

Coors Electronic Package  
 Company  
 ATTN: Bill G. Roddy  
 Environmental  
 Coordinator  
**511 Manufacturers Road**  
**Chattanooga, TN 37405**

SUBJECT: RADIOLOGICAL STATUS OF FORMER AMERICAN LAVA CORPORATION  
 PRODUCTION  
 FACILITY AT 511 MANUFACTURERS ROAD, CHATTANOOGA, TENNESSEE

Dear Mr. Roddy,

A memorandum describing our findings and conclusions regarding the radiological status of your facility at 511 Manufacturers Road (Building 8) is enclosed. As stated in the memorandum, after review of documents contained in the former American Lava license docket file, interviews with former licensee and NRC personnel, and the results of more recent surveys and inspections, it appears that the levels of fixed or removable contamination that may remain from licensed activities conducted in Building 8 are below the current criteria for release of the facility for unrestricted use.

Should you have any questions regarding this matter, please contact Mr. Jay L. Henson at (404) 331-0344.

Sincerely,

Douglas M. Collins, Deputy  
 Director  
 Division of Nuclear Materials  
 Safety

Docket No.: 070-00105

Enclosure: Memorandum to Docket  
 File

cc w/encl: State of Tennessee Department of Environment and Conservation

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Coors Electronic Package Company  
ATTN: Bill G. Roddy  
Environmental Coordinator  
511 Manufacturers Road  
Chattanooga, TN 37405

SUBJECT: RADIOLOGICAL STATUS OF FORMER AMERICAN LAVA CORPORATION PRODUCTION  
FACILITY AT 511 MANUFACTURERS ROAD, CHATTANOOGA, TENNESSEE

Dear Mr. Roddy,

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Should you have any questions regarding this matter, please contact Mr. Jay L. Henson at (404) 331-0344.

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Douglas M. Collins, Deputy Director  
Division of Nuclear Materials Safety

Docket No.:070-00105

Enclosure:Memorandum to Docket File

cc w/encl: State of Tennessee Department of Environment and Conservation



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W., SUITE 2900  
ATLANTA, GEORGIA 30323-0199

On August 15, 1957, the Atomic Energy Commission (AEC) issued a license to the American Lava Corporation, a subsidiary of 3M Corporation, authorizing possession of up to 2,500 pounds of UO<sub>2</sub> containing uranium enriched to 20 percent in the U235 isotope, "for use in the fabrication of ceramic-type fuel elements." AEC License No. SNM-00109, authorized this activity to be performed in a building that American Lava proposed to construct at 511 Manufacturers Road, Chattanooga, Tennessee. When completed, this production facility would perform, on a production scale, similar procedures and activities as American Lava conducted under AEC License No. C-3469 for research and development purposes. The experimental development and production of ceramic-type fuel elements was performed at their Central Research Building located at the corner of Cherokee Boulevard and Ames Avenue in Chattanooga.

Records in the docket file for License No. SNM-00109 indicate that the production facility, designated Building 8, was apparently completed in the spring of 1959. In March, 1959, American Lava requested an amendment to their license to authorize the receipt of high-density pellets containing 200 grams of "fully enriched uranium oxide dispersed in thorium oxide at the rate of three to 8 percent uranium oxide to thorium oxide" for testing of their pellet grinding procedures. The records indicate that between April and, at least, October 1959, the licensee was producing an order of fuel pellets for Allis-Chalmers Manufacturing Company. The records do not indicate the quantity of material involved in filling this order or if this was the only production order American Lava received.

Docket No. 070-00105  
(Terminated)

Attachments: (1) Site Status Report  
(2) American Lava dated 10/14/59  
(3) Region II Memorandum dated  
7/9/81  
(4) Memorandum to File dated  
3/22/95  
(5) 3M Letter dated 8/31/82  
(6) NMSS Letter dated 9/7/82  
(7) Survey Report dated 1/24/95  
(8) Survey Results of 7/12/95

CONTACT: **Jay L. Henson, RII/NMLS**  
**(404) 331-0344**



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W., SUITE 2900  
ATLANTA, GEORGIA 30323-0199

MEMORANDUM TO: American Lava Corporation Docket File  
License No. SNM-00109 (Terminated)

FROM: Jay L. Henson *JLH 10/26/95*  
Materials License Reviewer  
Materials Licensing/Inspection Branch 2

SUBJECT: RADIOLOGICAL STATUS OF FORMER AMERICAN LAVA CORPORATION  
PRODUCTION FACILITY AT 511 MANUFACTURERS ROAD, CHATTANOOGA,  
TENNESSEE

On June 28, 1960, the licensee requested that license SNM-00109 be terminated. No information concerning decontamination of the facility was included with the letter. The AEC terminated the license by a letter dated July 13, 1960.

A more detailed history of the production facility and the activities performed by the American Lava Corporation under their AEC license is included in Attachment 1. This attachment also contains a description of activities performed at this facility after the license was terminated by American Lava **and by subsequent tenants/owners and** a discussion of those activities performed by the Nuclear Regulatory Commission (NRC) to establish the radiological status of Building 8.

After review of documents contained in the docket file, interviews with former licensee and NRC personnel, and the results of a more recent inspection, it appears that there is little or no reason to suspect that levels of fixed or removable contamination above current criteria for release for unrestricted use are present in Building 8. This conclusion is based upon the information discussed below.

#### Building and Process Design

As described in their license application dated April 26, 1957, both the building and the process equipment were designed to permit maximum safety and materials accountability and control. As described, the building walls would be sealed on the inside with an impervious layer of concrete and coated with a strippable plastic. The floors would be made of impervious concrete covered with a conventional continuous sheet plastic floor covering. The building air conditioner system would be provided with filters enabling recovery of special nuclear materials which might be trapped thereon, although the fabrication process was designed to eliminate dust in working areas. Filtered exhausters would be located in the storage room ceiling and in the kiln room ceiling to maintain a negative pressure in the building and provide ventilation.

A description of the manufacturing process and equipment indicated that they were designed to insure maximum protection against material loss and the two basic hazards of radiation and criticality, assuming that material of a maximum enrichment of 20 percent would be handled. Raw material removed from storage would be weighed out into 12 pound batches inside a dry box to contain any dust that may be created. Material would be transferred via air locks to additional dry boxes for each additional manufacturing step. When the process required that the material be removed from a dry box and handled manually, the material containers would be encased in polyethylene bags until returned to another dry box. Compacting of fuel pellets would be done on a 20-ton automatic-cycling hydraulic press, provided with a special plastic enclosure around the fill shoe and pressing die area to contain dust from the compacting operation. The dust cover would be under slight negative air pressure with a small portable vacuum cleaner type dust collector capable of removing particles from the air down to approximately 1/10 micron in diameter.

As the compacts emerged from the die, they would be pushed into a covered **hopper and transferred to a dry box for stacking**. After firing in the kiln,

the pellets would be transferred to a dry box and would be unloaded from trays and loaded into safe geometry magazines for feeding grinders. The pellets would be placed in temporary storage for quality control checking prior to grinding.

If grinding was necessary, it would be performed in closed circuit, watercooled grinders. The water would be continuously filtered to remove solids, and the clear effluent would be recirculated through the grinders. The grinding machines would be hooded at vital areas to protect operators from water spray containing nuclear material removed in the grinding process. A slight negative pressure would be maintained upon the hoods by a suitably filtered air exhaust system located over-head in the grinding area. Droplets of water precipitated in the exhaust system would collect inside the vertical or almost vertical exhaust ducts and drip back into the grinding coolant system. Solids entrapped on the filter in the exhaust system would be removed daily by backwashing the filters in the closed circuit grinder coolant system.

When it became necessary to dispose of the effluent from the grinder coolant system, the water would be evaporated on a hot plate in a stainless steel container and the solids recovered. No effluent would be discharged to the sewer system.

In addition to these building and process features, the licensee committed to perform surveys of working surfaces, floors, walls, ceilings, machines, small tools and equipment periodically with a sensitive alpha counter in addition to smear counts on work surfaces on the following schedule:

Ceilings and walls - once per week

Benches, small tools, materials containers, room air - twice per shift

Hands of personnel - once per shift or upon leaving the work area

The license also committed that if spillage occurred, checks would be made immediately after clean-up to determine the effectiveness of decontamination.

#### Building Operational History

In an American Lava letter dated October 14, 1959, (Attachment 2), it appears that from April to October, 1959, American Lava's total production capacity was devoted to filling an order for fuel pellets for the Allis-Chalmers Manufacturing Company. Information as to how much material was processed during this time and at which facility this was accomplished (Central Research Laboratory versus the production facility) is not available. However, in a letter dated July 9, 1981, (Attachment 3) Region II personnel indicated that after review of records available at the time, an inspector in 1959 indicated that this license (SNM-00109) was not inspectable as late as **November, 1959**, because no material had been received under this particular license. It is possible that the Allis-Chalmers order was manufactured at the Central Research Laboratory under License No. C- 3469. This is further **supported by information obtained** from an **interview with Mr. Richard Dillender, a former**

American Lava employee and Plant Manager of the facility. The results of this conversation are documented in a memorandum dated March 22, 1995 (Attachment 4).

Mr. Dillender stated that when the construction of Building 8 was completed, the ceramic fuel research department, including all equipment and materials used at the Central Research Laboratory, moved into this building. He further stated that only a small amount of ceramic fuel elements were produced in Building 8 and that the operations performed in this building remained under the control of the research department. According to Mr. Dillender, operations in this building were never transferred to the production department and never reached "production" levels. He said that American Lava determined that full scale production was cost prohibitive and that only a "few grams" of licensed material were processed in Building 8 to produce ceramic fuel element samples for a few potential customers. When American Lava decided not to pursue production, Mr. Dillender said that what radioactive materials remained were transferred to another licensed company, the equipment was removed, and the facility was decontaminated.

In the letter at Attachment 3, it appears that in 1981, Region II personnel interviewed the individual who was the American Lava chief engineer responsible for the ceramic fuel production operation and facility. He stated that when American Lava requested termination of their license, that the State of Tennessee and the AEC displayed a great deal of interest in the close-out of the facility. He said that both agencies were either directly or indirectly involved when the close-out surveys were conducted.

#### Building 8 History After License Termination

The AEC terminated American Lava's license on July 14, 1960. Between July, 1960. and approximately 1981, American Lava used Building 8 for processes involving beryllium oxide (BeO). Following termination of the BeO operation, chemical decontamination activities resulted in the removal of floor tiles, ducts, pipes, and interior plasterboard walls, leaving only the buildings shell intact. As discussed in Attachment 4, Mr. Dillender stated that when the BeO operations ceased, Building 8 was completely gutted. He further stated that after the building was gutted, the remaining structure, including all wall, floor and ceiling surfaces, were cleaned by use of steam and high pressure water spray cleaning equipment.

In 1983, 3M sold the facility to General Electric Ceramics, Incorporated. In December, 1989, General Electric Ceramics, Inc., stock was sold to Adolph Coors, Inc., and the name of the facility was changed to Coors Electronic Package Company. Coors is the current owner of the facility.

#### Building 8 Inspection/Survey History

As described in the Region II letter at Attachment 3, close-out surveys of Building 8 were performed when the license was terminated in 1960. No records exist that document the extent or results of these surveys.

However, as described in the 3M letter dated August 31, 1982, (Attachment 4), former

American Lava employees do remember that surveys were performed at the time the license was terminated and the results of these surveys indicated that the building was cleaned to the acceptable release criteria in effect at the time.

In August, 1982, Region II personnel performed a survey of Building 8 to confirm that the facility met the criteria for release for unrestricted use (Attachment 6). This survey was performed after the building had been gutted and cleaned for the BeO operations and before any additional flooring or wall surfaces were added to the facility. The inspectors had direct access to original building floors and wall surfaces that existed when licensed materials were in use in the facility. The inspectors discovered a small amount of thorium in the trap of an unused drain line. They described the levels of radiation detected from the wall and floor surfaces as "typical levels of naturally occurring uranium series isotopes" for these types of building materials. American Lava subsequently removed the thorium and transferred it to an authorized recipient in Tennessee.

Region II personnel returned to Building 8 to perform an additional survey on November 22, 1994. A copy of the report documenting this inspection is at Attachment 7. Based upon the results of this survey, the levels of radiation detected in the original portion of the current building appear to be typical levels associated with naturally occurring uranium series isotopes for these types of building materials. Elevated levels of radiation were detected on the soil where the a settling pond was sited behind Building 8 when compared to those radiation levels detected from the surrounding soil. However, the current owner, Coors, did provide pictorial evidence that the settling pond was excavated several years prior to this inspection. It appears that the fill dirt brought in to replace the soil removed from the settling pond has a higher content of naturally occurring radionuclides than the soil in the surrounding area. It also appears based upon review of the docket file and interviews with former employees, that the settling pond was not needed for the ceramic fuel element production facility and that the pond was not present when licensed activities were performed.

Region II personnel performed some additional surveys of Building 8 on July 13, 1995. The inspector used an Eberline ESP-2 in the scaler mode (1 minute counts) with a Model HP- 260 "pancake" geiger-mueller detector. This instrument had an efficiency of 21.6% and a MDA of 1000 dpm/100 cm<sup>2</sup>. An Eberline microR meter was used-to measure the ambient gamma radiation levels. The inspector obtained direct measurements for original building surfaces (concrete block and brick) which were accessible above the ceiling tiles in Room M-1 (former production area) and in the hallway outside of Room M-1

(former exterior loading dock). Measurements with the microR meter were obtained from floor and wall surfaces in Room M-1 and M-2 (formerly change rooms and offices). The original concrete subfloor was covered with new floor tile and was therefore not accessible for direct measurements with the ESP-2. The original concrete blocks that comprise the perimeter walls

of the two rooms are covered with new wall board and could also not be directly accessed except for the limited area above the ceiling tiles in Room M-1. Direct measurements were also obtained in the basement, in area B-3. The results of

this survey are summarized in the table at Attachment 8. No areas of contamination above the criteria for release of the facility for unrestricted use were identified as a result of this survey.

### Conclusions

Based upon the above information, one can conclude, with a significant degree of confidence, that the facility (Building 8) where American Lava conducted licensed activities at 511 Manufacturers Road, Chattanooga, Tennessee, and which is currently owned and operated by the Coors Electronic Package Company, should be released for unrestricted use. The NRC previously came to the same conclusion on at least three separate occasions.

The NRC originally came to this conclusion in 1960 when License No. SNM-00109 was terminated. Region II and the State of Tennessee came to the same conclusion in 1981 as described in Attachment 3. On a third occasion, after a 1982 inspection (Attachment 6), the NRC again determined that the site was found to be free of uranium and thorium, with the exception of the thorium found in one drain trap.

Based upon all the information discussed above, it is recommended that the site be released for unrestricted use.

REGION II TERMINATED SITES  
LIST

SITE STATUS REPORT

MARCH 24, 1995

Docket No. 070-00105  
00109

License No. SNM-

Licensee Name: American Lava  
Corporation

Site Name: Production Facility (Building  
8)

Site Address: 511 Manufacturers  
Road

City: Chattanooga State: TN Zip: 37405  
Regional Contact: Jay L. Henson Phone: (404) 331-  
0344

Status Summary:

ORNL Final Score:  
6140

Background

License issued to American Lava on August 15, 1957, authorizing possession of up to 2,500 pounds of  $UO_2$  containing uranium enriched to 20% in the U235 isotope, "for use in the fabrication of ceramic type fuel elements." The summary process/equipment description provided with the license application is attached. Detailed process information and a facility description are available in the docket file. The application states that the SNM used would consist of "Mallinckrodt or equivalent grade chemically pure  $UO_2$  powder enriched to a maximum of 20% in the U235 isotope."

In November 1957, the licensee requested authorization to process 5,000 grams of  $UO_2$ , enriched to 8%, in their Research Laboratory (which was licensed for source material under License No. C-3469), rather than in the location of use identified in License No. SNM00109, which was still under construction. It is unclear from the file whether this operation took place.

In March 1959, the licensee asked for and received, authorization to receive high-density pellets containing 200 grams of "fully enriched uranium oxide dispersed in thorium oxide at the rate of three to 8 percent uranium oxide to thorium oxide" for testing of their pellet grinding procedures.

Between April and, at least, October 1959, the licensee was producing an order of fuel pellets for Allis-Chalmers Manufacturing Company. The records do not indicate the quantity of material involved in filling

this order or if this was the only production order American Lava received.

Attachment 1

## REGION II TERMINATED SITES LIST

### SITE STATUS REPORT

MARCH 24, 1995

American Lava  
(A subsidiary of 3M Corporation)  
Chattanooga, TN

License No. SNM-00109  
Docket No. 070-00105

On June 28, 1960, the licensee requested that license SNM-00109 be terminated. No information concerning decontamination of the facility was included with the letter.

By AEC letter dated July 13, 1960, the license was terminated.

Between July 1960 and approximately 1981, the licensee had used the facility for processes involving beryllium oxide (BeO). Following termination of the BeO operation, chemical decontamination activities resulted in the removal of floor tiles, ducts, pipes, and interior plasterboard walls, leaving only the building's shell intact.

In July 1982, NMSS requested that Region II conduct a survey of the former American Lava facility. The survey was conducted on August 4, 1982 and documented in an August 27, 1982 memo to NMSS. A small quantity of thorium was found in the trap of an unused drain line and was transferred to an authorized person.

3M's Radiation Safety Officer (RSO) located a memo dated August 31, 1982, in the company's archives. The memo reviews the Chattanooga facility's history and states, "At the completion of the (uranium) work all materials were sent to Northern States Power as fuel elements, or in raw material form to Mallinckrodt, or Davidson Chemical (part of W. R. Grace) and clean up was conducted with surveys performed to determine that the building was cleaned to the then current acceptable release levels. No burial activity was performed on 3M property during this operation." 3M's RSO advised that he had found no other records that described the decontamination efforts in any greater detail.

In 1983, 3M sold the facility to General Electric Ceramics, Inc.

In December 1989, General Electric Ceramics, Inc., stock was sold to Adolph Coors, Inc., and the name of the facility was changed to Coors Electronic Package Company. Coors currently owns the facility. No contact has been made with Coors.

Records of the State of Tennessee Division of Radiological Health and interviews of State of Tennessee, 3M, GE, and former American Lava employees, including the former Vice President and General Manager, Manufacturing Director, Plant Manager, and Division Engineer, has not developed any additional information concerning closeout surveys of the Chattanooga plant.

**REGION II TERMINATED SITES LIST**

**SITE STATUS REPORT**

**MARCH 24, 1995**

American Lava  
(A subsidiary of 3M Corporation)  
Chattanooga, TN  
Assessment

License No. SNM-00109

Docket No. 070-00105

It was determined that the records did not contain adequate information to ascertain the current radiological condition of this facility. Region II personnel performed a followup inspection of this facility on November 22, 1994. The survey revealed that background radiation levels in the original structure were approximately two times the levels found in an area of the building that was added after licensed activities were discontinued. The survey also revealed that the radiation levels detected at the surface of the soil where a settling pond was formerly located were approximately fifty percent higher than the levels measured from soil near where the settling pond was located.

The results of this survey were forwarded to the current facility owner, Coors Electronic Package Company, in a letter dated January 24, 1995. Based on the results of the survey, it appeared that further investigation, including additional, more sensitive surveys, should be performed in Building 8 and in the area of the former settling pond adjacent to this building to demonstrate that this facility meets the NRC's criteria for release for unrestricted use.

Coors Ceramics Company responded to the report in a letter dated March 3, 1995. Their position is that Building 8 was thoroughly cleaned and renovated since licensed activities were discontinued. They further stated that based upon the review of their files and those of previous owners, they believe the facility is ready for occupancy and that the existing levels of radiation in the facility are due solely to natural background.

Region II plans to request that Coors produce any documentation which describes the type and intensity of decontamination/cleaning efforts which were undertaken in this facility in the past. Region II will also request that Coors produce documents that indicate the settling pond behind Building 8 was established after licensed activities were discontinued. Region II will also attempt to get a better description of the survey performed at this facility by Region II personnel on August 4, 1982, to determine if it was adequate enough to demonstrate that the facility meets the criteria for release for unrestricted use.

ALSiMAG



70-10  
File 4.

TELEPHONE  
AMHERST 5-3411

# AMERICAN LAVA CORPORATION

CERAMICS FOR ELECTRICAL AND OTHER TECHNICAL USES - STEATITE TITANIA ALUMINA

CHATTANOOGA 5, TENNESSEE

October 14, 1959

Mr. J. C. Delaney, Chief  
Nuclear Materials Section  
Licensing Branch  
Division of Licensing and Regulation  
U. S. Atomic Energy Commission  
Washington 25, D. C.

Dear Mr. Delaney:

LRL:CPM  
Docket No. 70-105



Your letter of October 1, 1959

Mr. R. A. McGinnis has passed your letter of October 1, 1959, to me with reference to the additional information which is required for your further consideration of our special nuclear material license amendment per our request of January 27, 1959. The need for additional information originally was presented to us in your letter of March 10, 1959, addressed to Mr. Warren J. Hardy, Engineer, Titania Division.

We are planning to follow through on our request for a license amendment by providing the required information within the next few weeks. Our delay in answering your letter of March 10 has been due to several circumstances. We have been working with your Mr. Charles P. McCallum, Jr., on a suitable alarm system and evacuation procedures. Some of our work has been delayed due to the resignation of Mr. Hardy. However, most of the delay has been due to our attention to an order for fuel pellets which we are producing for Allis-Chalmers Manufacturing Company. This order has required the entire output of our facility since last April and has precluded any consideration of handling other work.

As soon as we are in a position to answer your letter of March 10, we will supply the requested information in quadruplicate.

Very truly yours,

AMERICAN LAVA CORPORATION

*Walter S. Adams*

*copy this request  
in full to  
4-25-60*



As- per your request, an investigation has been conducted concerning License No. SNM-109 issued to American Lava Corporation, Chattanooga, Tennessee in 1957 and terminated July 13, '1960. Telephone interviews conducted with numerous parties involved including former (and subsequent retired) employees of American Lava Corporation, State of Tennessee Radiological Health : ' Personnel, I and NRC L i c e n s i n o Personnel and review of the few records that do exist on this license revealed the following facts as they were compiled:

1. Minnesota Mining and Manufacturing Company <sup>(3M)</sup> purchased American Lava Corporation in 1953.
2. The original purpose for acq ' uisition of the material was for research and development -in the production of fuel elements in order to compete on t . he open -arket- that existed at the time. Quantities actually possessed under this license (if any) never approached the authorized licensed quantities. It was a corporate decision to terminate the license in 190'0 because of competitive reasons.
3. The Region II file on this license was destroyed in 1973. Personnel contacted in the Headquarter's Files Division stated that their files for this license had also been previously destr ov ed .
4. According to the chief engineer for the project involving the licensed material, a great deal of interest was displayed by both the State of **Tennessee and the Atomic Energy Commission** when the **license was terminated and further that both parties were** involved either directly or indirectly when the close-out surveys were conducted. Material in possession at that time was either returned to Oak Ridge which was -involved in account .ability procedures or to Davison Chemical Company (later NFS).
5. State of Tennessee personnel indicated that the Office of State Programs had recently initiated a similar investigation by the State of Tennessee on the same licensee and that the State has submitted in writing to the OSP their findings (which were similar to these) and furthermore that

both the State and OSP considered the matter appropriately closed.

e T A C P E ? e r v



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W., SUITE 3100  
ATLANTA, GEORGIA 30303

JUL - 9 1981

SSINS 6100

MEMORANDUM FOR: Leo B. Higginbotham, Chief, Radiological Safety Branch,  
Division of Safeguards and Radiological Safety Inspection, OIE:HQ

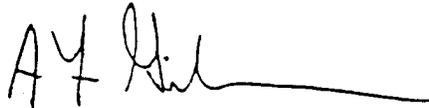
FROM: A. F. Gibson, Acting Division Director,  
Engineering and Technical Inspection Branch, RII

SUBJECT: REVIEW OF FORMERLY USED PART 70 LICENSEE SITES

JUL - 9 1981

6. A review of file reference cards in the Region II office of the license has shown that comments annotated by an inspector in 1959 indicated that this license was not inspectable as late as November, 1959, because no material had been received under this particular license.

As a result of these findings, it is our opinion that the material (if any) possessed under this license was properly disposed of and that a close-out survey was conducted of the facility at that time which was in all likelihood included in the records which were destroyed.

  
A. F. Gibson

On March 22, 1995, I spoke with Mr. Richard Dillender [(615) 886- 3229], a former employee of the American Lava Corporation facility in Chattanooga, Tennessee. Mr. Dillender was employed by American Lava, a subsidiary of 3M Corporation, between 1954 and 1984. During the course of his employment at the facility, Mr. Dillender served as the Plant Manager.

I asked Mr. Dillender what he remembered regarding the use of uranium and thorium at the American Lava Central Research Facility at 25 Cherokee Boulevard and the production facility, Building 8, at the American Lava property at 511 Manufacturer's Road. Mr. Dillender remembered that American Lava did establish a research laboratory at the 25 Cherokee Boulevard address to research and develop a production process to produce ceramic fuel elements. He remembered that the researchers used both uranium and thorium at this facility.

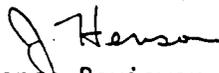
Mr. Dillender stated that when the construction of Building 8 was completed, the ceramic fuel research department, including all equipment and materials used at the Central Research Laboratory, was moved into this building. Although he did not specifically remember a closeout survey of the two rooms where materials were used in the Central Research Laboratory, he did remember that it was company policy that extensive surveys be performed of this type of facility whenever use of radioactive materials was discontinued.

Mr. Dillender further stated that only a small amount of ceramic fuel elements were produced in Building 8. He said that the operations in Building 8 remained under the control of the research department and that operations in this building were never transferred to the production department and never reached "production" levels. As he remembered, the cost of raw materials, which American Lava purchased from companies that also produced fuel elements, was so high that full scale production was cost prohibitive. He said that the research department production of fuel elements in Building 8 was limited to a "few grams" and its purpose was to produce ceramic fuel element samples for a few potential customers. When American Lava decided not to pursue production, Mr. Dillender said that what radioactive materials remained were transferred to another licensed company, the equipment removed, and the facility decontaminated.

Attachment 4

March 22, 1995

MEMORANDUM TO: American Lava Corporation Docket File  
License No. SNM-00109 (Terminated)

FROM: Jay L. Henson   
Materials License Reviewer  
Nuclear Materials Licensing Section

SUBJECT: RECORD OF TELEPHONIC CONVERSATION WITH RICHARD DILLENDER

Shortly after the use of radioactive material in Building 8 was discontinued, American Lava began a manufacturing operation that involved the use of beryllium oxide. When this operation was discontinued in the early 1980's, Mr. Dillender stated that Building 8 was completely gutted. He said all interior walls, equipment, ventilation ducts, ceiling materials, process pipes and floor tiles were removed and disposed of as hazardous waste by Chemical Waste Management. After gutting the building, the remaining structure, including all wall, floor and ceiling surfaces, were cleaned by use of steam and high pressure water spray cleaning equipment.

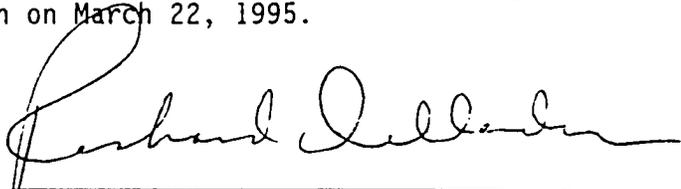
Mr. Dillender further remembered that two NRC inspectors surveyed Building 8 shortly after the completion of these extensive cleaning efforts. He stated that the inspectors were at the facility for an entire day and that the only material they detected during their survey was contained in a trap of an unused drain line. He said that this drain trap was removed and transferred to the W. R. Grace Company for disposal.

I asked Mr. Dillender if he remembered a settling pond behind Building 8 when radioactive material was used at the facility. He said he remembered the settling pond, but did not think that it was there when radioactive material was used. He did remember it being there when beryllium oxide was used, but did not remember what purpose the settling pond served.

ACKNOWLEDGEMENT OF ACCURACY OF MEMORANDUM

I have read the memorandum dated March 22, 1995, regarding the information I provided to Mr. Jay L. Henson about the American Lava Corporation and their licensed activities and subsequent license termination. The memorandum accurately describes the information I provided Mr. Henson regarding this subject in a telephonic conversation on March 22, 1995.

Date: 4/18/95

  
Richard Dillender

Enclosure 2

Internal Correspondence

To: TECHNICAL CERAMICS - CHATTANOOGA - FILE

From: D. C. HALL - MEDICAL, HEALTH PHYSICS SERVICES - 220-2E-02

Subject: Former Urania-Thoria Operations

Date: August 31, 1982

**3M**

On August 21, <sup>1982?</sup> 1980 John Graves of the Tennessee State Health Department Radiological Health Section called me concerning former use of urania and thoria at 3M's Chattanooga facility previously owned and operated by America Lava. He indicated that he had been contacted by the NRC concerning information on the facility and disposition of the material at the termination of operations there. The question of activities arose because the NRC was in the process of looking at all sites where source material and special nuclear material had been processed to ensure that the facilities were properly decontaminated and that no materials remained on the property.

Subsequently, I talked to Al Tipps, former Plant Manager at Chattanooga, and J. G. Breedlove, Walt S. Adams and J. P. Smyly formerly in the laboratory at Chattanooga about operations there. Work was performed in the fabrication of experimental fuels in the Ceramic Technology area. It appears that licensing allowed up to 11,500 pounds of uranium and thorium in various chemical forms. There were both source material and special nuclear material licenses for the facility which expired in the 1961-1962 period. The major project appeared to have been terminated in 1960. At the completion of the work all materials were sent to Northern States Power as fuel elements, or in raw material form to Mallinkrodt, Davison Chemical (part of W. R. Grace) and clean up was conducted with surveys performed to determine that the building was cleaned to the then current acceptable release levels. No burial of activity was performed on 3M property during this operation. All this information was communicated to John Graves. In addition, Dick Dillender, the Chattanooga 3M Plant Manager, was notified, should an NRC or Tennessee State inspector show up at a later time.



On August 27, 1982 Health Physics Services was informed by Dick Dillender that an NRC inspector from the NRC Atlanta, GA office had come in on two separate occasions to perform a survey in the building where the urania-thoria operations were conducted. The NRC inspector was allowed to survey the building which had just been extensively cleaned following termination of beryllium oxide operations conducted for the last 15 years. On his second visit with a sensitive instrument he was able to determine that one sink trap contained a "cup full" of material containing natural thorium and U-235. He indicated to Dick Dillender that there were no health hazards associated with this (his only health concern was that the material dry out and become airborne) but that the material should be transferred to someone presently licensed to handle it. He suggested that the W. R. Grace Plant in Chattanooga be contacted relative to disposal.

Mr. Dillender contacted the Plant Manager at W. R. Grace about transferring the material to them. The W. R. Grace Plant Manager indicated that they would be happy to take it off 3M's hands and would forward a letter to them indicating their willingness to do so. Dick Dillender said that they would remove the trap, flush the material into a container and transfer the material to W. R. Grace. He would forward a copy of the letter from the W. R. Grace Plant Manager to the NRC indicating that the operation had taken place. I indicated to Mr. Dillender that there certainly were no health hazards associated with the operation and that he should proceed. He indicated that they would remove the material during the week of August 30-September 3, 1982.



DCH:cr

SEP 7 1982

DISTRIBUTION  
Docket 40-575  
Docket 70-105  
GBidinger (2)  
WTCrow  
LTyson  
Region II

Docket No. 40-575, C-3469  
Docket No. 70-105, SNM-109

NOTE TO FILES

The American Lava Corporation site in Chattanooga, Tennessee, was inspected by Region II. With one exception, the site was found to be free of Uranium and thorium. The one exception, a drain pipe containing thorium, will be removed by the licensee.

The Region II memorandum documenting the findings is enclosed.

Original Signed  
By:  
W. T. Crow

W. T. Crow, Section Leader  
Uranium Process Licensing Section  
Uranium Fuel Licensing Branch  
Division of Fuel Cycle and  
Material Safety, NMSS

Enclosure:  
Memo AFGibson to RGPPage, 8/27/82

Attachment 6

OFFICE	FCUP <i>AMB</i>	FCUF <i>LT</i>	FCUP <i>WTC</i>				
SURNAME	GBidinger/lt	LTyson	WTCrow <i>WTC</i>				
DATE	9/3/82	9/5/82	9/3/82				

NRC FORM 318 (10-80) NRCM 0240

OFFICIAL RECORD COPY

August 27, 1982

MEMORANDUM FOR: R. G. Page, Chief, Uranium Fuel Licensing  
Branch, NMSS

FROM: A. F. Gibson, Chief, Technical Inspection Branch  
Division of Engineering and Technical Programs

SUBJECT: INSPECTION OF PREMISES: FORMER LICENSEE - AMERICAN LAVA  
CORPORATION, CHATTANOOGA, TENNESSEE (SNM-109 AND C-3469)

REFERENCE: Memo From A. Gibson to L. Higginbotham. Similar Subject.  
7/9/81

Pursuant to a verbal request by W. Crow, we have completed an inspection of the premises occupied in late 1950s and early 1960s by the subject licensee (Docket No. 40-575 and 70-105) near the northwest quadrant of the intersection of Manufacturers Road and Cherokee Boulevard.

A portable MCA\* analysis of the premises on August 4, 1982, now still occupied by 3-M Corporation, the parent corporation, revealed the presence of thorium (less than 1 lb) in the trap of an unused drain line and typical levels of naturally occurring uranium series isotopes in the cement walls and floors of the former UO<sub>2</sub> ceramic fuel pellet building in the oxide nuclear fuel fabrication plant (Peerless Street Plant property).

License Nos. C-3469 and SNM-109 were terminated, we believe, on July 13, 1960, and the former uranium-thorium areas were for about 20 years, used for other purposes and none of the original fuels equipment is onsite. We understand from a former employee that the contaminated equipment was all returned to ORNL. The present 3-M Plant Manager, Richard Dillender, revealed that the former UO<sub>2</sub> fuel pellet building had been used for beryllium oxide processes since the late 1950s and was recently decontaminated to remove the BeO hazard in preparation for other uses.

He has agreed to remove and properly dispose of the cast iron drain trap containing the thorium, even though the amount of thorium is well within the general license limits of 10CFR40.22. This will be accomplished by 3M corporate health physics staff or transfer to a Tennessee licensee.

CONTACT: J. P.  
Potter  
242-5536

\*ND Six, 2048 Channels

From: Robert A. Brown (RAB)  
To: JLH  
Date: Thursday, March 23, 1995 2:20  
pm  
Subject: American Lava

Phil Chambless and I conducted a survey at American Lava, Chattanooga, TN in August 1982. As I recall we used a SPA-3 with a sodium iodide detector and a portable MCA. The rooms surveyed had been painted with white enamel. The only readings above background were found in a sink drain (trap). I don't recall what the readings were. We may have been there part of 2 days. Thats about all I remember; hope it helps.

Gentlemen:

This letter refers to the inspection and radiological survey conducted by Mr. Jay L. Henson, of this office, on November 22, 1994, of the Coors Electronic Package Company facility (formerly American Lava) in Chattanooga, Tennessee. I accompanied Mr. Henson during the inspection. We discussed the survey findings with you and Messrs. Edward Snyder and Bill Roddy of Coors Electronic Package Company following the inspection. Mr. Ruben K. Crosslin, of the Division of Radiological Health, Tennessee Department of Environment and Conservation, was also present during the inspection and exit briefing.

The enclosed inspection report identifies the areas examined during the inspection. The inspection consisted of site observations, limited independent radiological measurements and interviews with Coors employees who had knowledge of your current use of the facility and use of the facility when it was under the control of the American Lava Company. Based on the results of this inspection/survey, it appears further investigation, including additional, more sensitive surveys, need to be performed in Building 8 and in the area of the former settling pond adjacent to this building to demonstrate that this facility meets the NRC's criteria for release for unrestricted use.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice" a copy of this letter and the enclosure will be placed in the NRC Public Document Room.

Should you have any questions concerning the inspection, we will be glad to discuss them with you.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W., SUITE 2900  
ATLANTA, GEORGIA 30323-0199

January 24, 1995

Coors Ceramics Company  
ATTN: Paul Adams, Administrator  
Environmental Health and Safety  
600 Ninth Street  
Golden, Colorado 80401

SUBJECT: INSPECTION AND SURVEY OF THE FORMER AMERICAN LAVA FACILITY AT THE  
COORS FACILITY IN CHATTANOOGA, TENNESSEE

Sincerely,

A handwritten signature in cursive script that reads "Douglas M. Collins".

Douglas M. Collins, Chief  
Nuclear Materials Safety and  
Safeguards Branch  
Division of Radiation Safety  
and Safeguards

Docket No. 070-00105  
License No. SNM-00109

Enclosure: (See Page 2)

Attachment 7

Enclosure: NRC Inspection  
Report

cc w/encl: State of Tennessee Department of Environment and Conservation

3M Center  
Building 220-3W-06  
ATTN: B. Wissink  
St. Paul, Minnesota 55144-  
1000



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W., SUITE 2900  
ATLANTA, GEORGIA 30323-0199

Report No.: SNM-00109/94-01

License No.: SNM-00109 (Terminated)

Docket No.: 070-00105

Former Licensee: American Lava Corporation  
A Subsidiary of 3M

Current Facility Owner: Coors Electronic Package Company  
511 Manufacturers Road  
Chattanooga, TN 37405

Inspection Conducted: November 22, 1994

Inspector: Jay L. Henson  
J. L. Henson, Health Physicist  
Nuclear Materials Licensing Section

12/14/94  
Date Signed

Approved by: C. M. Hohey  
C. M. Hohey, Chief  
Nuclear Materials Inspection Section  
Nuclear Materials Safety and Safeguards Branch  
Division of Radiation Safety and Safeguards

1/24/95  
Date Signed

## SUMMARY

### Scope:

This announced followup inspection of this formerly-licensed site, which has been identified as having insufficient information in the file to demonstrate that the site had been decontaminated to NRC release limits, was conducted to determine what further actions are required to categorically determine that the site can be released for unrestricted use. The inspection included interviews with operational and management personnel employed by the current owner of the site and a scoping inspection and survey of the specific facility and grounds where licensed activities were formerly conducted. The extent of the survey was limited to the detection of elevated levels of contamination and was not intended to determine if the levels of contamination that may exist exceeded the NRC limits for unrestricted use.

Enclosure

## Results

Radiation levels in accessible areas of Building 8, the facility where licensed activities were formerly conducted, were generally found to be equivalent to the background radiation level. It should be noted that the main floor of this facility has undergone significant renovation since licensed activities were discontinued and therefore many of the original construction floor and wall surfaces were covered with **newer floor tiles** and wall board. Therefore, direct measurements could not be obtained from the original construction surfaces and the inspectors could not categorically determine that the levels of contamination did not exceed the NRC limits for release of the facility for unrestricted use.

Radiation levels at the surface of the soil surrounding Building 8 were elevated in an area where a settling pond was formerly located. Based on discussions with Coors Electronic Package Company personnel, and review of photographs, it appears that several years prior to this inspection, the contents of this settling pond were removed from the site down to a level of 14 feet. Apparently, after excavation and removal of the contents of the settling pond and several feet of soil below the pond, fill dirt from an off-site location was brought in to refill the area. They also stated that they think the settling pond was not established until after licensed activities in Building 8 were discontinued.

Based on the results of this inspection, additional surveys of selected surface areas in Building 8 are required to demonstrate that this facility can be released for unrestricted use. In addition, a further evaluation of the former settling pond is needed to determine if the elevated levels of radiation are due to soil contamination from formerly licensed activities and if so, if the levels exceed NRC criteria for release of the area for unrestricted use.

Documents describing American Lava's activities contained in the license docket file indicate that both uranium and thorium were used at Building 8. Therefore, the acceptable surface contamination levels that must be met prior to release of the facility for unrestricted use are those listed for thorium in the NRC "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material", July, 1982 (Attachment 1). The levels for thorium listed in this document are 1000 dpm/100 <sup>CM2</sup> average, and 3000 dpm/100 <sup>CM2</sup> maximum, fixed contamination and 200 dpm/100 <sup>CM2</sup> removable contamination.

## REPORT DETAILS

### 1. Persons Contacted

\*Paul Adams II, Coors Ceramic Company, Administrator, Environmental Health and Safety

Coors Electronic Packaging Company Employees:

\*Edward Snyder, Human Resources Manager/Legal Counsel \*Bill G. Roddy, Environmental Coordinator

\*Ruben K. Crosslin, Division of Radiological Health, Tennessee Department of Environment and Conservation

\*Present at Exit Interview

### 2. Background

The American Lava Corporation was issued a license on August 15, 1957, which authorized them to possess up to 2500 pounds of UO<sub>2</sub> containing uranium enriched to 20 percent in the U<sup>235</sup> isotope for use in the fabrication of ceramic-type fuel elements. Building 8 at the Coors Electronic Packaging Company is the site where American Lava manufactured the fuel elements. It is unclear when American Lava began production in Building 8, but records do describe at least one production run between April and October, 1959. On June 28, 1960, American Lava requested termination of their license and on July 13, 1960, the AEC terminated the license.

The license docket file contains no information concerning decontamination of the facility prior to license termination. For several years after termination of the license, Building 8 was used for processes involving beryllium oxide (BeO), and when these BeO activities ceased, the building was gutted. The chemical decontamination for the BeO activities resulted in the removal of floor tiles, ducts, pipes, and interior plasterboard walls, leaving only the building's shell intact.

At the request of NMSS, Region II conducted a survey of the former American Lava facility on August 4, 1982. The August 27, 1982, memorandum to NMSS which documents this survey does not contain sufficient information to demonstrate that Building 8 can be released for unrestricted use. However, the memorandum does state that thorium was detected in the trap of an unused drain line **and that the drain line** was removed for disposal. The memorandum also states that they detected typical levels of naturally occurring uranium series isotopes in the cement walls and floors of the of the facility.

American Lava also conducted research and development **activities under** this license and Source Material License No. C-3469, Docket No. 040-00575, at a separate research laboratory facility. **The building**

where this former research laboratory was located is at the corner of Cherokee Blvd. and Ames Ave. and is not on Coors property. It will be the subject of an inspection at a later date.

### 3. Facility Status

Building 8 includes a main floor and a basement (see Attachment 2). The main floor is divided into three sections and the basement is divided into two small storage rooms and a larger, L- shaped area. **The two** sections of the main floor that comprise the original building (M-1 and M-2) were unutilized and were devoid of any furnishings or equipment. The third section of the main floor was apparently added to the building after the license was terminated and contains some office and storage space and an area used for research. This area was also not used at the time of the inspection. The two storage rooms in the basement (B-1 and B-2) were used to \*store chemicals and the L- shaped area contained a metal saw and other facilities maintenance materials and equipment.

A former settling pond was located behind the east side of Building 8. Coors employees stated that the settling pond had been excavated several years prior to this inspection and the contents and several feet of soil beneath and around the pond had been disposed of off-site. They also stated that they believe that the excavation was refilled with soil obtained from a location off-site and that the settling pond was established after the license was terminated.

### 4. Independent Radiological Measurements

The inspectors used an Eberline Model PRM-7 MicroR Meter (serial number 575, calibrated May 23, 1994) to measure the dose rates at several points on the grounds outside Building 8 as well as inside the building. Multiple survey measurements were obtained in some areas and the results are listed as a range from the lowest to the highest measurement.

#### Building 8, Basement:

Background: 7  
microR/hr

<u>Area</u>	<u>Range (microR/hr)</u>
B-1, Acid Storage, floor and walls 7-8	
<u>Area</u>	<u>Range (microR/hr)</u>
B-2, Caustic Storage, floor and walls 7-8	

Building 8, Basement (continued):

Background: 7 microR/hr

<u>Area</u>	<u>Range (microR/hr)</u>
B-3, Maintenance floor and walls	6-8

Main Floor:

Background: 8 microR/hr (M-1 and M-2); 4 microR/hr (M-3)

<u>Area</u>	<u>Range (microR/hr)</u>
M-1, floor, near walls	8-10
M-1, walls, 2 feet above floor	10-14
M-1, floor, center of room	6-8
M-2, floor, near walls	8-10
M-2, walls, 3 feet from floor	12-14
M-2, floor, center of room	8-12
M-3, floor	3-7

It was noted that the measurements in the M-3 area, which was constructed after licensed activities were terminated, were about one-half the level of those in the original structure. This may have been due to a difference in the natural or background radiation from the old versus new building materials.

Roof

Background: 5 microR/hr

Range (microR/hr): 5-8

Exterior

Background: 6 microR/hr

<u>Area</u>	<u>Range (microR/hr)</u>
Concrete pad, north side	6-8
Soil, over settling pond	10-14
Soil, near fence line	10
Soil, low spot, north of pond	10-12
Soil, north side, uphill, away from pond	6-8
Soil, near drain, south of pond	8-9
Drain, south of pond	5
Soil, next to building, north side	8-10

## 6. Exit Interview

On November 22, 1994, an exit interview was conducted with the persons indicated in paragraph 1. The Coors representatives were informed of the results of the inspection and surveys. They were informed that based on the results of the surveys, further action, such as additional surveys of original building surfaces, may be required to demonstrate the facility complies with the NRC's criteria for release for unrestricted use. They were also informed that further surveys of the former settling pond may be required if they cannot determine that the pond was established after licensed activities were terminated or that the increased radiation levels in the soil at the pond are due to background radiation levels of the soil used to refill the pond after it was excavated.

SURVEY RESULTS

July 13, 1995

Direct Measurements

Location	dpm/100 cm <sup>2</sup>			microR/hr		
	Sample Points	Range	Avg	Sample Points	Range	Avg
Room M-1						
Walls, concrete block	21	0-836	384	17	0-4	1.9
Walls, wall board				18	0-5	1.3
Floor				60	0-3	0.3
Room M-2						
Walls, wall board				22	0-4	1.4
Floor				47	0-3	0.8
Basement Room B-3						
Floor	10	0-1016	146	10	all 0	0
Walls	3	all 0	0	3	all 0	0



**CONFIRMATORY SURVEY RESULTS**

Licensee: American Lava Production Facility  
Coors Electronic Package Co.

License No.: SNM-22109 (Terminated)

Docket No.: 070-00105

Inspectors: J. Henson

Survey Date: 7/13/95

Radionuclides of Interest: Uranium (enriched up to 20%); Thorium 232

**Instrumentation:**

Instrument #1		Instrument #2	
Type: Eberline ESP-2	Probe: HP-260 Pancake	Type: Eberline $\mu$ R meter	Probe: Internal
S/N: 00793	S/N: N/A	S/N: 591	S/N: N/A
NRC#: 026418	NRC#: 026416	NRC#: 013485	NRC#: N/A
Calibration Due: 7/7/96	Size (S): 15.5 cm <sup>2</sup>	Calibration Due: 6/20/96	Size (S): N/A cm <sup>2</sup>
Efficiency (E): 21.6%	Background: 46 cpm	Efficiency (E): N/A	Background: 8 $\mu$ R/hr
Check Source: Tc99	MDA: 1000 dpm/100 cm <sup>2</sup>	Check Source: Th 232	MDA: N/A

**Survey Results**

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	dpm / 100 cm <sup>2</sup>	Ins. No.	Gross $\mu$ /m rem/hr	Net $\mu$ /m rem/hr
Building 8								
Room M-1 Production Area								
North Wall - CB - Concrete Block	1	58	12	56	361	2	10	2
WB - Wall Board	2	—	—	—	—	2	8	0
CB - above ceiling	3	68	22	102	658	2	11	3
WB - 3-4 feet	4	—	—	—	—	2	10	2
above floor	5	57	11	51	329	2	8	0



CONFIRMATORY SURVEY RESULTS  
(continuation page)

Licensee: American Lava Production Facility

License No.: SNM - 00109 (Terminated)

Coors Electronic Package Co.

Docket No.: 070-00105

Inspectors: J. Henson

Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	$\frac{\text{dpm}}{100 \text{ cm}^2}$	Ins. No.	Gross $\mu/\text{m}$ Rem/hr	Net $\mu/\text{m}$ Rem/hr	
Building 8, Room M-1									
CB - original material WB - new construction									
North Wall	CB 6	1	74	28	130	836	2	-	-
	WB 7	1	-	-	-	-	2	8	0
	CB 8	1	45	0	0	0	2	11	3
	CB 9	1	42	0	0	0	2	-	-
	WB 10	1	-	-	-	-	2	8	0
East Wall	CB 11	1	59	13	60	388	2	11	3
	WB 12	1	-	-	-	-	2	11	3
	CB 13	1	63	17	79	508	2	12	4
	WB 14	1	-	-	-	-	2	13	5
	CB 15	1	54	8	37	239	2	10	2
	CB 16	1	54	8	37	239	2	9	1
	WB 17	1	-	-	-	-	2	8	0
	WB 18	1	-	-	-	-	2	11	3
	CB 19	1	51	5	23	149	2	7	0
	WB 20	1	-	-	-	-	2	9	1



**CONFIRMATORY SURVEY RESULTS**  
(continuation page)

Licensee: American Lava Production Facility

License No.: SNM - 00109 (Terminated)

Coors Electronic Package Co.

Docket No.: 070-00105

Inspectors: J. Henson

Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	$\frac{\text{dpm}}{100 \text{ cm}^2}$	Ins. No.	Gross $\mu/\text{m}$ rem/hr	Net $\mu/\text{m}$ rem/hr
Building 8, Room M-1								
Stairwell Landing CB 21	1	65	19	88	568	2	10	2
Stairwell Landing CB 22	1	56	10	46	299	2	11	3
East Wall CB 23	1	52	6	28	179	2	9	1
East Wall WB 24	1	-	-	-	-	2	8	0
East Wall CB 25	1	67	21	97	627	2	11	3
East South Wall WB 26	1	-	-	-	-	2	10	2
South Wall CB 27	1	67	21	97	627	2	10	2
South wall WB 28	1	-	-	-	-	2	10	2
Janitor Closet CB 29	1	63	17	79	508	2	9	1
↓ WB 30	1	-	-	-	-	2	10	2
↓ WB 31	1	-	-	-	-	2	10	2
West Wall CB 32	1	45	0	0	0	2	9	1
↓ WB 33	1	-	-	-	-	2	8	0
↓ CB 34	1	51	5	23	149	2	-	-
↓ WB 35	1	-	-	-	-	2	8	0
↓ CB 36	1	65	19	88	568	2	-	-



CONFIRMATORY SURVEY RESULTS  
(continuation page)

Licensee: American Lava Production Facility  
Coors Electronic Package Co.  
 Inspectors: J. Henson

License No.: SNM - 00109 (Terminated)  
 Docket No.: 070-00105  
 Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	$\frac{\text{dpm}}{100 \text{ cm}^2}$	Ins. No.	Gross $\mu/\text{m}$ rem/hr	Net $\mu/\text{m}$ rem/hr
Building 8, Room M-1								
West Wall WB 37	+	-	-	-	-	2	8	0
CB 38	1	73	28	130	836	2	10	2
WB 39	1	-	-	-	-	2	10	2
Exterior Hall - Original Brick Surface								
Brick 1	1	88	42	194	1254	2	11	3
WB 2	1	-	-	-	-	2	7	0
Brick 3	1	86	40	185	1195	2	11	3
WB 4	1	-	-	-	-	2	8	0
Brick 5	1	103	57	264	1703	2	11	3
WB 6	1	-				2	10	2
Building 8, Room M-2								
Originally Office +	1W					2	12	4
Change Rooms - No	1F					2	10	2
Original Building Surfaces	2W					2	10	2
Are Accessible	2F					2	9	1
F-Floor; W-Wall (3-4 ft)	3W					2	8	0



**CONFIRMATORY SURVEY RESULTS**  
(continuation page)

Licensee: American Lava Production Facility  
Coors Electronic Package Co.

License No.: SNM-00109 (Terminated)

Docket No.: 070-00105

Inspectors: J. Henson

Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	$\frac{\text{dpm}}{100 \text{ cm}^2}$	Ins. No.	Gross $\mu/\text{m}$ rem/hr	Net $\mu/\text{m}$ rem/hr
<u>Building 8, Room M-2</u>								
3F						2	8	0
4F						2	7	0
5F						2	8	0
5W						2	9	1
6F						2	8	0
6W						2	9	1
7F						2	11	3
7W						2	10	2
8F						2	10	2
8W						2	12	4
9F						2	8	0
9W						2	10	2
10F						2	9	1
11F						2	10	2
12F						2	8	0
13F						2	9	1



**CONFIRMATORY SURVEY RESULTS**  
(continuation page)

Licensee: American Lava Production Facility  
Coors Electronic Package Co.

License No.: SNM - 00109 (Terminated)

Docket No.: 070-00105

Inspectors: J. Henson

Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	$\frac{\text{dpm}}{100 \text{ cm}^2}$	Ins. No.	Gross $\mu/\text{m rem/hr}$	Net $\mu/\text{m rem/hr}$
Building 8, Room M-2	14F					2	8	0
	15F					2	10	2
	16F					2	10	2
	16W					2	10	2
	17F					2	8	0
	17W					2	9	1
	18F					2	8	0
	19F					2	9	1
	20F					2	8	0
	21F					2	9	1
	22F					2	8	0
	23F					2	9	1
	24F					2	9	1
	24W					2	9	1
	25W					2	9	1
	26F					2	9	1
	27F					2	10	2



**CONFIRMATORY SURVEY RESULTS**  
(continuation page)

Licensee: American Lava Production Facility  
Cors Electronic Package Co.

License No.: SNM - 00109 (Terminated)

Docket No.: 070 - 00105

Inspectors: J. Henson

Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	dpm / 100 cm <sup>2</sup>	Ins. No.	Gross $\mu$ /m rem/hr	Net $\mu$ /m rem/hr
Building 8, Room M-2 28F						2	9	1
29F						2	8	0
30F						2	9	1
31F						2	10	2
32F						2	9	1
32W						2	10	2
33F						2	8	0
34F						2	9	1
35F						2	8	0
36F						2	10	2
37F						2	9	1
38F						2	10	2
39F						2	9	1
40F						2	10	2
40W						2	9	1
41W						2	8	0
41F						2	8	0



**CONFIRMATORY SURVEY RESULTS**  
(continuation page)

Licensee: American Lava Production Facility  
Coors Electronic Package Co.

License No.: SNM - 00109 (Terminated)

Docket No.: 070-00105

Inspectors: J. Henson

Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	$\frac{\text{dpm}}{100 \text{ cm}^2}$	Ins. No.	Gross $\mu/\text{m rem/hr}$	Net $\mu/\text{m rem/hr}$
Building 8, Room M-2, 42F						2	8	0
42W						2	8	0
43F						2	8	0
43W						2	10	2
44F						2	8	0
44W						2	7	0
45F						2	8	0
45W						2	7	0
46F						2	8	0
46W						2	9	1
47F						2	8	0
47W						2	9	1
48F						2	10	2
48W						2	10	2
Ground Floor Landing East						2	11	3
North						2	10	2



**CONFIRMATORY SURVEY RESULTS**  
(continuation page)

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Inspectors: J. Henson

Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	$\frac{\text{dpm}}{100 \text{ cm}^2}$	Ins. No.	Gross $\frac{\mu}{\text{m}}/\text{rem/hr}$	Net $\frac{\mu}{\text{m}}/\text{rem/hr}$
Building 8, Room M-1 Floor 1						2	9	1
2						2	8	0
3						2	7	0
4						2	10	2
5						2	8	0
6						2	8	0
7						2	7	0
8						2	8	0
9						2	7	0
10						2	9	1
11						2	10	2
12						2	8	0
13						2	8	0
14						2	8	0
15						2	9	1
16						2	8	0
17						2	7	0



**CONFIRMATORY SURVEY RESULTS**  
(continuation page)

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Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	$\frac{\text{dpm}}{100 \text{ cm}^2}$	Ins. No.	Gross $\mu/\text{m rem/hr}$	Net $\mu/\text{m rem/hr}$
Building 8, Room M-1, Floor 18						2	8	0
19						2	8	0
20						2	8	0
21						2	11	3
22						2	8	0
23						2	9	1
24						2	8	0
25						2	8	0
26						2	8	0
27						2	7	0
28						2	8	0
29						2	7	0
30						2	8	0
31						2	10	2
32						2	9	1
33						2	8	0
34						2	8	0



**CONFIRMATORY SURVEY RESULTS**  
(continuation page)

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Survey Date: 7/13/95

Location	Ins. No.	Gross cpm	Net cpm	Net dpm	$\frac{\text{dpm}}{100 \text{ cm}^2}$	Ins. No.	Gross $\mu\text{m}$ rem/hr	Net $\mu\text{m}$ rem/hr
Building 8, Room M-1 Floor 35						2	8	0
36						2	8	0
37						2	7	0
38						2	7	0
39						2	7	0
40						2	7	0
41						2	9	<del>0</del> 1
42						2	9	<del>0</del> 1
43						2	8	<del>0</del>
44						2	7	0
45						2	8	<del>0</del>
46						2	7	<del>0</del>
47						2	7	<del>0</del>
48						2	8	<del>0</del>
49						2	8	<del>0</del>
50						2	7	0
51						2	10	2



