 01	(0/2)		L.T.	E 01	(0/2)		L.T.	E 01	(0/2)		
BE-7	11, 47	L.T.	4.	E 01	(0/2)	L.T.	3.	E 01	(0/2)	L.T.	5.	E 01	(0/2)	L.T.	3.	E 01	(0/2)	L.T.	3.	E 01	(0/2)	
K-40	11, 47	L.T.	9.	E 01	(0/2)	L.T.	5.	E 01	(0/2)	L.T.	1.	E 02	(0/2)	L.T.	5.	E 01	(0/2)	L.T.	5.	E 01	(0/2)	
Mn-54	11, 47	L.T.	4.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	4.	E 00	(0/2)	L.T.	2.	E 00	(0/2)	L.T.	2.	E 00	(0/2)	
Co-58	11, 47	L.T.	4.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	5.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	
Fe-59	11, 47	L.T.	8.	E 00	(0/2)	L.T.	6.	E 00	(0/2)	L.T.	1.	E 01	(0/2)	L.T.	6.	E 00	(0/2)	L.T.	6.	E 00	(0/2)	
Co-60	11, 47	L.T.	4.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	4.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	
Zn-65	11, 47	L.T.	9.	E 00	(0/2)	L.T.	6.	E 00	(0/2)	L.T.	1.	E 01	(0/2)	L.T.	6.	E 00	(0/2)	L.T.	6.	E 00	(0/2)	
Zr-95	11, 47	L.T.	4.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	5.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	
Ru-103	11, 47	L.T.	5.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	6.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	
Ru-106	11, 47	L.T.	4.	E 01	(0/2)	L.T.	3.	E 01	(0/2)	L.T.	4.	E 01	(0/2)	L.T.	2.	E 01	(0/2)	L.T.	2.	E 01	(0/2)	
I-131	11, 47	L.T.	1.	E 01	(0/2)	L.T.	8.	E 00	(0/2)	L.T.	2.	E 01	(0/2)	L.T.	7.	E 00	(0/2)	L.T.	7.	E 00	(0/2)	
Cs-134	11, 47	L.T.	4.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	5.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	
Cs-137	11, 47	L.T.	4.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	5.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	L.T.	3.	E 00	(0/2)	
Ba-140	11, 47	L.T.	7.	E 00	(0/2)	L.T.	6.	E 00	(0/2)	L.T.	1.	E 01	(0/2)	L.T.	6.	E 00	(0/2)	L.T.	6.	E 00	(0/2)	
P-141	11, 47	L.T.	9.	E 00	(0/2)	L.T.	7.	E 00	(0/2)	L.T.	1.	E 01	(0/2)	L.T.	6.	E 00	(0/2)	L.T.	6.	E 00	(0/2)	
Ce-144	11, 47	L.T.	4.	E 01	(0/2)	L.T.	3.	E 01	(0/2)	L.T.	4.	E 01	(0/2)	L.T.	2.	E 01	(0/2)	L.T.	2.	E 01	(0/2)	
Ra-226	11, 47	L.T.	1.	F 02	(0/2)	L.T.	1.	E 01	(0/2)	L.T.	9.	E 01	(0/2)	L.T.	1.	E 01	(0/2)	L.T.	1.	E 01	(0/2)	
Th-228	11, 47	L.T.	8.	E 00	(0/2)	L.T.	6.	E 00	(0/2)	L.T.	8.	E 00	(0/2)	L.T.	5.	E 00	(0/2)	L.T.	5.	E 00	(0/2)	

1. RIVER WATER (See Table I-1 and I-2)

STATIONS 12, 28

River water was collected monthly and monitored for gross beta and gross alpha, suspended and dissolved, Sr-89 and Sr-90 plus gamma emitting isotopes. A quarterly composite was measured for tritium.

There were two detections of potassium-40 (18.9 and 23.9 pCi/l) above the normal level of detection. There were no detections of Sr-89 or Sr-90.

The average gross alpha and gross beta readings were similar to previous years as indicated in the summary of 1990 and 1991 averages below:

	1990 Average pCi/liter	1991 Average pCi/liter
Gross Alpha (dissolved)	<4.0 (a)	5.0
Gross Alpha (suspended)	3.3	6.3
Gross Beta (dissolved)	10.4	11.0
Gross Beta (suspended)	7.3	15.0

Figure I-1, which follows, is a plot of the gross alpha and gross beta of suspended and dissolved particles. The results for 1986 through 1991 are on the second page. The levels of activity continued to rise and fall within statistical limits depending on water levels and turbulence and were probably due to naturally occurring isotopes. No fission or reactor activation products were detected. Figure I-2 illustrates the level of activity for tritium, Sr-89 and Sr-90.

- (a) Two gross alpha LLDs were 30 and 40 pCi/l. The LLDs were high because sodium bisulfite was inadvertently added to the samples.

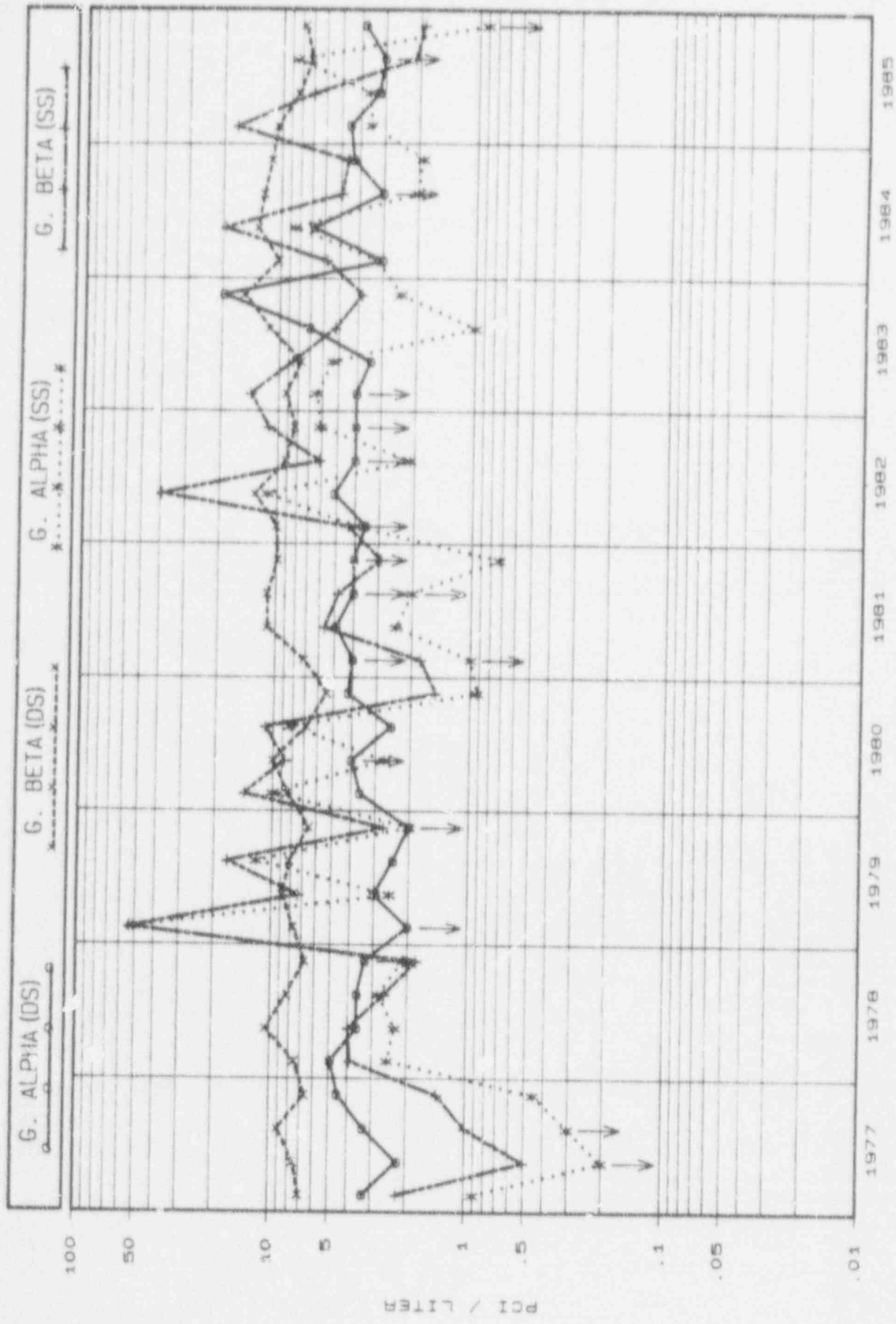


Figure I-1
 RIVER WATER
 QUARTERLY AVERAGE - ALL LOCATIONS
 GROSS ALPHA AND GROSS BETA (SUSPENDED AND DISSOLVED SOLIDS)

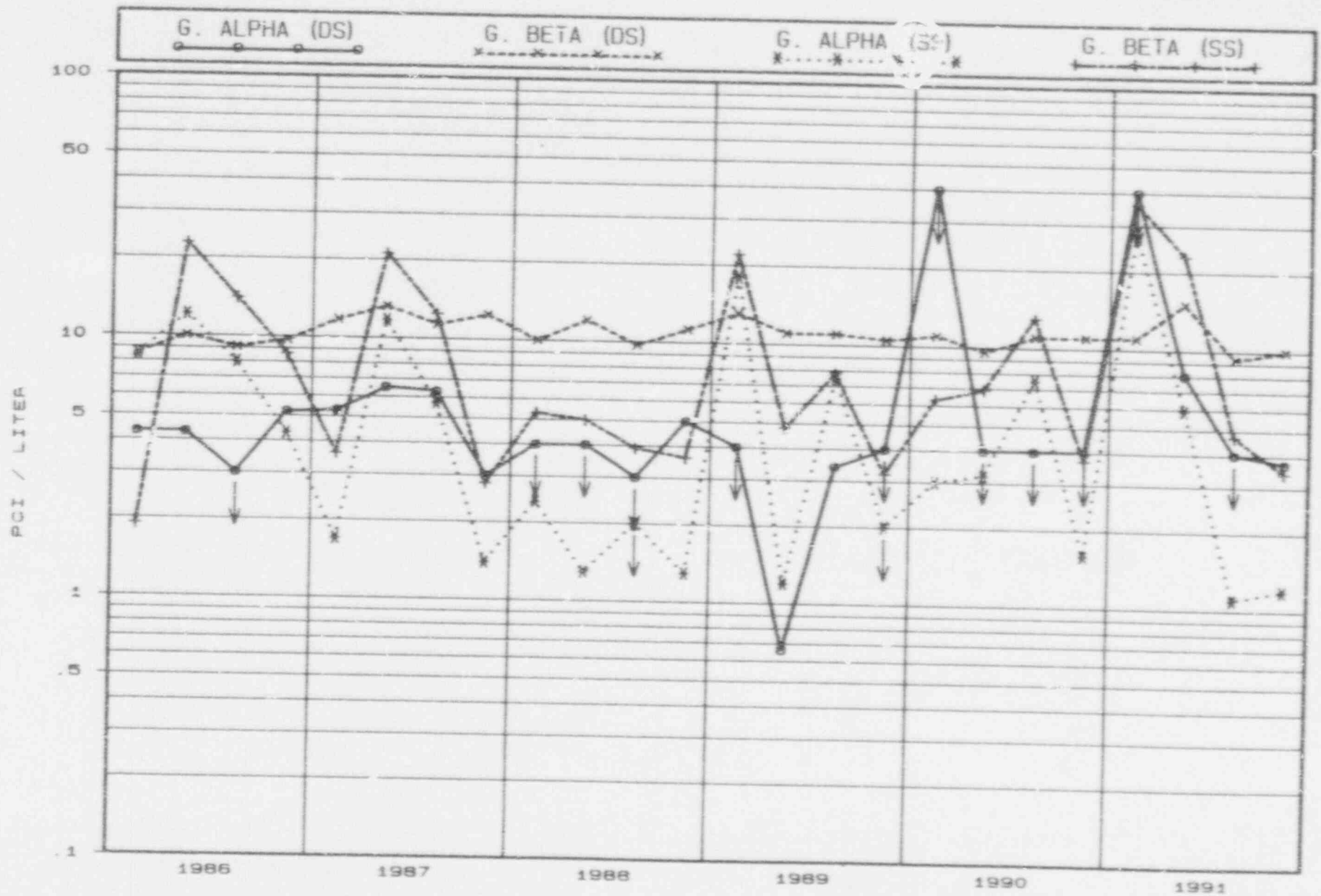
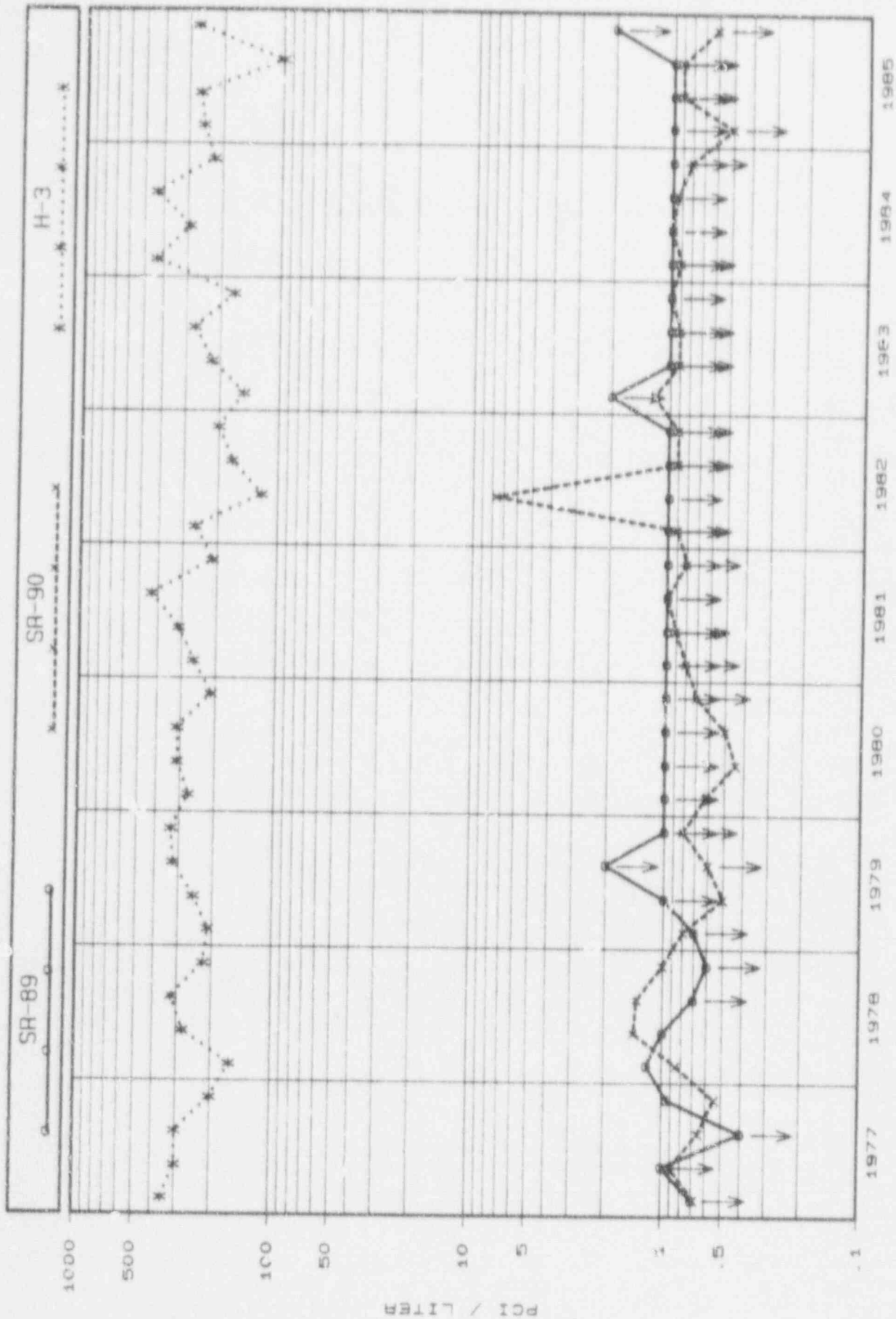


Figure I-1 RIVER WATER QUARTERLY AVERAGE - ALL LOCATIONS GROSS ALPHA AND GROSS BETA (SUSPENDED AND DISSOLVED SOLIDS)



RIVER WATER
 QUARTERLY AVERAGE - ALL LOCATIONS
 SR-89 SR-90 H-3

Figure 1-2

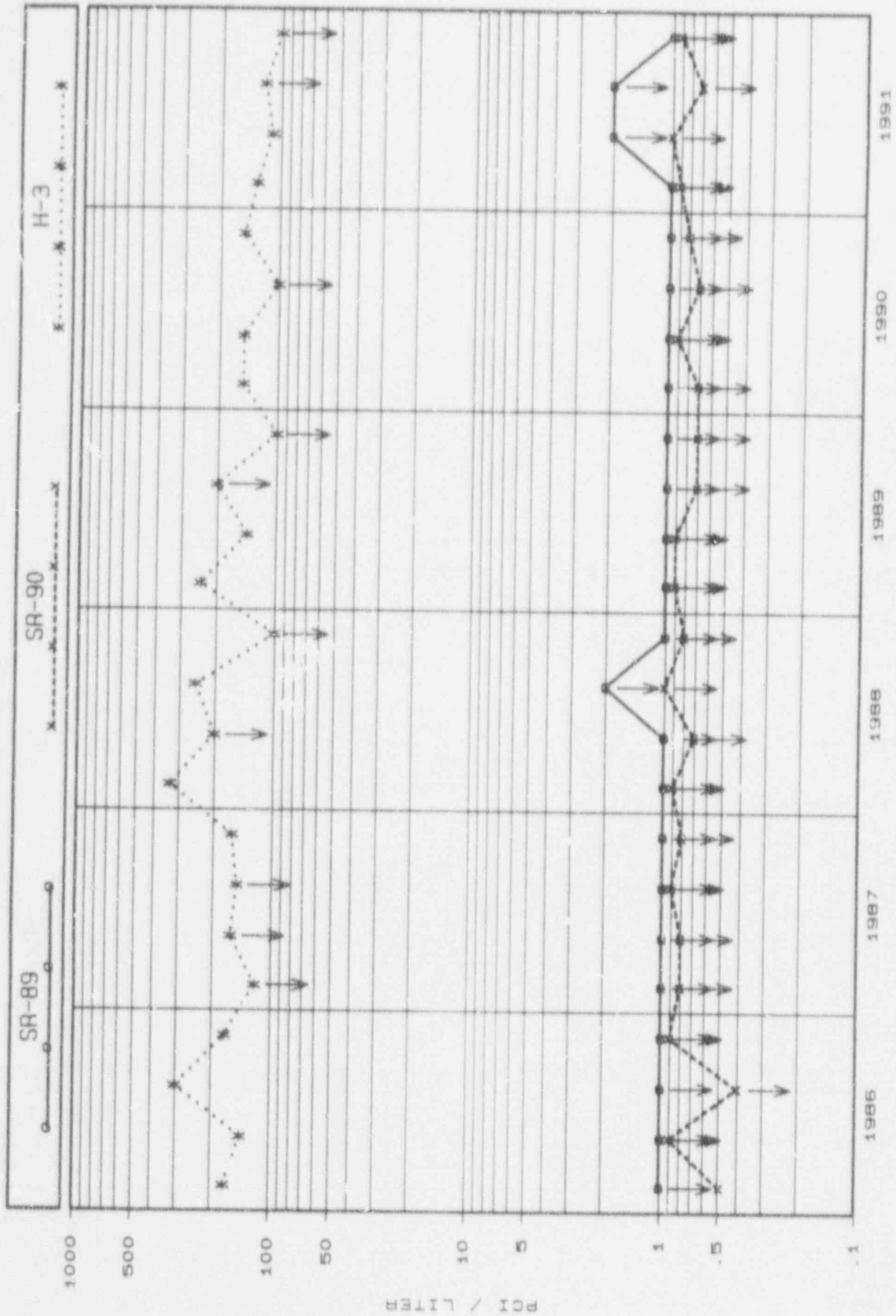


Figure I-2

TABLE I-1
1991 QUARTERLY REPORT
NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
EXPOSURE PATHWAY - WATERBORNE

WATER - RIVER
 PCl/LITER

SAMPLE NO. NUCLIDE	STATION NUMBER	FIRST QUARTER 01/09-03/04	SECOND QUARTER 04/03-06/04	THIRD QUARTER 07/02-09/03	FOURTH QUARTER 10/01-12/03
GROSS ALPHA (dissolved)	12, 28	Meanstsd.dev. det./total range L.T. 4. E 01 0/6 --	8.0 ± 0.9 E 00 2/6 {7.4-8.6}E 00	L.T. 4. E 00 0/6 --	3.7 ± 0.9. E 00 5/6 {2.7-5.1}E 00
GROSS ALPHA (suspended)	12, 28	Meanstsd.dev. det./total range 2.6 ± 0.9 E 01 2/6 {2.1-3.4} E 01	5.9 ± 6.1 E 00 4/6 {2.7-15} E 00	1.1 ± 1.0 E 00 3/6 {0.1-2.1} E 00	1.2 ± 0.3 E 00 5/6 {0.9-1.5}E 00
GROSS BETA (dissolved)	12, 28	Meanstsd.dev. det./total range 1.1 ± 0.07E 01 6/6 {9.4-11} E 00	1.5 ± 0.6 E 01 6/6 {1.0-2.5} E 01	9.3 ± 1.5 E 00 6/6 {6.5-11}E 00	1.0 ± 0.1 E 01 6/6 {9.1-12}E 00
GROSS BETA (suspended)	12, 28	Meanstsd.dev. det./total range 3.6 ± 4.1 E 01 4/6 3.7-88}E 00	2.3 ± 2.2 E 01 6/6 {7.6-54} E 00	4.7 ± 3.1 E 00 6/6 {1.4-9.0} E 00	3.4 ± 1.7 E 00 6/6 {2.0-6.5}E 00
Sr-89	12, 28	Meanstsd.dev. det./total range L.T. 1. E 00 0/6 --	L.T. 2. E 00 0/6 --	L.T. 2. E 00 0/6 --	L.T. 1. E 00 0/6 --
Sr-90	12, 28	Meanstsd.dev. det./total range L.T. 9.0 E-01 0/6 --	L.T. 1. E 00 0/6 --	L.T. 7. E-01 0/6 --	L.T. 9. E-01 0/6 --
H-3 (a)	12, 28	Meanstsd.dev. det./total range 1.3 ± 0.7 E 02 1/2 --	1.1 ± 0.6 E 02 1/2 --	L.T. 1.2 E 02 0/2 --	L.T. 1. E 02 0/2 --
I-131 (by gamma spectroscopy)	12, 28	Meanstsd.dev. det./total range L.T. 1. E 01 0/6 --	L.T. 2. E 01 0/6 --	L.T. 3. E 01 0/6 --	L.T. 8. E 00 0/6 --
Cs-137	12, 28	Meanstsd.dev. det./total range L.T. 5. E 00 0/6 --	L.T. 5. E 00 0/6 --	L.T. 4. E 00 0/6 --	L.T. 4. E 00 0/6 --

(a) Tritium analysis is performed on the quarterly composite of each station only.

TABLE I-2

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - WATERBORNE

WATER - RIVER

PCI/LITER

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 01/09-03/04				SECOND QUARTER 04/03-06/04				THIRD QUARTER 07/02-09/03				FOURTH QUARTER 10/01-12/03					
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
BE-7	12, 28	L.T.	4.	E 01 (C/6)	L.T.	4.	E 01 (0/6)	L.T.	3.	E 01 (0/6)	L.T.	3.	E 01 (0/6)	L.T.	3.	E 01 (0/6)	L.T.	3.	E 01 (0/6)
K-40	12, 28	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)
Mn-54	12, 28	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)
Co-58	12, 28	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)
Fe-59	12, 28	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)
Co-60	12, 28	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)
Zn-65	12, 28	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)
Zr-95	12, 28	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)	L.T.	4.	E 00 (0/6)
Ru-103	12, 28	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)
Ru-106	12, 28	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)
I-131	12, 28	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)
Cs-134	12, 28	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)
Cs-137	12, 28	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)	L.T.	5.	E 00 (0/6)
Ba-140	12, 28	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)
Ce-141	12, 28	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)	L.T.	1.	E 01 (0/6)
Ce-144	12, 28	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)	L.T.	4.	E 01 (0/6)
Ra-226	12, 28	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)	L.T.	1.	E 02 (0/6)
Th-228	12, 28	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)	L.T.	8.	E 00 (0/6)

J. AMBIENT RADIATION - THERMOLUMINESCENT DOSIMETERS

(TLDs - See Tables J-1 AND J-2)

STATIONS 01-10, 20, 44, 56, 58, 59, 66, 67, 71, 79-91, 94

Ambient radiation was monitored at 32 locations within a 10 mile radius of CNS and collected quarterly. The quarterly averages for all stations of ambient net gamma radiation ranged from 14.3 milliRoentgen/quarter to 32.3 milliRoentgen/quarter. The highest exposure during each of the four quarters was at Station 01 (0.1 mile, 225 degrees) and averaged 28.0 mR/quarter. The lowest exposure was at Station 03 (2.5 miles, 338 degrees) averaging 15.7 milliRoentgen/quarter.

The radiation at station 44, (10.5 miles, 270 degrees) which is the control station, was an average of 19.9 mR/quarter. This was similar to other stations and to the average of all stations which was 17.8 mR/quarter.

The average total exposure for the year was 71.3 mR which is considerably below the 125 millirems per quarter specified in 10 CFR 20.105 for an unrestricted area. The relationship between milliRoentgen (mR) and millirems (mr) is approximately one for the exposure conditions encountered. No plant effect from CNS was indicated.

The gamma exposures monitored by thermoluminescent dosimeters from 1977 through 1991 are plotted on Figure J-1. The data from year to year is in good agreement and indicates no adverse changes in radiation exposure to the population near CNS.

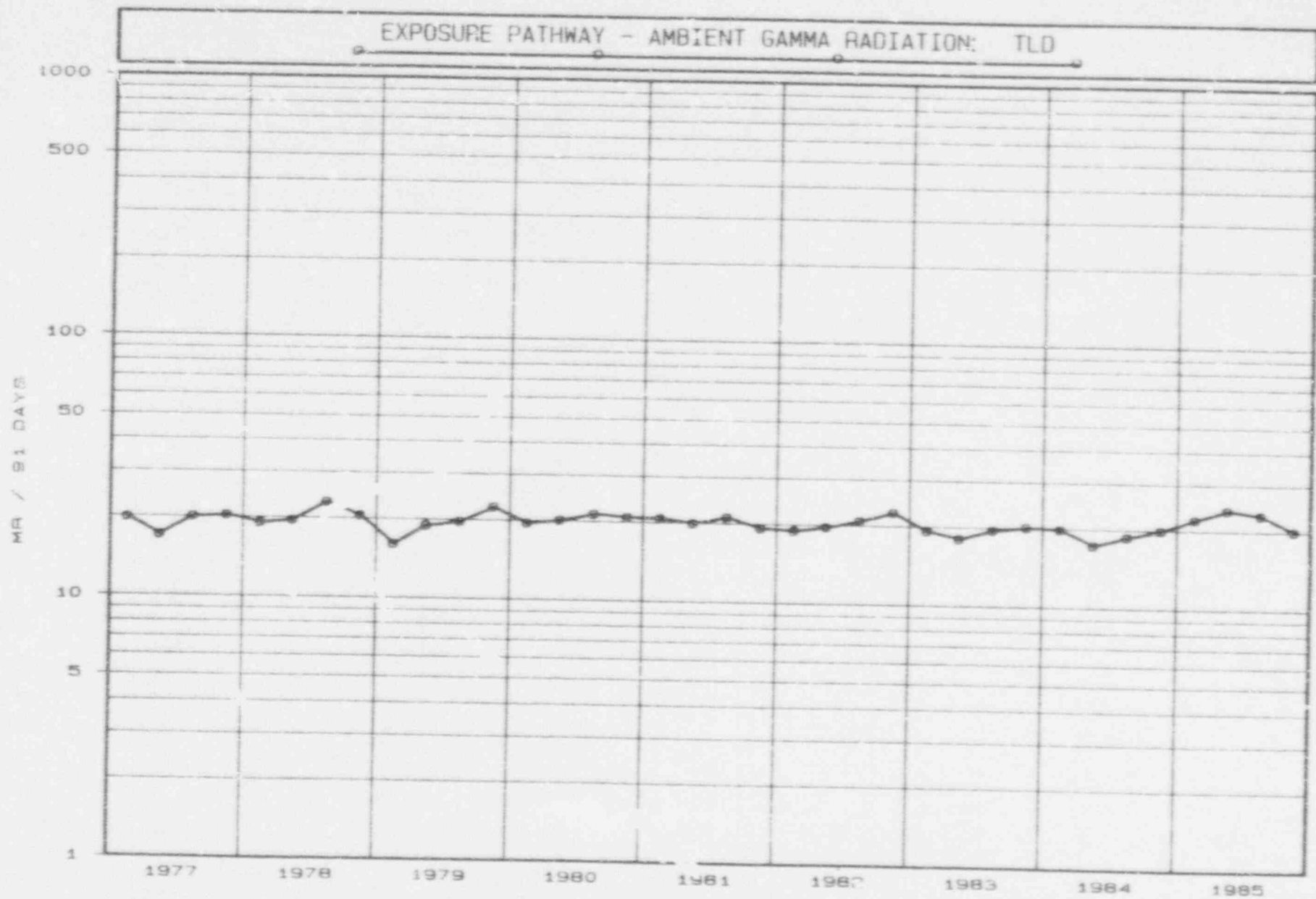


Figure J-1

AMBIENT RADIATION
THERMOLUMINESCENT DOSIMETRY
QUARTERLY AVERAGE - ALL LOCATIONS

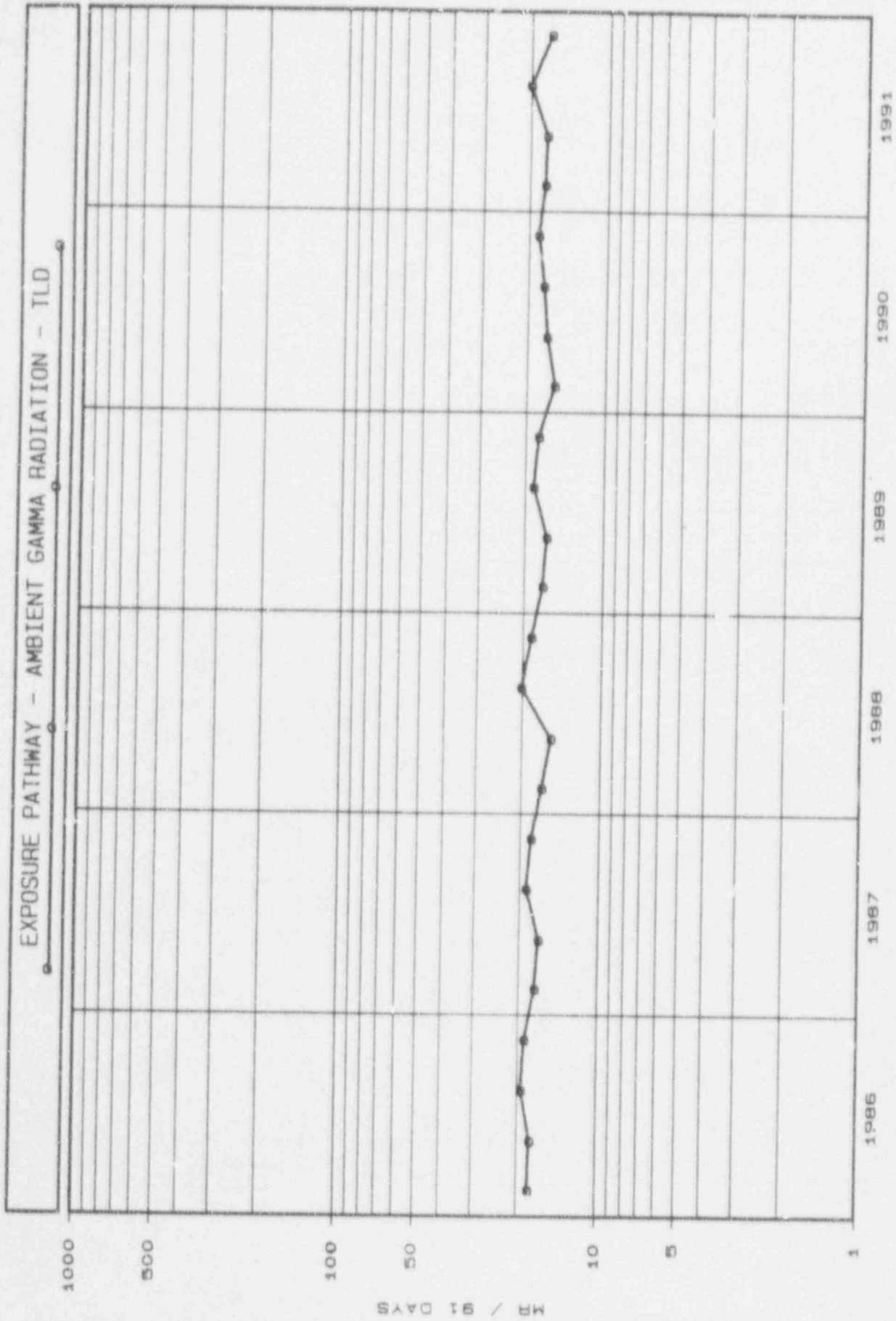


Figure J-1

TABLE J-1

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AMBIENT GAMMA RADIATION: TLD

milliRoentgen/Quarter

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 01/02-04/01	SECOND QUARTER 04/01-07/01	THIRD QUARTER 07/01-10/01	FOURTH QUARTER 10/01-01/02
TLD (Gamma)	01	31.2 ± 3.1	32.3 ± 3.9	28.4 ± 1.1	20.1 ± 2.0
	02	15.8 ± 6.9	15.6 ± 0.7	17.7 ± 0.7	14.6 ± 0.6
	03	14.5 ± 0.8	16.7 ± 0.5	17.3 ± 1.7	14.3 ± 0.8
	04	15.2 ± 0.8	17.1 ± 0.7	18.5 ± 0.6	15.3 ± 0.7
	05	16.8 ± 0.6	15.8 ± 0.8	17.9 ± 0.6	14.6 ± 0.6
	06	18.4 ± 0.4	15.8 ± 1.1	20.4 ± 0.3	15.8 ± 0.8
	07	15.2 ± 1.0	17.9 ± 0.9	18.5 ± 1.3	14.4 ± 0.4
	08	16.7 ± 1.7	15.4 ± 0.5	19.1 ± 0.5	15.9 ± 0.5
	09	15.5 ± 0.9	14.6 ± 0.6	19.1 ± 0.8	15.4 ± 0.8
	10	16.7 ± 0.9	15.5 ± 1.0	19.4 ± 3.5	17.7 ± 0.6
	20	16.3 ± 0.8	16.3 ± 0.7	19.8 ± 0.8	17.4 ± 1.1
	44	20.0 ± 0.8	18.0 ± 0.9	20.8 ± 1.1	20.7 ± 1.3
	56	15.3 ± 0.9	15.6 ± 0.7	20.3 ± 0.7	15.7 ± 1.8
	58	16.0 ± 0.6	15.6 ± 0.8	20.1 ± 1.0	18.4 ± 0.5
	59	17.1 ± 0.9	17.1 ± 0.5	19.5 ± 4.5	18.3 ± 1.7
	66	16.7 ± 1.0	18.2 ± 1.0	24.1 ± 1.5	16.6 ± 1.1
	67	17.2 ± 0.7	16.4 ± 0.7	20.8 ± 0.8	16.6 ± 0.8
	71	15.6 ± 0.8	19.2 ± 0.3	21.4 ± 0.2	17.0 ± 0.5

TABLE J-1

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AMBIENT GAMMA RADIATION; TLD

milliRoentgen/Quarter

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 01/02-04/01	SECOND QUARTER 04/01-07/01	THIRD QUARTER 07/01-10/04	FOURTH QUARTER 10/04-01/09
TLD (Gamma)	79	18.8 ± 0.5	18.3 ± 0.7	19.8 ± 0.8	15.1 ± 0.8
	80	20.1 ± 1.2	17.0 ± 0.6	19.1 ± 0.6	18.5 ± 0.6
	81	18.2 ± 0.7	16.1 ± 0.4	22.2 ± 0.9	17.1 ± 1.6
	82	15.6 ± 0.7	17.2 ± 0.9	20.4 ± 0.3	18.3 ± 0.9
	83	19.7 ± 0.6	17.6 ± 0.8	19.8 ± 1.2	17.2 ± 0.9
	84	17.8 ± 0.8	19.9 ± 0.4	20.1 ± 0.8	18.1 ± 0.6
	85	15.2 ± 0.7	18.4 ± 0.5	21.3 ± 0.5	16.4 ± 0.8
	86	16.6 ± 0.8	15.8 ± 0.6	18.1 ± 0.3	19.0 ± 0.3
	87	16.0 ± 0.9	15.6 ± 0.8	17.0 ± 0.8	15.7 ± 0.6
	88	17.4 ± 1.6	14.9 ± 0.6	20.2 ± 0.9	14.6 ± 0.2
	89	16.4 ± 0.9	17.3 ± 0.8	20.2 ± 0.5	16.0 ± 0.9
	90	19.7 ± 0.9	15.6 ± 0.5	18.5 ± 1.1	17.7 ± 0.4
	91	16.1 ± 0.7	15.0 ± 0.6	18.2 ± 0.7	18.0 ± 0.6
	94	18.4 ± 0.7	17.4 ± 1.1	20.9 ± 0.9	15.4 ± 1.0
Average/Quarter		89 days 17.4 ± 3.0 mR/89 days	91 days 17.2 ± 3.1 mR/91 days	95 days 20.0 ± 2.1 mR 95 days	95 days 16.7 ± 1.7 mR 97 days
Average/Day		0.20 ± 0.03 mR/day	0.19 ± 0.03 mR/day	0.21 ± 0.02 mR/day	0.17 ± 0.02 mR/day
Range		(15-31)mR/89 days	(15-32)mR/91 days	(17-28) mR 95 days	(14-21) mR 97 days
Det./Total		32/32	32/32	32/32	32/32

TABLE J-2
 1991 QUARTERLY REPORT
 NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AMBIENT GAMMA RADIATION: TLD
 .milliRoentgen/Quarter

SAMPLE NUCLIDE	STATION NUMBER	Aver./Quarter	TOTAL mR/year 01/03-01/09/92
TLD (Gamma)	01	28.0 ± 5.5	112.0
	02	15.9 ± 1.3	63.7
	03	15.7 ± 1.5	62.8
	04	16.5 ± 1.6	66.1
	05	16.3 ± 1.4	65.1
	06	17.6 ± 2.2	70.4
	07	16.5 ± 2.0	66.0
	08	16.8 ± 1.6	67.1
	09	16.2 ± 2.0	64.6
	10	17.3 ± 1.7	69.3
	20	17.5 ± 1.7	69.8
	44	19.9 ± 1.3	79.5
	56	16.7 ± 2.4	66.9
	58	17.5 ± 2.1	70.1
	59	18.1 ± 1.1	72.2
	66	18.9 ± 3.5	75.6
	67	17.8 ± 2.1	71.0
	71	18.3 ± 2.5	73.2

TABLE J-2

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AMBIENT GAMMA RADIATION: TLD

milliRöntgen/Quarter

SAMPLE NUCLIDE	STATION NUMBER	Aver./Quarter	TOTAL mR/year 01/03-01/09/92
TLD (Gamma)	79	18.0 ± 2.0	72.0
	80	18.7 ± 1.3	74.7
	81	18.4 ± 2.7	73.4
	82	17.9 ± 2.0	71.5
	83	18.6 ± 1.4	74.3
	84	19.0 ± 1.2	75.9
	85	17.8 ± 2.7	71.3
	86	17.4 ± 1.4	69.5
	87	16.1 ± 0.6	64.3
	88	16.8 ± 2.6	67.1
	89	17.5 ± 1.9	69.9
	90	17.9 ± 1.7	71.5
	91	16.8 ± 1.5	67.3
	94	18.0 ± 2.3	72.1
		17.8 ± 2.8 Average mR/Quarter	71.3 ± 8.4

Range (14-32)

Aver. total mR year. All stations
Range (62.8-112.0)

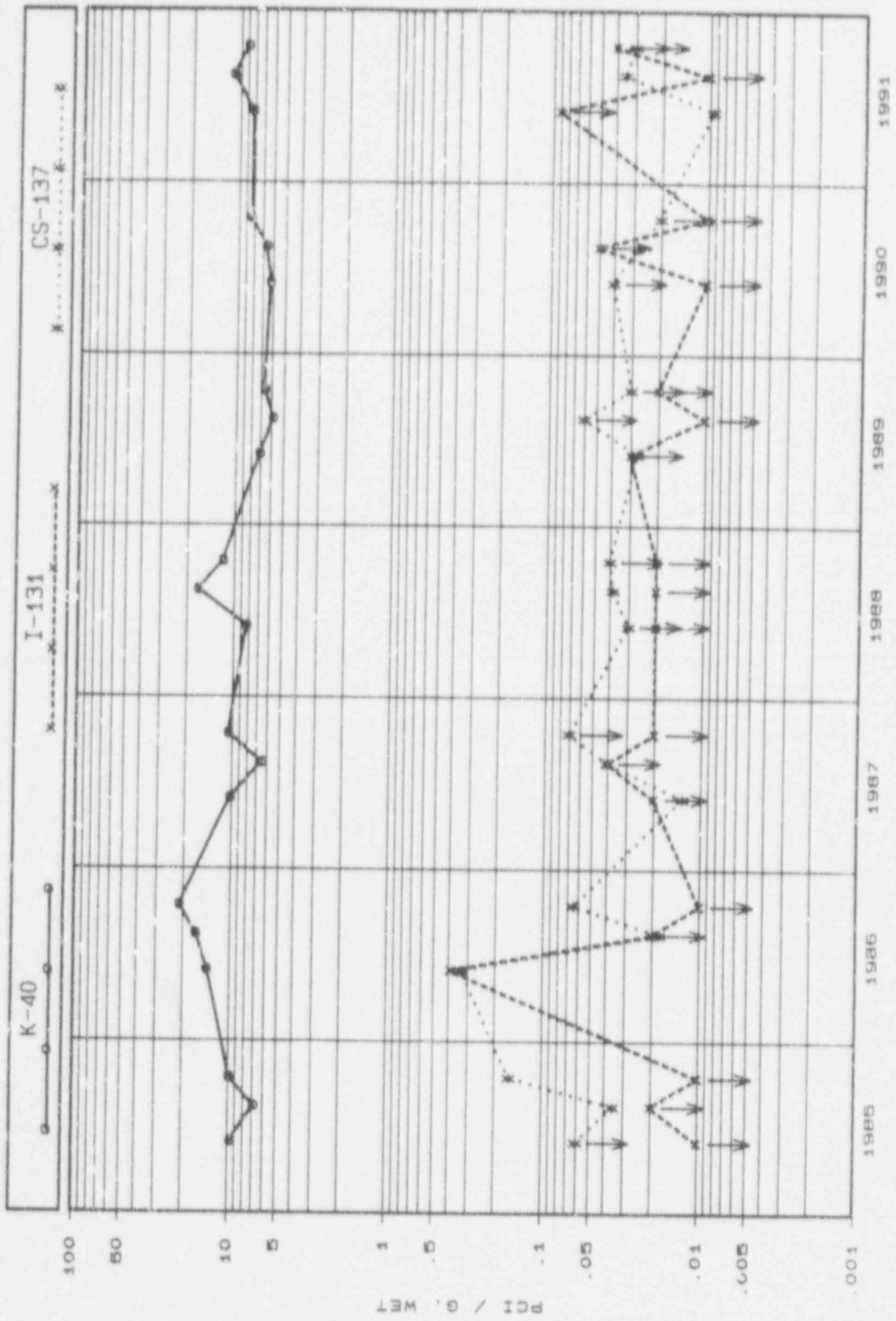
K. VEGETATION, BROADLEAF (See Tables K-1 and K-2)

STATIONS 35, 44, 96

Broadleaf vegetation was collected each month during the growing season, May through October. Three samples were collected each month from each station plus a quality control sample. The samples were tested for I-131 by chemical separation and for gamma emitting isotopes by high resolution spectrometry.

The naturally occurring isotopes Be-7 and K-40 were detected in the samples at normal environmental levels. No I-131 was detected in any of the 60 samples. Cesium-137 was detected in five samples at an average of 0.019 pCi/gm, wet. Cesium-137 is detected in other areas of the United States and is attributed to fallout from previous atomic weapons testing. The amounts detected are not considered to be significant.

See Figure K-1 for the levels of activities in food samples as represented in broadleaf vegetation in 1991.



FOOD - BROADLEAF VEGETATION
 QUARTERLY AVERAGE - ALL STATIONS
 K-40 I-131 CS-137

Figure K-1

TABLE E-1

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - INGESTION

BROADLEAF TERRESTRIAL VEGETATION

PCI/GM, WET

SAMPLE NUCLIDE	STATION NUMBER	Mean/std.dev. det./total range	SECOND QUARTER 05/14, 06/12	THIRD QUARTER 07/09-09/11	FOURTH QUARTER 10/15-10/16
I-131 (by chemical separation)	35, 44, 96		L. T. 9. E-02 0/20 --	L. T. 1. E-02 0/30 --	L. T. 4. E-02 0/10 --
Be-7	35, 44, 96	Mean/std.dev. det./total range	1.1 ± 0.7 E 00 19/20 (0.2 - 2.4 E 00	1.7 ± 1.1 E 00 29/30 (0.45-4.4)E 00	7.4 ± 5.2 E-01 10/10 (0.27-1.69)E 00
K-40	35, 44, 96	Mean/std.dev. det./total range	8.2 ± 3.3 E 00 20/20 (3.4 - 14) E 00	11 ± 6.8 E 00 30/30 (3.14-27)E 00	8.9 ± 11 E 00 10/10 (1.78-38)E 00
Co-60	35, 44, 96	Mean/std.dev. det./total range	L. T. 4. E-02 0/20 --	L. T. 4. E-02 0/30 --	L. T. 4. E-02 0/10 --
Ru-103	35, 44, 96	Mean/std.dev. det./total range	L. T. 5. E-02 0/20 --	L. T. 6. E-02 0/30 --	L. T. 5. E-02 0/10 --
I-131 (by gamma spectroscopy)	35, 44, 96	Mean/std.dev. det./total range	L. T. 6. E-01 0/20 --	L. T. 6. E-01 0/30 --	L. T. 4. E-01 0/10 --
Cs-134	35, 44, 96	Mean/std.dev. det./total range	L. T. 3. E-02 0/20 --	L. T. 4. E-02 0/30 --	L. T. 4. E-02 0/10 --
Cs-137	35, 44, 96	Mean/std.dev. det./total range	9.4 ± 1.3 E-03 3/20 --	3.5 ± 1.0 E-02 2/30 --	L. T. 3. E-02 0/10 --

TABLE K-1

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - INGESTION

BROADLEAF TERRESTRIAL VEGETATION

PCI/GM, WET

SAMPLE NUCLIDE	STATION NUMBER	SECOND QUARTER 05/14-06/12	THIRD QUARTER 07/05-09/11	FOURTH QUARTER 10/15-10/16
I-131 (by chemical (separation))	35, 44, 96	L. T. 9. E-02 0/20 --	L. T. 1. E-02 0/30 --	L. T. 4. E-02 0/10 --
Meanistd.dev. det./total range				
Be-7	35, 44, 96	1.1 ± 0.7 E 00 19/20	1.7 ± 1.1 E 00 29/30	7.4 ± 5.2 E-01 10/10
Meanistd.dev. det./total range		10.2 - 2.4 E 00	10.45-4.4 E 00	(0.27-1.69) E 00
K-40	35, 44, 96	8.2 ± 3.3 E 00 20/20	11 ± 6.6 E 00 30/30	8.9 ± 11 E 00 10/10
Meanistd.dev. det./total range		43.4 - 1.0 E 00	(3.14-27) E 00	(1.78-38) E 00
Co-60	35, 44, 96	L. T. 4. E-02 0/20 --	L. T. 4. E-02 0/30 --	L. T. 4. E-02 0/10 --
Meanistd.dev. det./total range				
Ru-103	35, 44, 96	L. T. 5. E-02 0/20 --	L. T. 6. E-02 0/30 --	L. T. 5. E-02 0/10 --
Meanistd.dev. det./total range				
I-131 (by gamma spectroscopy)	35, 44, 96	L. T. 6. E-01 0/20 --	L. T. 6. E-01 0/30 --	L. T. 4. E-01 0/10 --
Meanistd.dev. det./total range				
Cs-134	35, 44, 96	L. T. 3. E-02 0/20 --	L. T. 4. E-02 0/30 --	L. T. 4. E-02 0/10 --
Meanistd.dev. det./total range				
Cs-137	35, 44, 96	9.4 ± 1.3 E-03 3/20 --	3.5 ± 1.0 E-02 2/30 --	L. T. 3. E-02 0/10 --
Meanistd.dev. det./total range			(2.8-4.2) E-02	

TABLE E-2

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - INGESTION

BROADLEAF TERRESTRIAL VEGETATION - PCI/GM, WET

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
			05/14-06/12	07/09-09/11	10/15-10/16
BE-7	35,44,96		1.1 ± 0.7 E 00 (19/20)	1.73 ± 1.1 E 00 (29/30)	7.4 ± 5.2 E-01 (09/10)
K-40	35,44,96		8.2 ± 3.3 E 00 (20/20)	11.1 ± 6.8 E 00 (30/30)	8.9 ± 11 E 00 (10/10)
Mn-54	35,44,96		L.T. 3. E-02 (0/20)	L.T. 4. E-02 (0/30)	L.T. 4. E-02 (0/10)
Co-58	35,44,96		L.T. 4. E-02 (0/20)	L.T. 5. E-02 (0/30)	L.T. 4. E-02 (0/10)
Fe-59	35,44,96		L.T. 1. E-01 (0/20)	L.T. 1. E-01 (0/30)	L.T. 1. E-01 (0/10)
Co-60	35,44,96		L.T. 4. E-02 (0/20)	L.T. 4. E-02 (0/30)	L.T. 4. E-02 (0/10)
Zn-65	35,44,96		L.T. 7. E-02 (0/20)	L.T. 9. E-02 (0/30)	L.T. 1. E-01 (0/10)
Zr-95	35,44,96		L.T. 4. E-02 (0/20)	L.T. 4. E-02 (0/30)	L.T. 5. E-02 (0/10)
Ru-103	35,44,96		L.T. 5. E-02 (0/20)	L.T. 6. E-02 (0/30)	L.T. 5. E-02 (0/10)
Mo-106	35,44,96		L.T. 3. E-01 (0/20)	L.T. 3. E-01 (0/30)	L.T. 3. E-01 (0/10)
I-131	35,44,96		L.T. 6. E-01 (0/20)	L.T. 6. E-01 (0/30)	L.T. 4. E-01 (0/10)
Cs-134	35,44,96		L.T. 3. E-02 (0/20)	L.T. 4. E-02 (0/30)	L.T. 4. E-02 (0/10)
Cs-137	35,44,96		9.4 ± 1.3 E-03 (3/20)	3.53 ± 1.0 E-02 (2/30)	L.T. 3. E-01 (0/10)
Ba-140	35,44,96		L.T. 2. E-01 (0/20)	L.T. 2. E-01 (0/30)	L.T. 1. E-01 (0/10)
Ce-141	35,44,96		L.T. 1. E-01 (0/20)	L.T. 1. E-01 (0/30)	L.T. 9. E-02 (0/10)
Ce-144	35,44,96		L.T. 3. E-01 (0/20)	L.T. 2. E-01 (0/30)	L.T. 3. E-01 (0/10)
Pa-226	35,44,96		1.6 ± 0.65E-01 (1/20)	L.T. 6. E-01 (0/30)	1.53 ± 0.52E 00 (1/10)
Th-228	35,44,96		6.3 ± 1.7 E-02 (2/20)	1.13 ± 0.11E-01 (1/20)	3.93 ± 5.48E-01 (3/10)

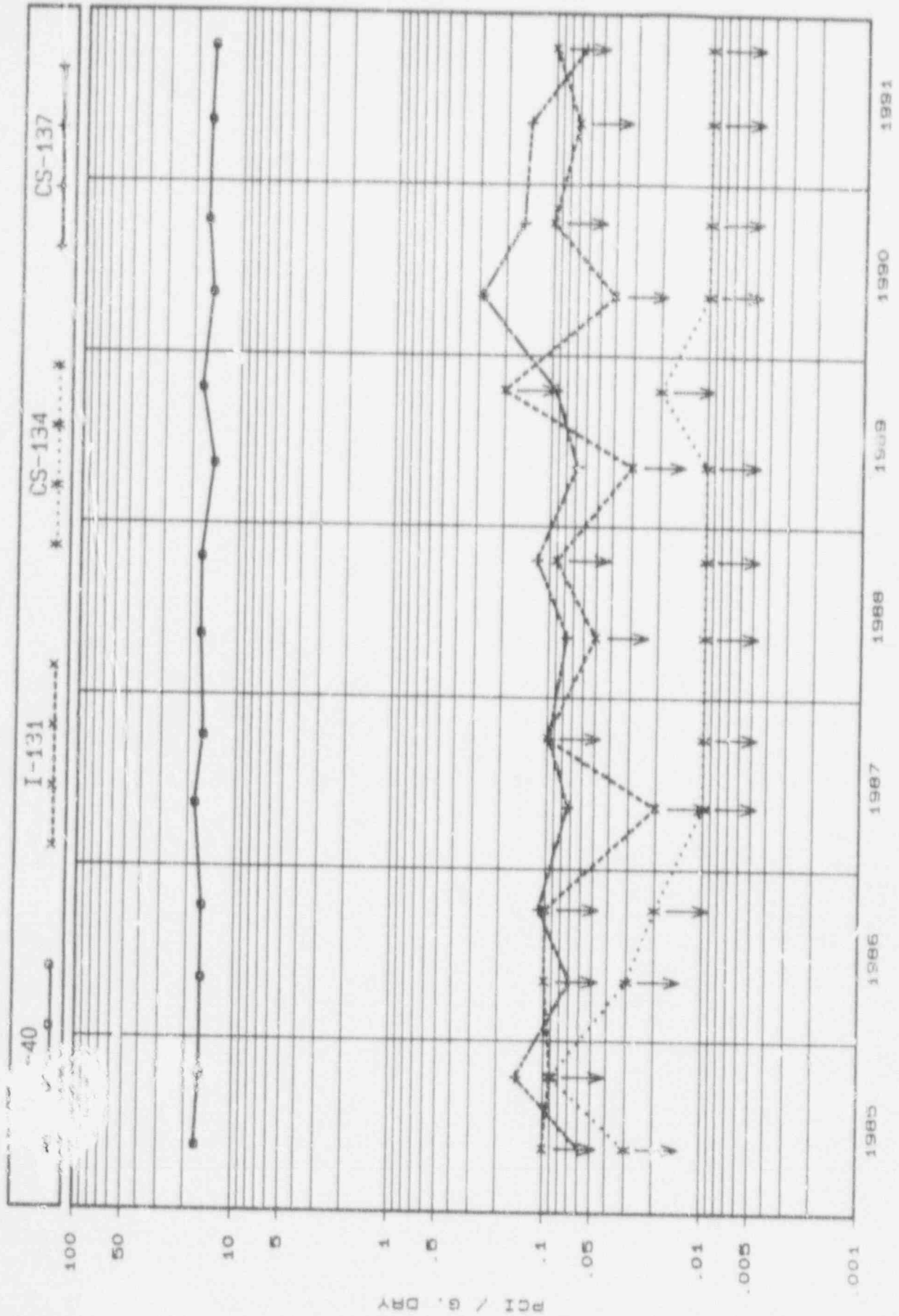
L. SHORELINE SEDIMENT

STATION 28

Shoreline sediment samples were collected in the spring and fall from Station 28, 1.8 miles, 150 degrees downstream of the release point of CNS. They were analyzed for gamma emitters by means of a high resolution gamma spectrometer. In the samples collected the naturally occurring isotopes Be-7, K-40, Ra-226 and Th-228 were detected at normal environmental levels. Cesium-137, a fission product, was detected at an average level of 0.090 pCi/gm. dry.

For the samples collected in the fourth quarter the naturally occurring isotopes K-40, Ra-226 and Th-228 were detected at about the same level as in the second quarter. Beryllium-7 was below the detection limit in the fourth quarter. Cesium-137 was found at a level of 0.065 pCi/gm. dry. All other nuclides were below the detection limit for both the spring and fall.

Presented in Figure L-1 are the plots of the radionuclides K-40, I-131, Cs-134 and Cs-137 in shoreline sediment since 1985. No detections of I-131 nor Cs-134 were seen and K-40 was at a normal environmental level. The Cs-137 was at a low level which is found in many areas and media. Since sediment tends to trap and retain any elements in the water pathway, it acts as a good indicator of the effects on the water pathway of any reactor effluents.



SHORELINE SEDIMENT
 QUARTERLY AVERAGE - STATION 28
 K-40 I-131 CS-134 CS-137

Figure L-1

TABLE I-1

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AQUATIC

SHORELINE SEDIMENT - PC GM, DRY

SAMPLE NUCLIDE	STATION NUMBER	Meanistd.dev. det./total range	SECOND QUARTER 05/09	THIRD QUARTER	FOURTH QUARTER 10/15
Be-7	28	Meanistd.dev. det./total range	0.34 ± 1.0 E-01 1/1 --		L.T. 1. E-01 0/2 --
K-40	28	Meanistd.dev. det./total range	1.60 ± 0.14E 01 1/1 --		1.54 ± 0.04E 01 2/2 --
Mn-54	28	Meanistd.dev. det./total range	L.T. 1. E-02 0/1 --		L.T. 1. E-02 0/2 --
CO-60	28	Meanistd.dev. det./total range	L.T. 1. E-02 0/1 --		L.T. 1. E-02 0/2 --
I-131 (by gamma spectroscopy)	28	Meanistd.dev. det./total range	L.T. 1. E-02 0/1 --		L.T. 1. E-01 0/2 --
Cs-134	28	Meanistd.dev. det./total range	L.T. 1. E-02 0/1 --		L.T. 1. E-02 0/2 --
Cs-137	28	Meanistd.dev. det./total range	1.42 ± 0.14E-01 1/1 --		6.46 ± 0.2E-02 2/2 (6.3-6.6)E-02
Ra-226	28	Meanistd.dev. det./total range	2.12 ± 0.21E 00 1/1 --		1.71 ± 0.01E 00 2/2 (1.70-1.72)E 00
Th-228	28	Meanistd.dev. det./total range	1.04 ± 0.10E 00 1/1 --		9.22 ± 0.1E-01 2/2 (9.2-9.3)E-01

TABLE L-2

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AQUATIC

SHORELINE SEDIMENT - PCI/CM, DRY

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER	SECOND QUARTER 05/09	THIRD QUARTER	FOURTH QUARTER 10/15
BE-7	28		8.34±1.00 E-01(1/1)		L.T. 1. E-01(0/2)
K-40	28		1.60±0.16 E 01(1/1)		1.54 ± 0.04E 01(2/2)
Mn-54	28		L.T. 1. E-02(0/1)		L.T. 1. E-02(0/2)
Co-58	28		L.T. 1. E-02(0/1)		L.T. 1. E-02(0/2)
Fe-59	28		L.T. 3. E-02(0/1)		L.T. 4. E-02(3/2)
Co-60	28		L.T. 1. E-02(0/1)		L.T. 1. E-02(0/2)
Zn-65	28		L.T. 3. E-02(0/1)		L.T. 3. E-02(0/2)
Zr-95	28		L.T. 1. E-02(0/1)		L.T. 2. E-02(0/2)
Ru-103	28		L.T. 1. E-02(0/1)		L.T. 2. E-02(0/2)
Ru-106	28		L.T. 9. E-02(0/1)		L.T. 1. E-01(0/2)
I-131	28		L.T. 7. E-02(0/1)		L.T. 1. E-01(0/2)
Cs-134	28		L.T. 1. E-02(0/1)		L.T. 1. E-01(0/2)
Cs-137	28		1.42±0.14 E-01(1/1)		L.T. 1. E-02(0/2)
Ba-140	28		L.T. 3. E-02(0/1)		6.46 ± 0.2 E-02(2/2)
Ce-141	28		L.T. 3. E-02(0/1)		L.T. 5. E-02(0/2)
Ce-144	28		L.T. 5. E-02(0/2)		3.77 ± 2.1E-02(1/2)
Ra-226	28		2.12±0.21 E 00(1/1)		L.T. 7. E-02(0/2)
Th-228	28		1.04±0.10 E 00(1/1)		1.71 ± 0.01E 00(2/2)
					9.27 ± 0.1E-01(2/2)

SECTION VII
COMPLETE DATA TABLES

A, B, C,
GROSS ALPHA, GROSS BETA, I-131
STATIONS 01-10

WISCONSIN PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 01

STATION 01 - 0.1 MI. 225 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)		AP FILTER GROSS ALPHA (PCI/CU.M.)		MID-COUNT TIME DATE TIME		CHARCOAL FILTER I-131 (PCI/CU. M.)	
12/31	01/07	1.02E 04	CU. FT.	4.5 ± 0.4	E-02	1.7 ± 1.4	E-03	01/12		L.T.	3. E-02
01/07	01/14	9.99E 03	CU. FT.	7.4 ± 0.5	E-02	8.8 ± 2.5	E-03	01/19		L.T.	3. E-02
01/14	01/21	1.00E 04	CU. FT.	2.4 ± 0.3	E-02	2.1 ± 1.3	E-03	01/25		L.T.	3. E-02
01/21	01/28	1.02E 04	CU. FT.	2.2 ± 0.3	E-02	2.0 ± 1.4	E-03	02/02		L.T.	4. E-02
01/28	02/04	1.01E 04	CU. FT.	2.6 ± 0.3	E-02	4.8 ± 2.0	E-03	02/09		L.T.	3. E-02
02/04	02/11	1.01E 04	CU. FT.	1.9 ± 0.3	E-02	1.9 ± 1.5	E-03	02/17		L.T.	3. E-02
02/11	02/19	1.15E 04	CU. FT.	1.9 ± 0.3	E-02	3.2 ± 1.5	E-03	02/24		L.T.	2. E-02
02/19	02/26	9.68E 03	CU. FT.	1.4 ± 0.3	E-02	2.0 ± 1.3	E-03	03/03		L.T.	3. E-02
02/26	03/04	8.69E 03	CU. FT.	2.0 ± 0.3	E-02	2.8 ± 1.6	E-03	03/07		L.T.	3. E-02
03/04	03/12	1.15E 04	CU. FT.	2.1 ± 0.3	E-02	2.1 ± 1.4	E-03	03/17		L.T.	2. E-02
03/12	03/20	1.15E 04	CU. FT.	1.0 ± 0.2	E-02	1.3 ± 1.0	E-03	03/26		L.T.	2. E-02
03/20	03/27	1.00E 04	CU. FT.	9.0 ± 2.1	E-03	1.6 ± 1.2	E-03	04/02		L.T.	3. E-02
03/27	04/02	9.20E 03	CU. FT.	1.7 ± 0.2	E-02	3.7 ± 1.3	E-03	04/07		L.T.	3. E-02
04/02	04/09	1.01E 04	CU. FT.	1.8 ± 0.3	E-02	3.5 ± 1.7	E-03	04/14		L.T.	3. E-02
04/09	04/16	9.70E 03	CU. FT.	8.0 ± 2.1	E-03	3.2 ± 1.6	E-03	04/23		L.T.	3. E-02
04/16	04/23	1.01E 04	CU. FT.	1.0 ± 0.2	E-02	L. T. 1.	E-03	04/28		L.T.	3. E-02
04/23	04/30	SAMPLE NOT RECEIVED						05/07		L.T.	3. E-02
04/30	05/07	9.97E 03	CU. FT.	8.4 ± 2.3	E-03	L. T. 2.	E-03	05/14		L.T.	4. E-02
05/07	05/14	1.05E 04	CU. FT.	1.2 ± 0.2	E-02	1.7 ± 1.2	E-03	05/19		L.T.	2. E-02
05/14	05/22	1.15E 04	CU. FT.	8.0 ± 2.1	E-03	L. T. 1.	E-03	05/29		L.T.	2. E-02
05/22	05/28	8.15E 03	CU. FT.	1.4 ± 0.3	E-02	L. T. 2.	E-03	06/05		L.T.	5. E-02
05/28	06/04	1.02E 04	CU. FT.	1.6 ± 0.3	E-02	1.5 ± 1.1	E-03	06/09		L.T.	3. E-02
06/04	06/11	1.00E 04	CU. FT.	1.6 ± 0.3	E-02	3.1 ± 1.6	E-03	06/19		L.T.	4. E-02
06/11	06/18	1.02E 04	CU. FT.	1. ± 0.3	E-02	2.6 ± 1.5	E-03	06/23		L.T.	2. E-02
06/18	06/25	9.95E 03	CU. FT.	2. 0 3	E-02	1.8 ± 1.3	E-03	06/30		L.T.	2. E-02
06/25	07/02	1.02E 04	CU. FT.	2. 3	E-02	3.5 ± 1.7	E-03	07/10		L.T.	4. E-02
07/02	07/09	1.00E 04	CU. FT.	1.	E-02	2.0 ± 1.3	E-03	07/14		L.T.	2. E-02
07/09	07/16	9.97E 03	CU. FT.	1.	E-02	L.T. 1.	E-03	07/20		L.T.	2. E-02
07/16	07/23	1.01E 04	CU. FT.	2.2 ± 0.3	E-02	3.0 ± 1.4	E-03	07/28		L.T.	2. E-02
07/23	07/30	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	6.1 ± 2.1	E-03	08/05		L.T.	3. E-02
07/30	08/06	1.05E 04	CU. FT.	2.3 ± 0.3	E-02	2.2 ± 1.3	E-03	08/11		L.T.	2. E-02
08/06	08/13	9.53E 03	CU. FT.	2.0 ± 0.3	E-02	5.4 ± 2.1	E-03	08/17		L.T.	3. E-02
08/13	08/20	1.01E 04	CU. FT.	2.0 ± 0.3	E-02	3.5 ± 1.5	E-03	08/25		L.T.	2. E-02
08/20	08/27	1.01E 04	CU. FT.	3.1 ± 0.4	E-02	4.0 ± 1.8	E-03	08/31		L.T.	2. E-02
08/27	09/03	1.00E 04	CU. FT.	2.7 ± 0.3	E-02	2.4 ± 1.6	E-03	09/07		L.T.	2. E-02
09/03	09/10	1.04E 04	CU. FT.	1.6 ± 0.3	E-02	3.0 ± 1.4	E-03	09/15		L.T.	2. E-02
09/10	09/17	9.82E 03	CU. FT.	1.3 ± 0.3	E-02	2.5 ± 1.4	E-03	09/21		L.T.	2. E-02
09/17	09/24	1.05E 04	CU. FT.	2.0 ± 0.3	E-02	2.5 ± 1.3	E-03	09/29		L.T.	2. E-02
09/24	10/01	1.00E 04	CU. FT.	1.7 ± 0.3	E-02	2.7 ± 1.4	E-03	10/06		L.T.	2. E-02
10/01	10/08	1.01E 04	CU. FT.	1.8 ± 0.3	E-02	1.7 ± 1.3	E-03	10/13		L.T.	2. E-02
10/08	10/15	9.73E 03	CU. FT.	2.7 ± 0.3	E-02	5.5 ± 2.0	E-03	10/20		L.T.	2. E-02
10/15	10/22	1.00E 04	CU. FT.	1.5 ± 0.3	E-02	1.3 ± 1.1	E-03	10/27		L.T.	2. E-02
10/22	10/29	1.02E 04	CU. FT.	2.4 ± 0.3	E-02	3.3 ± 1.5	E-03	11/03		L.T.	2. E-02
10/29	11/07	1.36E 04	CU. FT.	3.5 ± 0.3	E-02	3.3 ± 1.5	E-03	11/12		L.T.	3. E-02
11/07	11/12	6.79E 03	CU. FT.	3.1 ± 0.4	E-02	5.4 ± 2.5	E-03	11/17		L.T.	3. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 01

STATION 01 - 0.1 MI. 225 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BET. (PCI/CU.M.)		AP FILTER GROSS ALPHA (PCI/CU.M.)		MID-COUNT TIME		CHARCOAL FILTER I-131 (PCI/CU. M.)	
								DATE	TIME		
11/12	11/19	1.01E 04	CU. FT.	3.1 ± 0.3	E-02	L.T. 2.	E-03	11/23		L.T. 3.	E-02
11/19	11/26	1.04E 04	CU. FT.	2.2 ± 0.3	E-02	3.1 ± 1.4	E-03	12/03		L.T. 4.	E-02
11/26	12/03	1.62E 04	CU. FT.	2.9 ± 0.3	E-02	1.6 ± 1.2	E-03	12/11		L.T. 5.	E-02
12/03	12/10	9.64E 03	CU. FT.	2.9 ± 0.4	E-02	3.2 ± 1.6	E-03	12/18		L.T. 5.	E-02
12/10	12/17	1.03E 04	CU. FT.	3.2 ± 0.4	E-02	3.7 ± 1.9	E-03	12/22		L.T. 3.	E-02
12/17	12/24	4.84E 03	CU. FT.	2.4 ± 0.3	E-02	L.T. 2.	E-03	12/29		L.T. 3.	E-C2
12/24	12/31	1.01E 04	CU. FT.	4.2 ± 0.4	E-02	2.1 ± 1.5	E-03	01/08		L.T. 4.	E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER QZ

STATION QZ - 0.75 MI. 225 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS DATA (PCI/CU.M.)		AP FILTER GROSS ALPHA (PCI/CU.M.)		MID-COUNT TIME DATE TIME		CHARCOAL FILTER 1-131 (PCI/CU. M.)	
12/31	01/07	9.86E 03	CU. FT.	3.6 ± 0.4	E-02	2.1 ± 1.6	E-03	01/12		L.T.	3. E-02
01/07	01/14	1.01E 04	CU. FT.	7.7 ± 0.5	E-02	9.8 ± 2.6	E-03	01/19		L.T.	3. E-02
01/14	01/21	9.95E 03	CU. FT.	2.8 ± 0.3	E-02	3.9 ± 1.7	E-03	01/25		L.T.	3. E-02
01/21	01/28	1.01E 04	CU. FT.	2.2 ± 0.3	E-02	1.9 ± 1.4	E-03	02/02		L.T.	4. E-02
01/28	02/04	1.01E 04	CU. FT.	2.6 ± 0.3	E-02	2.7 ± 1.6	E-03	02/09		L.T.	3. E-02
02/04	02/11	1.01E 04	CU. FT.	2.0 ± 0.3	E-02	1.8 ± 1.5	E-03	02/17		L.T.	4. E-02
02/11	02/19	1.15E 04	CU. FT.	1.9 ± 0.3	E-02	2.9 ± 1.5	E-03	02/24		L.T.	2. E-02
02/19	02/26	9.97E 03	CU. FT.	1.8 ± 0.3	E-02	3.3 ± 1.6	E-03	03/03		L.T.	2. E-02
02/26	03/04	8.71E 03	CU. FT.	2.0 ± 0.3	E-02	2.6 ± 1.6	E-03	03/07		L.T.	3. E-02
03/04	03/12	1.15E 04	CU. FT.	2.1 ± 0.3	E-02	3.8 ± 1.7	E-03	03/17		L.T.	2. E-02
03/12	03/20	1.15E 04	CU. FT.	1.1 ± 0.2	E-02	9.9 ± 9.4	E-04	03/26		L.T.	2. E-02
03/20	03/26	8.78E 03	CU. FT.	1.5 ± 0.3	E-02	2.2 ± 1.5	E-03	04/02		L.T.	3. E-02
03/26	04/02	SAMPLE NOT RECEIVED						04/07		L.T.	3. E-02
04/02	04/09	9.89E 03	CU. FT.	1.4 ± 0.3	E-02	3.3 ± 1.7	E-03	04/14		L.T.	3. E-02
04/09	04/16	1.03E 04	CU. FT.	1.4 ± 0.2	E-02	2.0 ± 1.3	E-03	04/23		L.T.	3. E-02
04/16	04/23	1.01E 04	CU. FT.	1.5 ± 0.3	E-02	L.T. 1.	E-03	04/28		L.T.	3. E-02
04/23	04/30	9.80E 03	CU. FT.	1.3 ± 0.3	E-02	2.4 ± 1.4	E-03	05/07		L.T.	3. E-02
04/30	05/07	9.97E 03	CU. FT.	1.3 ± 0.3	E-02	L.T. 2.	E-03	05/14		L.T.	4. E-02
05/07	05/14	1.00E 04	CU. FT.	1.5 ± 0.3	E-02	3.1 ± 1.5	E-03	05/19		L.T.	2. E-02
05/14	05/21	1.07E 04	CU. FT.	1.2 ± 0.2	E-02	L.T. 1.	E-03	05/27		L.T.	3. E-02
05/22	05/28	8.35E 03	CU. FT.	1.3 ± 0.3	E-02	L.T. 2.	E-03	06/05		L.T.	5. E-02
05/28	06/04	9.93E 03	CU. FT.	1.5 ± 0.3	E-02	1.7 ± 1.2	E-03	06/09		L.T.	3. E-02
06/04	06/11	8.58E 03	CU. FT.	1.8 ± 0.3	E-02	1.3 ± 1.1	E-03	06/19		L.T.	4. E-02
06/11	06/18	9.70E 03	CU. FT.	1.6 ± 0.3	E-02	L.T. 2.	E-03	06/23		L.T.	2. E-02
06/18	06/25	9.89E 03	CU. FT.	2.4 ± 0.3	E-02	1.5 ± 1.2	E-03	06/30		L.T.	2. E-02
06/25	07/02	8.53E 03	CU. FT.	2.4 ± 0.3	E-02	4.5 ± 2.1	E-03	07/10		L.T.	5. E-02
07/02	07/09	1.01E 04	CU. FT.	1.6 ± 0.3	E-02	3.0 ± 1.6	E-03	07/14		L.T.	2. E-02
07/09	07/16	9.98E 03	CU. FT.	1.6 ± 0.3	E-02	L.T. 1.	E-03	07/20		L.T.	2. E-02
07/16	07/23	1.01E 04	CU. FT.	2.2 ± 0.7	E-02	2.4 ± 1.3	E-03	07/28		L.T.	2. E-02
07/23	07/30	1.03E 04	CU. FT.	1.3 ± 0.2	E-02	L.T. 1.	E-03	08/05		L.T.	3. E-02
07/30	08/06	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	2.5 ± 1.6	E-03	08/11		L.T.	3. E-02
08/06	08/13	9.90E 03	CU. FT.	1.3 ± 0.2	E-02	2.1 ± 1.6	E-03	08/17		L.T.	3. E-02
08/13	08/20	8.12E 03	CU. FT.	2.2 ± 0.3	E-02	4.5 ± 1.9	E-03	08/25		L.T.	2. E-02
08/20	08/27	8.63E 03	CU. FT.	3.4 ± 0.4	E-02	4.5 ± 2.0	E-03	08/31		L.T.	2. E-02
08/27	09/03	9.70E 03	CU. FT.	2.6 ± 0.3	E-02	3.2 ± 1.7	E-03	09/07		L.T.	2. E-02
09/03	09/11	1.20E 04	CU. FT.	1.7 ± 0.2	E-02	1.9 ± 1.1	E-03	09/15		L.T.	2. E-02
09/11	09/17	8.61E 03	CU. FT.	1.5 ± 0.3	E-02	3.6 ± 1.8	E-03	09/21		L.T.	2. E-02
09/17	09/24	1.01E 04	CU. FT.	1.4 ± 0.2	E-02	1.8 ± 1.2	E-03	09/29		L.T.	2. E-02
09/24	10/01	1.00E 04	CU. FT.	2.2 ± 0.3	E-02	2.9 ± 1.5	E-03	10/06		L.T.	2. E-02
10/01	10/08	9.45E 03	CU. FT.	2.7 ± 0.3	E-02	1.8 ± 1.3	E-03	10/13		L.T.	2. E-02
10/08	10/15	9.95E 03	CU. FT.	2.7 ± 0.3	E-02	3.4 ± 1.4	E-03	10/20		L.T.	2. E-02
10/15	10/22	1.03E 04	CU. FT.	2.2 ± 0.3	E-02	3.3 ± 1.5	E-03	10/27		L.T.	2. E-02
10/22	10/29	9.95E 03	CU. FT.	2.7 ± 0.3	E-02	3.1 ± 1.5	E-03	11/03		L.T.	2. E-02
10/29	11/07	8.67E 03	CU. FT.	3.0 ± 0.4	E-02	3.7 ± 2.0	E-03	11/12		L.T.	4. E-02
11/07	11/13	8.46E 03	CU. FT.	2.3 ± 0.3	E-02	L.T. 1.	E-03	11/17		L.T.	2. E-02

PREPARED BY: POWER DISTRICT
 CLEAR STATION
 AIRBORNE
 LIFE & CHARCOAL FILTERS

STATION NUMBER 02

STATION 02 - 0.75 MI. 225 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)	AP FILTER GROSS ALPHA (PCI/CU.M.)	MID-COUNT TIME DATE TIME	CHARCOAL FILTER I-131 (PCI/CU. M.)
11/13	11/19	8.84E 03	CU. FT.	3.4 ± 0.4 E-02	2.1 ± 1.6 E-03	11/23	L.T. 3. E-02
11/19	11/26	1.01E 04	CU. FT.	1.6 ± 0.2 E-03	1.1 ± 1.0 E-04	12/03	L.T. 4. E-02
11/26	12/03	1.01E 04	CU. FT.	2.1 ± 0.3 E-02	2.9 ± 1.5 E-03	12/11	L.T. 5. E-02
12/03	12/10	1.02E 04	CU. FT.	2.9 ± 0.3 E-02	3.5 ± 1.6 E-03	12/18	L.T. 4. E-02
12/10	12/17	1.01E 04	CU. FT.	2.5 ± 0.3 E-02	2.0 ± 1.6 E-03	12/22	L.T. 3. E-02
12/17	12/24	9.67E 03	CU. FT.	2.8 ± 0.4 E-02	2.7 ± 1.8 E-03	12/29	L.T. 3. E-02
12/24	12/31	1.01E 04	CU. FT.	3.8 ± 0.4 E-02	2.0 ± 1.5 E-03	01/08	L.T. 4. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 03

STATION 03 - 2.5 MI. 330 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)		AP FILTER GROSS ALPHA (PCI/CU.M.)		MID-COUNT TIME DATE TIME		CHARCOAL FILTER 1-131 (PCI/CU. M.)		
12/31	01/07	1.01E 04	CU. FT.	4.2 ± 0.4	E-02	3.0 ± 1.7	E-03	01/12		L.T.	3.	E-02
01/07	01/14	1.00E 04	CU. FT.	8.1 ± 0.5	E-02	7.2 ± 2.3	E-03	01/19		L.T.	3.	E-02
01/14	01/21	1.01E 04	CU. FT.	3.0 ± 0.3	E-02	2.3 ± 1.3	E-03	01/25		L.T.	3.	E-02
01/21	01/28	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	2.3 ± 1.4	E-03	02/02		L.T.	4.	E-02
01/28	02/04	1.01E 04	CU. FT.	2.6 ± 0.3	E-02	3.2 ± 1.7	E-03	02/09		L.T.	3.	E-02
02/04	02/11	1.01E 04	CU. FT.	1.9 ± 0.3	E-02	L.T.	2.	02/17		L.T.	4.	E-02
02/11	02/19	1.15E 04	CU. FT.	1.9 ± 0.3	E-02	2.2 ± 1.4	E-03	02/24		L.T.	2.	E-02
02/19	02/26	1.03E 04	CU. FT.	1.7 ± 0.3	E-02	2.0 ± 1.3	E-03	03/03		L.T.	2.	E-02
02/26	03/04	8.66E 03	CU. FT.	1.1 ± 0.3	E-02	3.0 ± 1.7	E-03	03/07		L.T.	3.	E-02
03/04	03/12	1.16E 04	CU. FT.	2.0 ± 0.3	E-02	3.1 ± 1.6	E-03	03/17		L.T.	2.	E-02
03/12	03/20	1.15E 04	CU. FT.	1.2 ± 0.2	E-02	1.6 ± 1.1	E-03	03/26		L.T.	2.	E-02
03/20	03/26	8.1E 03	CU. FT.	1.6 ± 0.3	E-02	2.3 ± 1.5	E-03	04/02		L.T.	3.	E-02
03/26	04/02	1.03E 04	CU. FT.	1.7 ± 0.2	E-02	3.0 ± 1.2	E-03	04/07		L.T.	3.	E-02
04/02	04/09	1.01E 04	CU. FT.	2.0 ± 0.3	E-02	2.7 ± 1.5	E-03	04/14		L.T.	3.	E-02
04/09	04/16	9.76E 03	CU. FT.	1.4 ± 0.3	E-02	3.2 ± 1.6	E-03	04/23		L.T.	3.	E-02
04/16	04/23	1.01E 04	CU. FT.	1.7 ± 0.3	E-02	1.9 ± 1.5	E-03	04/28		L.T.	3.	E-02
04/23	04/30	1.02E 04	CU. FT.	1.1 ± 0.2	E-02	2.3 ± 1.3	E-03	05/07		L.T.	3.	E-02
04/30	05/07	9.96E 03	CU. FT.	1.2 ± 0.3	E-02	2.5 ± 1.6	E-03	05/14		L.T.	4.	E-02
05/07	05/14	9.95E 03	CU. FT.	1.5 ± 0.3	E-02	1.5 ± 1.2	E-03	05/19		L.T.	2.	E-02
05/14	05/21	1.03E 04	CU. FT.	8.6 ± 2.3	E-03	L.T.	2.	05/29		L.T.	3.	E-02
05/21	05/28	9.77E 03	CU. FT.	9.6 ± 2.4	E-03	L.T.	1.	06/05		L.T.	4.	E-02
05/28	06/04	1.04E 04	CU. FT.	1.3 ± 0.2	E-02	3.1 ± 1.5	E-03	06/09		L.T.	3.	E-02
06/04	06/11	1.02E 04	CU. FT.	1.3 ± 0.3	E-02	1.6 ± 1.2	E-03	06/19		L.T.	4.	E-02
06/11	06/18	1.00E 04	CU. FT.	1.6 ± 0.3	E-02	L.T.	2.			L.T.	2.	E-02
06/18	06/25	9.94E 03	CU. FT.	2.3 ± 0.3	E-02	1.6 ± 1.2	E-03			L.T.	2.	E-02
06/25	07/02	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	2.6 ± 1.5	E-03			L.T.	4.	E-02
07/02	07/09	1.02E 04	CU. FT.	1.6 ± 0.3	E-02	3.0 ± 1.6	E-03			L.T.	2.	E-02
07/09	07/16	9.93E 03	CU. FT.	1.7 ± 0.3	E-02	L.T.	1.	07/14		L.T.	2.	E-02
07/16	07/23	1.02E 04	CU. FT.	2.2 ± 0.3	E-02	4.2 ± 1.7	E-02	07/20		L.T.	2.	E-02
07/23	07/30	9.76E 03	CU. FT.	1.9 ± 0.3	E-02	1.7 ± 1.3	E-03	07/28		L.T.	2.	E-02
07/30	08/06	1.00E 04	CU. FT.	1.8 ± 0.3	E-02	2.3 ± 1.4	E-03	08/05		L.T.	3.	E-02
08/06	08/13	9.98E 03	CU. FT.	1.2 ± 0.2	E-02	L.T.	2.	08/11		L.T.	3.	E-02
08/13	08/20	1.02E 04	CU. FT.	2.2 ± 0.3	E-02	2.0 ± 1.2	E-03	08/17		L.T.	3.	E-02
08/20	08/27	9.94E 03	CU. FT.	3.2 ± 0.4	E-02	4.6 ± 1.9	E-03	08/25		L.T.	2.	E-02
08/27	09/03	1.01E 04	CU. FT.	2.7 ± 0.3	E-02	3.4 ± 0.4	E-02	08/31		L.T.	2.	E-02
09/03	09/11	1.17E 04	CU. FT.	1.7 ± 0.2	E-02	1.9 ± 1.1	E-03	09/07		L.T.	2.	E-02
09/11	09/17	8.91E 03	CU. FT.	1.6 ± 0.3	E-02	2.5 ± 1.5	E-03	09/15		L.T.	2.	E-02
09/17	09/24	1.02E 04	CU. FT.	1.4 ± 0.3	E-02	2.3 ± 1.3	E-03	09/21		L.T.	2.	E-02
09/24	10/01	1.00E 04	CU. FT.	2.0 ± 0.3	E-02	1.6 ± 1.3	E-03	09/29		L.T.	2.	E-02
10/01	10/08	9.78E 03	CU. FT.	2.2 ± 0.3	E-02	1.5 ± 1.2	E-03	10/06		L.T.	2.	E-02
10/08	10/15	1.05E 04	CU. FT.	2.7 ± 0.3	E-02	3.2 ± 1.5	E-03	10/13		L.T.	2.	E-02
10/15	10/22	9.46E 03	CU. FT.	2.1 ± 0.3	E-02	2.2 ± 1.3	E-03	10/20		L.T.	2.	E-02
10/22	10/29	1.05E 04	CU. FT.	2.5 ± 0.3	E-02	1.8 ± 1.2	E-03	10/27		L.T.	2.	E-02
10/29	11/07	1.22E 04	CU. FT.	3.1 ± 0.3	E-02	1.9 ± 1.3	E-03	11/03		L.T.	2.	E-02
11/07	11/12	7.30E 03	CU. FT.	3.4 ± 0.4	E-02	L.T.	2.	11/12		L.T.	3.	E-02
								11/17		L.T.	3.	E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 03

STATION 03 - 2.5 MI. 338 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)		AP FILTER GROSS ALPHA (PCI/CU.M.)		MID-COUNT TIME		CHARCOAL FILTER I-131 (PCI/CU. M.)		
								DATE	TIME			
11/12	11/19	1.00E 04	CU. FT.	2.6 ± 0.3	E-02	1.9 ± 1.4	E-03	11/23		L.T.	3.	E-02
11/19	11/26	1.04E 04	CU. FT.	1.8 ± 0.3	E-02	2.1 ± 1.3	E-03	12/03		L.T.	4.	E-02
11/26	12/03	1.01E 04	CU. FT.	2.5 ± 0.3	E-02	2.4 ± 1.4	E-03	12/11		L.T.	5.	E-02
12/03	12/10	9.91E 03	CU. FT.	3.0 ± 0.4	E-02	3.7 ± 1.6	E-03	12/18		L.T.	5.	E-02
12/10	12/17	1.01E 04	CU. FT.	2.4 ± 0.3	E-02	L.T.	2.	12/22		L.T.	3.	E-02
12/17	12/24	9.92E 03	CU. FT.	2.3 ± 0.3	E-02	2.2 ± 1.6	E-03	12/29		L.T.	3.	E-02
12/24	12/31	1.02E 04	CU. FT.	3.9 ± 0.4	E-02	L.T.	2.	01/08		L.T.	4.	E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 04

STATION 04 - 3.0 MI. 43 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)	AP FILTER GROSS ALPHA (PCI/CU.M.)	MID-COUNT TIME DATE	CHARCOAL FILTER I-131 (PCI/CU.M.)
12/31	01/07	1.01E 04	CU. FT.	4.2 ± 0.4	3.2 ± 1.7	01/12	L.T. 3.
01/07	01/14	1.00E 04	CU. FT.	7.9 ± 0.5	9.4 ± 2.6	01/19	L.T. 3.
01/14	01/21	1.01E 04	CU. FT.	3.2 ± 0.3	4.1 ± 1.7	01/25	L.T. 3.
01/21	01/28	1.01E 04	CU. FT.	1.9 ± 0.3	2.4 ± 1.5	02/02	L.T. 4.
01/28	02/04	1.01E 04	CU. FT.	2.0 ± 0.3	4.5 ± 1.9	02/09	L.T. 3.
02/04	02/11	1.01E 04	CU. FT.	2.0 ± 0.3	2.1 ± 1.5	02/17	L.T. 3.
02/11	02/19	1.15E 04	CU. FT.	2.0 ± 0.3	2.4 ± 1.4	02/24	L.T. 2.
02/19	02/26	1.03E 04	CU. FT.	1.3 ± 0.2	2.8 ± 1.5	03/03	L.T. 2.
02/26	03/04	4.66E 03	CU. FT.	1.7 ± 0.3	2.6 ± 1.6	03/07	L.T. 3.
03/04	03/12	1.16E 04	CU. FT.	2.4 ± 0.3	3.8 ± 1.7	03/17	L.T. 2.
03/12	03/20	1.14E 04	CU. FT.	1.3 ± 0.2	1.6 ± 1.1	03/26	L.T. 2.
03/20	03/26	6.62E 03	CU. FT.	1.6 ± 0.3	2.1 ± 1.5	04/02	L.T. 3.
03/26	04/02	1.02E 04	CU. FT.	1.7 ± 0.2	4.1 ± 1.3	04/07	L.T. 3.
04/02	04/09	1.01E 04	CU. FT.	2.0 ± 0.3	3.1 ± 1.6	04/14	L.T. 3.
04/09	04/16	9.86E 03	CU. FT.	1.1 ± 0.2	3.1 ± 1.6	04/23	L.T. 3.
04/16	04/23	1.01E 04	CU. FT.	1.3 ± 0.3	L.T. 1.	04/28	L.T. 3.
04/23	04/30	1.02E 04	CU. FT.	1.0 ± 0.2	L.T. 1.	05/07	L.T. 3.
04/30	05/07	9.97E 03	CU. FT.	1.2 ± 0.3	L.T. 2.	05/14	L.T. 4.
05/07	05/14	9.93E 03	CU. FT.	1.6 ± 0.3	L.T. 1.	05/19	L.T. 2.
05/14	05/21	1.03E 04	CU. FT.	9.4 ± 2.4	L.T. 2.	05/29	L.T. 3.
05/21	05/28	9.73E 03	CU. FT.	1.3 ± 0.3	1.7 ± 1.4	06/05	L.T. 3.
05/28	06/04	1.04E 04	CU. FT.	1.6 ± 0.3	2.4 ± 1.3	06/09	L.T. 4.
06/04	06/11	1.04E 04	CU. FT.	1.7 ± 0.3	1.3 ± 1.1	06/19	L.T. 4.
06/11	06/18	1.01E 04	CU. FT.	1.6 ± 0.3	2.0 ± 1.4	06/23	L.T. 2.
06/18	06/25	9.92E 03	CU. FT.	2.3 ± 0.3	2.0 ± 1.3	06/30	L.T. 2.
06/25	07/02	1.00E 04	CU. FT.	2.0 ± 0.3	L.T. 1.	07/10	L.T. 5.
07/02	07/09	1.04E 04	CU. FT.	1.8 ± 0.3	2.1 ± 1.3	07/14	L.T. 2.
07/09	07/16	9.82E 03	CU. FT.	1.5 ± 0.3	L.T. 1.	07/20	L.T. 2.
07/16	07/23	1.01E 04	CU. FT.	2.2 ± 0.3	2.4 ± 1.3	07/28	L.T. 2.
07/23	07/30	9.95E 03	CU. FT.	1.6 ± 0.3	L.T. 1.	08/05	L.T. 3.
07/30	08/06	1.00E 04	CU. FT.	2.6 ± 0.3	2.6 ± 1.4	08/11	L.T. 3.
08/06	08/13	9.98E 03	CU. FT.	5 ± 0.3	L.T. 2.	08/17	L.T. 3.
08/13	08/20	1.02E 04	CU. FT.	4.1 ± 0.3	2.7 ± 1.4	08/25	L.T. 2.
08/20	08/27	1.03E 04	CU. FT.	3.5 ± 0.4	3.7 ± 1.7	08/31	L.T. 2.
08/27	09/03	1.00E 04	CU. FT.	2.7 ± 0.3	L.T. 2.	09/07	L.T. 2.
09/03	09/11	1.14E 04	CU. FT.	1.9 ± 0.3	1.3 ± 1.0	09/15	L.T. 2.
09/11	09/17	8.90E 03	CU. FT.	1.4 ± 0.3	2.5 ± 1.5	09/21	L.T. 2.
09/17	09/24	1.02E 04	CU. FT.	1.8 ± 0.3	3.2 ± 1.5	09/29	L.T. 2.
09/24	10/01	1.01E 04	CU. FT.	2.0 ± 0.3	2.9 ± 1.5	10/06	L.T. 2.
10/01	10/08	1.01E 04	CU. FT.	2.5 ± 0.3	1.4 ± 1.2	10/13	L.T. 2.
10/08	10/15	1.01E 04	CU. FT.	3.3 ± 0.4	3.0 ± 1.6	10/20	L.T. 2.
10/15	10/22	1.01E 04	CU. FT.	2.1 ± 0.3	2.7 ± 1.4	10/27	L.T. 2.
10/22	10/29	9.91E 03	CU. FT.	2.1 ± 0.3	2.4 ± 1.4	11/03	L.T. 2.
10/29	11/07	1.23E 04	CU. FT.	3.2 ± 0.3	2.7 ± 1.4	11/12	L.T. 3.
11/07	11/12	7.36E 03	CU. FT.	4.5 ± 0.5	1.6 ± 0.4	11/17	L.T. 3.

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 04

STATION 04 - 3.0 MI. 43 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)		AP FILTER GROSS ALPHA (PCI/CU.M.)		MID-COUNT TIME		CHARCOAL FILTER I-131 (PCI/CU. F.)		
								DATE	TIME			
11/12	11/19	1.02E 04	CU. FT.	3.3 ± 0.3	E-02	3.0 ± 1.6	E-03	11/23		L.T.	3.	E-02
11/19	11/26	1.02E 04	CU. FT.	2.3 ± 0.3	E-02	2.6 ± 1.4	E-03	12/03		L.T.	4.	E-02
11/26	12/03	1.01E 04	CU. FT.	2.5 ± 0.3	E-02	2.4 ± 1.4	E-03	12/11		L.T.	5.	E-02
12/03	12/10	9.85E 03	CU. FT.	2.9 ± 0.3	E-02	3.7 ± 1.7	E-03	12/18		L.T.	5.	E-02
12/10	12/18	1.03E 04	CU. FT.	3.4 ± 0.4	E-02	7.5 ± 2.4	E-03	12/22		L.T.	3.	E-02
12/18	12/24	8.80E 03	CU. FT.	3.1 ± 0.4	E-02	L.T. 2.	E-03	12/29		L.T.	3.	E-02
12/24	12/31	1.01E 04	CU. FT.	4.5 ± 0.4	E-02	3.7 ± 1.8	E-03	01/08		L.T.	4.	E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 05

STATION 05 - 3.5 MI. 102 DEG. 1MO.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER		AI FILTER		MID-COUNT TIME DATE	CHARCOAL FILTER [1-13]
				GROSS BETA [PCI/CU.M.]	GROSS ALPHA [PCI/CU.M.]	GROSS BETA [PCI/CU.M.]	GROSS ALPHA [PCI/CU.M.]		
12/31	01/07	1.01E 04	CU. FT.	4.5 ± 0.4	E-02	3.3 ± 1.8	E-03	01/12	L.T. 2. E-02
01/07	01/14	1.00E 04	CU. FT.	9.7 ± 0.6	E-02	1.1 ± 0.3	E-02	01/19	L.T. 2. E-02
01/14	01/21	1.01E 04	CU. FT.	3.2 ± 0.3	E-02	4.4 ± 1.7	E-03	01/25	L.T. 2. E-02
01/21	01/29	1.01E 04	CU. FT.	2.4 ± 0.3	E-02	2.4 ± 1.5	E-03	02/02	L.T. 3. E-02
01/28	02/04	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	3.7 ± 1.8	E-03	02/09	L.T. 2. E-02
02/04	02/11	1.01E 04	CU. FT.	2.3 ± 0.3	E-02	L.T. 2.	E-03	02/17	L.T. 3. E-02
02/11	02/19	1.15E 04	CU. FT.	2.0 ± 0.3	E-02	2.9 ± 1.5	E-03	02/24	L.T. 2. E-02
02/19	02/26	1.03E 04	CU. FT.	1.7 ± 0.3	E-02	2.7 ± 1.4	E-03	03/03	L.T. 2. E-02
02/26	03/04	8.66E 03	CU. FT.	2.3 ± 0.3	E-02	2.4 ± 1.5	E-03	03/07	L.T. 2. E-02
03/04	03/12	1.14E 04	CU. FT.	2.0 ± 0.3	E-02	4.3 ± 1.8	E-03	03/17	L.T. 1. E-02
03/12	03/20	1.15E 04	CU. FT.	1.6 ± 0.2	E-02	1.7 ± 1.1	E-03	03/26	L.T. 1. E-02
03/20	03/26	8.60E 03	CU. FT.	1.8 ± 0.3	E-02	2.5 ± 1.6	E-03	04/02	L.T. 2. E-02
03/26	04/02	1.02E 04	CU. FT.	1.9 ± 0.2	E-02	3.7 ± 1.3	E-03	04/07	L.T. 2. E-02
04/02	04/09	1.01E 04	CU. FT.	2.0 ± 0.3	E-02	4.5 ± 1.9	E-03	04/14	L.T. 2. E-02
04/09	04/16	9.86E 03	CU. FT.	1.1 ± 0.2	E-02	3.0 ± 1.5	E-03	04/23	L.T. 2. E-02
04/16	04/23	1.01E 04	CU. FT.	1.6 ± 0.3	E-02	L.T. 1.	E-03	04/28	L.T. 1. E-02
04/23	04/30	1.02E 04	CU. FT.	1.2 ± 0.2	E-02	2.2 ± 1.3	E-03	05/07	L.T. 2. E-02
04/30	05/07	9.97E 03	CU. FT.	1.2 ± 0.3	E-02	L.T. 2.	E-03	05/14	L.T. 3. E-02
05/07	05/14	9.94E 03	CU. FT.	1.6 ± 0.3	E-02	2.2 ± 1.3	E-03	05/19	L.T. 2. E-02
05/14	05/21	1.03E 04	CU. FT.	1.2 ± 0.3	E-02	3.7 ± 1.8	E-03	05/29	L.T. 2. E-02
05/22	05/28	8.54E 03	CU. FT.	9.8 ± 2.7	E-03	L.T. 2.	E-03	06/05	L.T. 3. E-02
05/28	06/04	1.04E 04	CU. FT.	1.4 ± 0.3	E-02	1.5 ± 1.1	E-03	06/09	L.T. 2. E-02
06/04	06/11	1.02E 04	CU. FT.	1.4 ± 0.3	E-02	L.T. 1.	E-03	06/19	L.T. 3. E-02
06/11	06/18	1.01E 04	CU. FT.	1.7 ± 0.3	E-02	2.3 ± 1.5	E-03	06/23	L.T. 2. E-02
06/18	06/25	9.93E 03	CU. FT.	2.5 ± 0.3	E-02	2.0 ± 1.3	E-03	06/30	L.T. 1. E-02
06/25	07/02*	9.93E 03	CU. FT.	5.9 ± 0.8	E-02	7.4 ± 4.4	E-01	07/10	L.T. 1. E-02
07/02	07/09	6.22E 03	CU. FT.	1.9 ± 0.4	E-02	3.5 ± 2.2	E-03	07/14	L.T. 3. E-02
07/09	07/16*	1.49E 03	CU. FT.	L.T. 2.	E-02	L.T. 9	E-03	07/20	L.T. 7. E-02
07/16	07/23	5.93E 03	CU. FT.	2.8 ± 0.5	E-02	3.9 ± 2.1	E-03	07/28	L.T. 2. E-02
07/23	07/30	9.95E 03	CU. FT.	1.4 ± 0.3	E-02	2.2 ± 1.4	E-03	08/05	L.T. 1. E-02
07/30	08/06	SAMPLE NOT COLLECTED							
08/06	08/13	9.93E 03	CU. FT.	1.4 ± 0.3	E-02	L.T. 2.	E-03	08/17	L.T. 2. E-02
08/13	08/20	1.02E 04	CU. FT.	2.1 ± 0.3	E-02	2.4 ± 1.3	E-03	08/25	L.T. 1. E-02
08/20	08/27	1.03E 04	CU. FT.	3.3 ± 0.4	E-02	2.1 ± 0.4	E-03	08/31	L.T. 1. E-02
08/27	09/03	1.00E 04	CU. FT.	2.5 ± 0.3	E-02	L.T. 2.	E-03	09/07	L.T. 1. E-02
08/03	09/11	1.13E 04	CU. FT.	1.7 ± 0.2	E-02	1.5 ± 1.0	E-03	09/15	L.T. 1. E-02
09/11	09/17	8.90E 03	CU. FT.	1.4 ± 0.3	E-02	L.T. 1.	E-03	09/21	L.T. 1. E-02
09/17	09/24	1.02E 04	CU. FT.	1.7 ± 0.3	E-02	L.T. 1.	E-03	09/25	L.T. 1. E-02
09/24	10/01	1.01E 04	CU. FT.	2.2 ± 0.3	E-02	1.4 ± 1.2	E-03	10/06	L.T. 1. E-02
10/01	10/08	1.01E 04	CU. FT.	1.7 ± 0.3	E-02	L.T. 1.	E-03	10/13	L.T. 1. E-02
10/08	10/15	1.01E 04	CU. FT.	2.9 ± 0.3	E-02	L.T. 1.	E-03	10/20	L.T. 1. E-02
10/15	10/22	1.01E 04	CU. FT.	7.6 ± 0.3	E-02	3.6 ± 1.6	E-03	10/27	L.T. 1. E-02
10/22	10/29	9.94E 03	CU. FT.	2.4 ± 0.3	E-02	3.1 ± 1.6	E-03	11/03	L.T. 1. E-02
10/29	11/07	1.27E 04	CU. FT.	2.6 ± 0.3	E-02	1.7 ± 1.2	E-03	11/12	L.T. 1. E-02

*Sampler out of service. Not included in annual report calculations.

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 05

STATION 05 - 3.5 MI. 102 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)	AP FILTER GROSS ALPHA (PCI/CU.M.)	MID-COUNT TIME DATE TIME	CHARCOAL FILTER 1-131 (PCI/CU. M.)
11/07	11/12	7.36E 03	CU. FT.	4.2 ± 0.5 E-02	3.8 ± 2.0 E-03	11/17	L.T. 2. E-02
11/12	11/19	1.01E 04	CU. FT.	3.4 ± 0.4 E-02	2.0 ± 1.4 E-03	11/23	L.T. 2. E-02
11/19	11/26	1.02E 04	CU. FT.	2.5 ± 0.3 E-02	2.2 ± 1.3 E-03	12/03	L.T. 1. E-02
11/26	12/03	1.01E 04	CU. FT.	2.7 ± 0.3 E-02	1.7 ± 1.2 E-03	12/11	L.T. 3. E-02
12/03	12/10	9.94E 03	CU. FT.	2.7 ± 0.3 E-02	2.3 ± 1.4 E-03	12/18	L.T. 3. E-02
12/10	12/18	1.03E 04	CU. FT.	3.2 ± 0.4 E-02	2.7 ± 1.7 E-03	12/22	L.T. 2. E-02
12/18	12/24	8.78E 03	CU. FT.	2.5 ± 0.4 E-02	L.T. 2. E-03	12/29	L.T. 2. E-02
12/24	12/31	1.01E 04	CU. FT.	3.8 ± 0.4 E-02	2.4 ± 1.6 E-03	01/08	L.T. 3. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 06

STATION 06 - 3.0 MI. 165 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)		AP FILTER GROSS ALPHA (PCI/CU.M.)		MID-COUNT TIME DATE TIME		CHARCOAL FILTER I-131 (PCI/CU. M.)	
12/31	01/07	1.01E 04	CU. FT.	4.2 ± 0.4	E-02	4.4 ± 2.0	E-03	01/12		L.T.	3. E-02
01/07	01/14	1.60E 04	CU. FT.	8.1 ± 0.5	E-02	1.1 ± 0.3	E-02	01/19		L.T.	3. E-02
01/14	01/21	1.01E 04	CU. FT.	3.2 ± 0.3	E-02	3.1 ± 1.5	E-03	01/25		L.T.	3. E-02
01/21	01/28	1.01E 04	CU. FT.	2.4 ± 0.3	E-02	2.1 ± 1.4	E-03	02/02		L.T.	3. E-02
01/28	02/04	1.01E 04	CU. FT.	2.6 ± 0.3	E-02	4.0 ± 1.8	E-03	02/09		L.T.	3. E-02
02/04	02/11	1.01E 04	CU. FT.	2.3 ± 0.3	E-02	1.8 ± 1.5	E-03	02/17		L.T.	3. E-02
02/11	02/19	1.15E 04	CU. FT.	1.9 ± 0.3	E-02	2.5 ± 1.4	E-03	02/24		L.T.	2. E-02
02/19	02/26	1.03E 04	CU. FT.	1.5 ± 0.3	E-02	L.T.	1. E-03	03/04		L.T.	2. E-02
02/26	03/04	8.66E 03	CU. FT.	1.9 ± 0.3	E-02	3.2 ± 1.7	E-03	03/07		L.T.	4. E-02
03/04	03/12	1.16E 04	CU. FT.	1.8 ± 0.2	E-02	7.8 ± 1.5	E-03	03/18		L.T.	3. E-02
03/12	03/20	1.15E 04	CU. FT.	1.3 ± 0.2	E-02	1.3 ± 1.0	E-03	03/26		L.T.	2. E-02
03/20	03/26	8.62E 03	CU. FT.	1.8 ± 0.3	E-02	3.2 ± 1.7	E-03	04/02		L.T.	4. E-02
03/26	04/02	1.02E 04	CU. FT.	1.6 ± 0.2	E-02	4.0 ± 1.3	E-03	04/07		L.T.	2. E-02
04/02	04/09	1.01E 04	CU. FT.	1.8 ± 0.3	E-02	3.5 ± 1.7	E-03	04/14		L.T.	2. E-02
04/09	04/16	9.86E 03	CU. FT.	9.7 ± 2.2	E-03	1.3 ± 1.1	E-03	04/23		L.T.	3. E-02
04/16	04/23	1.01E 04	CU. FT.	1.3 ± 0.3	E-02	L.T.	1. E-03	04/28		L.T.	3. E-02
04/23	04/30	1.02E 04	CU. FT.	1.1 ± 0.2	E-02	L.T.	1. E-03	05/07		L.T.	3. E-02
04/30	05/07	9.99E 03	CU. FT.	1.3 ± 0.3	E-02	L.T.	2. E-03	05/15		L.T.	3. E-02
05/07	05/14	9.91E 03	CU. FT.	1.1 ± 0.2	E-02	2.1 ± 1.1	E-03	05/21		L.T.	4. E-02
05/14	05/21	1.03E 04	CU. FT.	1.0 ± 0.2	E-02	L.T.	2. E-03	05/30		L.T.	5. E-02
05/21	05/28	9.70E 03	CU. FT.	1.1 ± 0.3	E-02	L.T.	1. E-03	06/05		L.T.	3. E-02
05/28	06/04	1.04E 04	CU. FT.	1.3 ± 0.2	E-02	2.2 ± 1.3	E-03	06/09		L.T.	2. E-02
06/04	06/11	1.02E 04	CU. FT.	1.0 ± 0.3	E-02	1.8 ± 1.2	E-03	06/19		L.T.	3. E-02
06/11	06/18	1.01E 04	CU. FT.	1.3 ± 0.2	E-02	1.7 ± 1.4	E-03	06/24		L.T.	3. E-02
06/18	06/25	9.94E 03	CU. FT.	2.1 ± 0.3	E-02	L.T.	1. E-03	06/30		L.T.	2. E-02
06/25	07/02	1.00E 04	CU. FT.	1.3 ± 0.2	E-02	2.2 ± 1.4	E-03	07/10		L.T.	3. E-02
07/02	07/09	1.03E 04	CU. FT.	1.3 ± 0.3	E-02	1.6 ± 1.2	E-03	07/16		L.T.	4. E-02
07/09	07/16	9.83E 03	CU. FT.	1.3 ± 0.3	E-02	L.T.	1. E-03	07/21		L.T.	3. E-02
07/16	07/23	1.00E 04	CU. FT.	2.0 ± 0.3	E-02	3.2 ± 1.5	E-03	07/28		L.T.	2. E-02
07/23	07/30	9.96E 03	CU. FT.	9.7 ± 2.3	E-03	L.T.	1. E-03	08/05		L.T.	4. E-02
07/30	08/06	1.01E 04	CU. FT.	1.6 ± 0.3	E-02	2.5 ± 1.4	E-03	08/11		L.T.	3. E-02
08/06	08/13	9.92E 03	CU. FT.	8.7 ± 2.3	E-03	L.T.	2. E-03	08/17		L.T.	2. E-02
08/13	08/20	1.03E 04	CU. FT.	1.3 ± 0.2	E-02	2.7 ± 1.4	E-03	08/25		L.T.	2. E-02
08/20	08/27	1.03E 04	CU. FT.	2.2 ± 0.3	E-02	3.6 ± 1.7	E-03	08/31		L.T.	2. E-02
08/27	09/03	1.00E 04	CU. FT.	1.6 ± 0.3	E-02	2.7 ± 1.6	E-03	09/07		L.T.	2. E-02
09/03	09/11	1.13E 04	CU. FT.	1.7 ± 0.2	E-02	1.5 ± 1.0	E-03	09/15		L.T.	2. E-02
09/11	09/17	8.90E 03	CU. FT.	8.5 ± 2.5	E-03	1.5 ± 1.3	E-03	09/21		L.T.	2. E-02
09/17	09/24	1.02E 04	CU. FT.	1.1 ± 0.2	E-02	1.2 ± 1.0	E-03	09/29		L.T.	2. E-02
09/24	10/01	1.01E 04	CU. FT.	1.4 ± 0.3	E-02	L.T.	1. E-03	10/06		L.T.	2. E-02
10/01	10/08	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	2.7 ± 1.5	E-03	10/14		L.T.	2. E-02
10/08	10/15	1.01E 04	CU. FT.	1.9 ± 0.3	E-02	2.0 ± 1.3	E-03	10/20		L.T.	2. E-02
10/15	10/22	1.01E 04	CU. FT.	1.8 ± 0.3	E-02	2.7 ± 1.4	E-03	10/27		L.T.	2. E-02
10/22	10/29	9.98E 03	CU. FT.	2.4 ± 0.3	E-02	2.5 ± 1.4	E-03	11/03		L.T.	2. E-02
10/29	11/07	1.27E 04	CU. FT.	3.1 ± 0.3	E-02	2.9 ± 1.5	E-03	11/12		L.T.	2. E-02
11/07	11/12	7.38E 03	CU. FT.	3.5 ± 0.4	E-02	3.7 ± 2.0	E-03	11/17		L.T.	3. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 06

STATION 06 - 3.0 MI. 165 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER CROSS BETA (+CI/CM.)		AP FILTER GROSS ALPHA (PCI/CM.)		M/D-COUNT TIME DATE TIME		CHARCOAL FILTER 1-131 (PCI/CM.)	
11/12	11/19	1.01E 04	CU. FT.	2.9 ± 0.3	E-02	L.T. 2.	E-03	11/23		L.T. 2.	E-02
11/19	11/26	1.02E 04	CU. FT.	2.5 ± 0.3	E-02	1.8 ± 1.2	E-03	12/03		L.T. 4.	E-02
11/26	12/03	1.01E 04	CU. FT.	2.5 ± 0.3	E-02	2.2 ± 1.3	E-03	12/11		L.T. 5.	E-02
12/03	12/10	9.85E 03	CU. FT.	2.5 ± 0.3	E-02	1.4 ± 1.1	E-03	12/18		L.T. 3.	E-02
12/10	12/18	1.03E 04	CU. FT.	3.1 ± 0.4	E-02	1.3 ± 1.8	E-03	12/22		L.T. 7.	E-02
12/18	12/24	8.78E 03	CU. FT.	2.8 ± 0.4	E-02	L.T. 2.	E-03	12/31		L.T. 3.	E-02
12/24	12/31	1.01E 04	CU. FT.	4.2 ± 0.4	E-02	3.3 ± 1.7	E-03	01/08		L.T. 3.	E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 07

STATION 07 - 2.5 MI. 230 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS ALPHA		AP FILTER GROSS BETA		MID-COUNT TIME DATE	CHARCOAL FILTER	
				(PCI/CM.M.)	(PCI/CM.M.)	(PCI/CM.M.)	(PCI/CM.M.)		1-131	(PCI/CM.M.)
12/31	01/07	9.68E 03	CU. FT.	4.6 ± 0.4	E-02	4.0 ± 1.9	E-03	01/12	L.T.	3. E-02
01/07	01/14	1.01E 04	CU. FT.	7.9 ± 0.5	E-02	8.3 ± 2.4	E-03	01/19	L.T.	3. E-02
01/14	01/21	1.01E 04	CU. FT.	2.6 ± 0.3	E-02	3.8 ± 1.6	E-03	01/25	L.T.	3. E-02
01/21	01/28	1.01E 04	CU. FT.	2.2 ± 0.3	E-02	2.0 ± 1.4	E-03	02/02	L.T.	3. E-02
01/28	02/04	1.01E 04	CU. FT.	2.3 ± 0.3	E-02	2.7 ± 1.6	E-03	02/09	L.T.	3. E-02
02/04	02/11	1.01E 04	CU. FT.	2.5 ± 0.3	E-02	2.3 ± 1.6	E-03	02/17	L.T.	3. E-02
02/11	02/19	1.15E 04	CU. FT.	1.9 ± 0.3	E-02	2.1 ± 1.3	E-03	02/24	L.T.	2. E-02
02/19	02/26	1.00E 04	CU. FT.	1.9 ± 0.3	E-02	1.8 ± 1.3	E-03	03/04	L.T.	2. E-02
02/26	03/04	8.71E 03	CU. FT.	2.5 ± 0.3	E-02	3.0 ± 1.7	E-03	03/07	L.T.	2. E-02
03/04	03/12	1.15E 04	CU. FT.	1.9 ± 0.3	E-02	2.1 ± 1.4	E-03	03/18	L.T.	4. E-02
03/12	03/20	1.15E 04	CU. FT.	1.3 ± 0.2	E-02	L.T. 9.	E-04	03/26	L.T.	3. E-02
03/20	03/26	8.98E 03	CU. FT.	1.5 ± 0.3	E-02	2.4 ± 1.5	E-03	04/02	L.T.	4. E-02
03/26	04/02	9.95E 03	CU. FT.	1.8 ± 0.2	E-02	3.4 ± 1.2	E-03	04/07	L.T.	2. E-02
04/02	04/09	1.01E 04	CU. FT.	1.9 ± 0.3	E-02	2.9 ± 1.5	E-03	04/14	L.T.	2. E-02
04/09	04/16	1.01E 04	CU. FT.	1.4 ± 0.2	E-02	1.3 ± 1.1	E-03	04/23	L.T.	3. E-02
04/16	04/23	1.01E 04	CU. FT.	1.2 ± 0.2	E-02	L.T. 1.	E-03	04/28	L.T.	3. E-02
04/23	04/30	9.87E 03	CU. FT.	1.1 ± 0.2	E-02	1.9 ± 1.2	E-03	05/07	L.T.	3. E-02
04/30	05/07	9.97E 03	CU. FT.	1.0 ± 0.2	E-02	L.T. 2.	E-03	05/15	L.T.	3. E-02
05/07	05/14	1.00E 04	CU. FT.	1.6 ± 0.3	E-02	2.8 ± 1.5	E-03	05/21	L.T.	4. E-02
05/14	05/22	1.04E 04	CU. FT.	1.2 ± 0.3	E-02	L.T. 1.	E-03	05/30	L.T.	4. E-02
05/22	05/28	8.39E 03	CU. FT.	1.2 ± 0.3	E-02	2.6 ± 1.7	E-03	06/05	L.T.	3. E-02
05/28	06/04	1.01E 04	CU. FT.	1.5 ± 0.3	E-02	2.6 ± 1.4	E-03	06/09	L.T.	2. E-02
06/04	06/11	1.00E 04	CU. FT.	1.7 ± 0.3	E-02	L.T. 1.	E-03	06/19	L.T.	3. E-02
06/11	06/18	1.04E 04	CU. FT.	2.0 ± 0.3	E-02	3.4 ± 1.6	E-03	06/24	L.T.	3. E-02
06/18	06/25	9.87E 03	CU. FT.	2.7 ± 0.3	E-02	1.2 ± 1.1	E-03	06/30	L.T.	2. E-02
06/25	07/02	0.3E 04	CU. FT.	2.4 ± 0.3	E-02	2.4 ± 1.5	E-03	07/10	L.T.	3. E-02
07/02	07/09	6.49E 03	CU. FT.	2.0 ± 0.4	E-02	L.T. 2.	E-03	07/16	L.T.	6. E-02
07/09	07/16*	SAMPLE NOT COLLECTED								
07/16	07/23	1.01E 04	CU. FT.	2.6 ± 0.3	E-02	4.3 ± 1.7	E-03	07/28	L.T.	2. E-02
07/23	07/30	1.03E 04	CU. FT.	1.5 ± 0.3	E-02	2.8 ± 1.5	E-03	08/05	L.T.	3. E-02
07/30	08/06	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	2.9 ± 1.5	E-03	08/11	L.T.	3. E-02
08/06	08/13	9.77E 03	CU. FT.	1.5 ± 0.3	E-02	L.T. 2.	E-03	08/17	L.T.	2. E-02
08/13	08/20	9.93E 03	CU. FT.	2.3 ± 0.3	E-02	4.1 ± 1.7	E-03	08/23	L.T.	2. E-02
08/20	08/27	1.04E 04	CU. FT.	3.6 ± 0.4	E-02	3.0 ± 1.6	E-03	08/31	L.T.	2. E-02
08/27	09/03	9.98E 03	CU. FT.	2.7 ± 0.3	E-02	3.8 ± 1.8	E-03	09/07	L.T.	2. E-02
09/03	09/11	1.17E 04	CU. FT.	1.2 ± 0.2	E-02	1.6 ± 1.0	E-03	09/15	L.T.	2. E-02
09/11	09/17	8.62E 03	CU. FT.	1.7 ± 0.3	E-02	4.2 ± 1.9	E-03	09/21	L.T.	2. E-02
09/17	09/24	1.01E 04	CU. FT.	1.7 ± 0.3	E-02	2.1 ± 1.3	E-03	09/29	L.T.	2. E-02
09/24	10/01	1.00E 04	CU. FT.	2.2 ± 0.3	E-02	2.6 ± 1.5	E-03	10/06	L.T.	2. E-02
10/01	10/08	1.01E 04	CU. FT.	2.5 ± 0.3	E-02	3.2 ± 1.6	E-03	10/14	L.T.	2. E-02
10/08	10/15	9.94E 03	CU. FT.	1.9 ± 0.3	E-02	2.0 ± 1.3	E-03	10/20	L.T.	2. E-02
10/15	10/22	1.03E 04	CU. FT.	1.5 ± 0.3	E-02	9.9 ± 9.4	E-04	10/27	L.T.	2. E-02
10/22	10/29	4.9E 03	CU. FT.	4.9 ± 0.6	E-02	1.7 ± 2.8	E-03	11/03	L.T.	2. E-02
10/29	11/07	1.28E 04	CU. FT.	2.2 ± 0.3	E-02	2.3 ± 1.3	E-03	11/12	L.T.	2. E-02

*Equipment malfunction.

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 07

STATION 07 - 2.5 MI. 230 DEG. INE).

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)	AP FILTER GROSS ALPHA (PCI/CU.M.)	MID-COUNT TIME DATE	CHARCOAL FILTER I-131 (PCI/CU. M.)
11/07	11/13	8.48E 03	CU. FT.	3.1 ± 0.4	2.9 ± 1.7	11/17	L.T. 2. E-02
11/13	11/19	8.82E 03	CU. FT.	3.3 ± 0.4	L.T. 2. E-03	11/23	L.T. 2. E-02
11/19	11/26	1.01E 04	CU. FT.	2.3 ± 0.3	2.9 ± 1.4	12/03	L.T. 4. E-02
11/26	12/03	1.00E 04	CU. FT.	2.3 ± 0.3	L.T. 1. E-03	12/11	L.T. 5. E-02
12/03	12/10	1.02E 04	CU. FT.	2.7 ± 0.3	2.3 ± 1.3	12/18	L.T. 3. E-02
12/10	12/17	1.01E 04	CU. FT.	2.8 ± 0.3	L.T. 2. E-03	12/22	L.T. 2. E-02
12/17	12/24	9.68E 03	CU. FT.	2.4 ± 0.3	L.T. 2. E-03	12/31	L.T. 3. E-02
12/24	12/31	1.02E 04	CU. FT.	4.2 ± 0.4	2.7 ± 1.6	01/08	L.T. 3. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 08

STATION 08 - 2.5 MI. 260 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AF FILTER		AP FILTER		MID-COUNT TIME DATE	CHARCOAL FILTER
				GROSS BETA (UCI/CM.)	GROSS ALPHA (PCI/CM.)	GROSS BETA (UCI/CM.)	GROSS ALPHA (PCI/CM.)		
12/31	01/07	1.00E 04	CU. FT.	4.4 ± 0.4	E-02	3.6 ± 1.8	E-03	01/12	L.T. 3. E-02
01/07	01/14	1.02E 04	CU. FT.	8.0 ± 0.5	E-02	9.1 ± 2.5	E-03	01/19	L.T. 3. E-02
01/14	01/21	9.83E 03	CU. FT.	2.8 ± 0.1	E-02	2.6 ± 1.4	E-03	01/25	L.T. 3. E-02
01/21	01/28	1.01E 04	CU. FT.	2.5 ± 0.3	E-02	2.4 ± 1.5	E-03	02/02	L.T. 3. E-02
01/28	02/04	1.03E 04	CU. FT.	2.5 ± 0.3	E-02	4.2 ± 1.7	E-03	02/09	L.T. 3. E-02
02/04	02/11	9.91E 03	CU. FT.	1.9 ± 0.3	E-02	L.T. 2.	E-03	02/17	L.T. 3. E-02
02/11	02/19	1.15E 04	CU. FT.	2.0 ± 0.3	E-02	1.6 ± 1.2	E-03	02/24	L.T. 2. E-02
02/19	02/26	1.01E 04	CU. FT.	1.9 ± 0.3	E-02	7.1 ± 1.3	E-03	03/04	L.T. 2. E-02
02/26	03/04	8.88E 03	CU. FT.	1.9 ± 0.3	E-02	1.2 ± 1.3	E-03	03/12	L.T. 4. E-02
03/04	03/12	1.14E 04	CU. FT.	1.9 ± 0.3	E-02	2.0 ± 1.4	E-03	03/18	L.T. 3. E-02
03/12	03/20	1.14E 04	CU. FT.	2.2 ± 0.2	E-02	1.1 ± 1.0	E-03	03/26	L.T. 2. E-02
03/20	03/26	8.87E 03	CU. FT.	1.8 ± 0.3	E-02	3.9 ± 1.8	E-03	04/02	L.T. 4. E-02
03/26	04/02	1.00E 04	CU. FT.	1.9 ± 0.2	E-02	2.3 ± 1.1	E-03	04/07	L.T. 2. E-02
04/02	04/09	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	5.5 ± 2.3	E-03	04/14	L.T. 2. E-02
04/09	04/16	1.00E 04	CU. FT.	9.0 ± 2.2	E-03	L.T. 1.	E-02	04/23	L.T. 3. E-02
04/16	04/23	1.01E 04	CU. FT.	1.5 ± 0.3	E-02	1.6 ± 1.4	E-03	04/28	L.T. 3. E-02
04/23	04/30	1.00E 04	CU. FT.	1.2 ± 0.3	E-02	1.2 ± 1.1	E-03	05/07	L.T. 3. E-02
04/30	05/07	9.90E 03	CU. FT.	1.3 ± 0.3	E-02	L.T. 2.	E-03	05/15	L.T. 3. E-02
05/07	05/14	1.00E 04	CU. FT.	1.6 ± 0.3	E-02	2.2 ± 1.3	E-03	05/21	L.T. 4. E-02
05/14	05/22	1.17E 04	CU. FT.	1.0 ± 0.2	E-02	1.1	E-03	05/30	L.T. 4. E-02
05/22	05/28	8.52E 03	CU. FT.	1.3 ± 0.3	E-02	L.T. 2.	E-03	06/05	L.T. 3. E-02
05/28	06/04	1.01E 04	CU. FT.	1.4 ± 0.3	E-02	1.4 ± 1.2	E-03	06/09	L.T. 2. E-02
06/04	05/11	1.02E 04	CU. FT.	1.6 ± 0.3	E-02	1.8 ± 1.4	E-03	06/19	L.T. 3. E-02
06/11	06/18	1.00E 04	CU. FT.	1.6 ± 0.3	E-02	1.8 ± 1.4	E-03	06/24	L.T. 3. E-02
06/18	06/25	9.98E 03	CU. FT.	2.1 ± 0.3	E-02	1.1 ± 1.1	E-03	06/30	L.T. 2. E-02
06/25	07/02	1.03E 04	CU. FT.	1.3 ± 0.3	E-02	1.9 ± 1.4	E-03	07/10	L.T. 3. E-02
07/02	07/09	9.84E 03	CU. FT.	1.3 ± 0.3	E-02	2.2 ± 1.4	E-03	07/16	L.T. 4. E-02
07/09	07/16	1.00E 04	CU. FT.	1.3 ± 0.3	E-02	1.5 ± 1.3	E-03	07/21	L.T. 3. E-02
07/16	07/23	1.01E 04	CU. FT.	2.3 ± 0.3	E-02	5.1 ± 1.8	E-03	07/28	L.T. 3. E-02
07/23	07/30	1.01E 04	CU. FT.	1.4 ± 0.3	E-02	L.T. 1.	E-03	08/05	L.T. 2. E-02
07/30	08/06	1.01E 04	CU. FT.	1.7 ± 0.3	E-02	2.9 ± 1.5	E-03	08/11	L.T. 3. E-02
08/06	08/13	9.80E 03	CU. FT.	1.3 ± 0.3	E-02	L.T. 2.	E-03	08/17	L.T. 2. E-02
08/13	08/20	1.00E 04	CU. FT.	1.8 ± 0.3	E-02	5.1 ± 1.8	E-03	08/25	L.T. 2. E-02
08/20	08/27	1.02E 04	CU. FT.	2.9 ± 0.3	E-02	4.2 ± 1.8	E-03	08/31	L.T. 2. E-02
08/27	09/03	1.00E 04	CU. FT.	2.4 ± 0.3	E-02	3.6 ± 1.9	E-03	09/07	L.T. 2. E-02
09/03	09/11	1.17E 04	CU. FT.	1.8 ± 0.2	E-02	2.6 ± 1.3	E-03	09/15	L.T. 2. E-02
09/11	09/17	8.62E 03	CU. FT.	1.3 ± 0.3	E-02	1.9 ± 1.6	E-03	09/21	L.T. 2. E-02
09/17	09/24	1.02E 04	CU. FT.	1.2 ± 0.2	E-02	2.1 ± 1.3	E-03	09/29	L.T. 2. E-02
09/24	10/01	1.00E 04	CU. FT.	2.0 ± 0.3	E-02	2.6 ± 1.5	E-03	10/06	L.T. 2. E-02
10/01	10/08	1.01E 04	CU. FT.	2.3 ± 0.3	E-02	1.7 ± 1.3	E-03	10/14	L.T. 2. E-02
10/08	10/15	1.00E 04	CU. FT.	2.7 ± 0.3	E-02	2.9 ± 1.5	E-03	10/20	L.T. 2. E-02
10/15	10/22	1.00E 04	CU. FT.	1.6 ± 0.3	E-02	3.1 ± 1.5	E-03	10/27	L.T. 2. E-02
10/22	10/29	1.00E 04	CU. FT.	2.4 ± 0.3	E-02	1.5 ± 1.2	E-03	11/03	L.T. 2. E-02
10/29	11/07	1.28E 04	CU. FT.	2.8 ± 0.3	E-02	2.5 ± 1.4	E-03	11/12	L.T. 2. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 08

STATION 08 - 2.5 MI. 260 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)	AP FILTER GROSS ALPHA (PCI/CU.M.)	MID-COUNT TIME DATE TIME	CHARCOAL FILTER I-131 (PCI/CU. M.)
11/07	11/13	8.74E 03	CU. FT.	3.1 ± 0.4 E-02	1.8 ± 1.4 E-03	11/17	L.T. 2. >-02
11/13	11/19	8.57E 03	CU. FT.	2.8 ± 0.4 E-02	1.9 ± 1.6 E-03	11/23	L.T. 2. E-02
11/19	11/26	1.02E 04	CU. FT.	1.9 ± 0.3 E-02	2.7 ± 1.4 E-03	12/03	L.T. 4. E-02
11/26	12/03	9.91E 03	CU. FT.	2.4 ± 0.3 E-02	2.2 ± 1 E-03	12/11	L.T. 5. E-02
12/03	12/10	1.03E 04	CU. FT.	2.7 ± 0.3 E-02	2.7 ± 1.4 E-03	12/18	L.T. 3. E-02
12/10	12/17	9.99E 03	CU. FT.	2.3 ± 0.3 E-02	L.T. 2. E-03	12/22	L.T. 2. E-02
12/17	12/24	9.78E 03	CU. FT.	2.3 ± 0.3 E-02	L.T. 2. E-03	12/31	L.T. 3. E-02
12/24	12/31	1.01E 04	CU. FT.	3.7 ± 0.4 E-02	2.4 ± 1.6 E-03	01/08	L.T. 3. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 09

STATION 09 - 7.25 MI. 335 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER		AF FILTER		MID-COUNT TIME DATE	CHAN/DAL FILTER
				GROSS BETA (PCI/CU M.)	GROSS ALPHA (PCI/CU M.)	GROSS BETA (PCI/CU M.)	GROSS ALPHA (PCI/CU M.)		
12/31	01/07	1.03E 04	CU. FT.	3.6 ± 0.4	E-02	2.4 ± 1.5	E-03	01/12	L.T. 3. E-02
01/07	01/14	1.01E 04	CU. FT.	6.4 ± 0.5	E-02	8.5 ± 2.4	E-03	01/19	L.T. 3. E-02
01/14	01/21	9.83E 03	CU. FT.	2.3 ± 0.3	E-02	2.5 ± 1.4	E-03	01/25	L.T. 3. E-02
01/21	01/28	1.01E 04	CU. FT.	1.8 ± 0.3	E-02	3.1 ± 1.6	E-03	02/02	L.T. 3. E-02
01/28	02/04	1.02E 04	CU. FT.	2.2 ± 0.3	E-02	2.9 ± 1.6	E-03	02/09	L.T. 3. E-02
02/04	02/11	9.91E 03	CU. FT.	1.4 ± 0.3	E-02	L.T. 2.	E-03	02/17	L.T. 3. E-02
02/11	02/19	1.15E 04	CU. FT.	1.2 ± 0.2	E-02	L.T. 1.	E-03	02/24	L.T. 2. E-02
02/19	02/26	1.03E 04	CU. FT.	1.5 ± 0.3	E-02	2.0 ± 1.3	E-03	03/04	L.T. 2. E-02
02/26	03/04	8.67E 03	CU. FT.	1.6 ± 0.3	E-02	2.1 ± 1.5	E-03	03/07	L.T. 4. E-02
03/04	03/12	1.14E 04	CU. FT.	1.6 ± 0.2	E-02	2.8 ± 1.6	E-03	03/18	L.T. 3. E-02
03/12	03/20	1.15E 04	CU. FT.	9.4 ± 1.9	E-03	1.3 ± 1.0	E-03	03/26	L.T. 2. E-02
03/20	03/26	9.22E 03	CU. FT.	1.3 ± 0.3	E-02	2.4 ± 1.5	E-03	04/02	L.T. 4. E-02
03/26	04/02	1.01E 04	CU. FT.	1.7 ± 0.2	E-02	2.7 ± 1.1	E-03	04/07	L.T. 2. E-02
04/02	04/09	1.01E 04	CU. FT.	1.2 ± 0.2	E-02	2.7 ± 1.5	E-03	04/14	L.T. 2. E-02
04/09	04/16	9.96E 03	CU. FT.	7.7 ± 2.1	E-03	1.1 ± 1.1	E-03	04/23	L.T. 3. E-02
04/16	04/23	1.01E 04	CU. FT.	1.1 ± 0.2	E-02	1.9 ± 1.5	E-03	04/28	L.T. 3. E-02
04/23	04/30	1.01E 04	CU. FT.	7.8 ± 2.2	E-03	L.T. 1.	E-03	05/07	L.T. 3. E-02
04/30	05/07	9.96E 03	CU. FT.	9.0 ± 2.3	E-03	L.T. 2.	E-03	05/15	L.T. 3. E-02
05/07	05/14	9.95E 03	CU. FT.	1.2 ± 0.3	E-02	1.3 ± 1.1	E-03	05/21	L.T. 4. E-02
05/14	05/22	1.15E 04	CU. FT.	8.6 ± 2.2	E-03	1.6 ± 1.3	E-03	05/30	L.T. 4. E-02
05/22	05/29	8.71E 03	CU. FT.	1.2 ± 0.3	E-02	L.T. 2.	E-03	06/05	L.T. 3. E-02
05/29	06/04	1.01E 04	CU. FT.	1.5 ± 0.3	E-02	1.5 ± 1.1	E-03	06/09	L.T. 2. E-02
06/04	06/11	1.00E 04	CU. FT.	1.9 ± 0.3	E-02	1.5 ± 1.2	E-03	06/19	L.T. 3. E-02
06/11	06/18	1.01E 04	CU. FT.	1.5 ± 0.3	E-02	L.T. 2.	E-03	06/24	L.T. 3. E-02
06/18	06/25	1.00E 04	CU. FT.	2.0 ± 0.3	E-02	1.6 ± 1.2	E-03	06/30	L.T. 2. E-02
06/25	07/02	1.03E 04	CU. FT.	2.0 ± 0.3	E-02	2.2 ± 1.4	E-03	07/10	L.T. 3. E-02
07/02	07/09	1.02E 04	CU. FT.	1.4 ± 0.3	E-02	L.T. 1.	E-03	07/16	L.T. 4. E-02
07/09	07/16	8.11E 03	CU. FT.	1.8 ± 0.3	E-02	L.T. 2.	E-03	07/21	L.T. 3. E-02
07/16	07/23	9.97E 03	CU. FT.	2.0 ± 0.3	E-02	L.T. 2.	E-03	07/28	L.T. 3. E-02
07/23	07/30	1.01E 04	CU. FT.	1.1 ± 0.2	E-02	L.T. 1.	E-03	08/05	L.T. 2. E-02
07/30	08/06	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	3.9 ± 1.7	E-03	08/11	L.T. 4. E-02
08/06	08/13	9.92E 03	CU. FT.	1.5 ± 0.3	E-02	L.T. 2.	E-03	08/17	L.T. 3. E-02
08/13	08/20	1.01E 04	CU. FT.	1.7 ± 0.3	E-02	2.2 ± 1.3	E-03	08/25	L.T. 2. E-02
08/20	08/27	1.01E 04	CU. FT.	2.6 ± 0.3	E-02	2.0 ± 1.4	E-03	08/31	L.T. 2. E-02
08/27	09/03	1.01E 04	CU. FT.	2.0 ± 0.3	E-02	2.8 ± 1.5	E-03	09/07	L.T. 2. E-02
09/03	09/10	1.01E 04	CU. FT.	1.9 ± 0.3	E-02	1.8 ± 1.2	E-03	09/15	L.T. 2. E-02
09/10	09/17	1.01E 04	CU. FT.	1.5 ± 0.3	E-02	1.7 ± 1.2	E-03	09/21	L.T. 2. E-02
09/17	09/24	1.01E 04	CU. FT.	9.8 ± 2.2	E-01	1.1 ± 1.0	E-03	09/29	L.T. 1. E-02
09/24	10/01	1.01E 04	CU. FT.	1.5 ± 0.3	E-02	L.T. 1.	E-03	10/06	L.T. 2. E-02
10/01	10/08	9.98E 03	CU. FT.	2.0 ± 0.3	E-02	L.T. 1.	E-03	10/14	L.T. 2. E-02
10/08	10/15	1.01E 04	CU. FT.	2.6 ± 0.3	E-02	2.0 ± 1.3	E-03	10/20	L.T. 2. E-02
10/15	10/22	1.02E 04	CU. FT.	2.2 ± 0.3	E-02	1.9 ± 1.2	E-03	10/27	L.T. 2. E-02
10/22	10/29	1.00E 04	CU. FT.	2.1 ± 0.3	E-02	1.3 ± 1.1	E-03	11/03	L.T. 2. E-02
10/29	11/07	1.01E 04	CU. FT.	2.7 ± 0.3	E-02	2.7 ± 1.7	E-03	11/12	L.T. 3. E-02
11/07	11/12	7.09E 03	CU. FT.	3.3 ± 0.4	E-02	L.T. 2.	E-03	11/17	L.T. 3. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 09

STATION 09 - 7.25 MI. 335 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)	AP FILTER GROSS ALPHA (PCI/CU.M.)	MID-COUNT TIME		CHARCOAL FILTER (PCI/CU.M.)
						DATE	TIME	
11/12	11/19	1.01E 04	CU. FT.	2.8 ± 0.3 E-02	L.T. 2.	11/23	L.T. 2.	E-02
11/19	11/26	1.04E 04	CU. FT.	1.9 ± 0.3 E-02	2.0 ± 1.2 E-03	12/03	L.T. 4.	E-02
11/26	12/03	9.82E 03	CU. FT.	2.4 ± 0.3 E-02	2.2 ± 1.3 E-03	12/11	L.T. 5.	E-02
12/03	12/10	1.01E 04	CU. FT.	3.3 ± 0.4 E-02	3.2 ± 1.5 E-03	12/18	L.T. 3.	E-02
12/10	12/17	1.00E 04	CU. FT.	2.3 ± 0.3 E-02	2.2 ± 1.6 E-03	12/22	L.T. 2.	E-02
12/17	12/24	9.83E 03	CU. FT.	2.2 ± 0.3 E-02	2.3 ± 1.7 E-03	12/31	L.T. 3.	E-02
12/24	12/31	1.01E 04	CU. FT.	4.6 ± 0.4 E-02	5.2 ± 2.0 E-03	01/08	L.T. 3.	E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 10

STATION 10 - 10.0 MI. 160 DEG. IRD.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)		AP FILTER GROSS ALPHA (PCI/CU.M.)		MTD-COUNT TIME DATE		CHARCOAL FILTER I-131 (PCI/CU. M.)
				AP FILTER GROSS BETA (PCI/CU.M.)	AP FILTER GROSS ALPHA (PCI/CU.M.)	DATE	TIME			
12/31	01/07	9.92E 03	CU. FT.	4.1 ± 0.4	E-02	3.0 ± 1.7	E-03	01/12		L.T. 2. E-02
01/07	01/14	1.01E 04	CU. FT.	8.6 ± 0.5	E-02	1.0 ± 0.3	E-02	01/19		L.T. 2. E-02
01/14	01/21	1.03E 04	CU. FT.	2.8 ± 0.3	E-02	2.9 ± 1.4	E-03	01/25		L.T. 2. E-02
01/21	01/28	1.00E 04	CU. FT.	2.0 ± 0.3	E-02	3.7 ± 1.7	E-03	02/02		L.T. 2. E-02
02/04	02/04	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	3.2 ± 1.7	E-03	02/09		L.T. 2. E-02
02/04	02/11	1.01E 04	CU. FT.	2.1 ± 0.3	E-02	L.T. 2.	E-03	02/17		L.T. 2. E-02
02/11	02/19	1.14E 04	CU. FT.	2.1 ± 0.3	E-02	2.8 ± 1.5	E-03	02/24		L.T. 1. E-02
02/19	02/26	9.88E 03	CU. FT.	1.5 ± 0.3	E-02	2.0 ± 1.3	E-03	03/04		L.T. 2. E-02
02/26	03/04	8.71E 03	CU. FT.	1.9 ± 0.3	E-02	2.4 ± 1.5	E-03	03/07		L.T. 3. E-02
03/04	03/12	1.15E 04	CU. FT.	2.0 ± 0.3	E-02	6.4 ± 1.5	E-03	03/18		L.T. 2. E-02
03/12	03/20	1.15E 04	CU. FT.	1.7 ± 0.2	E-02	9.9 ± 9.4	E-04	03/26		L.T. 1. E-02
03/20	03/26	8.93E 03	CU. FT.	1.5 ± 0.3	E-02	3.3 ± 1.7	E-03	04/02		L.T. 3. E-02
03/26	04/02	9.95E 03	CU. FT.	1.9 ± 0.2	E-02	4.1 ± 1.3	E-03	04/07		L.T. 1. E-02
04/02	04/09	1.00E 04	CU. FT.	2.2 ± 0.3	E-02	4.2 ± 1.8	E-03	04/14		L.T. 1. E-02
04/09	04/16	1.02E 04	CU. FT.	1.3 ± 0.2	E-02	2.9 ± 1.5	E-03	04/23		L.T. 2. E-02
04/16	04/23	1.01E 04	CU. FT.	1.4 ± 0.3	E-02	L.T. 1.	E-03	04/28		L.T. 2. E-02
04/23	04/30	9.96E 03	CU. FT.	1.2 ± 0.2	E-02	L.T. 1.	E-03	05/07		L.T. 2. E-02
04/30	05/07	9.88E 03	CU. FT.	1.2 ± 0.3	E-02	L.T. 2.	E-03	05/15		L.T. 2. E-02
05/07	05/14	1.01E 04	CU. FT.	1.2 ± 0.2	E-02	3.0 ± 1.5	E-03	05/21		L.T. 1. E-02
05/14	05/22	1.18E 04	CU. FT.	9.9 ± 2.2	E-03	2.0 ± 1.3	E-03	05/30		L.T. 1. E-02
05/22	05/28	8.62E 03	CU. FT.	1.3 ± 0.3	E-02	2.3 ± 1.6	E-03	06/05		L.T. 2. E-02
05/28	06/04	9.88E 03	CU. FT.	1.4 ± 0.3	E-02	4.0 ± 1.7	E-03	06/09		L.T. 1. E-02
06/04	06/11	9.99E 03	CU. FT.	1.8 ± 0.3	E-02	2.8 ± 1.5	E-03	06/19		L.T. 2. E-02
06/11	06/18	1.03E 04	CU. FT.	1.6 ± 0.3	E-02	2.3 ± 1.4	E-03	06/24		L.T. 1. E-02
06/18	06/25	9.93E 03	CU. FT.	2.4 ± 0.3	E-02	2.0 ± 1.3	E-03	06/30		L.T. 2. E-02
06/25	07/02	1.73E 04	CU. FT.	2.0 ± 0.3	E-02	2.8 ± 1.6	E-03	07/10		L.T. 3. E-02
07/02	07/09	9.87E 03	CU. FT.	1.6 ± 0.3	E-02	1.9 ± 1.3	E-03	07/16		L.T. 2. E-02
07/09	07/16	9.95E 03	CU. FT.	1.8 ± 0.3	E-02	L.T. 1.	E-03	07/21		L.T. 3. E-02
07/16	07/23	1.02E 04	CU. FT.	2.7 ± 0.3	E-02	3.3 ± 1.5	E-03	07/28		L.T. 2. E-02
07/23	07/30	1.02E 04	CU. FT.	1.7 ± 0.3	E-02	1.4 ± 1.2	E-03	08/05		L.T. 2. E-02
07/30	08/06	1.01E 04	CU. FT.	2.4 ± 0.3	E-02	2.9 ± 1.5	E-03	08/11		L.T. 2. E-02
08/06	08/13	9.89E 03	CU. FT.	1.6 ± 0.3	E-02	L.T. 2.	E-03	08/17		L.T. 1. E-02
08/13	08/20	9.97E 03	CU. FT.	2.3 ± 0.3	E-02	L.T. 2.	E-03	08/25		L.T. 1. E-02
08/20	08/27	1.03E 04	CU. FT.	3.1 ± 0.3	E-02	2.2 ± 1.4	E-03	08/31		L.T. 1. E-02
08/27	09/03	9.94E 03	CU. FT.	2.4 ± 0.3	E-02	3.1 ± 1.7	E-03	09/07		L.T. 1. E-02
09/03	09/11	1.17E 04	CU. FT.	L.T. 2.	E-03	2.3 ± 1.0	E-03	09/15		L.T. 1. E-02
09/11	09/17	8.52E 03	CU. FT.	1.8 ± 0.3	E-02	L.T. 1.	E-03	09/21		L.T. 1. E-02
09/17	09/24	1.02E 04	CU. FT.	1.5 ± 0.3	E-02	2.4 ± 1.3	E-03	09/29		L.T. 1. E-02
09/24	10/01	1.00E 04	CU. FT.	2.0 ± 0.3	E-02	5.0 ± 1.9	E-03	10/06		L.T. 1. E-02
10/01	10/08	1.01E 04	CU. FT.	2.7 ± 0.3	E-02	2.0 ± 1.3	E-03	10/14		L.T. 1. E-02
10/08	10/15	9.98E 03	CU. FT.	3.2 ± 0.4	E-02	4.9 ± 1.9	E-03	10/20		L.T. 1. E-02
10/15	10/22	1.02E 04	CU. FT.	2.7 ± 0.3	E-02	3.6 ± 1.5	E-03	10/27		L.T. 1. E-02
10/22	10/29	1.00E 04	CU. FT.	2.6 ± 0.3	E-02	2.0 ± 1.3	E-03	11/03		L.T. 1. E-02
10/29	11/07	1.28E 04	CU. FT.	2.7 ± 0.3	E-02	2.3 ± 1.3	E-03	11/12		L.T. 1. E-02
11/07	11/13	8.53E 03	CU. FT.	3.9 ± 0.4	E-02	4.1 ± 1.9	E-03	11/17		L.T. 2. E-02

NEBRASKA PUB. POWER DISTRICT
 COOPER NL EAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 AIR PARTICULATE & CHARCOAL FILTERS

STATION NUMBER 10

STATION 10 - 10.0 MI. 160 DEG. IND.

COLL. START DATE	TIME STOP DATE	VOLUME	UNITS	AP FILTER GROSS BETA (PCI/CU.M.)	AP FILTER GROSS ALPHA (PCI/CU.M.)	MID-COUNT TIME DATE TIME	CHARCOAL FILTER : 131 (PCI/CU. M.)
11/13	11/19	8.77E 03	CU. FT.	3.1 ± 0.4 E-02	L.T. 2. E-00	11/23	L.T. 1. E-02
11/19	11/26	1.02E 04	CU. FT.	2.3 ± 0.3 E-02	2.6 ± 1.4 E-03	12/03	L.T. 3. E-02
11/26	12/03	1.00E 04	CU. FT.	2.9 ± 0.3 E-02	3.4 ± 1.6 E-03	12/11	L.T. 3. E-02
12/03	12/10	1.02E 04	CU. FT.	3.3 ± 0.4 E-02	1.4 ± 1.1 E-03	12/18	L.T. 2. E-02
12/10	12/17	1.03E 04	CU. FT.	2.9 ± 0.3 E-02	3.0 ± 1.7 E-03	12/22	L.T. 1. E-02
12/17	12/24	9.72E 03	CU. FT.	2.5 ± 0.3 E-02	L.T. 2. E-01	12/31	L.T. 2. E-02
12/24	12/31	1.01E 04	CU. FT.	3.8 ± 0.4 E-02	3.2 ± 1.7 E-03	01'08	L.T. 2. E-02

D. QUARTERLY COMPOSITES OF AIR PARTICULATE FILTERS
STATIONS 01-10

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CU. M.)
 STATION NUMBER 01
 STATION 01 - 0.1 MI. 225 DEG. IND.

DATE COLLECTED:	04/02-07/02	07/02-10/01	10/01-12/31
BE-7	8.00±1.14 E-02	7.74±1.09 E-02	7.64±1.11 E-02
K-40	L.T. 8. E-03	L.T. 8. E-03	L.T. 8. E-03
MN-54	L.T. 4. E-04	L.T. 5. E-04	L.T. 5. E-04
CO-58	L.T. 8. E-04	L.T. 9. E-04	L.T. 8. E-04
FE-59	L.T. 3. E-03	L.T. 2. E-03	L.T. 2. E-03
CO-60	L.T. 6. E-04	L.T. 5. E-04	L.T. 6. E-04
ZN-65	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
ZR-95	L.T. 9. E-04	L.T. 8. E-04	L.T. 9. E-04
RU-103	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
RU-106	L.T. 4. E-03	L.T. 1. E-03	L.T. 1. E-03
I-131	L.T. 2. E-01	L.T. 4. E-03	L.T. 4. E-03
CS-134	L.T. 5. E-04	L.T. 2. E-01	L.T. 1. E-01
CS-137	L.T. 5. E-04	L.T. 4. E-04	L.T. 4. E-04
BA-140	L.T. 3. E-02	L.T. 5. E-04	L.T. 4. E-04
CE-141	L.T. 3. E-03	L.T. 2. E-02	L.T. 2. E-02
CE-144	L.T. 3. E-03	L.T. 2. E-03	L.T. 2. E-03
RA-226	L.T. 9. E-03	L.T. 3. E-03	L.T. 3. E-03
TH-228	L.T. 8. E-04	L.T. 9. E-03	L.T. 9. E-03
		L.T. 8. E-04	L.T. 8. E-04

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CU, M.)
 STATION NUMBER 02
 STATION 02 - 0.75 MI. 225 DEG. IND.

DATE COLLECTED:	04/02-07/02	07/02-10/01	10/01-12/31
BE-7	9.69±1.30 E-02	8.18±0.97 E-02	7.53±1.46 E-02
K-40	L.T. 8. E-03	L.T. 2. E-02	L.T. 1. E-02
MN-54	L.T. 5. E-04	L.T. 5. E-04	L.T. 6. E-04
CO-58	L.T. 1. E-03	L.T. 9. E-04	L.T. 1. E-03
FE-59	L.T. 3. E-03	L.T. 3. E-03	L.T. 3. E-03
CO-60	L.T. 6. E-04	L.T. 6. E-04	L.T. 4. E-04
ZN-65	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
ZR-95	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
RU-103	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
RU-106	L.T. 5. E-03	L.T. 5. E-03	L.T. 2. E-03
1-131	L.T. 4. E-01	L.T. 2. E-01	L.T. 5. E-03
CS-134	L.T. 5. E-04	L.T. 5. E-04	L.T. 2. E-01
CS-137	L.T. 5. E-04	L.T. 5. E-04	L.T. 7. E-04
BA-140	L.T. 4. E-02	L.T. 2. E-02	L.T. 7. E-04
CE-141	L.T. 3. E-03	L.T. 2. E-02	L.T. 3. E-02
CE-144	L.T. 3. E-03	L.T. 2. E-03	L.T. 5. E-03
RA-226	L.T. 8. E-03	L.T. 3. E-03	L.T. 6. E-03
TH-228	L.T. 1. E-03	L.T. 8. E-03	L.T. 1. E-02
	L.T. 9. E-04	L.T. 7. E-04	L.T. 1. E-02
	1.22±0.16 E-01		
	L.T. 9. E-03		
	L.T. 5. E-04		
	L.T. 7. E-04		
	L.T. 2. E-03		
	L.T. 7. F-04		
	L.T. 1. E-03		
	L.T. 9. E-04		
	L.T. 2. E-03		
	L.T. 4. E-03		
	L.T. 3. E-01		
	L.T. 5. E-04		
	L.T. 5. E-04		
	L.T. 2. E-02		
	L.T. 3. E-03		
	L.T. 3. E-03		
	L.T. 9. E-03		
	L.T. 9. E-04		

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CU, M.)
 STATION NUMBER 03
 STATION 03 - 2.5 MI. 338 DEG. IND.

DATE COLLECTED:	DATE COLLECTED:	DATE COLLECTED:	DATE COLLECTED:
12/31-04/02	04/02-07/02	07/02-10/01	10/01-12/31
BE-7	1.03±0.13 E-01	1.06±0.11 E-01	8.76±1.20 E-02
K-40	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
MN-54	L.T. 6. E-04	L.T. 7. E-04	L.T. 7. E-04
CO-58	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
FE-59	L.T. 4. E-03	L.T. 4. E-03	L.T. 3. E-03
CO-60	L.T. 7. E-04	L.T. 7. E-04	L.T. 6. E-04
ZN-65	L.T. 1. E-03	L.T. 2. E-03	L.T. 2. E-03
ZR-95	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
RU-103	L.T. 2. E-03	L.T. 2. E-03	L.T. 2. E-03
RU-106	L.T. 6. E-03	L.T. 7. E-03	L.T. 5. E-03
I-131	L.T. 3. E-01	L.T. 4. E-01	L.T. 2. E-01
CS-134	L.T. 6. E-04	L.T. 8. E-04	L.T. 6. E-04
CS-137	L.T. 6. E-04	L.T. 7. E-04	L.T. 6. E-04
BA-140	L.T. 4. E-02	L.T. 3. E-02	L.T. 3. E-02
CE-141	L.T. 3. E-03	L.T. 4. E-03	L.T. 2. E-03
CE-144	L.T. 4. E-03	L.T. 5. E-03	L.T. 3. E-03
RA-226	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03
TH-228	L.T. 1. E-03	L.T. 1. E-03	L.T. 9. E-04

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CU, M.)
 STATION NUMBER 04
 STATION 04 - 3.0 MI. 43 DEG. IND.

	12/31-04/02	04/02-07/02	07/02-10/01	10/01-12/31
BE-7	9.03±1.33 E-02	9.90±1.15 E-02	1.12±0.12 E-01	4.89±1.31 E-02
K-40	L.T. 2. E-02	L.T. 7. E-03	L.T. 8. E-03	L.T. 9. E-03
MN-54	L.T. 6. E-04	L.T. 5. E-04	L.T. 4. E-04	L.T. 6. E-04
CO-58	L.T. 1. E-03	L.T. 7. E-04	L.T. 6. E-04	L.T. 9. E-04
FE-59	L.T. 3. E-03	L.T. 2. E-03	L.T. 2. E-03	L.T. 3. E-03
CO-60	L.T. 6. E-04	L.T. 5. E-04	L.T. 4. E-04	L.T. 6. E-04
ZN-65	L.T. 1. E-03	L.T. 7. E-04	L.T. 9. E-04	L.T. 1. E-03
ZR-95	L.T. 1. E-03	L.T. 7. E-04	L.T. 7. E-04	L.T. 1. E-03
RU-103	L.T. 2. E-03	L.T. 1. E-03	L.T. 1. E-03	L.T. 2. E-03
RU-106	L.T. 5. E-03	L.T. 4. E-03	L.T. 3. E-03	L.T. 5. E-03
P-131	L.T. 3. E-01	L.T. 2. E-01	L.T. 1. E-01	L.T. 2. E-01
CS-134	L.T. 6. E-04	L.T. 5. E-04	L.T. 5. E-04	L.T. 5. E-04
CS-137	L.T. 6. E-04	L.T. 5. E-04	L.T. 4. E-04	L.T. 7. E-04
BA-140	L.T. 3. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 3. E-02
CE-141	L.T. 3. E-03	L.T. 2. E-03	L.T. 2. E-03	L.T. 3. E-03
CE-144	L.T. 3. E-03	L.T. 2. E-03	L.T. 3. E-03	L.T. 3. E-03
RA-226	L.T. 8. E-03	L.T. 8. E-03	L.T. 8. E-03	L.T. 9. E-03
TH-228	L.T. 8. E-04	L.T. 7. E-04	L.T. 8. E-04	L.T. 1. E-03

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CU. M.)
 STATION NUMBER 05
 STATION 05 - 3.5 MI. 102 DEG. IND.

DATE COLLECTED:	12/31-04/02	04/02-07/02	07/02-10/01	10/01-12/31
BE-7	1.28±0.13 E-01	1.35±0.19 E-01	1.07±0.16 E-01	9.9±1.29 E-02
K-40	L.T. 6. E-03	L.T. 1. E-02	L.T. 3. E-02	L.T. 9. E-03
MN-54	L.T. 4. E-04	L.T. 7. E-04	L.T. 8. E-04	L.T. 5. E-04
CO-58	L.T. 7. E-04	L.T. 1. E-03	L.T. 1. E-03	L.T. 9. E-04
FE-59	L.T. 2. E-03	L.T. 3. E-03	L.T. 4. E-03	L.T. 3. E-03
CO-60	L.T. 4. E-04	L.T. 8. E-04	L.T. 8. E-04	L.T. 5. E-04
ZN-65	L.T. 9. E-04	L.T. 2. E-03	L.T. 2. E-03	L.T. 1. E-03
ZR-95	L.T. 7. E-04	L.T. 1. E-03	L.T. 2. E-03	L.T. 1. E-03
RU-103	L.T. 1. E-03	L.T. 2. E-03	L.T. 2. E-03	L.T. 1. E-03
RU-106	L.T. 4. E-03	L.T. 6. E-03	L.T. 7. E-03	L.T. 1. E-03
I-131	L.T. 2. E-01	L.T. 4. E-01	L.T. 3. E-01	L.T. 5. E-03
CS-134	L.T. 4. E-04	L.T. 7. E-04	L.T. 9. E-04	L.T. 2. E-01
CS-137	L.T. 4. E-04	L.T. 7. E-04	L.T. 9. E-04	L.T. 6. E-04
BA-140	L.T. 3. E-02	L.T. 6. E-02	L.T. 3. E-02	L.T. 8. E-04
CE-141	L.T. 3. E-03	L.T. 5. E-03	L.T. 4. E-03	L.T. 2. E-02
CE-144	L.T. 3. E-03	L.T. 6. E-03	L.T. 6. E-03	L.T. 3. E-03
RA-226	L.T. 8. E-03	L.T. 2. E-02	L.T. 1. E-02	L.T. 3. E-03
TH-228	L.T. 8. E-04	L.T. 1. E-03	L.T. 1. E-03	L.T. 8. E-03
				L.T. 9. E-04

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CO. M.)
 STATION NUMBER 06
 STATION 06 - 3.0 MI. 165 DEG. INC.

DATE COLLECTED:	04/02-07/02	07/02-10/01	10/01-12/31
BE-7	9.62±1.25 E-02	6.51±1.23 E-02	8.60±1.41 E-02
K-40	L.T. 2. E-02	L.T. 8. E-03	L.T. 2. E-02
MN-54	L.T. 6. E-04	L.T. 4. E-04	L.T. 8. E-04
CO-58	L.T. 1. E-03	L.T. 8. E-04	L.T. 1. E-03
FE-59	L.T. 3. E-03	L.T. 2. E-03	L.T. 4. E-03
CO-60	L.T. 6. E-04	L.T. 5. E-04	L.T. 8. E-04
ZN-65	L.T. 1. E-03	L.T. 1. E-03	L.T. 2. E-03
ZR-95	L.T. 1. E-03	L.T. 8. E-04	L.T. 1. E-03
RU-103	L.T. 2. E-04	L.T. 1. E-03	L.T. 2. E-03
RU-106	L.T. 6. E-03	L.T. 4. E-03	L.T. 7. E-03
I-131	L.T. 3. E-01	L.T. 1. E-01	L.f. 2. E-01
CS-134	L.T. 6. E-04	L.T. 4. E-04	L.T. 7. E-04
CS-137	L.T. 7. E-04	L.T. 5. E-04	L.T. 8. E-04
BA-140	L.T. 4. E-02	L.T. 2. E-02	L.T. 3. E-02
CE-141	L.T. 4. E-03	L.T. 3. E-03	L.T. 3. E-03
CE-144	L.T. 4. E-03	L.T. 3. E-03	L.T. 4. E-03
RA-226	L.T. 1. E-02	L.T. 8. E-03	L.T. . E-02
TH-228	L.T. 1. E-03	L.T. 8. E-04	L.T. 1. E-03

GAMMA SPECTRUM ANALYSIS:

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CU. M.)
 STATION NUMBER 07
 STATION 07 - 2.5 MI. 230 DEG. IND.

DATE COLLECTED:	04/02-07/02	07/02-10/01	10/01-12/31
BE-7	8.31±1.16 E-02	9.15±1.22 E-02	9.53±1.23 E-02
K-40	L.T. 8. E-03	L.T. 9. E-03	L.T. 1. E-02
MN-54	L.T. 5. E-04	L.T. 4. E-04	L.T. 6. E-04
CO-58	L.T. 7. E-04	L.T. 8. E-04	L.T. 9. E-04
FE-59	L.T. 3. E-03	L.T. 3. E-03	L.T. 3. E-03
CO-60	L.T. 4. E-04	L. 5. E-04	L.T. 7. E-04
ZN-65	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
ZR-95	L.T. 9. E-04	L.T. 9. E-04	L.T. 1. E-03
RU-103	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
RU-106	L.T. 4. E-03	L.T. 4. E-03	L.T. 2. E-03
1-131	L.T. 2. E-01	L.T. 2. E-01	L.T. 5. E-03
CS-134	L.T. 5. E-04	L.T. 5. E-04	L.T. 2. E-01
CS-137	L.T. 5. E-04	L.T. 5. E-04	L.T. 5. E-04
BA-140	L.T. 3. E-02	L.T. 3. E-02	L.T. 6. E-04
CE-141	L.T. 3. E-03	L.T. 3. E-03	L.T. 3. E-02
CE-144	L.T. 3. E-03	L.T. 3. E-03	L.T. 3. E-03
RA-226	L.T. 9. E-03	L.T. 9. E-03	L.T. 4. E-03
TH-228	L.T. 8. E-04	L.T. 8. E-04	L.T. 1. E-02
			L.T. 1. E-03

GAMMA SPECTRUM ANALYSIS:

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CU. M.)
 STATION NUMBER 08
 STATION 08 - 2.5 MI. 260 DEG. IND.

DATE COLLECTED:	12/31-04/02	04/02-07/02	07/02-10/01	10/01-12/31
GAMMA SPECTRUM ANALYSIS:				
BE-7	9.88±1.05 E-02	1.27±0.15 E-01	9.05±1.76 E-02	8.59±1.27 E-02
K-40	L.T. 6. E-03	L.T. 1. E-02	L.T. 1. E-02	1.70±0.66 E-02
MN-54	L.T. 4. E-04	L.T. 6. E-04	L.T. 7. E-04	L.T. 6. E-04
CO-58	L.T. 6. E-04	L.T. 1. E-03	L.T. 8. E-04	L.T. 1. E-03
FE-59	L.T. 2. E-03	L.T. 3. E-03	L.T. 2. E-03	L.T. 3. E-03
CO-60	L.T. 5. E-04	L.T. 7. E-04	L.T. 6. E-04	L.T. 6. E-04
2N-65	L.T. 9. E-04	L.T. 2. E-03	L.T. 2. E-03	L.T. 2. E-03
ZR-95	L.T. 7. E-04	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03
RU-103	L.T. 1. E-03	L.T. 2. E-03	L.T. 1. E-03	L.T. 2. E-03
RU-106	L.T. 3. E-03	L.T. 6. E-03	L.T. 5. E-03	L.T. 6. E-03
I-131	L.T. 2. E-01	L.T. 3. E-01	L.T. 3. E-01	L.T. 2. E-01
CS-134	L.T. 4. E-04	L.T. 7. E-04	L.T. 6. E-04	L.T. 6. E-04
CS-137	L.T. 4. E-04	L.T. 7. E-04	L.T. 5. E-04	L.T. 6. E-04
BA-140	L.T. 3. E-02	L.T. 4. E-02	L.T. 4. E-02	L.T. 3. E-02
CE-141	L.T. 2. E-03	L.T. 4. E-03	L.T. 5. E-03	L.T. 2. E-03
CE-144	L.T. 2. E-03	L.T. 4. E-03	L.T. 5. E-03	L.T. 3. E-03
RA-226	L.T. 7. E-03	L.T. 9. E-03	L.T. 1. E-02	L.T. 8. E-03
TH-228	L.T. 7. E-04	L.T. 1. E-03	L.T. 1. E-03	L.T. 9. E-04

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CU. M.)
 STATION NUMBER 09
 STATION 09 - 7.25 MI. 335 DEG. IND.

DATE COLLECTED:	12/31-04/02	04/02-07/02	07/02-10/01	10/01-12/31
GAMMA SPECTRUM ANALYSIS:				
BE-7	8.64±1.48 E-02	9.18±1.65 E-02	7.28±1.30 E-02	6.30±1.20 E-02
K-40	L.T. 8. E-03	L.T. 2. E-02	L.T. 2. E-02	L.T. 8. E-03
MN-54	L.T. 6. E-04	L.T. 8. E-04	L.T. 7. E-04	L.T. 6. E-04
CO-58	L.T. 8. E-04	L.T. 1. E-03	L.T. 1. E-03	L.T. 8. E-04
FE-59	L.T. 3. E-03	L.T. 4. E-03	L.T. 3. E-03	L.T. 3. E-03
CO-60	L.T. 5. E-04	L.T. 8. E-04	L.T. 7. E-04	L.T. 6. E-04
ZN-65	L.T. 9. E-04	L.T. 2. E-03	L.T. 2. E-03	L.T. 1. E-03
ZR-95	L.T. 1. E-03	L.T. 2. E-03	L.T. 1. E-03	L.T. 1. E-03
RU-103	L.T. 2. E-03	L.T. 2. E-03	L.T. 2. E-03	L.T. 1. E-03
RU-106	L.T. 5. E-03	L.T. 7. E-03	L.T. 6. E-03	L.T. 1. E-03
I-131	L.T. 3. E-01	L.T. 4. E-01	L.T. 2. E-01	L.T. 5. E-03
CS-134	L.T. 5. E-04	L.T. 8. E-04	L.T. 7. E-04	L.T. 2. E-01
CS-137	L.T. 4. E-04	L.T. 7. E-04	L.T. 6. E-04	L.T. 5. E-04
SA-140	L.T. 3. E-02	L.T. 5. E-02	L.T. 3. E-02	L.T. 5. E-04
CE-141	L.T. 4. E-03	L.T. 4. E-03	L.T. 3. E-03	L.T. 2. E-02
CE-144	L.T. 5. E-03	L.T. 5. E-03	L.T. 3. E-03	L.T. 3. E-03
RA-226	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03	L.T. 4. E-03
TH-228	L.T. 1. E-03	L.T. 1. E-03	L.T. 8. E-04	L.T. 9. E-03
				L.T. 1. E-03

WISCONSIN PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 COMPOSITE AIR PARTICULATE FILTERS
 (PCI/CU. M.)
 STATION NUMBER 10
 STATION 10 - 10.0 MI. 160 DEG. IND.

DATE COLLECTED:	GAMMA SPECTRUM ANALYSIS:	04/02-07/02	07/02-10/01	10/01-12/31
BE-7	1.06±0.13 E-01	1.23±0.16 E-01	1.11±0.13 E-01	9.61±1.28 E-02
K-40	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 8. E-03
MN-54	L.T. 6. E-04	L.T. 9. E-04	L.T. 6. E-04	L.T. 6. E-04
CO-58	L.T. 9. E-04	L.T. 1. E-03	L.T. 1. E-03	L.T. 8. E-04
FE-59	L.T. 3. E-03	L.T. 4. E-03	L.T. 3. E-03	L.T. 3. E-03
CO-60	L.T. 6. E-04	L.T. 7. E-04	L.T. 6. E-04	L.T. 5. E-04
ZN-65	L.T. 1. E-03	L.T. 2. E-03	L.T. 1. E-03	L.T. 1. E-03
ZR-95	L.T. 1. E-03	L.T. 1. E-03	L.T. 1. E-03	L.T. 9. E-04
RU-103	L.T. 2. E-03	L.T. 2. E-03	L.T. 2. E-03	L.T. 2. E-03
RU-106	L.T. 5. E-03	L.T. 7. E-03	L.T. 5. E-03	L.T. 5. E-03
I-131	L.T. 3. E-01	L.T. 4. E-01	L.T. 2. E-01	L.T. 2. E-01
CS-134	L.T. 6. E-04	L.T. 8. E-04	L.T. 6. E-04	L.T. 5. E-04
CS-137	L.T. 5. E-04	L.T. 8. E-04	L.T. 8. E-04	L.T. 6. E-04
BA-140	L.T. 3. E-02	L.T. 4. E-02	L.T. 3. E-02	L.T. 3. E-02
CE-141	L.T. 2. E-03	L.T. 3. E-03	L.T. 3. E-03	L.T. 2. E-03
CE-144	L.T. 3. E-03	L.T. 4. E-03	L.T. 3. E-03	L.T. 3. E-03
RA-226	L.T. 7. E-03	L.T. 1. E-02	L.T. 9. E-03	L.T. 9. E-03
TE-228	L.T. 8. E-04	L.T. 9. E-04	L.T. 9. E-04	L.T. 1. E-03

E. FISH

WERRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION

FISH
 (PCI/GM NET)

STATION NUMBER 28
 STATION 28 ~ 1.5 MI. 150 DEG. IND.

DATE COLLECTED:	07/08 FISH-CATFISH	07/08 FISH-CARP	07/08 FISH-CARP QA	09/05 FISH-CATFISH	09/05 FISH-CARP
GR-B	6.0 ± 0.2 E 00	6.2 ± 0.3 E 00	8.1 ± 0.3 E 00	5.3 ± 0.2 E 00	4.2 ± 0.2 E 00
SR-89	L.T. 2. E-03	L.T. 7. E-03	L.T. 8. E-03	L.T. 2. E-02	L.T. 6. E-03
SR-90	1.3 ± 0.8 E-03	9.2 ± 5.3 E-03	6.6 ± 3.3 E-03	2.2 ± 0.9 E-02	9.3 ± 2.7 E-03
GAMMA SPECTRUM ANALYSIS:					
BE-7	L.T. 1. E-01	L.T. 1. E-01	L.T. 8. E-02	L.T. 6. E-02	L.T. 6. E-02
K-40	3.02 ± 0.30 E 00	2.37 ± 0.24 E 00	2.64 ± 0.26 E 00	2.67 ± 0.27 E 00	2.82 ± 0.28 E 00
MN-54	L.T. 8. E-03	L.T. 8. E-03	L.T. 6. E-03	L.T. 5. E-03	L.T. 5. E-03
CO-58	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03	L.T. 6. E-03	L.T. 7. E-03
FE-59	L.T. 3. E-02	L.T. 4. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
CO-60	L.T. 9. E-03	L.T. 8. E-03	L.T. 6. E-03	L.T. 5. E-03	L.T. 5. E-03
ZN-65	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02
ZR-95	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03	L.T. 7. E-03	L.T. 7. E-03
RU-103	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03	L.T. 9. E-03
RU-106	L.T. 7. E-02	L.T. 7. E-02	L.T. 5. E-02	L.T. 4. E-02	L.T. 5. E-02
I-131	L.T. 3. E-01	L.T. 3. E-01	L.T. 2. E-01	L.T. 8. E-02	L.T. 8. E-02
CS-134	L.T. 8. E-03	L.T. 8. E-03	L.T. 6. E-03	L.T. 5. E-03	L.T. 5. E-03
CS-137	L.T. 9. E-03	L.T. 8. E-03	L.T. 6. E-03	L.T. 5. E-03	L.T. 5. E-03
BA-140	L.T. 8. E-02	L.T. 7. E-02	L.T. 5. E-02	L.T. 5. E-03	L.T. 5. E-03
CE-141	L.T. 3. E-02	L.T. 3. E-02	L.T. 5. E-02	L.T. 2. E-02	L.T. 2. E-02
CE-144	L.T. 5. E-02	L.T. 5. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02
RA-226	L.T. 2. E-01	L.T. 1. E-01	L.T. 4. E-02	L.T. 3. E-02	L.T. 3. E-02
TH-228	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-01	L.T. 9. E-02	L.T. 9. E-02
			L.T. 1. E-02	L. 9. E-03	L.T. 8. E-03

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 FISH

(PCI/GM WET)

STATION NUMBER 35

STATION 35 - 2.0 MI. 350 DEG. CON.

DATE COLLECTED:	07/08	09/05	09/05
RADIOCHEMICAL ANALYSIS:	FISH-CATFISH	FISH-CARP	FISH-CATFISH QA
SR-B	5.2 ± 0.2 E 00	4.3 ± 0.2 E 50	6.1 ± 0.2 E 00
SR-89	L.T. 3. E-03	L.T. E-03	L.T. 4. E-03
SR-90	5.6 ± 1.5 E-03	7.5 ± 3.0 E-03	4.7 ± 2.4 E-03
GAMMA SPECTRUM ANALYSIS:			
BE-7	L.T. 7. E-02	L.T. 1. E-01	L.T. 8. E-02
K-40	2.66 ± 0.27 E 00	2.70 ± 0.27 E 00	2.95 ± 0.30 E 00
MN-54	L.T. 5. E-03	L.T. 8. E-03	L.T. 6. E-03
CO-58	L.T. 6. E-03	L.T. 1. E-02	L.T. 8. E-03
FE-59	L.T. 5. E-02	L.T. 3. E-02	L.T. 2. E-02
CO-60	L.T. 3. E-03	L.T. 8. E-03	L.T. 7. E-03
ZN-65	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
ZR-95	L.T. 8. E-03	L.T. 1. E-02	L.T. 7. E-03
RU-103	L.T. 9. E-03	L.T. 1. E-02	L.T. 8. E-03
RU-106	L.T. 4. E-02	L.T. 1. E-02	L.T. 1. E-02
I-131	L.T. 2. E-01	L.T. 7. E-02	L.T. 6. E-02
CS-134	L.T. 6. E-03	L.T. 1. E-01	L.T. 1. E-01
CS-137	L.T. 5. E-03	L.T. 8. E-03	L.T. 7. E-03
BA-140	L.T. 5. E-02	L.T. 8. E-03	L.T. 7. E-03
CE-141	L.T. 2. E-02	L.T. 4. E-02	L.T. 3. E-02
CE-144	L.T. 3. E-01	L.T. 2. E-02	L.T. 2. E-02
RA-226	L.T. 9. E-04	L.T. 6. E-02	L.T. 4. E-02
TH-228	L.T. 9. E-03	L.T. 1. E-01	L.T. 1. E-01
		L.T. 1. E-02	L.T. 1. E-02
		L.T. 6. E-02	L.T. 6. E-02
		2.38 ± 0.24 E 00	2.9 ± 0.1 E 00
		L.T. 5. E-03	L.T. 2. E-03
		L.T. 7. E-03	L.T. 1. E-03
		L.T. 2. E-02	L.T. 7. E-03
		L.T. 6. E-03	L.T. 9. E-03
		L.T. 4. E-03	L.T. 5. E-02
		L.T. 1. E-02	L.T. 9. E-02
		L.T. 7. E-02	L.T. 6. E-03
		L.T. 1. E-02	L.T. 6. E-03
		L.T. 3. E-02	L.T. 3. E-02
		L.T. 2. E-02	L.T. 2. E-02
		L.T. 6. E-02	L.T. 4. E-02
		L.T. 1. E-01	L.T. 1. E-01
		L.T. 1. E-02	L.T. 1. E-01
		L.T. 1. E-02	L.T. 1. E-02

F. MILK - NEAREST PRODUCERS

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK NEAREST PRODUCER
 (PCI/LITER)

STATION NUMBER 61

STATION 61 - 3.5 MI. 326 UG. IND.

DATE COLLECTED:	01/07	02/04 QA	03/04	04/02
RADIOCHEMICAL ANALYSIS:				
SR-89	L.T. 2. E 00	L.T. 2. E 00	L.T. 2. E 00	L.T. 2. E 00
SR-90	8.6 ± 1.2 E-01	4.3 ± 2.4 E-01	4.4 ± 1.3 E-01	8.9 ± 6.1 E-01
I-131	L.T. 3. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E-01
CA	2.1 ± 0.2 E 00	2.1 ± 0.2 E 00	2.1 ± 0.2 E 00	2.0 ± 0.2 E 00
GAMMA SPECTRUM ANALYSIS:				
BE-7	L.T. -- E 01	L.T. 3. E 01	L.T. 4.	L.T. 3. E 01
K-40	1.30±0.13 E 03	1.27±0.13 E 03	1.14±0.14E 03	1.25±0.12 E 03
MN-54	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
CO-58	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
FE-59	L.T. 1. E 01	L.T. 8. E 00	L.T. 9. E 00	L.T. 7. E 00
CO-60	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
ZN-65	L.T. 8. E 00	L.T. 8. E 00	L.T. 8. E 00	L.T. 8. E 00
ZR-95	L.T. 4. E 03	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
RU-103	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
RU-106	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01
I-131	L.T. 7. E 00	L.T. 6. E 00	L.T. 5. E 00	L.T. 8. E 00
CS-134	L.T. 4. E 00	L.T. 4. E 00	L.T. 5. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 3. E 00
BA-140	L.T. 6. E 00	L.T. 6. E 00	L.T. 6. E 00	L.T. 4. E 00
CE-141	L.T. 7. E 00	L.T. 6. E 00	L.T. 7. E 00	L.T. 6. E 00
CE-144	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 2. E 01
RA-226	L.T. 8. E 01	L.T. 7. E 01	L.T. 8. E 01	L.T. 7. E 01
TH-228	L.T. 7. E 00	L.T. 7. E 00	L.T. 7. E 00	L.T. 6. E 00

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK NEAREST PRODUCER
 (FCI/LITER)
 STATION NUMBER 61
 STATION 61 - 3.5 MI. 326 DEG. IND.

DATE COLLECTED:	05/14	06/04-06/18	06/18	06/18 CA
RADIOCHEMICAL ANALYSIS:				
SR-89	L.T. 2. E 00	L.T. 2. E 00	L.T. 1. E-01	L.T. 1. E 00
SR-90	L.T. 9. E-01	1.9 ± 0.2 E 00		1.0 ± 0.2 E 00
I-131	L.T. 2. E-01			L.T. 1. E-01
CA	2.1 ± 0.2 E 00	2.1 ± 0.2 E 00		2.1 ± 0.2 E 00
GAMMA SPECTRUM ANALYSIS:				
BE-7	L.T. 3. E 01	L.T. 4. E 01	L.T. 4. E 01	L.T. 3. E 01
K-40	1.25±0.13 E 03	9.48±0.95 E 02	1.1±0.11 E 03	1.40±0.14 E 03
MN-54	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
CO-58	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
FE-59	L.T. 9. E 00	L.T. 1. E 01	L.T. 9. E 00	L.T. 8. E 00
CO-60	L.T. 4. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 4. E 00
ZN-65	L.T. 9. E 00	L.T. 1. E 01	L.T. 9. E 00	L.T. 8. E 00
ZR-95	L.T. 4. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 3. E 00
RU-103	L.T. 4. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 3. E 00
RU-106	L.T. 4. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 4. E 00
I-131	L.T. 3. E 01	L.T. 4. E 01	L.T. 4. E 01	L.T. 3. E 01
CS-134	L.T. 8. E 00	L.T. 9. E 00	L.T. 8. E 00	L.T. 7. E 00
CS-137	L.T. 4. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 3. E 00
BA-140	L.T. 4. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 4. E 00
CE-141	L.T. 6. E 00	L.T. 7. E 00	L.T. 5. E 00	L.T. 6. E 00
CE-144	L.T. 6. E 00	L.T. 9. E 00	L.T. 9. E 00	L.T. 6. E 00
RA-226	L.T. 2. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 2. E 01
TH-228	L.T. 7. E 01	L.T. 9. E 01	L.T. 1. E 02	L.T. 7. E 01
	L.T. 6. E 00	L.T. 8. E 00	L.T. 9. E 00	L.T. 6. E 00

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK NEAREST PRODUCER
 (PCI/LITER)
 STATION NUMBER 61
 STATION 61 - 3.5 MI. 326 DEG. IND.

DATE COLLECTED:	07/02	07/02 QA	07/16	08/06	08/20
RADIOCHEMICAL ANALYSIS:					
SR-8	L.T. 2. E 00	L.T. 2. E 00	L.T. 3. E 01	L.T. 2. E 00	L.T. 4. E 01
SR-90	L.T. 3. E-01	8.4 ± 1.2 E-01	1.14±0.11 E 03	L.T. 1. E 00	L.T. 4. E 03
I-131	L.T. 2. E-01	L.T. 2. E-01	L.T. 2. E 00	L.T. 3. E 00	L.T. 4. E 00
CA	2.1 ± 0.2 E 00	2.1 ± 0.2 E 00	L.T. 8. E 00	L.T. 2. E-01	L.T. 4. E 00
			L.T. 3. E 00	2.1 ± 0.2 E 00	
GAMMA SPECTRUM ANALYSIS:					
BE-7	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 7. E 01	L.T. 4. E 01
K-40	1.34±0.13 E 03	1.19±0.12 E 03	1.14±0.11 E 03	1.28±0.13 E 03	1.39±0.14 E 03
MN-54	L.T. 2. E 00	L.T. 2. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00
CO-58	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00
FE-59	L.T. 8. E 00	L.T. 8. E 00	L.T. 8. E 00	L.T. 9. E 00	L.T. 9. E 00
CO-60	L.T. 1. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00
ZN-65	L.T. 6. E 00	L.T. 6. E 00	L.T. 6. E 00	L.T. 4. E 00	L.T. 4. E 00
ZR-95	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 9. E 00	L.T. 9. E 00
RU-103	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
RU-106	L.T. 2. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 4. E 00	L.T. 5. E 00
I-131	L.T. 5. E 01	L.T. 5. E 01	L.T. 5. E 01	L.T. 3. E 01	L.T. 3. E 01
CS-134	L.T. 2. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 8. E 00	L.T. 1. E 01
CS-137	L.T. 2. E 00	L.T. 2. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
BA-140	L.T. 1.5 E 01	L.T. 1.5 E 01	L.T. 5. E 00	L.T. 4. E 00	L.T. 4. E 00
CE-141	L.T. 7. E 00	L.T. 3. E 00	L.T. 8. E 00	L.T. 5. E 00	L.T. 7. E 00
CE-144	L.T. 2. E 01	L.T. 2. E 01	L.T. 7. E 00	L.T. 7. E 00	L.T. 9. E 00
RA-226	L.T. 4. E 01	L.T. 5. E 01	L.T. 2. E 01	L.T. 3. E 01	L.T. 3. E 01
TH-228	L.T. 4. E 00	L.T. 4. E 00	L.T. 7. E 01	L.T. 8. E 01	L.T. 8. E 01
			L.T. 6. E 00	L.T. 7. E 00	L.T. 7. E 00

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK NEAREST PRODUCER
 (PCI/LITER)
 STATION NUMBER 61
 STATION 51 - 3.5 MI. 326 DEG. IND.

DATE COLLECTED:	08/20 QA	09/03	09/03 QA	09/03-09/14	09/17
RADIOCHEMICAL ANALYSIS:					
SR-89	L.T. 1. E 00		L.T. 1. E 00		
SR-90	1.0 ± 0.2 E 00		7.3 ± 2.2 E-01	L.T. 3. E 00	
I-131	L.T. 1. E-01		L.T. 5. E-01	1.0 ± 0.4 E 00	
CA	2.1 ± 0.2 E 00	L.T. 2. E-01	2.1 ± 0.2 E 00	2.1 ± 0.2 E 00	L.T. 1. E-01
GAMMA SPECTRUM ANALYSIS:					
BE-7	L.T. 4. E 01	L.T. 3. E 01	L.T. 4. E 01		L.T. 3. E 01
K-40	1.27 ± 0.13 E 03	1.30 ± 0.13 E 03	1.31 ± 0.13 E 03		1.38 ± 0.14 E 03
MN-54	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00		L.T. 4. E 00
CO-58	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00		L.T. 4. E 00
FE-59	L.T. 9. E 00	L.T. 8. E 00	L.T. 9. E 00		L.T. 9. E 00
CO-60	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00		L.T. 4. E 00
ZN-65	L.T. 1. E 01	L.T. 9. E 00	L.T. 1. E 01		L.T. 9. E 00
ZR-95	L.T. 5. E 00	L.T. 4. E 00	L.T. 4. E 00		L.T. 4. E 00
RU-103	L.T. 5. E 00	L.T. 4. E 00	L.T. 5. E 00		L.T. 4. E 00
RU-106	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01		L.T. 4. E 01
I-131	L.T. 1. E 01	L.T. 9. E 00	L.T. 9. E 00		L.T. 7. E 00
CS-134	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00		L.T. 4. E 00
CS-137	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00		L.T. 4. E 00
BA-140	L.T. 9. E 00	L.T. 5. E 00	L.T. 6. E 00		L.T. 6. E 00
CE-141	L.T. 1. E 01	L.T. 8. E 00	L.T. 1. E 01		L.T. 8. E 00
CE-144	L.T. 4. E 01	L.T. 3. E 01	L.T. 4. E 01		L.T. 3. E 01
RA-226	L.T. 1. E 02	L.T. 8. E 01	L.T. 1. E 02		L.T. 8. E 01
TH-228	L.T. 9. E 00	L.T. 7. E 00	L.T. 9. E 00		L.T. 7. E 00

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK NEAREST PRODUCER
 (PCI/LITER)
 STATION NUMBER 61
 STATION 61 - 3.5 MI. 3/6 DEG. IND.

	DATE COLLECTED:	10/08	11/12	12/03
RADIOCHEMICAL ANALYSIS:				
SR-89	L.T. 8. E-01	L.T. 1. E 00	L.T. 1. E 00	L.T. 1. E 00
SR-90	9.2 ± 1.9 E-01	1.2 ± 0.2 E 00	1.2 ± 0.2 E 00	1.1 ± 0.3 E 00
I-131	L.T. 1. E-01	L.T. 1. E-01	L.T. 1. E-01	L.T. 1. E-01
CA	2.1 ± 0.2 E 00	2.1 ± 0.1 E 00	2.1 ± 0.1 E 00	2.1 ± 0.1 E 00
GAMMA SPECTRUM ANALYSIS:				
BE-7	L.T. 4. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01
K-40	1.25 ± 0.12 E 03	1.21 ± 0.12 E 03	1.21 ± 0.12 E 03	1.25 ± 0.13 E 03
MN-54	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00
CO-58	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
FE-59	L.T. 9. E 00	L.T. 9. E 00	L.T. 9. E 00	L.T. 9. E 00
CO-60	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00
ZN-65	L.T. 9. E 00	L.T. 9. E 00	L.T. 9. E 00	L.T. 9. E 00
ZR-95	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
RU-103	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
RU-106	L.T. 4. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01
I-131	L.T. 8. E 00	L.T. 7. E 00	L.T. 7. E 00	L.T. 8. E 00
CS-134	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
CS-137	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
BA-140	L.T. 5. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 6. E 00
CE-141	L.T. 7. E 00	L.T. 6. E 00	L.T. 6. E 00	L.T. 8. E 00
CE-144	L.T. 3. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 3. E 01
RA-226	L.T. 8. E 01	L.T. 7. E 01	L.T. 7. E 01	L.T. 8. E 01
TR-228	L.T. 7. E 00	L.T. 6. E 00	L.T. 6. E 00	L.T. 7. E 00

G. MILK - OTHER PRODUCERS

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK OTHER PRODUCERS
 (PCI/LITER)
 STATION NUMBER 42
 STATION 42 - 12.85 MI. 156 DEG. IND.

DATE COLLECTED:

01/14

04/09

07/09

10/15

RADIOCHEMICAL ANALYSIS:

SR-89 L.T. 1. E 00
 SR-90 1.5 ± 0.2 E 00
 I-131 L.T. 2. E-01
 CA 2.1 ± 0.2 E 00

L.T. 2. E 00
 1.1 ± 0.3 E 00
 L.T. 2. E-01
 2.1 ± 0.2 E 00

L.T. 9. E-01
 2.6 ± 1.6 E-01
 L.T. 2. E-01
 2.1 ± 0.2 E 00

GAMMA SPECTRUM ANALYSIS:

BE-7 L.T. 3. E 01
 K-40 1.24 ± 0.12 E 03
 MN-54 L.T. 4. E 00
 CO-58 L.T. 4. E 00
 FE-59 L.T. 8. E 00
 CO-60 L.T. 4. E 00
 ZN-65 L.T. 7. E 00
 ZR-95 L.T. 4. E 00
 RU-103 L.T. 4. E 00
 RU-106 L.T. 3. E 01
 I-131 L.T. 7. E 00
 CS-134 L.T. 3. E 00
 CS-137 L.T. 4. E 00
 BA-140 L.T. 6. E 00
 CE-141 L.T. 7. E 00
 CE-144 L.T. 3. E 01
 RA-226 L.T. 8. E 01
 TH-228 L.T. 7. E 00

L.T. 3. E 01
 1.31 ± 0.13 E 03
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 8. E 00
 L.T. 4. E 00
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 3. E 01
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 6. E 00
 L.T. 8. E 00
 L.T. 3. E 01
 L.T. 8. E 01
 L.T. 7. E 00

L.T. 4. E 01
 1.43 ± 0.14 E 03
 L.T. 3. E 00
 L.T. 4. E 00
 L.T. 1. E 01
 L.T. 4. E 00
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 5. E 00
 L.T. 3. E 01
 L.T. 2. E 01
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 1. E 01
 L.T. 1. E 01
 L.T. 3. E 01
 L.T. 8. E 01
 L.T. 7. E 00

L.T. 4. E 01
 1.27 ± 0.13 E 03
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 1. E 01
 L.T. 4. E 00
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 3. E 01
 L.T. 2. E 01
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 9. E 00
 L.T. 1. E 01
 L.T. 3. E 01
 L.T. 8. E 01
 L.T. 7. E 00

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 MILK OTHER PRODUCERS
 (PCI/LITER)
 STATION NUMBER 99
 STATION 99 - 10.5 MI. 189 DEG. INC.

DATE COLLECTED: 01/14

RADIOCHEMICAL ANALYSIS:

SR-89 L.T. 1. E 00
 SR-90 1.3 ± 0.2 E 00
 I-131 L.T. 2. E-01
 CA 2.1 ± 0.2 E 00

04/09

L.T. 7. E-01
 6.0 ± 2.4 E-01
 L.T. 2. E-01
 2.1 ± 0.2 E 00

07/09

L.T. 2. E 00
 1.7 ± 0.2 E 00
 L.T. 1. E-01
 2.1 ± 0.2 E 00

10/15

L.T. 2. E 00
 1.1 ± 0.4 E 00
 L.T. 2. E-01
 2.1 ± 0.2 E 00

GAMMA SPECTRUM ANALYSIS:

BE-7 L.T. 4. E 01
 K-40 1.39±0.14 E 03
 MN-54 L.T. 4. E 00
 CO-58 L.T. 4. E 00
 FE-59 L.T. 1. E 01
 CO-60 L.T. 5. E 00
 ZN-65 L.T. 1. E 01
 ZR-95 L.T. 4. E 00
 RU-103 L.T. 5. E 00
 RU-106 L.T. 3. E 01
 I-131 L.T. 9. E 00
 CS-134 L.T. 4. E 00
 CS-137 L.T. 4. E 00
 BA-140 L.T. 6. E 00
 CE-141 L.T. 9. E 00
 CE-144 L.T. 4. E 01
 RA-226 L.T. 1. E 02
 TH-228 L.T. 9. E 00

L.T. 4. E 01
 1.19±0.12 E 03
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 3. E 01
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 6. E 00
 L.T. 9. E 00
 L.T. 4. E 01
 L.T. 1. E 02
 L.T. 9. E 00

L.T. 4. E 01
 1.33±0.13 E 03
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 1. E 01
 L.T. 5. E 00
 L.T. 1. E 01
 L.T. 5. E 00
 L.T. 6. E 00
 L.T. 3. E 01
 L.T. 2. E 01
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 1. E 01
 L.T. 1. E 01
 L.T. 8. E 00

L.T. 4. E 01
 1.41±0.14 E 03
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 1. E 01
 L.T. 4. E 00
 L.T. 1. E 01
 L.T. 4. E 00
 L.T. 5. E 00
 L.T. 4. E 01
 L.T. 2. E 01
 L.T. 5. E 00
 L.T. 5. E 00
 L.T. 9. E 00
 L.T. 1. E 01
 L.T. 4. E 01
 L.T. 1. E 02
 L.T. 9. E 00

H. GROUNDWATER

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - WATERBORNE
 WATER - GROUND
 (PCI/LITER)
 STATION NUMBER 11
 STATION 11 - 0.15 MI. 225 DEG. IND.

DATE COLLECTED:	01/21	04/09	07/16	10/15
RADIOCHEMICAL ANALYSIS:				
GR-A	L.T. 2. E 00	L.T. 5. E 00	L.T. 4. E 00	L.T. 1. E 00
GR-B	8.8 ± 1.6 E 00	5.8 ± 2.1 E 00	9.2 ± 1.8 E 00	8.2 ± 1.7 E 00
GAMMA SPECTRUM ANALYSIS:				
BE-7	L.T. 3. E 01	L.T. 3. E 01	L.T. 5. E 01	L.T. 3. E 01
K-40	L.T. 6. E 01	L.T. 5. E 01	L.T. 1. E 02	L.T. 5. E 01
MN-54	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 2. E 00
CJ-58	L.T. 3. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 3. E 00
FE-59	L.T. 7. E 00	L.T. 6. E 00	L.T. 1. E 01	L.T. 5. E 00
CO-60	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00
ZN-65	L.T. 8. E 00	L.T. 6. E 00	L.T. 1. E 01	L.T. 6. E 00
ZR-95	L.T. 4. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 3. E 00
RU-103	L.T. 4. E 00	L.T. 3. E 00	L.T. 6. E 00	L.T. 3. E 00
RU-106	L.T. 3. E 01	L.T. 2. E 01	L.T. 4. E 01	L.T. 2. E 01
I-131	L.T. 7. E 00	L.T. 8. E 00	L.T. 2. E 01	L.T. 7. E 00
CS-134	L.T. 4. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 3. E 00
BA-140	L.T. 5. E 00	L.T. 5. E 00	L.T. 1. E 01	L.T. 5. E 00
CE-141	L.T. 6. E 00	L.T. 5. E 00	L.T. 1. E 01	L.T. 6. E 00
CE-144	L.T. 2. E 01	L.T. 2. E 01	L.T. 4. E 01	L.T. 2. E 01
RA-226	L.T. 7. E 01	L.T. 5. E 01	L.T. 9. E 01	L.T. 7. E 01
TH-228	L.T. 7. E 00	L.T. 5. E 00	L.T. 8. E 00	L.T. 5. E 00
TRITIUM ANALYSIS:				
H-3	L.T. 1. E 02	L.T. 1.3 E 02	L.T. 1. E 02	L.T. 1. E 02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - WATERBORNE
 WATER - GROUND
 (PCI/LITER)
 STATION NUMBER 47
 STATION 47 - 25.75 MI. 154 DEG. IND.

DATE COLLECTED:	01/21	04/68	07/16	10/15
RADIOCHEMICAL ANALYSIS:				
GR-A	L.T. 2. 5 00	L.T. 4. 4 E 00	L.T. 1. E 00	L.T. 1. E 00
GR-B	7.9 ± 1.5 E 00	6.8 ± 1.7 E 00	7.8 ± 1.6 E 00	9.2 ± 1.7 E 00
GAMMA SPECTRUM ANALYSIS:				
BE-7	L.T. 4. E 01	L.T. 3. E 01	L.T. 4. E 01	L.T. 3. E 01
K-40	L.T. 9. E 01	L.T. 4. E 01	L.T. 1. E 02	L.T. 5. E 01
MN-54	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 2. E 00
CO-58	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 2. E 00
FE-59	L.T. 8. E 00	L.T. 6. E 00	L.T. 9. E 00	L.T. 6. E 00
CO-60	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00
ZN-65	L.T. 9. E 00	L.T. 5. E 00	L.T. 8. E 00	L.T. 6. E 00
ZR-95	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00
RU-103	L.T. 5. E 00	L.T. 3. E 00	L.T. 5. E 00	L.T. 3. E 00
RU-106	L.T. 4. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 2. E 01
I-131	L.T. 1. E 01	L.T. 8. E 00	L.T. 2. E 01	L.T. 7. E 00
CS-134	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00
BA-140	L.T. 7. E 00	L.T. 6. E 00	L.T. 1. E 01	L.T. 6. E 00
CE-141	L.T. 9. E 00	L.T. 7. E 00	L.T. 8. E 00	L.T. 6. E 00
CE-144	L.T. 4. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 2. E 01
RA-226	L.T. 1. E 02	L.T. 7. E 01	L.T. 8. E 01	L.T. 6. E 01
TH-228	L.T. 8. E 00	L.T. 6. E 00	L.T. 7. E 00	L.T. 5. E 00
TRITIUM ANALYSIS:				
H-3	1.4 ± 0.8 E 02	L.T. 1.3 E 02	L.T. 1. E 02	2.1 ± 1.0 E 02

L RIVER WATER.

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - WATERBORNE
 WATER - RIVER
 (PCI/LITER)
 STATION NUMBER 12
 STATION 12 - 0.1 MI. 340 DEG. CON.

DATE COLLECTED:

01/09

01/09-03/04

02/09

03/04

04/03

RADIOCHEMICAL ANALYSIS:

SR-89 L.T. 1. E 00
 SR-90 L.T. 6. E-01
 CR-A DIS L.T. 4. E 01
 G3-A SUS L.T. 5. E-01
 GR-B DIS L.C ± 0.2 E-01
 CR-B SUS L.T. 7. E-01

L.T. 1. E 00
 L.T. 9. E-01
 L.T. 4. E 00
 L.T. 8. E-01
 1.3 ± 0.2 E 01
 3.7 ± 0.8 E 00

L.T. 6. E-01
 L.T. 7. E-01
 L.T. 3. E 00
 2.1 ± 0.7 E 01
 9.7 ± 1.5 E 00
 5.0 ± 0.7 E 01

L.T. 1. E 00
 L.T. 1. E 00
 L.T. 3. E 00
 2.7 ± 1.3 E 00
 1.2 ± 0.2 E 01
 9.2 ± 1.2 E 00

GAMMA SPECTRUM ANALYSIS:

BE-7 L.T. 4. E 01
 K-40 L.T. 1. E 02
 MN-54 L.T. 4. E 00
 CO-58 L.T. 4. E 00
 FE-59 L.T. 9. E 00
 CO-60 L.T. 4. E 00
 ZN-65 L.T. 9. E 00
 ZR-95 L.T. 4. E 00
 RU-103 L.T. 5. E 00
 RU-106 L.T. 4. E 01
 I-131 L.T. 9. E 00
 CS-134 L.T. 4. E 00
 CS-137 L.T. 5. E 00
 BA-140 L.T. 7. E 00
 CE-141 L.T. 9. E 00
 CE-144 L.T. 4. E 01
 RA-226 L.T. 1. E 02
 TH-228 L.T. 8. E 00

L.T. 4. E 01
 L.T. 9. E 01
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 5. E 00
 L.T. 4. E 01
 L.T. 1. E 01
 L.T. 5. E 00
 L.T. 5. E 00
 L.T. 8. E 00
 L.T. 1. E 01
 L.T. 4. E 01
 L.T. 9. E 01
 L.T. 8. E 00

L.T. 2. E 01
 L.T. 5. E 01
 L.T. 3. E 00
 L.T. 3. E 00
 L.T. 5. E 00
 L.T. 3. E 00
 L.T. 6. E 00
 L.T. 3. E 00
 L.T. 3. E 00
 L.T. 3. E 00
 L.T. 2. E 01
 L.T. 4. E 00
 L.T. 3. E 00
 L.T. 3. E 00
 L.T. 4. E 00
 L.T. 5. E 00
 L.T. 4. E 00
 L.T. 5. E 00
 L.T. 5. E 00

L.T. 4. E 01
 L.T. 9. E 01
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 8. E 00
 L.T. 4. E 00
 L.T. 8. E 00
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 5. E 00
 L.T. 4. E 01
 L.T. 9. E 00
 L.T. 4. E 00
 L.T. 4. E 00
 L.T. 6. E 00
 L.T. 9. E 00
 L.T. 4. E 01
 L.T. 9. E 01
 L.T. 8. E 00

BETA SPECTRUM ANALYSIS:

L.T. 1. E 02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - WATERBORNE
 WATER - RIVER
 (PCI/LITER)
 STATION NUMBER 12
 STATION 12 - 0.1 MI. 360 DEG. CON.

DATE COLLECTED:	04/03-06/04	05/07	06/04	07/02	08/06
RADIOCHEMICAL ANALYSIS:					
SR-89	L.T. 7. E-01	L.T. 2. E 00	L.T. 1. E 00	L.T. 1. E 00	L.T. 2. E 00
SR-90	L.T. 9. E-01	L.T. 1. E 00	L.T. 7. E-01	L.T. 7. E-01	L.T. 7. E-01
GR-A DIS	7.4 ± 3.9 E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 2. E 00
GR-A SUS	3.1 ± 2.2 E 00	1.5 ± 1.2 E 01	2.1 ± 1.5 E 00	2.1 ± 1.5 E 00	8.7 ± 4.5 E-01
GR-B DIS	1.8 ± 0.2 E 01	1.2 ± 0.2 E 01	9.7 ± 1.7 E 00	9.7 ± 1.7 E 00	9.5 ± 1.2 E 00
GR-B SUS	9.3 ± 1.4 E 00	5.4 ± 1.4 E 01	9.0 ± 1.3 E 00	9.0 ± 1.3 E 00	2.3 ± 0.5 E 00
GAMMA SPECTRUM ANALYSIS:					
BE-7	L.T. 4. E 01	L.T. 4. E 01	L.T. 1. E 01	L.T. 1. E 01	L.T. 3. E 01
K-40	L.T. 1. ± 0.32	L.T. 1. E 02	1.49 ± 0.85 E 01	1.49 ± 0.85 E 01	L.T. 5. E 01
MN-54	L.T. 3. E 00	L.T. 4. E 00	L.T. 9. E-01	L.T. 9. E-01	L.T. 3. E 00
CO-58	L.T. 4. E 00	L.T. 4. E 00	L.T. 1. E 00	L.T. 1. E 00	L.T. 3. E 00
FE-59	L.T. 9. E 00	L.T. 1. E 01	L.T. 3. E 00	L.T. 3. E 00	L.T. 7. E 00
CO-60	L.T. 3. E 00	L.T. 5. E 00	L.T. 1. E 00	L.T. 1. E 00	L.T. 4. E 00
ZN-65	L.T. 8. E 00	L.T. 1. E 01	L.T. 2. E 00	L.T. 2. E 00	L.T. 7. E 00
ZR-95	L.T. 4. E 00	L.T. 4. E 00	L.T. 1. E 00	L.T. 1. E 00	L.T. 4. E 00
RU-103	L.T. 5. E 00	L.T. 5. E 00	L.T. 8. E 00	L.T. 8. E 00	L.T. 1. E 01
RU-106	L.T. 4. E 01	L.T. 1. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 7. E 00
I-131	L.T. 2. E 01	L.T. 1. E 01	L.T. 9. E-01	L.T. 9. E-01	L.T. 3. E 00
CS-134	L.T. 4. E 00	L.T. 5. E 00	L.T. 1. E 00	L.T. 1. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L.T. 5. E 00	L.T. 9. E 00	L.T. 9. E 00	L.T. 6. E 00
BA-140	L.T. 1. E 01	L.T. 7. E 00	L.T. 9. E 00	L.T. 9. E 00	L.T. 6. E 00
CE-141	L.T. 9. E 00	L.T. 8. E 00	L.T. 2. E 00	L.T. 2. E 00	L.T. 6. E 00
CE-144	L.T. 3. E 01	L.T. 3. E 01	L.T. 5. E 00	L.T. 5. E 00	L.T. 2. E 01
RA-226	L.T. 7. E 01	L.T. 9. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 6. E 01
TH-228	L.T. 7. E 00	L.T. 8. E 00	L.T. 2. E 00	L.T. 2. E 00	L.T. 6. E 00
TRITIUM ANALYSIS:					
H-1	1.1 ± 0.6 E 02				

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - WATERBORNE
 WATER - RIVER
 (PCI/LITER)
 STATION NUMBER 12
 STATION 12 - 0.1 MI. 360 DEG. CON.

DATE COLLECTED:	09/03	10/01	11/12	12/03
RADIOCHEMICAL ANALYSIS:				
SR-89	L.T. 1. E 00	L.T. 6. E-01	L.T. 1. E 00	L.T. 1. E 00
SR-90	L.T. 7. E-01	L.T. 6. E-01	L.T. 9. E-01	L.T. 9. E-01
GR-A DIS	L.T. 4. E 00	4.2 ± 2.5 E 00	L.T. 4. E 00	3.2 ± 2.4 E 00
GR-A SUS	L.T. 5. E-01	9.9 ± 5.9 E-01	8.5 ± 6.9 E-01	1.5 ± 1.0 E 00
GR-B DIS	1.1 ± 0.2 E 01	9.4 ± 1.6 E 00	1.1 ± 0.2 E 01	1.2 ± 0.2 E 01
GR-B SUS	1.4 ± 0.6 E 00	2.0 ± 0.7 E 00	2.0 ± 0.7 E 00	6.5 ± 1.1 E 00
GAMMA SPECTRUM ANALYSIS:				
BE-7	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01
K-40	L.T. 9. E 01	L.T. 6. E 01	L.T. 5. E 01	L.T. 7. E 01
MN-54	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
CO-58	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
FE-59	L.T. 7. E 00	L.T. 7. E 00	L.T. 6. E 00	L.T. 7. E 00
CO-60	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00
ZN-65	L.T. 7. E 00	L.T. 7. E 00	L.T. 6. E 00	L.T. 6. E 00
ZR-95	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00
RU-103	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00
RU-106	L.T. 3. E 01	L.T. 3. E 01	L.T. 2. E 01	L.T. 3. E 01
I-131	L.T. 8. E 00	L.T. 8. E 00	L.T. 7. E 00	L.T. 8. E 00
CS-134	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00
BA-140	L.T. 6. E 00	L.T. 7. E 00	L.T. 6. E 00	L.T. 6. E 00
CE-141	L.T. 6. E 00	L.T. 7. E 00	L.T. 7. E 00	L.T. 9. E 00
CE-144	L.T. 2. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01
RA-226	L.T. 7. E 01	L.T. 8. E 01	L.T. 7. E 01	L.T. 1. E 02
TH-228	L.T. 6. E 00	L.T. 5. E 00	L.T. 6. E 00	L.T. 8. E 00
TRITIUM ANALYSIS:				
H-3	L.T. 1.2 E 02			

NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
EXPOSURE PATHWAY - WATERBORNE
WATER - RIVER
(PCI/LITER)
STATION NUMBER 12
STATION 12 - 0.1 MI. 360 DEG. CON.

DATE COLLECTED: 10/01-12/03

TRITIUM ANALYSIS:

H-3 L.T. 1: E 02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - WATERBORNE
 WATER - RIVER
 (PCI/LITER)
 STATION NUMBER 28
 STATION 28 - 1.8 MI. 150 DEG. IND.

DATE COLLECTED:	01/09	01/09-03/04	02/09	03/04	04/03
RADIOCHEMICAL ANALYSIS:					
SR-89	L.T. 8. E-01	L.T. 9. E-01	L.T. 6. E-01	L.T. 6. E-01	L.T. 1. E 00
SR-90	L.T. 3. E-01	L.T. 8. E-01	L.T. 3. E-01	L.T. 3. E-01	L.T. 9. E-01
GR-A DIS	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
GR-A SUS	L.T. 5. E-01	L.T. 9. E-01	3.4 ± 1.0 E 01	3.4 ± 1.0 E 01	2.8 ± 1.4 E 00
GR-B DIS	9.4 ± 1.6 E 00	1.1 ± 0.2 E 01	1.1 ± 0.2 E 01	1.1 ± 0.2 E 01	1.0 ± 0.2 E 01
GR-B SUS	L.T. 7. E-01	3.8 ± 0.8 E 00	8.8 ± 0.9 E 01	8.8 ± 0.9 E 01	9.3 ± 1.3 E 00
GAMMA SPECTRUM ANALYSIS:					
BE-7	L.T. 3. E 01	L.T. 4. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 01
K-40	L.T. 1. E 02	L.T. 1. E 02	L.T. 5. E 01	L.T. 5. E 01	L.T. 3. E 01
MN-54	L.T. 3. E 00	L.T. 4. E 00	L.T. 2. E 00	L.T. 2. E 00	L.T. 3. E 00
CO-58	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
FS-59	L.T. 7. E 00	L.T. 9. E 00	L.T. 6. E 00	L.T. 6. E 00	L.T. 8. E 00
CO-60	L.T. 4. E 00	L.T. 4. E 00	L.T. 1. E 00	L.T. 1. E 00	L.T. 3. E 00
ZN-65	L.T. 8. E 00	L.T. 9. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 7. E 00
ZR-95	L.T. 4. E 00	L.T. 5. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
RU-103	L.T. 4. E 00	L.T. 5. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
RU-106	L.T. 3. E 01	L.T. 4. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 3. E 01
I-131	L.T. 7. E 00	L.T. 1. E 01	L.T. 5. E 00	L.T. 5. E 00	L.T. 7. E 00
CS-134	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
BA-140	L.T. 5. E 00	L.T. 7. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 3. E 00
CE-141	L.T. 8. E 00	L.T. 1. E 01	L.T. 6. E 00	L.T. 6. E 00	L.T. 5. E 00
CE-144	L.T. 3. E 01	L.T. 4. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 6. E 00
RA-226	L.T. 8. E 01	L.T. 9. E 01	L.T. 7. E 01	L.T. 7. E 01	L.T. 2. E 01
TH-228	L.T. 7. E 00	L.T. 8. E 00	L.T. 6. E 00	L.T. 6. E 00	L.T. 6. E 00

TRITIUM ANALYSIS:

1.3 ± 0.1 E 02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - WATERBORNE
 WATER - RIVER
 (PCI/LITER)
 STATION 28 - 1.8 MI. 150 DEG. IND.

DATE COLLECTED:	04/03-06/04	05/07	06/04	07/02	08/06
RADIOCHEMICAL ANALYSIS:					
SR-89	L.T. 1. E 00	L.T. 2. E 00	L.T. 2. E 00	L.T. 2. E 00	L.T. 2. E 00
SR-90	L.T. 4. E-01	L.T. 5. E-01	L.T. 5. E-01	L.T. 6. E-01	L.T. 5. E-01
GR-A DIS	8.6 ± 4.1 E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00	L.T. 2. E 00
GR-B DIS	L.T. 3. E 00	L.T. 9. E 00	L.T. 9. E 00	L.T. 1. E 00	L.T. ± 0.6 E 00
GR-B SUS	2.5 ± 0.2 E 01	1.1 ± 0.2 E 01	1.1 ± 0.2 E 01	6.5 ± 1.5 E 00	9.0 ± 1.2 E 00
	7.6 ± 1.4 E 00	4.7 ± 1.3 E 01	4.7 ± 1.3 E 01	8.0 ± 1.2 E 00	3.8 ± 0.6 E 00
GAMMA SPECTRUM ANALYSIS:					
BE-7	L.T. 3. E 01	L.T. 4. E 01	L.T. 4. E 01	L.T. 1. E 01	L.T. 3. E 01
K-40	L.T. 4. E 01	L.T. 1. E 02	L.T. 1. E 02	2.39 ± 0.96 E 01	L.T. 5. E 01
MN-54	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 1. E 00	L.T. 3. E 00
CO-58	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 2. E 00	L.T. 3. E 00
FE-59	L.T. 6. E 00	L.T. 9. E 00	L.T. 9. E 00	L.T. 4. E 00	L.T. 7. E 00
CO-60	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 1. E 00	L.T. 4. E 00
ZN-65	L.T. 6. E 00	L.T. 9. E 00	L.T. 9. E 00	L.T. 3. E 00	L.T. 7. E 00
ZR-95	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 2. E 00	L.T. 4. E 00
RU-103	L.T. 4. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 2. E 00	L.T. 4. E 00
RU-106	L.T. 3. E 01	L.T. 4. E 01	L.T. 4. E 01	L.T. 1. E 01	L.T. 4. E 00
I-131	L.T. 1. E 01	L.T. 1. E 01	L.T. 1. E 01	L.T. 3. E 01	L.T. 3. E 01
CS-134	L.T. 3. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 1. E 00	L.T. 7. E 00
CS-137	L.T. 3. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 1. E 00	L.T. 3. E 00
BA-140	L.T. 8. E 00	L.T. 8. E 00	L.T. 8. E 00	L.T. 1. E 00	L.T. 3. E 00
CE-141	L.T. 6. E 00	L.T. 8. E 00	L.T. 8. E 00	L.T. 9. E 00	L.T. 6. E 00
CE-144	L.T. 2. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 3. E 00	L.T. 6. E 00
RA-226	L.T. 5. E 01	L.T. 9. E 01	L.T. 9. E 01	L.T. 7. E 00	L.T. 2. E 01
TH-228	L.T. 5. E 00	L.T. 8. E 00	L.T. 8. E 00	L.T. 2. E 01	L.T. 6. E 01
				L.T. 2. E 00	L.T. 6. E 00
TRITIUM ANALYSIS:					
H-3	L.T. 9. E 01				

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - WATERBORNE
 WATER - RIVER
 (PCI/LITER)
 STATION NUMBER 28
 STATION 28 - 1.8 MI. 150 DEG. IND.

DATE COLLECTED:

07/03

07/02-09/03

10/01

11/12

12/03

RADIOCHEMICAL ANALYSIS:

SR-89	L.T. 1.	E 00	L.T. 6.	E-01	L.T. 7.	E 00	L.T. 5.	E-01
SR-90	L.T. 3.	E-01	L.T. 7.	E-01	L.T. 9.	E-01	L.T. 7.	E-01
GR-A DIS	L.T. 4.	E 00	2.7 ± 2.0	E 00	5.1 ± 3.7	E 00	3.5 ± 2.4	E 00
GR-A SUS	L.T. 7.	E-01	1.1 ± 0.7	E 00	L.T. 9.	E-01	1.4 ± 0.9	E 00
GR-B DIS	1.0 ± 0.2	E 01	9.3 ± 1.5	E 00	9.1 ± 1.6	E 00	1.1 ± 0.2	E 01
GR-B SUS	3.5 ± 0.8	E 00	3.0 ± 0.7	E 00	2.9 ± 0.7	E 00	4.0 ± 0.9	E 00

GAMMA SPECTRUM ANALYSIS:

BE-7	L.T. 2.	E 01	L.T. 3.	E 01	L.T. 3.	E 01	L.T. 3.	E 01
K-40	L.T. 5.	E 01	L.T. 5.	E 01	L.T. 5.	E 01	L.T. 1.	E 02
MN-54	L.T. 2.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 4.	E 00
CO-58	L.T. 2.	E 00	L.T. 3.	E 00	L.T. 3.	E 00	L.T. 4.	E 00
FE-59	L.T. 5.	E 00	L.T. 6.	E 00	L.T. 6.	E 00	L.T. 8.	E 00
CO-60	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 4.	E 00
ZN-65	L.T. 5.	E 00	L.T. 7.	E 00	L.T. 6.	E 00	L.T. 8.	E 00
ZR-95	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 4.	E 00
RU-103	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 4.	E 00	L.T. 4.	E 00
RU-106	L.T. 2.	E 01	L.T. 3.	E 01	L.T. 2.	E 01	L.T. 3.	E 01
I-131	L.T. 6.	E 00	L.T. 8.	E 00	L.T. 8.	E 00	L.T. 7.	E 00
CS-134	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 4.	E 00
CS-137	L.T. 3.	E 00	L.T. 4.	E 00	L.T. 3.	E 00	L.T. 4.	E 00
BA-140	L.T. 5.	E 00	L.T. 7.	E 00	L.T. 6.	E 00	L.T. 6.	E 00
CE-141	L.T. 5.	E 00	L.T. 6.	E 00	L.T. 6.	E 00	L.T. 7.	E 00
CE-144	L.T. 2.	E 01	L.T. 2.	E 01	L.T. 2.	E 01	L.T. 2.	E 01
RA-226	L.T. 6.	E 01	L.T. 7.	E 01	L.T. 6.	E 01	L.T. 8.	E 01
TH-228	L.T. 5.	E 00	L.T. 6.	E 00	L.T. 6.	E 00	L.T. 7.	E 00

TRITIUM ANALYSIS:

H-3

L.T. 1.2 E 02

NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
EXPOSURE PATHWAY - WATERBORNE
WATER - RIVER
(PCI/LITER)
STATION NUMBER 28
STATION 28 - 1.8 MI. 150 DEG. IND.

DATE COLLECTED: 10/01-12/03

TRITIUM ANALYSIS:

H-3 L.T. 1. E 02

J. THERMOLUMINESCENT DOSIMETRY - RADIATION DOSE

TABLE J-1
1991 QUARTERLY REPORT
 NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AMBIENT GAMMA RADIATION: TLD
 milliroentgen/Quarter

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 01/02-04/01	SECOND QUARTER 04/01-07/01	THIRD QUARTER 07/01-10/04	FOURTH QUARTER 10/04-01/03
TLD (Gamma)	01	31.2 ± 3.1	32.3 ± 3.9	28.4 ± 1.1	20.1 ± 2.1
	02	15.8 ± 0.9	15.6 ± 0.7	17.7 ± 0.7	14.6 ± 0.6
	03	14.5 ± 0.8	16.7 ± 0.5	17.3 ± 1.7	14.3 ± 0.8
	04	15.2 ± 0.8	17.1 ± 0.7	18.5 ± 0.6	15.3 ± 0.7
	05	16.8 ± 3.6	15.8 ± 0.8	17.9 ± 0.6	14.6 ± 0.6
	06	18.4 ± 0.4	15.8 ± 1.1	20.4 ± 0.3	15.8 ± 0.8
	07	15.2 ± 1.0	17.9 ± 0.9	18.5 ± 1.3	14.4 ± 0.4
	08	16.7 ± 1.7	15.4 ± 0.5	19.1 ± 0.5	15.9 ± 0.5
	09	15.5 ± 0.9	14.6 ± 0.6	19.1 ± 0.8	15.4 ± 0.8
	10	16.7 ± 0.3	15.5 ± 1.0	19.4 ± 3.5	17.7 ± 0.6
	20	16.3 ± 0.8	16.3 ± 0.7	19.8 ± 0.8	17.4 ± 1.1
	44	20.0 ± 0.8	18.0 ± 0.9	20.8 ± 1.1	20.7 ± 1.3
	56	15.3 ± 0.9	15.6 ± 0.7	20.3 ± 0.7	15.7 ± 1.8
	58	16.0 ± 0.6	15.6 ± 0.8	20.1 ± 1.0	18.4 ± 0.5
	59	17.1 ± 0.9	17.3 ± 0.5	19.5 ± 4.5	18.3 ± 1.7
	66	16.7 ± 1.0	18.2 ± 1.0	24.1 ± 1.5	16.6 ± 1.1
	67	17.2 ± 0.7	16.4 ± 0.7	20.8 ± 0.8	16.6 ± 0.8
	71	15.6 ± 0.8	19.2 ± 0.3	21.4 ± 0.2	17.0 ± 0.5

TABLE J-1

1991 QUARTERLY REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AMBIENT GAMMA RADIATION: TLD

milliRoentgen/Quarter

SAMPLE NUCLIDE	STATION NUMBER	FIRST QUARTER 01/02-04/01	SECOND QUARTER 04/01-07/01	THIRD QUARTER 07/01-10/04	FOURTH QUARTER 10/04-01/09
TLD (Gamma)	79	18.8 ± 0.5	18.3 ± 0.7	19.8 ± 0.8	15.1 ± 0.8
	80	20.1 ± 1.2	17.0 ± 0.6	19.1 ± 0.6	18.5 ± 0.6
	81	18.2 ± 0.7	16.1 ± 0.4	22.2 ± 0.9	17.1 ± 1.6
	82	15.6 ± 0.7	17.2 ± 0.9	20.4 ± 1.3	18.3 ± 0.9
	83	19.7 ± 0.6	17.6 ± 0.8	19.8 ± 1.2	17.2 ± 0.9
	84	17.8 ± 0.8	19.9 ± 0.4	20.1 ± 0.8	18.1 ± 0.6
	85	15.2 ± 0.7	18.4 ± 0.5	21.3 ± 0.5	16.4 ± 0.8
	86	16.6 ± 0.8	15.8 ± 0.6	18.1 ± 0.3	19.0 ± 0.3
	87	16.0 ± 0.9	15.6 ± 0.8	17.0 ± 0.8	15.7 ± 0.6
	88	17.4 ± 1.6	14.9 ± 0.6	20.2 ± 0.9	14.6 ± 0.2
	89	16.4 ± 0.9	17.3 ± 0.8	20.2 ± 0.5	16.0 ± 0.9
	90	19.7 ± 0.9	15.6 ± 0.5	18.5 ± 1.3	17.7 ± 0.4
	91	16.1 ± 0.7	15.0 ± 0.6	18.2 ± 0.7	18.0 ± 0.6
	94	18.4 ± 0.7	17.4 ± 1.1	20.9 ± 0.9	15.4 ± 1.0
Average/Quarter		89 days 17.4 ± 0.3 mR/89 days	91 days 17.2 ± 0.3 mR/91 days	95 days 20.0 ± 0.2 mR/95 days	97 days 16.7 ± 0.2 mR/97 days
Average/Day		0.20 ± 0.03 mR/day	0.19 ± 0.03 mR/day	0.21 ± 0.02 mR/day	0.17 ± 0.02 mR/day
Range		(15-31) mR/89 days	(15-32) mR/91 days	(17-28) mR/95 days	(14-21) mR/97 days
Det./Total		32/32	32/32	32/32	32/32

TABLE J-2
 1991 QUARTERLY REPORT
 NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AMBIENT GAMMA RADIATION: TLD
 milliRoentgen/Quarter

SAMPLE NUCLIDE	STATION NUMBER	Aver./Quarter	TOTAL mR/year 01/03-01/09/92
TLD (Gamma)	01	28.0 ± 5.5	112.0
	02	15.9 ± 1.3	63.7
	03	15.7 ± 1.5	62.8
	04	16.5 ± 1.6	66.1
	05	16.3 ± 1.4	65.1
	06	17.6 ± 2.2	70.4
	07	16.5 ± 2.0	66.0
	08	16.8 ± 1.6	67.1
	09	16.2 ± 2.0	64.8
	10	17.3 ± 1.7	69.3
	20	17.5 ± 1.7	69.8
	44	19.9 ± 1.3	79.5
	56	16.7 ± 2.4	66.9
	58	17.5 ± 2.1	70.1
	59	18.1 ± 1.1	72.2
	66	18.9 ± 3.5	75.6
	67	17.8 ± 2.1	71.0
	71	18.3 ± 2.5	73.2

TABLE J-2
1991 QUARTERLY REPORT
NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

EXPOSURE PATHWAY - AMBIENT GAMMA RADIATION: TLD

milliRoentgen/Quarter

SAMPLE NUCLIDE	STATION NUMBER	Aver./Quarter	TOTAL mR/year 01/03-01/09/92
TLD (Gamma)	79	17.0 ± 2.0	72.0
	80	18.7 ± 1.3	74.7
	81	18.1 ± 2.7	73.6
	82	17.9 ± 2.0	71.5
	83	18.6 ± 1.4	74.3
	84	19.0 ± 1.2	75.9
	85	17.8 ± 2.7	71.3
	86	17.4 ± 1.4	69.5
	87	16.1 ± 0.6	64.3
	88	16.8 ± 2.6	67.1
	89	17.5 ± 1.9	69.9
	90	17.9 ± 1.7	71.5
	91	16.8 ± 1.5	67.3
	94	18.0 ± 2.3	72.1
		17.8 ± 2.8 Average mR/Quarter	73 ± 8.4
		Range (14-32)	Aver mR year. All stations Range (62.8-112.0)

K. FOOD - BROADLEAF VEGETATION

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/GM WET)

STATION NUMBER 35

STATION 35 - 2.0 MI. 350 DEG. CON.

DATE COLLECTED:

05/14
 RAGWEED

05/14
 PIGWEED

05/14
 WATERCRESS

06/12
 SUNFLOWER

06/12
 GIANT RAGWEED

RADIOCHEMICAL ANALYSIS:

I-131

L.T. 6. E-03

L.T. 5. E-03

L.T. 9. E-02

L.T. 3. E-03

L.T. 3. E-03

GAMMA SPECTRUM ANALYSIS:

BE-7

4.77±0.76 E-01

K-40

6.09±0.61 E-00

5.13±0.85 E-01

2.10±0.21 E-00

1.00±0.16 E-00

MN-54

L.T. 7. E-03

L.T. 6. E-03

L.T. 8. E-03

L.T. 8. E-03

L.T. 1. E-02

CO-58

L.T. 8. E-03

L.T. 7. E-03

L.T. 9. E-03

L.T. 9. E-03

L.T. 1. E-02

FE-59

L.T. 3. E-02

L.T. 2. E-02

L.T. 3. E-02

L.T. 3. E-02

L.T. 3. E-02

CO-60

L.T. 8. E-03

L.T. 6. E-03

L.T. 9. E-03

L.T. 9. E-03

L.T. 1. E-02

ZN-65

L.T. 2. E-02

L.T. 2. E-02

L.T. 2. E-02

L.T. 2. E-02

L.T. 3. E-02

ZR-95

L.T. 9. E-03

L.T. 7. E-03

L.T. 9. E-03

L.T. 1. E-02

L.T. 1. E-02

RU-103

L.T. 1. E-02

L.T. 8. E-03

L.T. 1. E-02

L.T. 1. E-02

L.T. 1. E-02

RU-106

L.T. 7. E-02

L.T. 5. E-02

L.T. 7. E-02

L.T. 1. E-02

L.T. 2. E-02

I-131

L.T. 6. E-02

L.T. 4. E-02

L.T. 6. E-02

L.T. 7. E-02

L.T. 9. E-02

CS-134

L.T. 8. E-03

L.T. 6. E-03

L.T. 9. E-03

L.T. 9. E-03

L.T. 1. E-01

CS-137

L.T. 9. E-03

8.65±4.57 E-03

L.T. 9. E-03

L.T. 8. E-03

L.T. 1. E-02

BA-140

L.T. 2. E-02

L.T. 2. E-02

L.T. 3. E-02

L.T. 3. E-02

L.T. 1. E-02

CE-141

L.T. 2. E-02

L.T. 1. E-02

L.T. 2. E-02

L.T. 2. E-02

L.T. 4. E-02

CE-144

L.T. 5. E-02

L.T. 4. E-02

L.T. 5. E-02

L.T. 4. E-02

L.T. 7. E-02

RA-226

L.T. 1. E-01

L.T. 1. E-01

L.T. 2. E-01

L.T. 1. E-01

L.T. 2. E-01

TH-228

L.T. 1. E-02

5.03±0.82 E-02

L.T. 1. E-02

L.T. 1. E-02

L.T. 2. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/CM WET)
 STATION NUMBER 35
 STATION 35 - 2.0 MI. 350 DEG. CON.

DATE COLLECTED:	06/12	07/09	07/09	07/09	07/09	07/09	07/09
	LABSQUARTERS	RAGWEED	CLEMATIS	SUNFLOWER	RAGWEED	RAGWEED	RAGWEED
I-131	L.T. 3. E-03	L.T. 3. E-03	L.T. 3. E-03	L.T. 1. E-02	L.T. 7. E-03		
BE-7	L.T. 8. E-02	1.49±0.15 E 00	7.28±2.33 E-01	1.19±0.17 E 00	3.04±0.33 E 00		
K-40	1.09±0.11 E 01	1.26±0.13 E 01	6.10±0.61 E 00	8.66±0.87 E 00	2.62±0.26 E 01		
MN-54	L.T. 7. E-03	L.T. 9. E-03	L.T. 2. E-02	L.T. 1. E-02	L.T. 3. E-02		
CO-58	L.T. 8. E-03	L.T. 1. E-02	L.T. 3. E-02	L.T. 1. E-02	L.T. 3. E-02		
FE-59	L.T. 3. E-02	L.T. 4. E-02	L.T. 8. E-02	L.T. 4. E-02	L.T. 1. E-01		
CO-60	L.T. 8. E-03	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 3. E-02		
ZN-65	L.T. 2. E-02	L.T. 3. E-02	L.T. 6. E-02	L.T. 3. E-02	L.T. 8. E-02		
ZR-95	L.T. 8. E-03	L.T. 1. E-02	L.T. 3. E-02	L.T. 1. E-02	L.T. 4. E-02		
RU-103	L.T. 9. E-03	L.T. 1. E-02	L.T. 4. E-02	L.T. 2. E-02	L.T. 4. E-02		
RU-106	L.T. 5. E-02	L.T. 8. E-02	L.T. 2. E-01	L.T. 9. E-02	L.T. 2. E-01		
I-131	L.T. 8. E-02	L.T. 1. E-01	L.T. 4. E-01	L.T. 2. E-01	L.T. 5. E-01		
CS-134	L.T. 7. E-03	L.T. 9. E-03	L.T. 2. E-02	L.T. 1. E-02	L.T. 3. E-02		
CS-137	L.T. 7. E-03	L.T. 8. E-03	L.T. 2. E-02	L.T. 1. E-02	L.T. 3. E-02		
BA-140	L.T. 2. E-02	L.T. 4. E-02	L.T. 1. E-01	L.T. 5. E-02	L.T. 1. E-01		
CE-141	L.T. 1. E-02	L.T. 2. E-02	L.T. 6. E-02	L.T. 3. E-02	L.T. 7. E-02		
CE-144	L.T. 4. E-02	L.T. 5. E-02	L.T. 1. E-01	L.T. 7. E-02	L.T. 2. E-01		
RA-226	L.T. 1. E-01	L.T. 1. E-01	L.T. 4. E-01	L.T. 2. E-01	L.T. 4. E-01		
TH-228	L.T. 1. E-02	L.T. 1. E-02	L.T. 4. E-02	L.T. 2. E-02	L.T. 4. E-02		

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/GM WET)

STATION NUMBER 35

STATION 35 - 2.0 MI. 350 DEG. CON.

DATE COLLECTED:	08/15	08/15	08/15	09/11	09/11
	MORNING GAIL	RAGWEED	CREEPING SLAUE	GIANT RAGWEED	WILD BUCKWHEAT
I-131	L.T. 4. E-03	L.T. 4. E-03	L.T. 4. E-03	L.T. 4. E-03	L.T. 5. E-03
BE-7	1.73±0.17 E 00	3.28±0.33 E 00	2.42±0.24 E 00	9.83±0.98 E-01	4.50±0.92 E-01
K-40	5.44±0.54 E 00	2.54±0.26 E 01	7.50±0.75 E 00	9.20±0.92 E 00	4.82±0.48 E 00
MN-54	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 8. E-03	L.T. 9. E-03
CO-58	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02
FE-59	L.T. 5. E-02	L.T. 6. E-02	L.T. 4. E-02	L.T. 3. E-02	L.T. 3. E-02
CO-60	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 9. E-03	L.T. 1. E-02
ZN-65	L.T. 4. E-02	L.T. 5. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 2. E-02
ZR-95	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02
RU-103	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02
RU-106	L.T. 1. E-01	L.T. 1. E-01	L.T. 1. E-01	L.T. 8. E-02	L.T. 9. E-02
I-131	L.T. 2. E-01	L.T. 3. E-01	L.T. 2. E-01	L.T. 1. E-01	L.T. 1. E-01
CS-134	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 9. E-03	L.T. 1. E-02
CS-137	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02
BA-140	L.T. 7. E-02	L.T. 8. E-02	L.T. 7. E-02	L.T. 4. E-02	L.T. 5. E-02
CE-141	L.T. 4. E-02	L.T. 4. E-02	L.T. 5. E-02	L.T. 2. E-02	L.T. 2. E-02
CE-144	L.T. 9. E-02	L.T. 1. E-01	L.T. 1. E-01	L.T. 5. E-02	L.T. 6. E-02
RA-226	L.T. 3. E-01	L.T. 3. E-01	L.T. 3. E-01	L.T. 1. E-01	L.T. 2. E-01
TH-228	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02

RADIOCHEMICAL ANALYSIS:

GAMMA SPECTRUM ANALYSIS:

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/GM WET)
 STATION NUMBER 35
 STATION 35 - 2.0 MI. 350 DEG. CON.

DATE COLLECTED:	10/16	10/16	10/16	10/16	10/16
	SMARTWEED	PLANTAIN	RIVERWEED	CREeping SLADE	RIVERWEED QA
I-131	L.T. 4. E-03	L.T. 5. E-03	L.T. 1. E-02	L.T. 6. E-03	L.T. 4. E-02
GAMMA SPECTRUM ANALYSIS:					
BE-7	1.69±0.18 E 00	2.97±0.59 E-01	2.68±0.82 E-01	1.62±0.16 E 00	3.49±0.52 E-01
K-40	3.62±0.36 E 00	6.68±0.67 E 00	4.43±0.44 E 00	4.34±0.43 E 00	1.76±0.18 E 00
MN-54	L.T. 2. E-02	L.T. 6. E-03	L.T. 8. E-03	L.T. 6. E-03	L.T. 5. E-03
CO-58	L.T. 2. E-02	L.T. 7. E-03	L.T. 8. E-03	L.T. 7. E-03	L.T. 6. E-03
FE-59	L.T. 5. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
CO-60	L.T. 2. E-02	L.T. 7. E-03	L.T. 8. E-03	L.T. 6. E-03	L.T. 5. E-03
ZN-65	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02
ZR-95	L.T. 2. E-02	L.T. 8. E-03	L.T. 1. E-02	L.T. 8. E-03	L.T. 6. E-03
RU-106	L.T. 2. E-02	L.T. 8. E-03	L.T. 1. E-02	L.T. 1. E-02	L.T. 7. E-03
I-131	L.T. 2. E-02	L.T. 8. E-03	L.T. 8. E-03	L.T. 6. E-02	L.T. 4. E-02
CS-134	L.T. 2. E-02	L.T. 5. E-02	L.T. 6. E-02	L.T. 9. E-02	L.T. 5. E-02
CS-137	L.T. 2. E-02	L.T. 7. E-03	L.T. 8. E-03	L.T. 6. E-03	L.T. 5. E-03
BA-140	L.T. 2. E-02	L.T. 7. E-03	L.T. 4. E-03	L.T. 7. E-03	L.T. 5. E-03
CE-141	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02
CE-144	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02
RA-226	L.T. 3. E-01	L.T. 5. E-02	L.T. 7. E-02	L.T. 5. E-02	L.T. 3. E-02
TH-228	L.T. 3. E-02	L.T. 1. E-01	L.T. 2. E-01	L.T. 1. E-01	L.T. 1. E-01
	L.T. 3. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 9. E-03

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/GM WET)
 STATION NUMBER 44
 STATION 44 - 10.25 MI. 270 DEG. CON.

DATE COLLECTED:	05/14 DOGBANE	05/14 SWEETCLOVER	05/14 REDCLOVER	06/11 YELLOW CLOVER	06/11 RAGWEED
RADIOCHEMICAL ANALYSIS:					
I-131	L.T. 6. E-03	L.T. 7. E-03	L.T. 7. E-03	L.T. 3. E-03	L.T. 5. E-03
GAMMA SPECTRUM ANALYSIS:					
BE-7	2.63±0.57 E-01	7.30±0.83 E-01	1.25±0.12 E 00	1.49±0.15 E 00	1.39±0.14 E 00
K-40	3.39±0.34 E 00	3.56±0.36 E 00	5.71±0.57 E 00	1.09±0.11 E 01	7.0±0.71 E 00
MN-54	L.T. 7. E-03	L.T. 7. E-03	L.T. 8. E-03	L.T. 9. E-03	L.T. 5. E-03
CO-58	L.T. 7. E-03	L.T. 8. E-03	L.T. 9. E-03	L.T. 1. E-02	L.T. 6. E-03
FE-59	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02
CO-60	L.T. 6. E-03	L.T. 8. E-03	L.T. 8. E-03	L.T. 1. E-02	L.T. 6. E-03
ZN-65	L.T. 2. E-02	L.T. 2. E 02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02
ZR-95	L.T. 8. E-03	L.T. 8. E-03	L.T. 1. E-02	L.T. 1. E-02	L.T. 7. E-03
RU-103	L.T. 9. E-03	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03
RU-106	L.T. 6. E-02	L.T. 6. E-02	L.T. 7. E-02	L.T. 7. E-02	L.T. 5. E-02
I-131	L.T. 5. E-02	L.T. 5. E-02	L.T. 6. E-02	L.T. 1. E-01	L.T. 7. E-02
CS-134	L.T. 7. E-03	L.T. 7. E-03	L.T. 8. E-03	L.T. 9. E-03	L.T. 6. E-03
CS-137	L.T. 7. E-03	L.T. 7. E-03	L.T. 9. E-03	L.T. 8. E-03	8.69±4.12 E-03
BA-140	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 2. E-02
CE-141	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02
CE-144	L.T. 6. E-02	L.T. 5. E-02	L.T. 5. E-02	L.T. 5. E-02	L.T. 3. E-02
RA-226	L.T. 1. E-01	L.T. 1. E-01	L.T. 1. E-01	L.T. 1. E-01	1.61±0.65 E-01
TH-228	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02	7.48±0.75 E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/GM WET)
 STATION NUMBER 44
 STATION 44 - 10.25 MI. 270 DEG. CON.

DATE COLLECTED:	06/11 QA	06/11	07/09	07/09
RADIOCHEMICAL ANALYSIS:	YELLOW CLOVER	SWEET CLOVER	BUTTONWEED	PIGWEEED
1-131	L.T. 5. E-03	L.T. 3. E-03	L.T. 3. E-03	L.T. 4. E-03
BE-7	2.44±0.37 E 00	2.16±0.22 E 00	6.84±1.76 E-01	1.13±0.12 E 00
K-40	1.35±0.14 E 01	9.16±0.92 E 00	9.63±0.96 E 00	9.54±0.95 E 00
Mn-54	L.T. 3. E-02	L.T. 8. E-03	L.T. 2. E-02	L.T. 1. E-02
CO-58	L.T. 4. E-02	L.T. 9. E-03	L.T. 2. E-02	L.T. 1. E-02
FE-59	L.T. 1. E-01	L.T. 3. E-02	L.T. 6. E-02	L.T. 4. E-02
CO-60	L.T. 4. E-02	L.T. 8. E-03	L.T. 2. E-02	L.T. 1. E-02
ZN-65	L.T. 7. E-02	L.T. 2. E-02	L.T. 4. E 02	L.T. 3. E-02
ZR-95	L.T. 4. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02
RU-103	L.T. 5. E-02	L.T. 1. E-02	L.T. 3. E-02	L.T. 1. E-02
RU-106	L.T. 3. E-01	L.T. 7. E-02	L.T. 1. E-01	L.T. 7. E-02
I-131	L.T. 6. E-01	L.T. 1. E-01	L.T. 3. E-01	L.T. 2. E-01
CS-134	L.T. 3. E-02	L.T. 8. E-03	L.T. 2. E-02	L.T. 1. E-02
CS-137	L.T. 3. E-02	1.10±0.64 E-02	2.82±1.43 E-02	4.24±0.84 E-02
BA-140	L.T. 2. E-01	L.T. E-02	L.T. 1. E-01	L.T. 4. E-02
CE-141	L.T. 1. E-01	L.T. 2. E-02	L.T. 6. E-02	L.T. 3. E-02
CE-144	L.T. 3. E-01	L.T. 5. E-02	L.T. 1. E-01	L.T. 6. E-02
RA-226	L.T. 7. E-01	L.T. 1. E-01	L.T. 4. E-01	L.T. 2. E-01
TH-228	L.T. 6. E-02	L.T. 2. E-02	L.T. 4. E-02	1.13±0.11 E-01

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/CM WET)
 STATION NUMBER 44
 STATION 44 - 10.25 MI. 27' DEG. CON.

DATE COLLECTED:	08/14	08/14	08/14	09/11	09/11
RADIOCHEMICAL ANALYSIS:	MORNING GAIL	WILD ROSE	BUTTONWEED	WESTERN RAGWEED	LAMBSQUARTERS
I-131	L.T. 6. E-03	L.T. 7. E-03	L.T. 9. E-03	L.T. 4. E-03	L.T. 5. E-03
BE-7	1.81±0.25 E 00	4.39±0.44 E 00	9.28±2.55 E-01	2.58±0.35 E 00	5.61±1.12 E-01
K-40	6.53±0.65 E 00	5.32±0.53 E 00	1.74±0.17 E 01	1.63±0.16 E 01	2.00±0.20 E 01
MN-54	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 1. E-02
CO-58	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 1. E-02
FE-59	L.T. 7. E-02	L.T. 7. E-02	L.T. 9. E-02	L.T. 7. F-02	L.T. 4. E-02
CO-60	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 1. E-02
ZN-65	L.T. 5. E-02	L.T. 5. E-02	L.T. 6. E-02	L.T. 5. E-02	L.T. 3. E-02
ZR-95	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 2. E-02
RU-103	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 2. E-02
RU-106	L.T. 2. E-01	L.T. 2. E-01	L.T. 4. E-02	L.T. 3. E-02	L.T. 2. E-02
I-131	L.T. 3. E-01	L.T. 4. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 1. E-01
CS-134	L.T. 2. E-02	L.T. 2. E-02	L.T. 5. E-01	L.T. 3. E-01	L.T. 2. E-01
CS-137	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 1. E-02
BA-140	L.T. 1. E-01	L.T. 1. E-01	L.T. 1. E-01	L.T. 9. E-02	L.T. 1. E-02
CE-141	L.T. 5. E-02	L.T. 5. E-02	L.T. 7. E-02	L.T. 9. E-02	L.T. 5. E-02
CE-144	L.T. 1. E-01	L.T. 1. E-01	L.T. 2. E-01	L.T. 5. E-02	L.T. 4. E-02
RA-226	L.T. 4. E-01	L.T. 4. E-01	L.T. 4. E-01	L.T. 1. E-01	L.T. 1. E-01
TH-228	L.T. 3. E-02	L.T. 4. E-02	L.T. 4. E-02	L.T. 4. E-02	L.T. 2. E-02

GAMMA SPECTRUM ANALYSIS:

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/GM WET)
 STATION NUMBER 44
 STATION 44 - 10.25 MI. 270 DEG. CON.

DATE COLLECTED:	09/11	09/11	10/15	10/15	10/15
RADIOCHEMICAL ANALYSIS:	SAGEBRUSH	WESTERN RAGWEED QA	HEALALL	CLOVER	LAMBSQUARTERS
I-131	L.T. 6. E-03	L.T. 7. E-03	L.T. 3. E-03	L.T. 5. E-03	L.T. 1. E-02
BE-7	L.T. 5. E-01	1.60±0.26 E 00	3.77±1.03 E-01	9.39±2.36 E-01	4.17±1.95 E-01
K-40	1.75±0.18 E 01	1.15±0.12 E 01	3.46±0.35 E 00	5.13±0.51 E 00	1.22±0.12 E 01
MN-54	L.T. 4. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
CO-58	L.T. 5. E-02	L.T. 3. E-02	L.T. 1. E-02	L.T. 3. E-02	L.T. 2. E-02
FE-59	L.T. 1. E-01	L.T. 8. E-02	L.T. 3. E-02	L.T. 7. E-02	L.T. 6. E-02
CO-60	L.T. 4. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 7. E-02
ZN-65	L.T. 9. E-02	L.T. 6. E-02	L.T. 2. E-02	L.T. 5. E-02	L.T. 2. E-02
ZR-95	L.T. 4. E-02	L.T. 3. E-02	L.T. 1. E-02	L.T. 3. E-02	L.T. 4. E-02
KU-103	L.T. 6. E-02	L.T. 4. E-02	L.T. 1. E-02	L.T. 3. E-02	L.T. 2. E-02
RU-106	L.T. 3. E-01	L.T. 2. E-01	L.T. 1. E-01	L.T. 3. E-02	L.T. 3. E-02
I-131	L.T. 6. E-01	L.T. 4. E-01	L.T. 1. E-01	L.T. 2. E-01	L.T. 2. E-01
CS-134	L.T. 4. E-02	L.T. 2. E-02	L.T. 9. E-02	L.T. 2. E-01	L.T. 2. E-01
CS-137	L.T. 4. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 3. E-02	L.T. 2. E-02
BA-140	L.T. 2. E-01	L.T. 1. E-01	L.T. 4. E-02	L.T. 7. E-02	L.T. 2. E-02
CE-141	L.T. 1. E-01	L.T. 6. E-02	L.T. 3. E-02	L.T. 7. E-02	L.T. 6. E-02
CE-144	L.T. 2. E-01	L.T. 1. E-01	L.T. 8. E-02	L.T. 7. E-02	L.T. 5. E-02
RA-226	L.T. 6. E-01	L.T. 4. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 1. E-01
TH-228	L.T. 6. E-02	L.T. 4. E-02	4.57±0.81 E-02	L.T. 4. E-02	L.T. 4. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/CM WET)
 STATION NUMBER 96
 STATION 96 - 1.25 MI. 334 DEG. IND

	05/14 RAGWEED	05/14 ALFALFA	05/14 QA WATERCRESS	05/14 WATERCRESS	06/11 PLANTAIN
I-131	L.T. 7. E-03	L.T. 6. E-03	L.T. 8. E-03	L.T. 8. E-03	L.T. 4. E-03
GAMMA SPECTRUM ANALYSIS:					
BE-7	8.61±1.06 E-01	1.29±0.13 E-00	6.63±0.77 E-01	1.01±0.10 E-00	6.63±0.66 E-01
K-40	6.91±0.69 E-00	7.83±0.78 E-00	3.84±0.38 E-00	5.14±0.51 E-00	5.82±0.58 E-00
MN-54	L.T. 1. E-02	L.T. 8. E-03	L.T. 7. E-03	L.T. 9. E-03	L.T. 5. E-03
CO-58	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03	L.T. 1. E-02	L.T. 7. E-03
FE-59	L.T. 3. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02
CO-60	L.T. 1. E-02	L.T. 1. E-02	L.T. 7. E-03	L.T. 1. E-02	L.T. 7. E-03
Zn-65	L.T. 3. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02
ZR-95	L.T. 1. E-02	L.T. 1. E-02	L.T. 8. E-03	L.T. 1. E-02	L.T. 7. E-03
RU-103	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02	L.T. 9. E-03
RU-106	L.T. 9. E-02	L.T. 8. E-02	L.T. 6. E-02	L.T. 8. E-02	L.T. 5. E-02
I-131	L.T. 9. E-02	L.T. 7. E-02	L.T. 6. E-02	L.T. 8. E-02	L.T. 9. E-02
CJ-134	L.T. 1. E-02	L.T. 9. E-03	L.T. 7. E-03	L.T. 1. E-02	L.T. 6. E-03
CS-137	L.T. 1. E-02	L.T. 9. E-03	L.T. 7. E-03	L.T. 1. E-02	L.T. 6. E-03
BA-140	L.T. 3. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02
CE-141	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 1. E-02
CE-144	L.T. 7. E-02	L.T. 6. E-02	L.T. 5. E-02	L.T. 9. E-02	L.T. 4. E-02
RA-226	L.T. 2. E-01	L.T. 2. E-01	L.T. 1. E-01	L.T. 2. E-01	L.T. 1. E-01
TH-228	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/GM WET)
 STATION NUMBER 96
 STATION 96 - 1.25 MI. 334 DEG. IND

DATE COLLECTED:	06/11 SLADES MUSTARD	06/11 DOGBANE	07/09 GOLDENROD	07/09 POLKWIED	07/09 MORNING-GAIL
RADIOCHEMICAL ANALYSIS:					
I-131	L.T. 4. E-03	L.T. 4. E-03	L.T. 3. E-03	L.T. 5. E-03	L.T. 5. E-03
GAMMA SPECTRUM ANALYSIS:					
BE-7	7.83±0.78 E-01	5.93±1.47 E-01	1.12±0.24 E 00	5.09±1.32 E-01	8.34±2.21 E-01
K-40	1.20±0.12 E 01	1.16±0.12 E 01	6.79±0.68 E 00	1.53±0.15 E 01	5.45±0.54 E 00
MN-54	L.T. 5. E-03	L.T. 4. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02
CO-58	L.T. 6. E-03	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 3. E-02
FE-59	L.T. 2. E-02	L.T. 6. E-02	L.T. 8. E-02	L.T. 5. E-02	L.T. 7. E-02
CO-60	L.T. 6. E-03	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02
ZN-65	L.T. 1. E-02	L.T. 4. E-02	L.T. 5. E-02	L.T. 4. E 02	L.T. 5. E-02
ZR-95	L.T. 7. E-03	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02	L.T. 3. E-02
RU-103	L.T. 8. E-03	L.T. 2. E-02	L.T. 4. E-02	L.T. 7. E-02	L.T. 3. E-02
RU-106	L.T. 4. E-02	L.T. 1. E-01	L.T. 2. E-01	L.T. 1. E-01	L.T. 2. E-01
I-131	L.T. 8. E-02	L.T. 2. E-01	L.T. 4. E-01	L.T. 2. E-01	L.T. 4. E-01
CS-134	L.T. 6. E-03	L.T. 2. E-02	L.T. 2. E-02	L.T. 1. E-02	L.T. 2. E-02
CS-137	L.T. 5. E-03	L.T. 2. E-02	L.T. 3. E-02	L.T. 1. E-02	L.T. 3. E-02
BA-140	L.T. 2. E-02	L.T. 7. E-02	L.T. 1. E-01	L.T. 5. E-02	L.T. 2. E 01
CE-141	L.T. 2. E-02	L.T. 4. E-02	L.T. 6. E-02	L.T. 3. E-02	L.T. 6. E-02
CE-144	L.T. 4. E-02	L.T. 1. E-01	L.T. 1. E-01	L.T. 8. E-02	L.T. 1. E-01
RA-226	L.T. 1. E-01	L.T. 3. E-01	L.T. 4. E-01	L.T. 2. E-01	L.T. 4. E-01
TH-228	L.T. 9. E-03	L.T. 2. E-02	L.T. 4. E-02	L.T. 2. E-02	L.T. 4. E-02

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - INGESTION
 VEGETATION - TERRESTRIAL, BROADLEAF
 (PCI/GM WET)
 STATION NUMBER 96
 STATION 96 - 1.25 MI. 334 DEG. IND

DATE COLLECTED:	08/15	08/15	08/15	08/15	09/11
RADIOCHEMICAL ANALYSIS:	MORNING GAIL	POKEWEED	SMARTWEED	SMARTWEED QA	STIFF SUNFLOWER
I-131	L.T. 6. E-03	L.T. 1. E-02	L.T. 5. E-03	L.T. 9. E-03	L.T. 6. E-03
GAMMA SPECTRUM ANALYSIS:					
BE-7	1.47±0.17 E 00	1.71±0.27 E 00	3.57±0.36 E 00	3.93±0.39 E 00	2.99±0.30 E 00
K-40	3.14±0.31 E 00	2.70±0.27 E 01	7.88±0.79 E 00	1.07±0.11 E 01	8.76±0.88 E 00
MN-54	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02
CO-56	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 4. E-02	L.T. 2. E-02
FE-59	L.T. 5. E-02	L.T. 8. E-02	L.T. 7. E-02	L.T. 9. E-02	L.T. 5. E-02
CO-60	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02
ZN-65	L.T. 3. E-02	L.T. 6. E-02	L.T. 5. E-02	L.T. 7. E 02	L.T. 5. E-02
ZK-95	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 4. E-02	L.T. 2. E-02
RU-103	L.T. 2. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 5. E-02	L.T. 3. E-02
RU-106	L.T. 1. E-01	L.T. 2. E-01	L.T. 2. E-01	L.T. 3. E-01	L.T. 2. E-01
I-131	L.T. 2. E-01	L.T. 3. E-01	L.T. 4. E-01	L.T. 5. E-01	L.T. 3. E-01
CS-134	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02
CS-137	L.T. 2. E-02	L.T. 2. E-02	L.T. 2. E-02	L.T. 3. E-02	L.T. 2. E-02
BA-140	L.T. 8. E-02	L.T. 1. E-01	L.T. 1. E-01	L.T. 2. E-01	L.T. 1. E-01
CE-141	L.T. 4. E-02	L.T. 5. E-02	L.T. 6. E-02	L.T. 8. E-02	L.T. 5. E-02
CE-144	L.T. 9. E-02	L.T. 1. E-01	L.T. 1. E-01	L.T. 2. E-01	L.T. 1. E-01
RA-226	L.T. 3. E-01	L.T. 3. E-01	L.T. 4. E-01	L.T. 5. E-01	L.T. 3. E-01
TH-228	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02	L.T. 5. E-02	L.T. 3. E-02

NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
EXPOSURE PA*HWAY - INGESTION
VEGETATION - TERRESTRIAL, BROADLEAF
(PCI/GM WET)
STATION NUMBER 96
STATION 96 - 1.25 MI. 334 DEG. IND

DATE COLLECTED:

09/11
WILD EUCKWEAT

09/11
LATE GOLLENROD

10/16
SMARTWEED

10/16
LEGUMINOSAE

10/16
GOLDENROD

RADIOCHEMICAL ANALYSIS:

I-131

L.T. 5. E-03

L.T. 9. E-03

L.T. 5. E-03

L.T. 5. E-03

L.T. 1. E-02

GAMMA SPECTRUM ANALYSIS:

BE-7

5.23±1.43 E-01

1.65±0.29 E 00

9.29±1.70 E-01

5.99±1.30 E-01

1.51±0.32 E 00

K-40

4.21±0.42 E 00

1.03±0.10 E 01

9.52±0.95 E 00

4.95±0.49 E 00

3.75±0.38 E 01

MN-54

L.T. 1. E-02

L.T. 2. E-02

L.T. 2. E-02

L.T. 1. E-02

L.T. 4. E-02

CO-58

L.T. 2. E-02

L.T. 3. E-02

L.T. 2. E-02

L.T. 2. E-02

L.T. 4. E-02

FE-59

L.T. 5. E-02

L.T. 8. E-02

L.T. 5. E-02

L.T. 4. E-02

L.T. 1. E-01

CO-60

L.T. 1. E-02

L.T. 3. E-02

L.T. 2. E-02

L.T. 1. E-02

L.T. 4. E-02

ZN-65

L.T. 4. E-02

L.T. 6. E-02

L.T. 4. E-02

L.T. 3. E-02

L.T. 4. E-02

ZR-95

L.T. 2. E-02

L.T. 3. E-02

L.T. 4. E-02

L.T. 3. E-02

L.T. 1. E-01

RU-103

L.T. 2. E-02

L.T. 4. E-02

L.T. 2. E-02

L.T. 2. E-02

L.T. 5. E-02

RU-106

L.T. 1. E-01

L.T. 2. E-01

L.T. 2. E-01

L.T. 1. E-01

L.T. 5. E-02

I-131

L.T. 3. E-01

L.T. 5. E-01

L.T. 1. E-01

L.T. 1. E-01

L.T. 3. E-01

CS-134

L.T. 1. E-02

L.T. 3. E-02

L.T. 2. E-02

L.T. 1. E-01

L.T. 4. E-01

CS-137

L.T. 2. E-02

L.T. 3. E-02

L.T. 2. E-02

L.T. 1. E-02

L.T. 4. E-02

BA-140

L.T. 8. E-02

L.T. 2. E-01

L.T. 7. E-02

L.T. 5. E-02

L.T. 3. E-02

CE-141

L.T. 4. E-02

L.T. 7. E-02

L.T. 4. E-02

L.T. 3. E-02

L.T. 1. E-01

CE-144

L.T. 1. E-01

L.T. 2. E-01

L.T. 1. E-01

L.T. 9. F-02

L.T. 3. E-01

RA-226

L.T. 3. E-01

L.T. 4. E-01

L.T. 3. E-01

L.T. 3. E-01

1.53±0.52 E 00

TH-228

L.T. 2. E-02

L.T. 4. E-02

1.13±0.14 E-01

L.T. 3. E-02

1.02±0.10 E 00

L SHORELINE SEDIMENT

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 EXPOSURE PATHWAY - AIRBORNE
 SHORELINE SEDIMENT
 (PCI/GM DRY)
 STATION NUMBER 28
 STATION 28 - 1.8 MI. 150 DEG. IND.

DATE COLLECTED:	05/09	10/15	10/15 QA
GAMMA SPECTRUM ANALYSIS:			
BE-7	8.34±1.00 E-01	L.T. 1. E-01	L.T. 1. E-01
K-40	1.60±0.16 E 01	1.51±0.15 E 01	1.56±0.16 E 01
MN-54	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02
CO-58	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02
FE-59	L.T. 3. E-02	L.T. 4. E-02	L.T. 3. E-02
CO-60	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02
ZN-65	L.T. 3. E-02	L.T. 3. E-02	L.T. 3. E-02
ZR-95	L.T. 1. E-02	L.T. 2. E-02	L.T. 2. E-02
-103	L.T. 1. E-02	L.T. 2. E-02	L.T. 1. E-02
RU-106	L.T. 9. E-02	L.T. 1. E-01	L.T. 9. E-02
I-131	L.T. 7. E-02	L.T. 1. E-01	L.T. 1. E-01
CS-134	L.T. 1. E-02	L.T. 1. E-02	L.T. 1. E-02
CS-137	1.42±0.14 E-01	6.32±0.66 E-02	6.59±0.73 E-02
BA-140	L.T. 3. E-02	L.T. 5. E-02	L.T. 5. E-02
CE-141	L.T. 3. E-02	3.77±2.13 E-02	L.T. 2. E-02
CE-144	L.T. 9. E-02	L.T. 7. E-02	L.T. 6. E-02
RA-226	2.12±0.21 E 00	1.70±0.18 E 00	1.72±0.17 E 00
Th-228	1.04±0.10 E 00	9.15±0.92 E-01	9.28±0.93 E-01

REFERENCES

1. Nebraska Public Power District, Cooper Nuclear Station Environmental Radiation Monitoring Program, Annual Report, January 1, 1982-December 31, 1982 (prepared by Teledyne Isotopes).
2. Nebraska Public Power District, Cooper Nuclear Station Environmental Radiation Monitoring Program, Annual Report, January 1, 1983-December 31, 1983 (prepared by Teledyne Isotopes).
3. Nebraska Public Power District Cooper Nuclear Station, Environmental Monitoring Program, Annual Report, January 1, 1984 to December 31, 1984. (Prepared by Teledyne Isotopes).
4. U.S. Department of Energy; EML 440 March 1985; EML-444 April 1989; Environmental Measurements Laboratory, US Department of Energy, New York, New York 10014.
5. U.S. Environmental Protection Agency; Environmental Radiation Data, Report 35, July -- September 1983, Report 39, July -- September 1985; Report 40, October -- December 1984; Report 41, January -- March 1985. Report 42, April -- June 1985; Report 43, July-September 1985. Report 44-45, October-March 1986; Report 46, April-June 1986; Report 47, July-September 1986; Report 48, October-December 1986; Report 49, January-March 1987. Environmental Radiation Facility, Montgomery, Alabama.
6. U.S. Department of Energy; EML 460, October 1, 1986; Environmental Measurements Laboratory, US Department of Energy, New York, New York 10014.
7. U.S. Nuclear Regulatory Commission, 1975, Regulatory Guide 4.8, Environmental Technical Specifications for Nuclear Power Plants.

APPENDIX

APPENDIX A
LAND USE CENSUS

LAND USE CENSUS

July 3, 1991

0-3 Miles

Cooper Nuclear Station (CNS) Radiological Effluent Technical Specifications (RETS) require an annual land use census. This census identifies the location of the nearest garden that is greater than 500 square feet in area and yields edible leafy vegetables, the location of the nearest milk animal, and the location of the nearest resident in each of the 16 meteorological sectors within 3 miles of CNS.

In accordance with the CNS RETS, a land use census was performed on July 3, 1991. One change has occurred in the nearest resident category since the 1990 land use census. In Sector B, the nearest resident now lives 2.7 miles from CNS whereas, in 1990, the nearest resident lived 2.4 miles from CNS. The nearest resident to CNS is in Sector Q, 0.9 miles from CNS.

The number of gardens found in 1991 was more than the number found in 1990. Gardens were found in 11 sectors within 3 miles of CNS in 1990 while gardens were found in 12 sectors within 3 miles of CNS in 1991. Sector A did not contain a garden within 3 miles of CNS in 1990 but did contain a garden in 1991. The nearest garden to CNS is in Sector N, 1.0 miles from CNS.

No milk animals (producing milk for human consumption) were found within 3 miles of CNS in 1991. This was also the case in 1990.

Land Use Census
 July 3, 1991
 0-3 Miles

<u>Sector</u>	<u>Nearest Resident</u>		<u>Nearest Garden</u>		<u>Nearest Milk Animal</u>
A	3.0 Miles	1.0°	3.0 Miles	1.0°	None
B	2.7 Miles	13.0°	2.7 Miles	13.0°	None
C	None		None		None
D	1.7 Miles	62.0°	1.7 Miles	62.0°	None
E	1.8 Miles	92.5°	1.8 Miles	92.5°	None
F	2.0 Miles	116.0°	2.4 Miles	112.0°	None
G	2.2 Miles	133.5°	2.2 Miles	133.5°	None
H	None		None		None
J	None		None		None
K	None		None		None
L	1.4 Miles	230.0°	1.4 Miles	230.0°	None
M	1.3 Miles	251.0°	1.3 Miles	251.0°	None
N	1.0 Mile	266.5°	1.0 Miles	266.5°	None
P	1.6 Miles	293.5°	1.6 Miles	293.5°	None
Q	0.9 Mile	307.0°	2.7 Miles	323.0°	None
R	1.9 Miles	335.0°	1.9 Miles	335.0°	None

APPENDIX B

INTERLABORATORY COMPARISON PROGRAM

1991

A summary of the Results of the Analyses by Teledyne Isotopes of the
EPA Cross Check Samples

Compared with the Known Activity as reported by the Environmental
Monitoring Systems Laboratory, Las Vegas, Nevada

All results which exceed three sigma deviation from the known are
appended with a note giving the possible cause of the deviation and
corrective action taken.

US EPA INTERLABORATORY COMPARISON PROGRAM 1991
(Environmental)

Collection Date	Media	Nuclide	EPA Result(a)		Teledyne Isotopes Result(b)	
01/11/91	Water	Sr-89	5.00 ±	5.0	5.00 ±	0.00
		Sr-90	5.00 ±	5.0	5.00 ±	0.00
01/25/91	Water	Gr-Alpha	5.0 ±	5.0	9.00 ±	1.00
		Gr-Beta	5.0 ±	5.0	7.00 ±	0.00
02/08/91	Water	Co-60	40.0 ±	5.0	39.33 ±	3.06
		Zn-65	49.0 ±	15.0	147.00 ±	1.00
		Ru-106	186.0 ±	19.0	176.67 ±	17.56
		Cs-134	8.0 ±	5.0	7.33 ±	0.58
		Cs-137	8.0 ±	5.0	7.67 ±	3.21
		Ba-133	75.0 ±	8.0	75.67 ±	5.51
02/15/91	Water	I-131	75.0 ±	8.0	80.00 ±	5.29
02/22/91	Water	H-3	4418.0 ±	442.0	4500.0 ±	173.21
03/08/91	Water	Ra-226	31.8 ±	4.8	28.33 ±	4.73
		Ra-228	21.1 ±	5.3	16.67 ±	2.08
03/29/91	Air Filter	Gr-Alpha	25.0 ±	6.0	42.67 ±	0.58 (c)
		Gr-Beta	124.0 ±	6.0	126.67 ±	5.77
		Sr-90	40.0 ±	5.0	37.00 ±	1.00
		Cs-137	40.0 ±	5.0	43.00 ±	5.29
04/16/91	Lab Perf. Water	Gr-Alpha	54.0 ±	14.0	59.67 ±	4.04
		Ra-226	8.0 ±	1.2	7.33 ±	0.81
		Ra-228	15.2 ±	3.8	10.00 ±	0.00 (d)
		Gr-Beta	115.0 ±	17.0	110.00 ±	0.00
		Sr-89	28.0 ±	5.0	31.00 ±	1.00
		Sr-90	26.0 ±	5.0	21.00 ±	0.00
		Cs-134	24.0 ±	5.0	25.00 ±	1.00
		Cs-137	25.0 ±	5.0	24.00 ±	1.73
04/26/91	Milk	Sr-89	32.0 ±	5.0	24.00 ±	3.00 (e)
		Sr-90	32.0 ±	5.0	26.33 ±	2.08
		I-131	60.0 ±	6.0	53.33 ±	2.31
		Cs-137	49.0 ±	5.0	52.67 ±	1.53
		K	1650.0 ±	83.0	1590.00 ±	81.85

See footnotes at end of table.

US EPA INTERLABORATORY COMPARISON PROGRAM 1991
(Environmental)

Collection Date	Media	Nuclide	EPA Result(a)		Teledyne Isotopes Result(b)	
05/10/91	Water	Sr-89	39.0 ±	5.0	38.67 ±	4.51
		Sr-90	24.0 ±	5.0	22.00 ±	1.73
05/17/91	Water	Gr-Alpha	24.0 ±	6.0	24.33 ±	2.52
		Gr-Beta	46.0 ±	5.0	50.33 ±	1.53
06/07/91	Water	Co-60	10.0 ±	5.0	10.33 ±	0.58
		Zn-65	108.0 ±	11.0	106.00 ±	2.65
		Ru-106	149.0 ±	15.0	136.67 ±	3.79
		Cs-134	15.0 ±	5.0	13.67 ±	1.53
		Cs-137	14.0 ±	5.0	13.67 ±	1.53
		Ba-133	62.0 ±	6.0	56.33 ±	1.53
06/21/91	Water	H-3	12480 ±	1248.0	12833.33 ±	115.50
07/12/91	Water	Ra-226	15.9 ±	2.4	15.0 ±	1.00
		Ra-228	16.7 ±	4.2	14.33 ±	2.31
08/09/91	Water	I-131	20.0 ±	6.0	19.33 ±	0.58
08/30/91	Air Filter	Gr-Alpha	25.0 ±	6.0	27.00 ±	2.00
		Gr-Beta	92.0 ±	10.0	100.00 ±	0.00
		Sr-90	30.0 ±	5.0	27.67 ±	2.89
		Cs-137	30.0 ±	5.0	33.33 ±	3.21
09/13/91	Water	Sr-89	49.0 ±	5.0	50.67 ±	2.89
		Sr-90	25.0 ±	5.0	26.00 ±	1.00
09/20/91	Water	Gr-Alpha	10.0 ±	5.0	11.67 ±	0.58
		Gr-Beta	20.0 ±	5.0	21.00 ±	0.00
09/27/91	Milk	Sr-89	25.0 ±	5.0	21.00 ±	2.65
		Sr-90	25.0 ±	5.0	19.00 ±	0.00 (e)
		I-131	108.0 ±	11.0	113.33 ±	5.77
		Cs-137	30.0 ±	5.0	29.00 ±	3.61
		K	1740.0 ±	87.0	1503.33 ±	75.06 (f)

See footnotes at end of table.

US EPA INTERLABORATORY COMPARISON PROGRAM 1991
(Environmental)

Collection Date	Media	Nuclide	EPA Result(a)		Teledyne Isotopes Result(b)	
10/04/91	Lab Perf. Water	Co-60	29.0 ±	5.0	30.33 ±	2.08
		Zn-65	73.0 ±	7.0	72.67 ±	7.09
		Ru-106	199.0 ±	20.0	197.67 ±	7.51
		Cs-134	10.0 ±	5.0	10.33 ±	0.58
		Cs-137	10.0 ±	5.0	11.33 ±	0.58
		Ba-133	98.0 ±	10.0	97.00 ±	8.72
10/18/91	Water	H-3	2454.0 ±	353.0	2333.33 ±	57.74
10/22/91	Lab Perf. Water	Gr-Alpha	82.0 ±	21.0	55.00 ±	4.36 (f)
		Ra-226	22.0 ±	3.3	21.00 ±	2.65
		Ra-228	22.2 ±	5.6	18.00 ±	1.00
		Gr-Beta	65.0 ±	10.0	56.00 ±	1.00
		Sr-89	10.0 ±	5.0	10.67 ±	2.08
		Sr-90	10.0 ±	5.0	9.33 ±	0.58
		Co-60	20.0 ±	5.0	19.67 ±	0.58
		Cs-134	10.0 ±	5.0	10.33 ±	2.08
		Cs-137	11.0 ±	5.0	13.67 ±	0.58
11/08/91	Water	Ra-226	6.5 ±	1.0	5.37 ±	0.32
		Ra-228	8.1 ±	2.0	7.90 ±	1.20

See footnotes at end of table.

Footnotes:

- (a) EPA Results-Expected laboratory precision (1 sigma). Units are pCi/liter for water and milk except K is in mg/liter. Units are total pCi for air particulate filters.
- (b) Teledyne Results - Average \pm one sigma. Units are pCi/liter for water and milk except K is in mg/liter. Units are total pCi for air particulate filters.
- (c) The sample presents a different counting geometry. The EPA deposits activity in a 3/4 inch diameter circle, on a plastic disk approximately 3/32 inch thick. A special calibration for EPA filters will be performed. The laboratory has obtained blank filters from the Las Vegas facility, and will simulate their deposits.
- (d) The lowest three results out of nine analyses were chosen. Other results in the group were close to the given value. The process for accepting data is currently under review.
- (e) The cause for the deviation is believed to be erroneously high strontium yields, probably caused by incomplete separation of calcium. The laboratory has investigated carrier concentrations and pipeting techniques, and have found them to be correct. Further aspects of analysts' techniques are being tested. The laboratory has received a new strontium extraction material developed at Argonne National Laboratory. Experiments with this method to achieve better separation of calcium were completed and procedure PRO-032-105 was implemented on 2/1/92.
- (f) An investigation is being conducted; the results will be available shortly.

2/18/92

APPENDIX C
STATISTICAL NOTES

APPENDIX C

STATISTICAL NOTES

1. Each activity is reported in one of two forms:

$$x \pm s \text{ or}$$

$$<L,$$

where

x = value of measurement;

s = counting error at the 95% confidence level (2 sigma error);

L = detection limit based on 4.66 sigma error for counter background

2. All activities are corrected to collection time except for gross alpha and gross beta.
3. Computation of means:

- (a) In any statistical table, the values are entered as

$$\bar{x} \pm \bar{s}$$

or

$$<L$$

where

$$\bar{x} = \text{sample mean} = \frac{\sum x_i}{n}$$

n = number of data points averaged;

$$\bar{s} = \text{average of the 2 sigma counting errors} = \frac{\sum s_i}{n}$$

- (b) For gross beta and gross alpha results in air particulates, averaging includes values which are less than the lower limits of detection. The detection limit is used as the sample activity in these cases.
- (c) In all cases, if all values in an averaging group are below detection limits, the highest of the detection limits is reported as a "less than" value without an associated tolerance. If some values are above detection limits and some are below, then:

- (1) The mean of the positive results is reported and the number of positives is listed in parentheses.
- (d) Means are reported on a quarterly basis except for air particulate and airborne iodine data which are reported monthly. For air particulate and charcoal filters, data for samples collected on the 1st, 2nd, and 3rd day of a month are assigned to the previous month.
- (e) In rounding off, numbers followed by a 5 or higher digit are rounded upwards.

Appendix D
Notification Levels

NEBRASKA PUBLIC POWER DISTRICT
 COOPER NUCLEAR STATION
 ENVIRONMENTAL RADIATION SURVEILLANCE PROGRAM
 NOTIFICATION LEVELS

Media and Nuclide

Notification Level

Air

Gross Alpha	0.1	pCi/m ³
Gross Beta	1.0	pCi/m ³
I-131	0.31	pCi/m ³
Cs-134	3.3	pCi/m ³
Cs-137	6.7	pCi/m ³

Milk

I-131 (low level)	1.09	pCi/l
Sr-89	6.04	pCi/l
Sr-90	14.82	pCi/l
Cs-134	20.0	pCi/l
Cs-137	23.0	pCi/l

Groundwater

Gross Alpha	12.0	pCi/l
Gross Beta	33.8	pCi/l
H-3	6700	pCi/l
Mn-54	330	pCi/l
Fe-59	130	pCi/l
Co-58	330	pCi/l
Co-60	100	pCi/l
Zn-65	100	pCi/l
Zr-Nb-95	67	pCi/l
I-131	0.67	pCi/l
Cs-134	10	pCi/l
Cs-137	17	pCi/l
Sm-La-140	67	pCi/l

Food Products

I-131	0.1	pCi/g wet
Cs-134	0.33	pCi/g wet
Cs-137	0.66	pCi/g wet

Fish

Gross Beta	10.8	pCi/g wet
Sr-89	3.3	pCi/g wet
Sr-90	1.2	pCi/g wet
Mn-54	10	pCi/g wet

Media and Nuclide

Notification Level

Fish (Continued)

Fe-59	3.3	pCi/g wet
Co-58	10	pCi/g wet
Co-60	3.3	pCi/g wet
Zn-65	6.7	pCi/g wet
Cs-134	0.33	pCi/g wet
Cs-137	0.67	pCi/g wet

River Water

Gross Alpha Sus	22.0	pCi/l
Gross Alpha Dis	27.6	pCi/l
Gross Beta Sus	58.8	pCi/l
Gross Beta Dis	88.6	pCi/l
Sr-89	1000.0	pCi/l
Sr-90	100.0	pCi/l
H-3	6700	pCi/l
Mn-54	330	pCi/l
Fe-59	130	pCi/l
Co-58	330	pCi/l
Co-60	100	pCi/l
Zn-65	100	pCi/l
Zr-Nb-95	67	pCi/l
I-131	0.67	pCi/l
Cs-134	10	pCi/l
Cs-137	17	pCi/l
Ba-La-140	67	pCi/l


Shoreline Sediment

Co-60	0.1	pCi/g dry
Cs-134	0.75	pCi/g dry
Cs-137	0.75	pCi/g dry

APPENDIX B
CONVENTIONS USED
IN
DATA TREND GRAPHS

APPENDIX E

Conventions Used in Data Trend Graphs

1. The data trend plots are based on the statistical summaries of Section VI.
2. Monthly or quarterly averages are plotted.
3. The conventions used to determine if a "less than" (<) value or detectable result is plotted are those given in Appendix C.
4. Less-than-value data points are tagged with a downward-pointing arrow as indicated below:

5. A typical less-than value arising from delayed counting of short-lived isotopes (such as I-131 or Ba-140) or reduced sample size are omitted.

APPENDIX F
DETECTION CAPABILITIES

DETECTION CAPABILITIES
FOR
ENVIRONMENTAL SAMPLE ANALYSIS
Radiochemical Methods
Lower Limit of Detection

LLD*

	Water (pCi/ℓ)	Milk (pCi/ℓ)	Air Part (pCi/m ³)	Food Products <u>Broadleaf Vegetation</u> ^b (pCi/g wet)	Fish (pci/g wet)
Quantity ^c	0.4 ℓ	-	280 m ³		0.1 g ash
Ash Wt. % ^d	-	-	-		4
α ^e	4.0	-	0.002		-
β ^e	1.4	-	0.003		0.25
Quantity	2 ℓ	1 ℓ	-		3 g ash
Ash Wt. %	-	-	-		4
Sr-89	1.08	2.02	-		0.03
Sr-90	0.93	1.39	-		0.03
Quantity	-	1 ℓ	280 m ³	20 g	-
I-131	-	0.78	0.05 ^f	0.05	-
H-3	140	-	-	-	-

*LLD - lower limit of detection based on $4.66s_b$; where s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute), specified for listed quantity and ash weight percentage.

^bThe minimum sensitivity will vary with the weight reduction achieved by ashing the sample. Minimum sensitivities for three typical ash weight percentages are specified.

^cTypical analysis quantity.

^dTypical ash weight percentage of wet weight.

^eListed α and β LLD's are for weightless sample. Self-absorption in sample will increase these LLD's. Typical increases will be factors in the range 1 to 1.3 for β analysis and 1-5 for α analysis.

^fIodine collected Charcoal Cartridge air filter.

^aLLD = lower limit of detection based on $4.66s_b / \sqrt{t}$ where s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute). The LLD is at counting time and must be corrected to collection time. The LLDs given above are based on the quantities indicated and the background count rate in the absence of any radionuclides in the sample. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radio-nuclides normally present in the samples (e.g., potassium-40 in milk samples).

Occasionally background fluctuations, unavoidably small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLD's unachievable. In such cases, the contributing factors will be identified and described in the Environmental Radiation Monitoring Program Annual Report.

Note: All LLD's which we require are listed in this table for Ge(Li) Gamma Spectroscopy. If any nuclide is detected, it shall be reported quantitatively whether or not it is one of the 20 nuclides listed above.

LOWER LIMITS OF DETECTION (LLD)
OF
ANALYSES FOR Ge (Li) DETECTOR

LLD^a

		Milk, Water (pCi/l)	Air Part. (pCi/m ³)	Fish, (pCi/kg wet)	Food Products (pCi/kg wet)	Shoreline Sediment (pCi/kg dry)
Quantity:		3.5 l	3600 m ³	400 g wet	200 g wet	600 g dry
Isotope	Half-life					
Be-7	53.2 d	78	0.05	311	1243	233
K-40	1.26x10 ⁹ y	140	0.06	466	932	466
Mn-54	313 d	8	0.003	31	124	31
Co-58	70.8 d	8	0.003	31	124	16
Fe-59	45 d	30	0.006	260	311	31
Co-60	5.26 y	8	0.005	31	124	47
Zn-65	245 d	30	0.003	260	311	31
Nb-95	35.2 d	9	0.003	31	124	31
Zr-95	65 d	9	0.005	47	93	78
Ru-103	39.4 d	8	0.003	31	124	47
Ru-106	368 d	62	0.03	311	1243	233
I-131	8.04 d	9	0.003	31	60	31
Cs-134	2.06 y	9	0.003	31	60	47
Cs-137	30.2 y	9	0.003	31	80	31
Ba-140	12.8 d	15	0.09	109	621	233
La-140	40.2 h	15	0.09	109	621	233
Ce-141	32.5 d	16	0.003	47	155	47
Ce-144	284 d	78	0.01	155	621	233
Ra-226	1600 y	100	0.08	200	800	109
Th-228	1.91 y	31	0.01	93	466	109

^aLLD = lower limit of detection based on $4.66s_b$; and where s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute). The LLD is at counting time and must be corrected to collection time. The LLDs given above are based on the quantities indicated and the background count rate in the absence of any radionuclides in the sample. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radio-nuclides normally present in the samples (e.g., potassium-40 in milk samples).

Occasionally background fluctuations, unavoidable small sample size, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLD's unachievable. In such cases, the contributing factors will be identified and described in the Environmental Radiation Monitoring Program Annual Report.

Note: All LLD's which we require are listed in this table for Ge(Li) Gamma Spectroscopy. If any nuclide is detected, it shall be reported quantitatively whether or not it is one of the 20 nuclides listed above.

Appendix G

Sample Station Locations and Sample Types

<u>Sample Station</u>	<u>Sample Description - Type and Location</u>
No. 1	Type: (1) Air Particulate and Charcoal Filters (2) Environmental Thermoluminescent Dosimetry
	Location: Sample (1) is taken on top of the Material Storage Warehouse on site. Sample (2) is taken approximately 130 feet south of the Materials Warehouse, NW1/4, S32, T5N, R16E, Nemaha County, Nebraska.
No. 2	Type: (1) Air Particulate and Charcoal Filters (2) Environmental Thermoluminescent Dosimetry
	Location: On north side of county road access to the south portion of the CNS site approximately 275 feet west of the former Jefferson Broady farmstead, SW1/4, S32, T5N, R16E, Nemaha County, Nebraska.
No. 3	Type: (1) Air Particulate & Charcoal Filters (2) Environmental Thermoluminescent Dosimetry
	Location: Located on the north side of the Brownville State Recreation Park access road near water gauging station, SE1/4, S18, T5N, R16E, Nemaha County, Nebraska.
No. 4	Type: (1) Air Particulate & Charcoal Filters (2) Environmental Thermoluminescent Dosimetry
	Location: Located 1/2 mile south of Phelps City, Missouri, on west side of Highway "U", NE1/4, S2, T64N, R42W, Atchison County, Missouri.
No. 5	Type: (1) Air Particulate & Charcoal Filters (2) Environmental Thermoluminescent Dosimetry
	Location: One-fourth mile south and one-fourth mile east of Langdon, Missouri, on north side of road, west of railroad tracks, SW1/4, S18, T64N, R41W, Atchison County, Missouri.
No. 6	Type: (1) Air Particulate & Charcoal Filters (2) Environmental Thermoluminescent Dosimetry
	Location: One mile west of the end of Missouri State Highway "U", south side of road, SW corner of the intersection, NW1/4, S34, T64N, R42W, Atchison County, Missouri.

Sample Station	Sample Description - Type and Location
No. 7	Type: (1) Air Particulate & Charcoal Filters (2) Environmental Thermoluminescent Dosimetry Location: 300 yards east of Highway 67 at Nemaha on north side of road, SW1/4, S6, T4N, R16E, Nemaha County, Nebraska.
No. 8	Type: (1) Air Particulate & Charcoal Filters (2) Environmental Thermoluminescent Dosimetry Location: One-half mile north, 3/4 mile west and 3/4 mile north of Nemaha on west side of road adjacent to the Mark T. Moore Transmission Line, NE1/4, S35, T5N, R15E, Nemaha County, Nebraska.
No. 9	Type: (1) Air Particulate & Charcoal Filters (2) Environmental Thermoluminescent Dosimetry Location: Four miles north of Highway #136 on Highway #67. One mile east of Highway #67 and 1/2 mile north on west side of road, SW1/4, S26, T6N, R15E, Nemaha County, Nebraska.
No. 10	Type: (1) Air Particulate & Charcoal Filters (2) Environmental Thermoluminescent Dosimetry Location: One mile north of Barada, Nebraska, in SW corner of intersection, NE1/4, S14, T3N, R16E, Richardson County, Nebraska.
No. 11	Type: (1) Water - Ground Location: Plant well water supply header at well pits, NW1/4, S32, T5N, R16E, Nemaha County, Nebraska.
No. 12	Type: (1) Water - River Location: Sample (1) will be taken (monthly) from the Missouri River immediately upstream from the Plant Intake Structure (River Mile 532.5).
No. 20	Type: (1) Environmental Thermoluminescent Dosimetry Location: On NNW boundary of NPPD property, approximately 20 yards east of county road, SE1/4, S30, T5N, R16E, Nemaha County, Nebraska.

<u>Sample Station</u>	<u>Sample Description - Type and Location</u>
No. 28	<p>Type: (1) Water - River (2) Fish (3) Sediment from Shoreline</p> <p>Location: Sample (1) will be taken below Plant Discharge Flume Outfall (River Mile 530). Sample (2) will be taken from the river at about River Mile 530. Sample (3) will be taken from the Nebraska bank of the river one-half to three miles downstream from the plant site.</p>
No. 35	<p>Type: (1) Fish (2) Food Products - Broadleaf Vegetation</p> <p>Location: Sample (1) will be taken twice a year from the Missouri River about one to three miles above intake structure. Sample (2) will be taken approximately 1/4 mile south of the Brownville State Recreation Area in Sector A.</p>
No. 42	<p>Type: (1) Milk (Other Producer)</p> <p>Location: One mile south, 1-1/4 miles east of Barada, Nebraska, south side of road, Meinert Wissman farm, NW1/4, S30, T3N, R17E, Richardson County Nebraska.</p>
No. 44	<p>Type: (1) Environmental Thermoluminescent Dosimetry (2) Food Products - Broadleaf Vegetation</p> <p>Location: Two miles south of Auburn stoplight, 1/4 mile south of Auburn Country Club on Highway #73-75, 1/2 mile east of Highway #73-75 at fence line north of county road, SE1/4, S27, T5N, R14E, Nemaha County, Nebraska.</p>
No. 47	<p>Type: (1) Water - Ground</p> <p>Location: At Falls City Municipal Water Supply Wells south of Rulo, Nebraska (out of Main Header Flow Meter), SW1/4, S20, T1N, R18E, Richardson County, Nebraska.</p>
No. 56	<p>Type: (1) Environmental Thermoluminescent Dosimetry</p> <p>Location: One and one-fourth mile south and west of Langdon, Missouri, on Highway "U", on the right side of the highway, Bill Gebheart farm, NW1/4, S23, T64N, R42W, Atchison County, Missouri.</p>

<u>Sample Station</u>	<u>Sample Description - Type and Location</u>
No. 58	Type: (1) Environmental Thermoluminescent Dosimetry Location: Three miles south of Brownville, Nebraska, on county road, at the southeast corner of the intersection, with the farm road leading to Sample Station No. 2, SE1/4, S31, T5N, R16E, Nemaha County, Nebraska.
No. 59	Type: (1) Environmental Thermoluminescent Dosimetry Location: One mile SSE of the CNS Elevated Release Point, 50 yards west of the levee at the south boundary of NPPD property, SE1/4, S32, T5N, R16E, Nemaha County, Nebraska.
No. 61	Type: (1) Milk (Nearest Producer) Location: One mile west of Brownville, Nebraska, on U.S. Highway #136, one mile north of highway, on county road. Turn to right and proceed approximately 1/2 mile east on south side of the road, Raymond Gentert farm, NW1/4, S13, T5N, R15E, Nemaha County, Nebraska.
No. 66	Type: (1) Environmental Thermoluminescent Dosimetry Location: Two miles south of Nemaha, Nebraska, on Highway 67 - east side of highway. Mrs. Lola Kennedy farm, NW1/4, S19, T4N, R16E, Nemaha County, Nebraska.
No. 67	Type: (1) Environmental Thermoluminescent Dosimetry Location: Two miles west of Brownville, Nebraska, on U.S. Highway #136, then north 1-1/2 miles on county road, then east 1/2 mile, on north side of road, Walter Parkhurst farm, NE1/4, S11, T5N, R15E, Nemaha County, Nebraska.
No. 71	Type: (1) Environmental Thermoluminescent Dosimetry Location: Two miles east of Phelps City, Missouri, on U.S. Highway #136, then south 1-1/2 miles on county road, then west 1/4 mile, Tom Boatman farm, SE1/4, S6, T64N, R41W, Atchison County, Missouri.

<u>Sample Station</u>	<u>Sample Description - Type and Location</u>
No. 79	<p>Type: (1) Environmental Thermoluminescent Dosimetry</p> <p>Location: 1-7/8 miles south of Brownville, Nebraska, on the east side of the paved road. NPPD property, SE1/4, S30, T5N, R16E, Nemaha County, Nebraska.</p>
No. 80	<p>Type: (1) Environmental Thermoluminescent Dosimetry</p> <p>Location: 2-1/8 miles south of Brownville, Nebraska, on the east side of the paved road. NPPD property, NE1/4, S31, T5N, R16E, Nemaha County, Nebraska.</p>
No. 81	<p>Type: (1) Environmental Thermoluminescent Dosimetry</p> <p>Location: 2-3/8 miles south of Brownville, Nebraska, in the northeast corner of the intersection of the paved county road and the CNS access road. NPPD property, NE1/4, S31, T5N, R16E, Nemaha County, Nebraska.</p>
No. 82	<p>Type: (1) Environmental Thermoluminescent Dosimetry</p> <p>Location: 7/8 mile south of Cooper Nuclear Station in a field. NPPD property, SW1/4, S32, T5N, R16E, Nemaha County, Nebraska.</p>
No. 83	<p>Type: (1) Environmental Thermoluminescent Dosimetry</p> <p>Location: 2-1/4 miles south of Nemaha, Nebraska, on Highway 67, then east one mile to the junction of the driveway and county road on the east side of the driveway. Leroy Kennedy. NE1/4, S19, T4N, R16E, Nemaha County, Nebraska.</p>
No. 84	<p>Type: (1) Environmental Thermoluminescent Dosimetry</p> <p>Location: 2-1/2 miles west of Brownville, Nebraska, on the south side of U.S. Highway 136, west of Locust Grove School. Bruce L. Scie. NW1/4, S22, T5N, R15E, Nemaha County, Nebraska.</p>
No. 85	<p>Type: (1) Environmental Thermoluminescent Dosimetry</p> <p>Location: One mile east of Brownville, Nebraska, on U.S. Highway 136, then north 1/4 mile on the east side of the county road. Scott Leseberg. NE1/4, S33, T65N, R42W, Atchison County, Missouri.</p>

<u>Sample Station</u>	<u>Sample Description - Type and Location</u>
No. 86	Type: (1) Environmental Thermoluminescent Dosimetry Location: One mile west of Phelps City, Missouri, on U.S. Highway 136, then north 1-1/2 miles on Highway "D" - on the west side of Highway "D". Mrs. Olin (Mildred) Harmes. SE1/4, S22, T65N, R42W, Atchison County, Missouri.
No. 87	Type: (1) Environmental Thermoluminescent Dosimetry Location: One mile west of Phelps City, Missouri, on U.S. Highway 136, then south 1/2 mile on a county road and then 3/4 mile west on a county road to the end of the road. Robert Graf. SW1/4, S3, T64N, R42W, Atchison County, Missouri.
No. 88	Type: (1) Environmental Thermoluminescent Dosimetry Location: One mile west of Phelps City, Missouri, on U.S. Highway 136, then south two miles at the end of the county road. David MeyerKorth, NW1/4, S11, T64N, R42W, Atchison County, Missouri.
No. 89	Type: (1) Environmental Thermoluminescent Dosimetry Location: 2-1/2 miles south of Phelps City, Missouri, on Highway "U", then 1/2 mile west in the southeast corner of the county road intersection. Gertrude Rosenbohm, NE1/4, S14, T64N, R42W, Atchison County, Missouri.
No. 90	Type: (1) Environmental Thermoluminescent Dosimetry Location: 1-1/2 miles west and 3/4 mile south of Langdon, Missouri, on Highway "U", then 1/4 mile west. Garth Green. SW1/4, S23, T64N, R42W, Atchison County, Missouri.
No. 91	Type: (1) Environmental Thermoluminescent Dosimetry Location: 1/2 mile west of Rock Port, Missouri, on the south side of the intersection of U.S. Highway 136 and U.S. Highway 275 at the water tower. Mildred Cook. NW1/4, S28, T65N, R41W, Atchison County, Missouri.

<u>Sample Station</u>	<u>Sample Description - Type and Location</u>
No. 94	Type: (1) Environmental Thermoluminescent Dosimetry Location: 1/4 mile south of Langdon, Missouri, on the west side of the road. Max Peeler. NE1/4, S24, T64N, R42W, Atchison County, Missouri.
No. 96	Type: (1) Food Products - Broadleaf Vegetation Location: One mile south of Brownville, Nebraska, along paved road in the road ditch in Sector R. SE1/4, S19, T5N, R16E, Nemaha County, Nebraska.
No. 99	Type: (1) Milk (Other Producer) Location: 1-1/4 miles south of Shubert, Nebraska, on the west side of Highway 67. James Zentner dairy. NE1/4, S24, T3N, R15E, Richardson County, Nebraska.

NOTES: (a) Numbers missing from sequences of Sample Station Numbers are discontinued Sample Stations.

Appendix H

Summary of Doses to a Member of the
Public Off-Site

DOSES TO MAXIMUM INDIVIDUAL (MEM), JANUARY-DECEMBER 1991

COOPER NUCLEAR STATION JANUARY-DECEMBER 1991
 SPECIAL LOCATION # 1 SITE BOUNDARY
 AT 0.67 MILES N

PATHWAY	T. BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	1.80E-02	2.06E-02	1.77E-02	1.80E-02	1.77E-02	1.87E-02	1.86E-02	2.33E-02
TEEN	1.82E-02	2.05E-02	1.77E-02	1.81E-02	1.79E-02	1.81E-02	1.82E-02	2.33E-02
CHILD	1.86E-02	1.85E-02	1.77E-02	1.82E-02	1.78E-02	2.03E-02	1.89E-02	2.33E-02
INFANT	1.78E-02	1.78E-02	1.77E-02	1.78E-02	1.77E-02	2.33E-02	1.85E-02	2.33E-02

COOPER NUCLEAR STATION JANUARY-DECEMBER 1991
 SPECIAL LOCATION # 2 NEAR RESIDENCE
 AT 0.90 MILES NW

PATHWAY	T. BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	5.43E-03	6.20E-03	5.33E-03	5.40E-03	5.34E-03	5.88E-03	5.80E-03	7.07E-03
TEEN	5.47E-03	6.18E-03	5.33E-03	5.44E-03	5.35E-03	6.09E-03	5.72E-03	7.07E-03
CHILD	5.60E-03	5.86E-03	5.33E-03	5.49E-03	5.36E-03	6.78E-03	5.65E-03	7.07E-03
INFANT	5.36E-03	5.35E-03	5.34E-03	5.35E-03	5.34E-03	8.41E-03	5.54E-03	7.07E-03

Summary of Doses to Maximum individual at the Site Boundary, Resulting From Exposure to Radioactivity Discharged in Liquid Effluents, January - December 1991, Cooper Nuclear Station

Dose, mrem

Period	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LLI
1st Quarter	1.30E-05	1.14E-03	8.90E-04	7.08E-04	1.11E-05	2.84E-04	9.69E-05	1.43E-03
2nd Quarter	1.01E-05	2.79E-03	2.70E-03	2.01E-03	9.33E-06	8.84E-04	2.97E-04	1.67E-03
3rd Quarter	2.49E-05	4.93E-03	7.01E-03	5.08E-03	2.13E-05	2.31E-03	7.67E-04	3.14E-03
4th Quarter	3.88E-04	1.47E-02	3.41E-02	2.95E-02	3.31E-04	9.65E-03	2.66E-03	1.36E-01
Totals For 1991	4.36E-04	2.36E-02	4.47E-02	3.73E-02	3.73E-04	1.31E-02	3.82E-03	1.42E-01

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