

official

SEP 23 1985

General Electric Company
✓ ATTN: Mr. Eugene A. Lees, General Manager
Nuclear Fuel Manufacturing Department
P. O. Box 780
Wilmington, NC 28402

Gentlemen:

SUBJECT: REPORT NO. 70-1113/84-17

Our letter dated May 1, 1985, in response to your letters of March 1 and April 5, 1985, stated that we were evaluating your response which denied Violation 1 of Inspection Report No. 70-1113/84-17, regarding suitability of air sampling in the CHEMET Laboratory, and that we would notify you of the acceptability of your response in the near future.

After careful consideration of the basis for your denial of Violation 1, we have concluded for the reasons given in the enclosure to this letter, that the violation occurred as stated in the Notice of Violation. Therefore, in accordance with the requirements of 10 CFR 2.201, please submit to this office within 30 days of the date of this letter, a written statement describing steps which have been taken to correct Violation 1 and the results achieved, corrective actions which will be taken to avoid further violations, and the date when full compliance will be achieved.

The responses directed by this letter are not subject to the clearance procedure of the Office of Management and Budget issued under the Paperwork Reduction Act, PL 96-511.

We appreciate your cooperation in this matter.

Sincerely,

J. Nelson Grace
Regional Administrator

Enclosure:
Staff Evaluation of Licensee Response
to Inspection Report 70-1113/84-17
dated April 5, 1985

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N.M.S.
W.T. Crow
conceded
9/4
CH

9/10/85
Don Lobb IE: H2.
not fully concurred because
safety issue of H4 is
safety significance but
does not object to our
response. *DMC*

ENCLOSURE

STAFF EVALUATION OF LICENSEE RESPONSE TO
INSPECTION REPORT 70-1113/84-17
DATED APRIL 5, 1985

In your response you stated that: (a) the two stationary air samplers in the lab, at the time of the inspection, indicated that the air concentrations in the lab have averaged about 2% of the maximum permissible concentration (MPC) for insoluble uranium; (b) routine urinalysis of CHEMET Lab employees demonstrated that the workers are not continuously exposed to unmeasured concentrations of uranium, analysis of the urinalysis data for 1983 and 1984 did not indicate that workers were being exposed to "puffs" of airborne radioactivity which would be expected to affect two or more workers at the same time, and only one individual has exceeded the Nuclear Fuel Manufacturing Department action guide of 15 ug/L; (c) routine lung counts showed that workers are not being chronically exposed to unmeasured levels of insoluble airborne uranium which would buildup in their lungs over time; (d) two additional air samplers installed subsequent to the inspection indicated that the previously reported concentrations are representative of those to which workers may be exposed in the Lab and easily demonstrate compliance to 10 CFR 20.103; and (e) an engineering evaluation of the CHEMET Lab air flow patterns demonstrated that the two special samplers used for the study were properly located.

NRC Response:

10 CFR 20.103(a)(3) requires that the licensee use suitable measurements of concentrations of radioactive materials in air for detecting and evaluating airborne radioactivity in restricted areas to show compliance with the individual intake limits and controls in 10 CFR 20.103(a) and (b). To show that these intake limits for individuals are not exceeded, air samples must be collected in such a way that the measured concentrations of uranium in air are representative of those to which individual workers may be or were exposed. These regulations require that the results of these samples be used to institute controls when necessary on at least a weekly basis. Thus, it is important that licensees determine that concentrations to be measured will be representative of the concentrations to which individual workers are likely to be exposed.

As noted in the inspection report, air flow studies (smoke test) performed in the Wet Lab by the inspector and observed by licensee representatives, showed that air flowed from the three principal work stations where uranium in dry powder form was handled toward the recirculation system intake. In each case, the movement of the air was away from the single air sampler located in the Wet Lab. The air flow studies also indicated that airborne radioactivity, if generated, would remain in the vicinity of the work station where individuals performed powder handling operations because of the partial enclosure around the balances at the stations. Although the measured concentration of radioactivity in air in the Wet Lab was about 2%

of MPC, the samplers where this concentration was determined did not appear to be located such that it was representative of the concentration to which individuals handling dispersible forms of uranium were exposed throughout the Lab. At the time of the inspection (70-1113/84-17), General Electric could not provide any evidence that an evaluation had been performed which demonstrated that the concentrations measured with the single air sampler in the Wet Lab were representative of those to which individual workers in the Lab which were exposed. Therefore, based on the air flow measurements performed by the NRC as outlined in our report, the measurements of airborne radioactivity provided by this single sample point were not suitable for detecting and evaluating airborne radioactivity to which individuals were exposed in all areas of the Lab and do not demonstrate compliance as required by 10 CFR 20.103(a)(3).

Although urinalysis data for CHEMET Lab workers indicate that they are not being continuously exposed to unmeasured excessive concentrations of uranium, it is our understanding that your bioassay program was not designed or implemented in a manner to detect individual intakes equivalent to 40 MPC-hours. Rather, it was designed to confirm the adequacy of your primary control system, the air samplers. Thus, bioassays were not necessarily performed with the frequency necessary to detect 40 MPC-hour intakes for each employee.

With regard to lung counts, we agree with your position that they are not sensitive enough to confirm the individual stationary air sampler measurements, but that they also can show that workers are not being chronically exposed to unmeasured excessive levels of insoluble airborne uranium which would build up in their lungs over time. However, this does not demonstrate that the air sampler was measuring concentrations of uranium that were representative of those to which workers were exposed.

10 CFR 20.103(a)(3) requires both suitable air samples for detecting and evaluating airborne radioactivity and bioassays for the timely detection and assessment of individual intakes of radioactivity by exposed individuals. Our regulations do not allow bioassays to be routinely substituted for a suitable air sampling program unless the program can clearly provide the sensitivity necessary to institute, in a timely manner, controls specified in our regulations.

Although the installation of the two additional air samplers in the Wet Lab and the performance of an engineering evaluation (smoke test) are both valid elements in an overall program for evaluating the proper location of an air sampler, these analyses do not necessarily support the position that the original air sampler provided suitable measurements of concentrations of radioactivity in air throughout the lab.

In conclusion, it is still our position that you were not making suitable measurements of concentrations of radioactive material in air for detecting and evaluating airborne radioactivity in the CHEMET Lab to show compliance with the individual limits in 10 CFR 20.103(a) and (b).