November 30, 1995

Docket No. 040-07102 License No. SMB-743

Mr. H. Nils Schooly
President
Shieldalloy Metallurgical Corporation
P.O. Box 768
Newfield, NJ 08344

SUBJECT: ROUTINE INSPECTION NO. 040-07102/95-001 AND CONFIRMATORY ACTION LETTER NO. 1-95-004 CLOSURE

Dear Mr. Schooly:

On February 15 through 17, 1995, and March 6, 1995, Sheri Arredondo and Penny Lanzisera of this office conducted a routine safety inspection, at the above address, of activities authorized by the above listed NRC license. On September 18, 1995, Ms. Arredondo performed additional inspection of your licensed activities. The inspection was an examination of your licensed activities as they relate to radiation safety and to compliance with the Commission's regulations and the license conditions. The inspection consisted of observations by the inspectors, interviews with personnel, and a selective examination of representative records. The findings of the inspection were discussed with you and other members of your staff on March 6, 1995 and September 18, 1995.

A copy of the NRC inspection report is enclosed.

Our April 27, 1995 letter to you stated that enforcement action for apparent violations of NRC requirements would be addressed following our review of the results of your actions taken to fulfill the commitments described in Confirmatory Action Letter (CAL) No. 1-95-004. We have concluded our review of your actions taken and this letter encloses the enforcement action for the violations identified.

Based on the results of this inspection, it appears that your activities were not conducted in full compliance with NRC requirements. A Notice of Violation is enclosed and categorizes each violation by severity level in accordance with "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy), NUREG 1600, (60 FR 34381; June 30, 1995). The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence is already adequately addressed on the docket in Inspection Report No. 040-07102/95-001. Since you described your corrective actions for these violations in your letters dated March 14, and May 12, 1995, in response to the CAL, and these actions were reviewed on September 18, 1995, you are not

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required to submit a response to this letter. If you choose to provide additional information, you should follow the instructions specified in the enclosed Notice.

Based upon the review by the inspector on September 18, 1995, the safety and regulatory concerns identified during the earlier inspection activity appeared to have been corrected. Your evaluations of workers' intakes and doses to potentially exposed members of the public demonstrate compliance with regulatory limits as required by 10 CFR 20.1501 and 10 CFR 20.1302(b). Worker and public exposures were below regulatory limits, and you have adequate methods in place to perform these evaluations in the future. No additional response to CAL No. 1-95-004, dated February 22, 1995, is required.

Your cooperation with us is appreciated.

Sincerely,

Original Signed By:
Charles W. Hehl

Charles W. Hehl, Director
Division of Nuclear Materials Safety

Docket No. 040-07102
License No. SMB-743

Enclosures:
1. Notice of Violation
2. Region I Inspection Report No. 040-07102/95-001

cc w/encls:
C. Scott Eves, Radiation Safety Officer
State of New Jersey

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# NOTICE OF VIOLATION

Shieldalloy Metallurgical Corporation
Newfield, New Jersey

Docket No. 040-07102
License No. SMB-743

During an NRC inspection conducted on February 15 through 17, 1995, and March 6, 1995, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (60 FR 34381; June 30,1995), the violations are listed below:

A. 10 CFR 20.1501 requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations, or quantities of radioactive materials, and the potential radiological hazards that could be present.

Pursuant to 10 CFR 20.1003, survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. 10 CFR 20.1204(a) requires that for purposes of assessing dose used to determine compliance with occupational dose equivalent limits, the licensee shall, when required under 20.1502, take suitable and timely measurements of (1) concentrations of radioactive materials in air, in work areas; or (2) quantities of radionuclides in the body; or (3) quantities of radionuclides excreted from the body; or (4) combinations of these measurements. 10 CFR 20.1502(b) requires, in part, that each licensee monitor the occupational intake of radioactive material by and assess the committed effective dose equivalent (CEDE) to adults likely to receive, in one year, an intake in excess of 10 percent of the applicable Annual Limit on Intake (ALI) in Table 1, Columns 1 and 2, of Appendix B to 20.1001-20.2401.

Contrary to the above, as of March 6, 1995, the licensee did not make or cause to be made surveys necessary for the licensee to comply with the regulations in Part 20.

1. Specifically, in August 1994, workers changed thorium and uranium dust collector bags on an exhaust ventilation system, and the licensee did not make or cause to be made surveys during these operations to evaluate the concentration of radioactive materials that could be present in the air or the intake of licensed materials by the workers; and,

2. Specifically, from January 1, 1994 to March 6, 1995, the licensee's thorium and uranium air sample results indicate workers' intakes in excess of 10 percent of the applicable ALI; however, the licensee did not adequately assess the CEDE to these workers.

This is a Severity Level IV violation (Supplement IV).

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B. 10 CFR 20.1302(b) requires, in part, that each licensee show compliance with the annual dose limit in 10 CFR 20.1301 by (1) demonstrating by measurement or calculation that the total effective dose equivalent (TEDE) to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit or (2) demonstrating that if an individual were continuously present in an unrestricted area, the dose from external sources would not exceed 0.05 rem in a year.

Contrary to the above, from January 1, 1994 to January 1, 1995, the licensee did not show compliance with the annual dose limit in 10 CFR 20.1301.

Specifically, from January 1, 1994 to January 1, 1995, the thermoluminescent dosimeter (TLD) results from the TLD posted at the licensee's boundary demonstrated that, if an individual were continuously present in the unrestricted area outside of the licensee's fence, their dose from external sources, namely, the thorium and uranium slag pile, would have exceeded 0.05 rem in that year. Also, the licensee did not demonstrate by measurement or calculation that the TEDE to the individual likely to receive the highest dose from the licensed operation did not exceed the annual dose limit.

This is a Severity Level IV violation (Supplement IV).

C. 10 CFR 20.1101(a), requires that each licensee develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provision of 10 CFR Part 20. 10 CFR 20.1101(b) requires that the license shall use, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to the members of the public that are as low as is reasonably achievable (ALARA).

Contrary to the above, as of March 6, 1995, the licensee had not developed, documented, and implemented a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with 10 CFR 20. Specifically, the licensee did not develop, document, or implement a radiation safety program that includes provisions for maintaining doses ALARA.

This is a Severity Level IV violation (Supplement IV).

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence is already adequately addressed on the docket in Inspection Report No. 040-07102/95-001. However, you are required to respond to the provisions of 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation," and send it to the U.S. Nuclear Regulatory Commission, ATTN:

Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region I, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Report No. 040-07102/95-001

Docket No. 040-07102

License No. SMB-743

Licensee: Shieldalloy Metallurgical Corporation
P.O. Box 768
Newfield, New Jersey 08344

Facility Name: Shieldalloy Metallurgical Corporation

Inspection At: Newfield, New Jersey

Inspection Conducted: February 15-17, March 6, and September 18, 1995

Inspectors: Sheri A. Arredondo 11/20/95
Sheri A. Arredondo, Health Physicist date

Penny Lanzisera 11/20/95
Penny Lanzisera, Health Physicist date

Approved By: John D. Kinneman 11/21/95
John D. Kinneman, Chief date
Nuclear Materials Safety Branch #2
Division of Nuclear Materials Safety

Inspection Summary: Routine safety inspection conducted on February 15-17, March 6, and September 18, 1995 (Inspection No. 040-07102/95-001).

Areas Inspected: The inspection consisted of observations by the inspectors, interviews with personnel, a selective examination of representative records, and independent measurements. Areas reviewed during the inspection include licensee action on Notice of Violation dated January 31, 1994; licensee activities required by Confirmatory Action Letter (CAL) No. 1-95-004; organization and scope of program; personnel radiation protection; the program to maintain occupational radiation exposures as low as is reasonably achievable (ALARA); and radiation protection of members of the public.

Results: Three apparent violations were identified: failure to perform adequate surveys as required by 10 CFR 20.1501 (Section 5); failure to develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with 10 CFR Part 20 as required by 10 CFR 20.1101(a) (Section 6); and failure to show compliance with the annual dose limit in 10 CFR 20.1301, as required by 10 CFR 20.1302(b) (Section 7).

## DETAILS

1. Individuals Contacted

The inspectors met with licensee personnel throughout the inspection. Individuals contacted include:

* H. Nils Schooly, President
*+ Kenneth Pugh, Vice President and General Manager
*+ C. Scott Eves, Radiation Safety Officer (RSO)
Robert DeGrange, Plant Supervisor
*+ Carol Berger, Consultant
and other members of the licensee's staff including thorium and uranium workers

* denotes presence at initial exit meeting on March 6, 1995
+ denotes presence at final exit meeting on September 18, 1995

2. Licensee Action on Notice of Violation

A routine, unannounced inspection was conducted on December 2 and 3, 1993. Based on the results of that inspection, licensed activities were not conducted in full compliance with NRC requirements.

a. (Open) Violation, Notice of Violation dated January 21, 1994

During an NRC inspection conducted on December 2 and 3, 1993, a violation was identified regarding the failure of the licensee to perform air surveys in the blending and furnace area monthly. As specified in the licensee's response letter dated March 15, 1994, the licensee changed the frequency of air surveys to quarterly in their renewal application dated 1985, which they updated most recently in 1993. The renewal has not yet been issued. The inspectors verified that the licensee is performing air surveys (both breathing zone and general area samples) on a quarterly frequency.

This violation remains open.

b. (Open) Violation, Notice of Violation dated January 21, 1994

During an NRC inspection conducted on December 2 and 3, 1993, a violation was identified regarding the failure of the licensee to conduct surveys to assure compliance with 10 CFR 20.106, which limits the yearly average concentration of radioactive material in air discharged to unrestricted areas. This yearly concentration limit controls internal doses to members of the public. The licensee submitted an implementation plan to prepare for conducting surveys to assure compliance with 10 CFR 20.106. As of September 19, 1995, the licensee completed all steps to be able to begin on-site testing of effluent air by a vendor. In implementation of this plan, the licensee stated that this on-site testing will be conducted during the next pyrochlore processing and that the results will be submitted to the NRC.

This violation remains open.

3. Review of Activities Required by CAL No. 1-95-004

A routine, unannounced inspection was conducted on February 15-17, 1995. Subsequent to the inspection, telephone conversations were held with licensee representatives on February 21, 1995. As a result of these telephone conversations, a CAL (CAL No. 95-004) was issued to the licensee on February 22, 1995 (see Attachment A to this report). Since that date, the licensee began taking action to correct the issues addressed in the CAL. The licensee submitted written responses to the CAL dated March 14, 1995 and May 15, 1995 which outlined their progress on and closure of the CAL items. These actions were reviewed during a follow-up inspection on September 18, 1995.

a. Item 1 of the CAL states that the licensee will perform an evaluation of workers' intakes of thorium and uranium based on accurate and validated thorium and uranium to gross alpha ratios, exposure times and air sampling data.

The licensee submitted thorium and uranium activities to gross alpha ratios based upon isotopic analysis of both the initial feed stock (pyrochlore) and the final product (ferrocolumbium slag) to verify the calculation of thorium and uranium activities in air from gross alpha activity air samples. The licensee performed an evaluation of worker stay times and developed a system to track future worker stay times. The licensee also performed particle size analyses of particles pulled through air samplers using a cascade impactor. Thus, the licensee's calculation for worker doses is based upon results of air sampling data calculated from thorium and uranium activities to gross alpha ratios and an adjusted Derived Air Concentration (DAC) based upon the particle size analysis results. Based upon the above information, worker doses are below regulatory limits and range from 0 - 9.6 rem committed dose equivalent to the bone. Since 10 CFR Part 20 requires NRC staff approval prior to adjusting the DAC, this information was submitted to the NRC Headquarters Office as a technical assistance request for review.

This CAL item is closed.

b. Item 2 of the CAL states that the licensee will perform an evaluation of doses for potentially exposed members of the public that may receive the highest whole body exposure in the unrestricted areas surrounding their facility.

The licensee performed a stay time analysis for the areas surrounding their facility. They determined three possible scenarios for exposures to members of the public; 1) continuous presence at the south fence line, 2) less than one hour per week at any randomly selected location around the perimeter fence, and 3) less than one hour per month at thermoluminescent dosimeter (TLD) station number 6. Because the area behind TLD station number 6 is not public property, is a dense forest and is regularly patrolled by

a security guard, a periodic presence of less than one hour per month is acceptable. Based upon these three scenarios for possible exposures and dose data from the TLDs placed at various locations at the perimeter of the unrestricted area surrounding their facility, the licensee calculated less than 4 millirem total effective dose equivalent per year as the highest whole body exposure to any member of the public. Thus, public exposures were maintained below regulatory limits.

This CAL item is closed.

c. Item 3 of the CAL states that the licensee will develop a comprehensive ALARA program.

The licensee developed and submitted an ALARA program that specifies responsibilities of the designated senior manager, the RSO, the Radiation Safety Committee (RSC), and the employees. The importance of these responsibilities was emphasized by a management policy statement that was signed by the president of Shieldalloy Metallurgical Corporation (SMC) on May 15, 1995. This ALARA plan specifies that the RSC shall establish radiological goals and that these goals be reviewed yearly.

This CAL item is closed.

4. Organization and Scope of the Program

SMC processes raw ores for the production of metals and metal alloys. Processing takes place in Building D-111 at their Newfield, New Jersey facility. Stock materials and slag are stored in several warehouses and several outdoor mounds enclosed by a fence. The ferrocolumbium ore, named pyrochlore, which is the initial stock material, contains licensable quantities of source material (both uranium and thorium). Pyrochlore, dolomite, lime, aluminum and steel, are placed into an electric arc furnace for processing. The result is a molten metal which is poured into a series of three crucibles. After the material is cooled it is separated into ferrocolumbium alloy and slag. The slag contains most of the source material. SMC has submitted a license application to the NRC requesting the ability to transfer their slag outside of the United States. This operation would allow SMC to significantly decrease the build-up of slag on their site. This operation also changes the licensee's production to include the crushing and packaging of the slag for shipment. This application is still under review

The licensee processes ore from around midnight to 8 a.m. Four individuals routinely perform such tasks as running the furnace, using a forklift, crane, and elevator to load the hoppers and subsequently to load the furnace and empty the crucibles when cool. These individuals are supervised by the plant supervisor, who reports to the Vice President and General Manager, who reports directly to the president. The RSO also reports directly to the president. The RSO relies on consultants to perform duties such as air sampling, surveys, TLD exchange and analysis and evaluation of data.

No safety concerns were identified.

5. Personnel Radiation Protection

The inspectors reviewed the licensee's program to assess radiological doses to their workers with respect to 10 CFR 20, "Standards for Protection Against Radiation", through observation of the ore processing operations, interviews with personnel and review of records. 10 CFR 20.1501 requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present. Pursuant to 10 CFR 20.1003, survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation.

10 CFR 20.1502(b) requires that each licensee monitor the occupational intake of radioactive material and assess the committed effective dose equivalent to adults likely to receive, in one year, an intake in excess of 10 percent of the applicable Annual Limit on Intake (ALI) in Table 1, Columns 1 and 2 of Appendix B to 20.1001-20.2401.

10 CFR 20.1204(a) requires that for purposes for assessing dose used to determine compliance with occupational dose equivalent limits, the licensee shall, when required under 20.1502, take suitable and timely measurements of (1) concentrations of radioactive materials in air, in work areas; or (2) quantities of radionuclides in the body; or (3) quantities of radionuclides excreted from the body; or (4) combinations of these measurements.

The licensee does not make measurements of quantities of radionuclides in the body or excreted from the body due to the lack of sensitivity of these measurements for the radioactive material they work with. Thus, the licensee depends upon air sampling for their method of assessing doses to their workers.

From January 1, 1994 to March 6, 1995, the licensee's air sample results indicate workers' intakes in excess of 10 percent of the applicable ALI; however, the licensee did not adequately assess the CEDE to these workers. This inadequate assessment is explained in the following paragraphs.

The licensee conducts quarterly air sampling using both general area high volume samplers and lower volume lapel breathing zone samplers for routine operations. The air filters are analyzed by a contractor for gross alpha activity. The licensee then calculates from gross alpha activity in microcuries per milliliter (uCi/ml) to thorium and uranium activities in uCi/ml through the use of a thorium to gross alpha ratio and a uranium to gross alpha ratio. The licensee calculated these ratios to be 0.07. As of February 17, 1995, the licensee did not have data consisting of samples analyzed by alpha spectroscopy to support the use of a 0.07 thorium and a 0.07 uranium to gross alpha ratios.

The derived air concentration (DAC) for thorium-232 class Y is 1E-12 uCi/ml. Assessment of the committed dose equivalent (CDE) is required for adults likely to receive, in 1 year, an intake in excess of 10 percent of the ALI. By definition, one ALI is equal to 2000 DAC-hours. Thus the 10 % monitoring and assessment requirement is at 200 DAC-hours, or 2000 hours at 1E-13 (10% of the DAC). The workers interviewed by the inspectors stated that on average, they work approximately 1100 hours per year with a high of about 2400 hours per year. As of February 17, 1995, the licensee did not have data of exposure time for the thorium and uranium workers.

The following is an example of breathing zone air sampling data taken from one employee during the first month of 1994. The results are reported for gross alpha activity in uCi/ml.

1. 5.0E-12
2. 1.7E-12
3. 1.2E-12
4. 2.6E-12
5. 3.1E-12
6. 1.3E-12
7. 1.1E-12
8. 1.7E-12
9. 2.1E-12
10. 3.4E-12

The average for January 1994 for the above data is 2.3 E-12 uCi/ml. Thus, this average concentration is higher than 1E-12 uCi/ml (the DAC for thorium-232). If the exposure time is 2000 hours during one year for this same concentration, a dose assessment for this individual is not only required, but may exceed regulatory limits. Calculating the average based upon a 0.07 thorium to gross alpha ratio, yields an average concentration of 1.6E-13 which is still greater than 1E-13 (10 % of the DAC for thorium-232). Thus, data to support worker stay times and verifiable data to support the use of a 0.07 thorium to gross alpha ratio is necessary to demonstrating compliance with regulatory limits.

The licensee believed that the doses to the workers were very low based upon what they believed to be short stay times and low air concentrations when they use a thorium to gross alpha ratio. However the worker stay times were never formally evaluated and the licensee could not provide data to support the thorium and uranium to gross alpha ratios they used.

As stated above, the licensee conducted this air sampling for routine operations. However, in August 1994, workers changed thorium and uranium dust collector bags on an exhaust ventilation system, and the licensee did not make or cause to be made surveys during these operations to evaluate the extent of concentration of radioactive materials that could be present.

The finding that the licensee failed to make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present is an apparent violation of 10 CFR 20.1501.

6. ALARA Considerations

The licensee's program to maintain personnel occupational radiation exposure ALARA was reviewed with respect to the regulations contained in 10 CFR 20.1101, Radiation Protection Programs. 10 CFR 20.1101 (a), requires that each licensee develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provisions of 10 CFR 20. 10 CFR 20.1101 (b) requires that the licensee shall use, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to the members of the public that are ALARA. The evaluation of the licensee's performance in this area was based on review of documents, discussions with personnel, and review of on-going activities.

The licensee maintained thorium quarterly air sample results for the individuals who worked within the licensee's thorium and uranium ore processing operations. These air sample results indicate gross alpha air concentrations greater than the DAC listed for thorium in 10 CFR 20 (see complete discussion in Section 5). The inspectors discussed the above air sampling results with the licensee and questioned the nature and extent of the ALARA program developed, documented, and implemented by the licensee. The inspectors' discussions with licensee representatives indicated that there were no formal procedures developed, documented, or implemented which provided for evaluation of on-going operations, associated personnel radiation doses, or exposure reduction initiatives.

The finding that the licensee failed to develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provisions of 10 CFR 20 which include maintaining doses ALARA, is an apparent violation.

7. Radiation Protection of Members of the Public

The licensee's program to limit external radiation exposures to members of the public was reviewed with respect to the regulations contained in 10 CFR 20.1101, "Radiation Protection Programs". Refer to Item 2.b. above for a discussion on internal radiation exposures to members of the public from effluent releases. 10 CFR 20.1302(b) requires, in part, that each licensee show compliance with the annual dose limit in 10 CFR 20.1301 by (1) demonstrating by measurement or calculation that the total effective dose equivalent (TEDE) to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit or (2) demonstrating that if an individual were continuously present in an unrestricted area, the dose from external sources would not exceed 0.05 rem in a year.

The inspectors reviewed thermoluminescent dosimeter (TLD) results from the TLD's posted at the licensee's boundary. The inspectors found that, from January 1, 1994 to January 1, 1995, if an individual were continuously present in the unrestricted area outside of the licensee's fence, their dose from external sources, namely, the thorium and uranium slag pile, would have exceeded 0.05 rem (50 millirem) in that year. The highest quarterly TLD result at the licensee's boundary during 1994 was 473 mrem. The licensee did not perform an evaluation of stay times for members of the public to demonstrate that the TEDE to the individual likely to receive the highest dose from the licensed operation did not exceed the annual dose limit.

The finding that the licensee failed to show compliance with the annual dose limit in 10 CFR 20.1301 is an apparent violation.

8. Independent Measurements

The inspectors took a number of independent measurements during the course of the inspection. Gamma radiation fields were measured with a Ludlum Model 19 micro-R meter. Wipe tests and air samples were analyzed in the Region I analytical laboratory on a Tennelec gas-flow proportional counter for gross alpha activities.

a. Gamma Radiation

The following is a summary of gamma radiation measurements taken by the inspectors in Building D-111. Background gamma radiation levels were measured at 6 to 10 microroentgens per hour (uR/hr). The results are reported in milliroentgens per hour (mR/hr) or uR/hr.

1. Pyrochlore storage: 2.0 mR/hr
2. Slag heap: 1.0 mR/hr
3. First floor - general area: 0.3 mR/hr
4. Hopper: 0.5 mR/hr
5. Crucible: 0.13 mR/hr
6. Scale: 70 uR/hr
7. Bottom of stairs: 50 uR/hr
8. Top of stairs: 20 uR/hr
9. Upstairs rack: 20 uR/hr
10. Uniform storage: 9 uR/hr
11. Office: 7 uR/hr
12. Breakroom: 14 uR/hr

b. Removable contamination

The following is a summary of gross alpha removable contamination from wipe tests of 100 centimeter square areas taken by the inspectors in Building D-111. The activities are reported in disintegrations per minute (dpm) at a counting uncertainty of two sigma.

1. Pyrochlor storage: 0.8 ± 1.5 dpm
2. Pyrochlor storage: 1.3 ± 1.5 dpm
3. Slag heap: 21.0 ± 3.0 dpm
4. Slag heap: 43.0 ± 4.0 dpm
5. First floor - general: 15.0 ± 3.0 dpm
6. First floor - general: 58.0 ± 5.0 dpm
7. Hopper: 9.0 ± 2.0 dpm
8. Hopper: 0.4 ± 1.4 dpm
9. Crucible: 3.0 ± 2.0 dpm
10. Crucible: 4.0 ± 2.0 dpm
11. Scale: 2.1 ± 1.6 dpm
12. Scale: 3.0 ± 2.0 dpm
13. Top of stairs: 2.1 ± 1.6 dpm
14. Top of stairs: 3.0 ± 2.0 dpm
15. Upstairs rack: 3.0 ± 2.0 dpm
16. Upstairs rack: 0.0 ± 1.2 dpm
17. Uniform storage: 3.0 ± 2.0 dpm
18. Uniform storage: 1.7 ± 1.6 dpm
19. Office: 1.3 ± 1.5 dpm
20. Office: 3.0 ± 2.0 dpm
21. Breakroom: 10.0 ± 2.0 dpm
22. Breakroom: 0.8 ± 1.5 dpm

c. Air Samples

The following is a summary of the gross alpha results of two general area air samples taken by the inspectors using high volume air samplers. The results are reported in microcuries (uCi) and milliliters (ml) of air sampled.

1. First floor near hoppers: 2.91 E-5 uCi/filter; 2.10 E7 ml; and 1.39 E-12 uCi/ml
2. Second floor near furnace: 2.05 E-5 uCi/filter: 2.47 E7 ml; and 8.30 E-13 uCi/ml

No safety concerns were identified.

9. Exit Meeting

The inspectors met with the licensee representatives, denoted in Section 1 of this report on March 6, 1995. A final exit meeting was held on September 18, 1995 at the conclusion of the follow-up inspection. The purpose and scope of the inspection, as well as the findings of the inspection, were discussed at these meetings.