

GENERAL ELECTRIC

NUCLEAR FUEL MANUFACTURING DEPARTMENT

GENERAL ELECTRIC COMPANY • P.O. BOX 780 • WILMINGTON, NORTH CAROLINA 28402

December 2, 1985

Dr. J. Nelson Grace
Regional Administrator
U. S. Nuclear Regulatory Commission, RII
101 Marietta Street, N.W. - Suite 2900
Atlanta, Georgia 30303

Dear Dr. Grace:

References: (1) NRC License SNM-1097, Docket #70-1113
(2)(A) NRC Inspection Report 70-1113/84-17 - 1/31/85
(B) Letter, CM Vaughan to JP Stohr - 3/01/85
(C) Letter, CM Vaughan to JP Stohr - 4/05/85
(D) Letter, JP Stohr to EA Lees - 5/01/85
(E) Letter, JN Grace to EA Lees - 9/23/85
(3)(A) NRC Inspection Report 70-1113/85-02 - 5/16/85
(B) Letter, CM Vaughan to JP Stohr - 7/16/85

Thank you for your response of September 23, 1985, regarding inspection report 70-1113/84-17, Violation 1. General Electric appreciates your inclusion of the detailed staff evaluation of our response dated April 5, 1985.

General Electric is concerned that the NRC continues to consider the situation identified in inspection report 84-17 as a violation. It does not appear that the information General Electric provided in reference 3-B was seriously considered by Region II, even though General Electric was instructed in reference 3-A to provide this information.

General Electric is particularly anxious to have this situation resolved. We feel very strongly that no safety problem has ever existed at our facility, and, in fact, that no violation regarding air sampling existed or exists. General Electric Company respectfully reiterates its request that the subject notice of violation be withdrawn.

GE's paramount concern has been, and continues to be the safety of our workers and assurance that our programs do, in fact, protect our workers in an appropriate manner.

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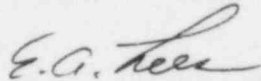
GENERAL  ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Page 2

Because of both GE and NRC concerns related to this matter, we are addressing the issues of safety and regulatory violation separately in the attachments to this letter.

Sincerely,

GENERAL ELECTRIC COMPANY



E. A. Lees, General Manager
Nuclear Fuel Manufacturing Department

/sbm

Attac'ments

GENERAL ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 1 - Page 1

ATTACHMENT 1

Demonstration That No Safety Problem Existed or Exists

In our communications of March 1985, April 1985, and July 1985, General Electric provided extensive details regarding historical air sampling information for the Chemet Laboratory, the results of our routine bioassay assessment program, and the results of current additional air sampling data, as well as air flow studies. All available information indicates that worker exposure in the Chemet Laboratory is, and has uniformly been, well below applicable regulatory limits.

As indicated in our 4/5/85 response, following an air flow direction and dispersion study, in December 1984 two additional stationary air samplers (#404 and #405) were installed in front of two powder processing hoods along the east wall of the Chemet "Wet" Lab. As indicated in our 7/16/85 response, during the week beginning 3/11/85, two additional samplers (#406 and #407) were installed, one near the titration exhaust hood and another approximately 12 feet downwind (east) of the original sampler (#400) towards the room air recirculation intake. Thus, five stationary air samplers are currently measuring air concentrations in the Chemet Wet Lab.

In addition, during the week beginning 3/11/85, a temporary sampler (#901) was installed near the LECO hydrogen analyzer work station.

Weekly average airborne concentration results for the original sampler, the four additional samplers, and the temporary sampler are shown in Table 1. The original sampler (#400) routinely reads the same or higher airborne concentrations. The reason for this is the fact that the highest sample processing volume occurs in this area.

During an NRC inspection in March of 1985, in the presence of the NRC inspector, close proximity high volume air samples were collected at strategic locations where radiological conditions had been questioned. The measured air concentrations during these

GENERAL ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 1 - Page 2

tests were 0.1×10^{-11} $\mu\text{Ci/cc}$ or less at each location. These values once again demonstrate consistency with the routine air sampling program in the Chemet Laboratory and also confirm the extremely low actual levels of worker exposure in that lab.

In October 1985, additional temporary stationary air samplers were installed inside of the analytical balance "wind screen" and above the microwave oven, both locations being associated with the isotopic sample preparation work station which represents the highest volume analytical activity in the laboratory and includes the range of materials which would be expected to produce airborne radioactivity. The air sampler in the analytical balance "wind screen" showed a measured average air concentration of 0.3×10^{-11} $\mu\text{Ci/cc}$. The sampler above the microwave oven yielded a result of 0.04×10^{-11} $\mu\text{Ci/cc}$. These average values were determined from approximately 50 eight-hour samples. This information again confirms that the results from the original single stationary air sampler located in the isotopic work station are representative of the air concentrations which workers would be subjected to during the normal work and also confirms that workers are not being exposed differently than our routine measurements indicate.

During October and early November 1985, we also instituted a special lapel air sampling evaluation of two key employee work assignments within the Chemet Laboratory. A sampler was affixed to a worker who performs the tasks associated with isotopic sample preparation and another to a worker whose tasks require him to spend portions of time at most other work stations within the Chemet "wet" laboratory which have a potential for handling dispersible forms of uranium. Both workers were monitored during five separate shifts. The average measured air concentration for the worker at the isotopic preparation station was 0.2×10^{-11} $\mu\text{Ci/cc}$ and for the other worker 0.1×10^{-11} $\mu\text{Ci/cc}$. These results are consistent with the air sampling results from our routine air sampling program within the laboratory and again serve to demonstrate that there is no safety problem associated with worker exposure and that, in fact, our routine air sampling system is adequate.

Results from the additional temporary air samplers, lapel samples, and corresponding shift averages for the original samplers are shown in Table 2.

GENERAL  ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 1 - Page 3

Collectively, all information within the past three years from our routine measurement program and all special studies have concluded that weekly average air concentrations within the laboratory do not exceed the MPC for uranium in an unrestricted area (0.3×10^{-11} $\mu\text{Ci/cc}$). Further, all of these programs and tests have yielded consistent results over time and confirm that, regardless of which method is chosen to measure the airborne concentration to which workers in the Chemet Lab are exposed, there is no difference for purposes of assigning airborne exposure.

General Electric has in this case clearly demonstrated by today's standards that our programs meet the requirements of 10 CFR 20.103. As of this date, General Electric is clearly in compliance with the requirements of our license and the regulations and no further action or corrective action is required. Therefore, General Electric has complied with 10 CFR 2.201 as requested in your letter of September 23, 1985.

GENERAL ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 1 - Page 4

TABLE 1

WEEKLY AIR SAMPLER AVERAGES ($\times 10^{-11}$ $\mu\text{Ci/cc}$)

<u>Week Beginning</u>	<u>400</u>	<u>404</u>	<u>405</u>			
12/03/84	0.1	0.1	0.1			
12/10/84	0.1	0.1	0.1			
12/17/84	0.1	0.1	0.1			
12/24/84	0.1	0.0	0.1			
12/31/84	0.1	0.0	0.1			
01/07/85	0.1	0.0	0.1			
01/14/85	0.0	0.0	0.1			
01/21/85	0.1	0.1	0.1			
01/28/85	0.1	0.1	0.1			
02/04/85	0.1	0.0	0.1			
02/11/85	0.1	0.0	0.0			
02/18/85	0.1	0.0	0.0			
02/25/85	0.1	0.0	0.0			
03/04/85	0.1	0.0	0.0	<u>406</u>	<u>407</u>	<u>901</u>
03/11/85	0.1	0.0	0.1	---	---	---
03/18/85	0.1	0.0	0.0	0.0	0.0	0.0
03/25/85	0.1	0.0	0.0	0.0	0.0	0.0
04/01/85	0.1	0.0	0.0	0.0	0.0	0.0
04/08/85	0.1	0.0	0.0	0.0	0.0	0.0
04/15/85	0.1	0.0	0.0	0.0	0.0	0.0
04/22/85	0.1	0.0	0.0	0.0	0.1	0.0
04/29/85	0.1	0.0	0.0	0.1	0.1	0.0
05/06/85	0.2	0.1	0.1	0.0	0.1	0.0
05/13/85	0.1	0.0	0.0	0.0	0.1	0.0
05/20/85	0.1	0.0	0.0	0.0	0.1	0.0
05/27/85	0.1	0.1	0.1	0.0	0.1	0.0
06/03/85	0.1	0.1	0.0	0.0	0.1	0.0
06/10/85	0.0	0.1	0.1	0.0	0.1	0.0
06/17/85	0.1	0.1	0.1	0.0	0.1	0.0
06/24/85	0.0	0.0	0.0	0.0	0.1	0.0
07/01/85	0.0	0.0	0.0	0.0	0.1	0.0
07/08/85	0.1	0.0	0.0	0.0	0.1	0.0
07/15/85	0.0	0.0	0.0	0.0	0.1	0.0
07/22/85	0.0	0.0	0.0	0.0	0.0	0.0

GENERAL ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 1 - Page 5

TABLE 1 (CONTINUED)

WEEKLY AIR SAMPLER AVERAGES ($\times 10^{-11}$ $\mu\text{Ci/cc}$)

<u>Week Beginning</u>	<u>400</u>	<u>404</u>	<u>405</u>	<u>406</u>	<u>407</u>	<u>901</u>
07/29/85	0.0	0.0	0.0	0.0	0.1	0.0
08/05/85	0.0	0.0	0.1	0.0	0.0	0.0
08/12/85	0.0	0.0	0.0	0.0	0.0	0.1
08/19/85	0.1	0.1	0.1	0.0	0.1	0.0
08/26/85	0.1	0.1	0.0	0.0	0.1	0.0
09/02/85	0.1	0.1	0.1	0.0	0.1	0.0
09/09/85	0.1	0.1	0.1	0.1	0.1	0.0
09/16/85	0.1	0.1	0.1	0.0	0.1	0.1
09/23/85	0.1	0.1	0.1	0.1	0.1	0.0
09/30/85	0.1	0.1	0.1	0.0	0.1	0.0
10/07/85	0.1	0.1	0.1	0.0	0.0	---
10/14/85	0.1	0.1	0.1	0.1	0.1	---
10/21/85	0.1	0.1	0.1	0.1	0.1	---
10/28/85	0.1	0.1	0.1	0.0	0.1	---
11/04/85	0.1	0.1	0.1	0.1	0.1	---
11/11/85	0.1	0.1	0.1	0.0	0.2	---
11/18/85	0.1	0.1	0.1	0.1	0.1	---

GENERAL ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 1 - Page 6

TABLE 2
AIR SAMPLE RESULTS
(x 10⁻¹¹ μ Ci/cc) (8 hr. shift average)

<u>DATE</u>	<u>SHIFT</u>	<u>ORIGINAL SAS # 400</u>	<u>TEMPORARY ISO AREA SAMPLERS</u>		<u>ISO AREA LAPEL</u>
			<u>MICROWAVE</u>	<u>METTLER ENCLOSURE</u>	
10/28/85	Grave	0.0	0.02	0.4	
	Days	0.1	0.05	0.2	
	Swing	0.1	0.03	0.4	
10/29/85	Grave	0.1	0.01	0.5	
	Days	0.1	0.06	0.2	
	Swing	0.0	0.02	0.4	
10/30/85	Grave	0.0	0.04	0.3	
	Days	0.0	0.04	0.5	
	Swing	0.0	0.06	0.3	0.1
10/31/85	Grave	0.1	0.04	0.3	
	Days	0.0	0.05	0.4	
	Swing	0.0	0.05	0.6	0.3
11/1/85	Grave	0.0	0.02	0.1	
	Days	0.1	0.03	0.2	
	Swing	0.1	0.03	0.2	0.1
11/4/85	Grave	0.1	0.01	0.1	
	Days	0.1	0.04	0.3	0.2
	Swing	0.1	0.04	0.3	
11/5/85	Grave	0.0	0.05	0.2	
	Days	0.1	0.03	0.3	
	Swing	0.1	0.04	1.0	
11/6/85	Grave	0.0	0.03	0.3	
	Days	0.0	0.05	0.1	0.03
	Swing	0.1	0.04	0.9	
11/7/85	Grave	0.1	0.06	0.2	
	Days	0.1	0.03	0.3	
	Swing	0.1	0.05	0.5	

GENERAL ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 1 - Page 7

TABLE 2 (CONTINUED)

AIR SAMPLE RESULTS
(x 10⁻¹¹ μ Ci/cc) (8 hr. shift average)

DATE	SHIFT	ORIGINAL SAS # 400	EAST WALL AREA SAMPLERS		OTHER SAMPLE PREP AREAS LAPEL
			#404	#405	
11/8/85	Grave	0.1	0.1	0.1	0.2
	Days	0.1	0.1	0.1	
	Swing	0.1	0.2	0.1	
11/9/85	Grave	0.1	0.1	0.1	0.01
	Days	0.0	0.1	0.0	
	Swing	0.1	0.1	0.0	
11/10/85	Grave	0.1	0.1	0.1	
	Days	0.0	0.0	0.0	
	Swing	0.1	0.1	0.0	
11/11/85	Grave	0.1	0.1	0.1	
	Days	0.1	0.1	0.0	
	Swing	0.1	0.1	0.0	
11/12/85	Grave	0.1	0.1	0.1	0.4
	Days	0.0	0.1	0.0	
	Swing	0.1	0.1	0.1	
11/13/85	Grave	0.0	0.0	0.0	0.1
	Days	0.0	0.1	1.1	
	Swing	0.1	0.2	0.1	

GENERAL ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 2 - Page 1

ATTACHMENT 2

VIOLATION #1 IN INSPECTION REPORT 84-17 DID NOT EXIST IN THE GENERAL ELECTRIC PLANT

10 CFR 20.103 (a)(3), which requires licensees to "use suitable measurements of concentrations of radioactive materials in air for detecting and evaluating airborne radioactivity in restricted areas" was first added to the regulations in 1976. The air sampling system in the Chemet Lab was engineered and in operation many years before this requirement existed.

Application was made for license renewal for the Nuclear Fuel Manufacturing Department ("NFMD", then called the Wilmington Manufacturing Department, "WMD") facility in June 1972 on which the license renewal was issued in May 1976; and again in May 1981, on which the license renewal was issued in February 1983. Both applications clearly set forth the nature and extent of activities, and the design features, including provision for monitoring of airborne radioactivity, in the Chemet Lab. The system that was defined in this licensing information is the same system that was operating, and being operated in accordance with the representations in our license document, in November 1984, when the referenced inspection took place.

During the license review process for the current license, the NRC imposed a new requirement of an annual evaluation of the representativeness of our site's airborne radioactivity measurement program. Based on this new requirement, which augments the requirements of 10 CFR 20.103(a)(3), General Electric was required to redemonstrate the representativeness of air samples at some time between June 29, 1984, and June 29, 1985. General Electric completed this work as required. Not only do the results obtained in this mandated study fail to provide support for the subject violation; the violation was also issued a full six months before the date set by the NRC for completion of the required demonstration.

GENERAL ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 2 - Page 2

The results of this and earlier work, described in some detail in Attachment 1, clearly demonstrate three things with respect to the Chemet Lab:

- (1) The airborne concentrations measured over a wide span of time, in a wide variety of locations, with a wide variety of measurement techniques, all confirm that the airborne concentrations recorded by the single monitor described in the most current three licensing documents conservatively represent the average of airborne concentrations in the Lab.
- (2) Those measured values are so low, uniformly much less than 25% of the restricted-area MPC values, that they need not even be included in the assessment of individual intakes of radioactivity, in accordance with 10 CFR 20.103(a)(3), the very section under which the subject violation was issued.
- (3) General Electric has periodically demonstrated the adequacy of the airborne monitoring program to the NRC and implemented improvements over time in accordance with changes in NRC requirements.

This, of necessity, leads to the following two conclusions:

- (1) NFMD is not required by 10 CFR 20.103(a)(3) to have any routine measurement of airborne radioactive concentrations in the Chemet Lab where years' worth of data indicate those concentrations are uniformly maintained at or below levels permitted for unrestricted areas. At these de minimus levels of worker exposure, the required "suitable measurement" can be provided by periodic direct measurements of air concentration, coupled with the indirect measurements of this parameter afforded by other elements of the radiation protection program, described in detail in our earlier submittals.
- (2) If NFMD were obliged to satisfy the requirement of a "suitable measurement of concentrations of radioactive materials in air" by making routine direct measurements of this concentration, and to demonstrate the representativeness

GENERAL  ELECTRIC

Dr. J. Nelson Grace
December 2, 1985
Attachment 2 - Page 3

of this measurement, it has repeatedly done so. Data accumulated over many years have demonstrated that the concentrations measured by the single Chemet Lab air monitor are representative of the airborne uranium concentration levels in the Lab. This data includes the recent lapel monitor information which was collected, in part, because of our understanding that the lapel monitoring approach is generally preferred by NRC Region II.

Accordingly, General Electric Company respectfully reiterates its request that the subject notice of violation be withdrawn.