



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

December 10, 1997

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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

MEMORANDUM TO: B. Paul Cotter, Jr.
Chief Administrative Judge
Atomic Safety and Licensing Board Panel

DOCKET NUMBER
PROD. & UTIL. FAC. 30-31373 CIVP

FROM: *John C. Hoyle*
John C. Hoyle, Secretary

SUBJECT: REQUEST FOR HEARING SUBMITTED BY
CONAM INSPECTION, INC.

Attached is a request for a hearing dated December 1, 1997, submitted by Conam Inspection, Inc. (Docket No. 30-31373). The hearing request was submitted in response to an "Order Imposing Civil Monetary Penalty" issued by the NRC Staff on November 5, 1997, and published in the Federal Register at 62 Fed. Reg. 60923 (November 13, 1997) (Copy attached).

The request for hearing (and correspondence between the NRC staff and licensee's counsel) is being referred to you for appropriate action in accordance with 10 C.F.R. Sec. 2.772(j).

Attachments: As stated

cc: Commission Legal Assistants
OGC
CAA
EDO
OE
NMSS
OPA
Clifton A. Lake, Esquire
Counsel for Conam Inspection, Inc.

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MCBRIDE BAKER & COLES

A Law Partnership Including Professional Corporations

500 West Madison Street, 40th Floor
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Lloyd M. McBride
1934-1983

Edward H. Baker, Jr.
1935-1970

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December 1, 1997

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RULEMAKINGS AND
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BY FEDERAL EXPRESS

Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: *Conam Inspection, Inc., EA 97-207*

Dear Director:

I am enclosing for filing with the Commission a Request for an Enforcement Hearing on behalf of my client, Conam Inspection, Inc., a copy of which is enclosed.

Very truly yours,



Clifton A. Lake

CAL/pg
Enclosure

cc: Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Assistant General Counsel for
Hearings and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532

201896

OGC-97- 004825

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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF
No. 030-31373

Docket No. 030-31373
License No. 12-16559-01
EA 97-207

Clifton A. Lake
McBride Baker & Coles
500 West Madison Street
40th Floor
Chicago, IL 60661
(312) 715-5700
201900

CERTIFICATE OF SERVICE

Clifton A. Lake, one of the attorneys for Respondent, Conam Inspection, Inc., states that he caused copies of the foregoing Request for an Enforcement Hearing to be served on the following by:

Federal Express on December 1, 1997:

Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

OFFICE OF SECRETARY
RULEMAKING AND
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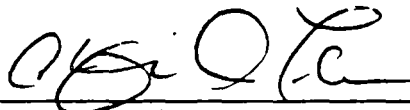
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U.S. Mail on December 1, 1997:

Assistant General Counsel for
Hearings and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532



Clifton A. Lake, Esq.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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USNRC

November 5, 1997

'97 DEC -5 P3:04

EA 97-207

Mr. Michael B. Creech
President
Conam Inspection, Inc.
1245 W. Norwood
Itasca, Illinois 60143

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

SUBJECT: ORDER IMPOSING CIVIL MONETARY PENALTY - \$16,000

Dear Mr. Creech:

This refers to the letter dated July 7, 1997 from Clifton A. Lake, attorney for Conam Inspection, Inc., in response to the NRC Notice of Violation and Proposed Imposition of Civil Penalty (Notice) sent to you on June 9, 1997. Our letter and Notice described three violations (Violations I.A, I.B, and I.C) which were classified in the aggregate as a Severity Level II problem.

A civil penalty of \$16,000 was proposed for the violations to emphasize the importance of compliance with NRC requirements, and the need for prompt identification and comprehensive correction of violations. In addition, two other violations (Violations II.A and II.B) were classified at Severity Level IV for which no civil penalty was assessed.

In its response to the Notice, Conam admitted Violations I.A and II.B; denied Violations I.B, I.C, and II.A; and requested remission or full mitigation of the civil penalty.

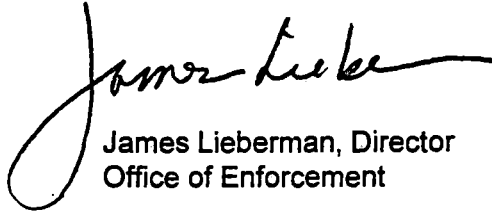
After consideration of Conam's response, we have concluded, for the reasons given in the Appendices attached to the enclosed Order Imposing Civil Monetary Penalty, the following: (a) Violation II.A is hereby withdrawn; and (b) Conam did not provide an adequate basis for withdrawing Violations I.B and I.C, for mitigating the severity level of Violations I.A, I.B, and I.C in the aggregate, or for mitigating the civil penalty associated with Violations I.A, I.B, and I.C. Accordingly, we hereby serve the enclosed Order on Conam Inspection, Inc., imposing a civil monetary penalty in the amount of \$16,000. As provided in Section IV of the enclosed Order, payment should be made within 30 days of the date of this Order, by check, draft, money order, or electronic transfer, payable to the Treasurer of the United States and mailed to James Lieberman, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738. We will review the effectiveness of your corrective actions during a subsequent inspection.

Conam Inspection, Inc.

- 2 -

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

Sincerely,

A handwritten signature in black ink, appearing to read "James Lieberman". The signature is fluid and cursive, with a large initial "J" and a long horizontal stroke at the end.

James Lieberman, Director
Office of Enforcement

Docket No. 030-31373
License No. 12-16559-01

Enclosures: As stated (2)

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of

CONAM INSPECTION, INC.
Itasca, IL

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Docket No. 030-31373
License No. 12-16559-01
EA 97-207

ORDER IMPOSING CIVIL MONETARY PENALTY

I

Conam Inspection, Inc. (Conam or Licensee) is the holder of Byproduct Materials License No. 12-16559-01 issued by the Nuclear Regulatory Commission (NRC or Commission) on January 2, 1990. The license authorizes the Licensee to possess and use certain byproduct materials in accordance with the conditions specified therein at the Licensee's facilities in Columbus, Ohio; Gary, Indiana; Reading, Pennsylvania; Gallipolis, Ohio; and at temporary job sites anywhere in the United States where the NRC maintains jurisdiction for regulating the use of licensed material.

II

An inspection and investigation of the Licensee's activities were conducted between March 28, 1996 and November 12, 1996. The results of the inspection and investigation indicated that the Licensee had not conducted its activities in full compliance with NRC requirements. A written Notice of Violation and Proposed Imposition of Civil Penalty (Notice) was served upon the Licensee by letter dated June 9, 1997. The Notice states the nature of the violations, the provisions of the NRC's requirements that the Licensee had violated, and the amount of the civil penalty proposed for three of the violations in the aggregate (Violations I.A, I.B, and I.C).

OFFICE OF THE
GENERAL
COUNSEL
AND
LEGAL
COUNSEL
ADJUDICATION
STAFF

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The Licensee responded to the Notice in a letter dated July 7, 1997. In its response, the Licensee denied Violations I.B and I.C, and requested remission or full mitigation of the civil penalty.

III

After consideration of the Licensee's response and arguments for mitigation contained therein, the NRC staff has determined, as set forth in the Appendix to this Order, that the Licensee did not provide an adequate basis for withdrawing Violations I.B and I.C, or mitigating the severity level of Violations I.A, I.B, and I.C in the aggregate, or mitigating the civil penalty associated with Violations I.A, I.B, and I.C. Therefore, a civil penalty in the amount of \$16,000 should be imposed.

IV

In view of the foregoing and pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205, IT IS HEREBY ORDERED THAT:

The Licensee pay a civil penalty in the amount of \$16,000 within 30 days of the date of this Order, by check, draft, money order, or electronic transfer, payable to the Treasurer of the United States and mailed to James Lieberman, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738.

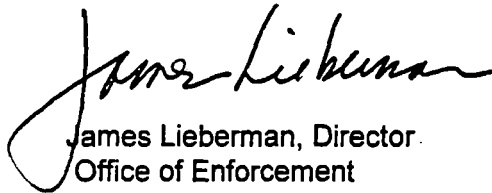
The Licensee may request a hearing within 30 days of the date of this Order. Where good cause is shown, consideration will be given to extending the time to request a hearing. A request for extension of time must be made in writing to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission Washington, D.C. 20555, and include a statement of good cause for the extension. A request for a hearing should be clearly marked as a "Request for an Enforcement Hearing" and shall be addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission Washington, D.C. 20555, with a copy to the Commission's Document Control Desk, Washington, D.C. 20555. Copies also shall be sent to the Assistant General Counsel for Hearings and Enforcement at the same address and to the Regional Administrator, NRC Region III, 801 Warrenville Road, Lisle, IL 60532.

If a hearing is requested, the Commission will issue an Order designating the time and place of the hearing. If the Licensee fails to request a hearing within 30 days of the date of this Order (or if written approval of an extension of time in which to request a hearing has not been granted), the provisions of this Order shall be effective without further proceedings. If payment has not been made by that time, the matter may be referred to the Attorney General for collection.

In the event the Licensee requests a hearing as provided above, the issues to be considered at such hearing shall be:

- (a) whether the Licensee was in violation of the Commission's requirements as set forth in Violations I.B and I.C of the Notice referenced in Section II above, and
- (b) whether, on the basis of such violations and the additional violations set forth in the Notice of Violation that the Licensee admitted, this Order should be sustained.

FOR THE NUCLEAR REGULATORY COMMISSION



James Lieberman, Director
Office of Enforcement

Dated at Rockville, Maryland
this 5th day of November 1997

APPENDIX A EVALUATIONS AND CONCLUSION

On June 9, 1997, the NRC issued to Conam Inspection, Inc., (Licensee or Conam) a Notice of Violation and Proposed Imposition of Civil Penalty (Notice) in the amount of \$16,000 for violations identified during an NRC inspection and investigation conducted from March 28 through November 12, 1996. The Licensee responded to the Notice by letter dated July 7, 1997. With regard to the violations assessed a civil penalty, the Licensee admitted Violation I.A; denied Violations I.B and I.C; and requested remission or full mitigation of the civil penalty. The NRC's evaluations and conclusion regarding the Licensee's requests are as follows:

Restatement of Violation I.B

I.B 10 CFR 34.43(b) requires, in part, a licensee to ensure that a survey with a calibrated and operable radiation survey instrument is made after each radiographic exposure to determine that the sealed source has been returned to its shielded position. The survey must include the entire circumference of the radiographic exposure device and any source guide tube.

Contrary to the above, on February 27, 1996, at Eli Lilly, Indianapolis, IN, a Licensee radiographer did not perform an adequate survey after each radiographic exposure to determine that the sealed source had been returned to its shielded position, in that the survey did not include the entire circumference of the radiographic exposure device and the source guide tube.

Summary of Licensee's Response to Violation I.B

The Licensee, in its response, denies Violation I.B and states that on February 28, 1996, the day following the incident, the radiographer expressly stated to the Licensee's Radiation Safety Officer (RSO) that he had performed a full 360-degree circumferential survey of the radiographic exposure device.

NRC Evaluation of Licensee's Response to Violation I.B

The specific issue addressed in Violation I.B is whether the radiographer performed the required survey to determine that the source had completely been withdrawn into the radiographic exposure device. This requires, among other things, that the radiographer be aware of the results of the survey, especially the dose rate measured at the exit port (front) of the radiographic exposure device. As noted on page 7 of the Licensee's reply to the Notice, the Licensee states (regarding the radiographer's survey) that: "He then failed to properly read his survey meter when he performed a radiation survey in a 360-degree motion around the camera." The fact that the radiographer improperly read the survey meter means that he failed to properly determine: (1) whether the source had been completely withdrawn into the radiographic exposure device; and (2) the radiological conditions and potential hazards incident to use of radioactive material.

In addition, during the investigation conducted by the NRC's Office of Investigations, the radiographer stated that he surveyed the radiographic exposure device, but only on the sides. He also stated to the investigator that because of the position of the radiographic exposure device, he did not survey the front part. This conflicts with the information provided by the radiographer to the Licensee's RSO, but appears to be more in line with the facts of the case given the elevated exposure result to the radiographer's film badge.

In either case, whether the radiographer improperly read the survey meter or whether the radiographer failed to survey the front part, the NRC concludes that Violation I.B occurred as stated in the Notice.

Restatement of Violation I.C

I.C 10 CFR 20.1201(a)(1)(i) requires, with exceptions not applicable here, that a licensee control the occupational dose to individual adults to an annual dose limit of 5 rems total effective dose equivalent.

Contrary to the above, the Licensee did not limit the annual occupational dose to an adult radiographer to 5 rems, total effective dose equivalent. Specifically, the individual received a radiation dose of a minimum of 6 rems, total effective dose equivalent, during an event on February 27, 1996.

Summary of Licensee's Response to Violation I.C

The Licensee, in its response, denies Violation I.C, states that the NRC's methodology in determining the total effective dose equivalent is flawed, and does not agree with the intent of the regulations. The Licensee contends that using conventional dose assessment models, consensus industry standards, and the NRC's own definitions, the maximum likely Total Effective Dose Equivalent (TEDE) incurred by the radiographer during the event was 2.9 rems, based upon the radiographer's description of time and motion.

As a basis for its argument, the Licensee asserts that while the Licensee's consultant calculated a dose to the right thigh of 9.369 rems, this dose does not constitute the TEDE. The Licensee states that the dose limits are based on the 1976 [1977] recommendations of the International Commission on Radiological Protection (ICRP), which states that there is a predictable relationship between irradiation of the whole body and biological effects. The Licensee argues that the dose to the radiographer's thigh is not an appropriate predictor of biological effects, and thus should not be compared to the primary dose limit in 10 CFR 20.1201.

The Licensee asserts that the ICRP recommendations should take precedence in determining how the TEDE is computed. As such, in calculating the TEDE, the Licensee uses weighting factors for each tissue area which are derived from ICRP Publication 26. The Licensee believes this is an acceptable approach because the Statements of Consideration for the issuance of the revised 10 CFR Part 20 included, as reasons for the revision, the need to incorporate updated scientific information, to reflect changes in the basic philosophy of radiation protection, and to put into practice recommendations from ICRP 26 and subsequent ICRP publications. The Licensee asserts that sections 10 CFR 20.1003, which defines the TEDE,

and 10 CFR 20.1201(a), which specifies exposure limits, conform with ICRP 26 recommendations.

The Licensee maintains that the NRC's guidance on interpretation of 10 CFR 20.1201(c) permits use of external dose weighting factors. However, the Licensee argues that the language in 10 CFR 20.1201(c): (1) conflicts with the definition of deep-dose equivalent provided in 10 CFR 20.1003; (2) is inconsistent with the ICRP recommendations; and (3) deviates from the fundamental principles underlying the dose limits in 10 CFR Part 20.

The Licensee does note that the specific use of weighting factors other than 1.0 for all organs was not approved by 10 CFR Part 20; rather, 10 CFR 20.1003 states that "[f]or the purpose of weighting the external whole-body dose (for adding it to the internal dose), a single weighting factor, $W_t = 1.0$, has been specified. The use of other weighting factors for external exposures will be approved on a case-by-case basis until such time as specific guidance is issued." The Licensee notes that the NRC has not yet issued specific guidance in interpreting this issue; however, since the American National Standards Institute (ANSI) has issued N13.41, "Criteria for Performing Multiple Dosimetry," the Licensee believes that it should be able to use this methodology in computing its TEDE value. This guidance was utilized and the resulting TEDE was 2.9 rems.

The Licensee asserts that in light of the conflicting regulatory language in 10 CFR Part 20 regarding non-uniform exposure of the whole body, and the fact that 10 CFR 20.1003 allows weighting factors to be considered, the dose determined for the radiographer using ANSI N13.41 protocol was appropriate and consistent with the rationale underlying the occupational dose limits.

NRC Evaluation of Licensee's Response to Violation I.C

The specific issue addressed in Violation I.C is whether the radiographer's total effective dose equivalent as defined in the regulations exceeded the regulatory limits. The Licensee's use of ICRP 26 and ANSI N13.41 (i.e., use of a compartmentalization methodology to sum the effective dose equivalents for various areas of the whole body) was neither approved by the NRC nor in accordance with NRC requirements, for the reasons described below.

1. NRC Basis for Violation I.C: As noted in the Notice, 10 CFR 20.1201(a)(1)(i) requires, in part, that a licensee control the occupational dose to individual adults to an annual dose limit of 5 rems total effective dose equivalent. In addition, 10 CFR 20.1201(c) requires, in part, that the assigned deep-dose equivalent must be for the part of the body receiving the highest exposure and that the deep-dose equivalent may be assessed from surveys or other radiation measurements for the purpose of demonstrating compliance with the occupational dose limits, if the individual monitoring device was not in the region of highest potential exposure. As defined in 10 CFR 20.1003, Whole body means: "for purposes of external exposure, head, trunk (including male gonads), arms above the elbow, or legs above the knee."¹

¹ The NRC's definition is based, in part, on the fact that these portions of the whole body contain blood-forming organs.

Based on the findings in the NRC inspection report dated November 18, 1996, the NRC concluded, as described in the Notice, that the radiographer received a TEDE of 6 rems. The conclusion was based on: (1) measurements of time and distances as re-enacted by the radiographer and the Licensee's film badge dose; and (2) the dose to the part of the body receiving the highest exposure (i.e., upper left thigh), given that the individual monitoring device was not in the region of highest potential exposure, the dose field from the radiographic exposure device was non-uniform, and the position of the radiographer and his film badge in relationship to the radiographic exposure device.

2. The Licensee's Use of ICRP 26 and ANSI N13.41: The NRC agrees that the dose limits in 10 CFR Part 20 are based on the ICRP 26 recommendations and acknowledges that the radiographer's thigh may not be an appropriate predictor of biological effects. However, the Licensee's use of ICRP 26 and the draft ANSI N13.41 for calculating the radiographer's whole-body dose is inappropriate in this case.

While the ICRP 26 recommendations in principle permit the use of external weighting factors, no specific recommendations were included concerning the use of weighting factors for external dose because there are practical problems with such use. The application of weighting factors also entails calculation of organ doses instead of whole-body doses from external radiation. One component of this calculation is the estimation of radiation attenuation as a function of the depth in the body. Therefore, as noted in the NRC's Statement of Consideration for 10 CFR Part 20 (56 FR 23369), the Commission decided that "application of weighting factors for external exposures will be evaluated on a case-by-case basis until more guidance and additional weighting factors (such as for the head and the extremities) are recommended ... The use of other weighting factors for external exposure may be approved on a case-by-case basis upon request to the NRC." (emphasis added). This means that, if a licensee proposes to use other weighting factors for external use, the licensee needs to develop the basis and technical justification for its request, submit the request to the NRC, and await approval of its request before using any modified weighting factors. To date, the Licensee has not submitted to the Commission such a request for an exemption of 10 CFR 20.1201.

With regard to ANSI N13.41, this is a draft standard that has been neither approved by ANSI, nor reviewed and approved by the Commission for use by NRC licensees. Moreover, ANSI N13.41 is not applicable because this case falls outside of the scope of that standard. This is evident from the standard itself, which states, under Scope, page 9, that "this standard contains criteria applicable to routine occupational activities (emphasis added) for when and how to use multiple dosimeters to monitor the body and extremity of individuals exposed to sources of ionizing radiation." The next paragraph under this section goes on to state, "Sudden or unexpected changes in the radiation environment as might occur during accidents are beyond the scope of this standard" (emphasis added).

The dose calculated by the consultant to the radiographer's right thigh was 9.369 rems. As noted in the Licensee's response, the footnote attached to 10 CFR 20.1003 specifies that a single weighting factor, $W_t=1.0$, be used for external exposures. However, rather

than using this weighting factor, the Licensee applied the factors provided in ANSI N13.41 (which are less than 1.0) to calculate exposures of portions of the whole body to arrive at the overall dose determination. The Licensee's use of weighting factors (on the basis that the NRC has not issued new weighting factors) without prior NRC approval is contrary to NRC requirements. Given the above, the Licensee's method for calculating the radiographer's exposure is incorrect.

3. Arguments Concerning Deep-Dose Equivalent: 10 CFR 20.1201(c) requires, in part, that the assigned deep-dose equivalent must be for the part of the body receiving the highest exposure. 10 CFR 20.1003 defines deep-dose equivalent as the dose equivalent at a tissue depth of 1 cm (1000 mg/cm²) [regardless of the part of the whole body that is exposed]. Given that ICRP 26 did not include specific recommendations concerning the use of weighting factors for external dose, and the fact that there are practical problems in using weighting factors to assess external exposure as noted above, the NRC disagrees with the Licensee's argument that 10 CFR 20.1201(c) is inconsistent with the ICRP recommendations and that 10 CFR 20.1201(c) deviates from the fundamental principles underlying the dose limits in 10 CFR Part 20.
4. Use of the Consultant Results and Part 20 Weighting Factors: The NRC bases its enforcement actions on its regulations as codified in Title 10, Code of Federal Regulations. In this case, 10 CFR 20.1003 defines the weighting factor for the whole body as 1.0. As noted in the Licensee's response, the NRC has not approved the use of other weighting factors for external exposures nor has the NRC issued specific guidance on the use of other weighting factors. The regulations do allow for the use of a different methodology, but only after review and prior approval by the NRC. In this case, such approval was not obtained by the Licensee. Because the thigh (right or left) is an area of the body meeting the definition for whole body, the appropriate weighting factor per the regulations is 1.0. Therefore, if the Licensee chooses to use the consultant's results in conjunction with the Part 20 weighting factors, the radiographer's TEDE for the event would be:

$$\text{Dose to right thigh (9.369 rems)} \times \text{weighting factor (1.0)} = 9.369 \text{ rems}$$

The Licensee correctly notes that the limit for whole-body exposure in 10 CFR 20.1201(a)(1)(i) is a TEDE of 5 rems. 10 CFR 20.1003 defines the TEDE as the sum of the deep-dose equivalent (external exposure) and committed effective dose equivalent (internal exposure). In this case, the TEDE can be considered to be equal to the deep-dose equivalent, because there was no internal exposure involved.

The circumstances surrounding the exposure, as described in the inspection report and by the radiographer during the conduct of the NRC's investigation, demonstrated that the radiographer's body was between the radiographic exposure device and the radiographer's film badge. As noted in the radiographer's and RSO's description of the Licensee's time-motion study, no props were used - the event was discussed at a table with the radiographer describing to the RSO what occurred. During this time-motion discussion, it was not clear that the radiographer's film badge was at the point nearest the source. It was clear that the beam from the exit port of the radiographic exposure

device would be very directional and non-uniform. Later, on April 11, 1996, a re-enactment of the event by the radiographer in the presence of the Licensee's RSO and NRC personnel was performed and appropriate props were used. The radiographer was asked to demonstrate his activities at the time the exposure occurred. This re-enactment provided information that the Licensee had not obtained during its verbal time-motion discussion, namely, that the radiographer's leg was significantly closer to the source than was his film badge. For the sake of argument, the NRC has chosen to utilize the Licensee's dose calculation based on its verbal characterization, and the resulting dose obtained to the right thigh. If the Licensee chooses to use the consultant's results (which utilized variables from the NRC's re-enactment) in conjunction with the Part 20 weighting factors, the radiographer's TEDE for the event would be:

$$\text{Dose to left thigh (42.075 rems)} \times \text{weighting factor (1.0)} = 42.075 \text{ rems}$$

10 CFR 20.1201(c) states that "the assigned deep-dose equivalent and shallow-dose equivalent must be for the part of the body receiving the highest exposure. The deep-dose equivalent, eye dose equivalent and shallow-dose equivalent may be assessed from surveys or other radiation measurements for the purpose of demonstrating compliance with the occupational dose limits, if the individual monitoring device was not in the region of highest potential exposure, or the results of individual monitoring are unavailable." In this case, the individual monitoring device was not in the region of highest potential exposure, given the non-uniform nature of the dose field from the radiographic exposure device and the position of the radiographer and his film badge in relationship to the radiographic exposure device. Therefore, per this requirement, the assigned deep-dose equivalent must be for the right thigh (using the Licensee's computation), as it is part of the whole body. This results in an assigned deep-dose equivalent of 9.369 rems. As noted above, the TEDE consists of the sum of the deep-dose equivalent and committed effective dose equivalent. In this case, it is equal to the deep-dose equivalent, 9.369 rems, a value that is in excess of the limit specified in 10 CFR 20.1201(a)(1)(i).

Given the above, the NRC concludes that: (a) the Licensee has not provided a basis to substantiate that the radiographer's TEDE was below 5 rems; and (b) Violation I.C occurred as stated in the Notice.

Summary of Licensee's Request for Remission or Mitigation and Reconsideration of Severity Level

The Licensee offered several arguments in support of its request for remission or mitigation of the proposed penalty. Below is a summary listing of the Licensee's arguments that are related to its request for remission or mitigation, some of which have been consolidated. The NRC's evaluation follows each argument.

1. Licensee's Argument

The Licensee asserts that violations cited in Section I of the Notice should not be considered willful, for the following reasons:

- Based on the Licensee's discussion of the event on February 28, 1996, between the RSO and the radiographer, the Licensee concluded that the radiographer was negligent in failing to rotate the selector ring from the "operate" to the "lock" position and failing to depress the plunger mechanism of the radiographic exposure device.
- This act was not the result of deficiencies in the Licensee's Radiation Safety Program, nor did it follow other incidents of a similar nature. As evidence for its argument, the Licensee notes that seven prior unannounced NRC inspections had not identified any violations of applicable regulations.
- The Licensee disputes the fact that it was a "typical" practice of Conam radiographers to rely upon the automatic locking mechanism of their radiographic exposure devices rather than locking them in the manner required by the Licensee's radiation safety procedures.
- The Licensee believes that "[b]ecause the NRC's conclusion that a 'willful' violation has occurred is influenced by its erroneous conclusion that a violation of the occupational exposure limit occurred, its characterization of the violation as 'willful' is flawed."

NRC Evaluation

In its Notice, the NRC did not conclude that the violations in Section I were willful; rather, the NRC concluded that only Violation I.A was willful. In this regard, Section IV.C of the NRC Enforcement Policy defines willful violations to encompass not merely deliberate acts but acts of careless disregard as well. As part of the NRC's evaluation of this event, an investigation was conducted by the NRC's Office of Investigations (OI). That investigation concluded that the Licensee's radiographer willfully failed to follow the Licensee's procedures while operating the radiographic exposure device. The radiographer, who was knowledgeable of the requirement but failed to perform it due to being "lax," demonstrated careless disregard for NRC requirements, a condition that clearly meets the NRC's definition of a willful violation.

Given the results of the OI investigation, the problem with failing to follow procedures was not isolated. As noted both in the November 18, 1996 inspection report and during the subsequent Predecisional Enforcement Conference, the Licensee's policy for performing field audits did not encompass multiple exposures or other situations where the potential existed for a radiographer to fail to properly rotate the selector ring and depress the plunger. A single radiographic shot was often used, where this act would be performed prior to moving the radiographic exposure device. As such, the Licensee was unaware of the problem until it manifested itself in the exposure event that occurred

on February 27, 1996, although a better field auditing technique may have allowed the Licensee to identify the problem prior to the February event. Therefore, the Licensee's arguments (i.e., lack of deficiencies in its radiation safety program and the lack of NRC findings during prior unannounced NRC inspections) do not alter the NRC's conclusion concerning the willful act of the radiographer.

When questioned by the OI investigator, approximately 25% of the Licensee's radiographers at the Gary, Indiana facility, including the radiographer associated with the event, admitted that on or prior to February 28, 1996, they failed on occasion to rotate the selector ring from the "operate" to the "lock" position and failed to depress the plunger mechanism as required by the Licensee's operating procedures. They stated to the investigator that they had been "lax," but that they were knowledgeable of the requirement. They also stated that after the memo was issued by the RSO discussing the event and the need to follow procedures, they no longer violated this requirement.

In determining whether the radiographer willfully failed to lock the radiographic exposure device, the NRC based its conclusion on interviews with the radiographer as noted above. The Licensee's belief that the NRC's conclusion concerning willfulness was influenced by whether a violation of the occupational exposure limit occurred is simply incorrect.

2. Licensee's Argument

The Licensee asserts that the NRC improperly denied identification and corrective action credit under the terms of the NRC Enforcement Policy, Section VI.B.2.b and c, by ignoring essential facts. The Licensee asserts that while the incident was identified through an event, this fact does not preclude identification credit where the problem arose from a single incident of negligence by a radiographer in violation of well-publicized Conam safety procedures, where the Licensee's quarterly radiation safety compliance audit program was demonstrably adequate, and where there were no prior deficient occurrences to identify the problem.

In addition, the Licensee argues that its corrective actions were also prompt and comprehensive and should result in credit. The Licensee believes that the incident was promptly and comprehensively addressed and corrected by the Licensee's RSO through his analysis of the film badge, his issuance of a February 29, 1996, memorandum reminding all Conam radiographic personnel of the proper procedure for operating radiographic exposure devices, his withdrawal of the radiographer from further radiographic duties, and the suspension of the radiographer without pay for one week.

The Licensee disagrees with the NRC's position, as described in the Notice, that credit should not be given because the Licensee did not confirm that each radiographer had received the February 29, 1996, memorandum from the RSO, nor had the Licensee instituted any monitoring/auditing program to evaluate the effectiveness of the memorandum. The Licensee states that there is no evidence that the radiographers did not receive the memorandum, and that there has been no repetition of the problem since the February event's occurrence. The Licensee believes that the NRC's dismissal

of credit for identification and corrective action ignores the fact that the February event was the only one of its kind against a record of no violations whatsoever during seven prior NRC inspections, and no that subsequent violations since the event have been identified by NRC inspections.

NRC Evaluation

The NRC Enforcement Policy, Section VI.B.2.b, discusses the criteria to be considered when deciding if a licensee should be given credit for actions related to identification. These circumstances include: (i) whether the problem requiring corrective action was NRC-identified, licensee-identified, or revealed through an event; and (ii) for a problem revealed through an event, the ease of discovery, the licensee's self-monitoring effort, the degree of licensee initiative in identifying the problem requiring corrective action, and whether prior opportunities existed to identify the problem (Section VI.B.2.b(2)(ii) of the Enforcement Policy).

The NRC and the Licensee both agree that the problem requiring corrective action was revealed through an event. Therefore, the criteria in Section VI.B.2.b(2)(ii) of the Enforcement Policy are applicable in this case. Regarding the ease of discovery, as well as the Licensee's self-monitoring effort, the radiographer involved in the incident reported the problem to the Licensee's RSO; and the problem was not identified through any self-monitoring action of the Licensee's RSO or management, such as an audit. Regarding the degree of licensee initiative in identifying the problem requiring corrective action, the Licensee's initiative does not deserve credit, as described below. Regarding the existence of prior opportunities to identify the problem, as stated earlier, the OI investigation revealed that approximately 25% of the Licensee's radiographers and assistant radiographers at the Gary, Indiana facility admitted that on or prior to February 28, 1996, they on occasion failed to rotate the selector ring from the "operate" to the "lock" position and failed to depress the plunger mechanism as required by the Licensee's operating procedures. Thus, the problem with failing to follow procedures was not isolated. The Licensee performs quarterly field audits of its radiographers. As noted in the inspection report and during the Predecisional Enforcement Conference, the Licensee's policy for performing field audits did not encompass multiple exposures or other situations where the potential existed for a radiographer to fail to properly rotate the selector ring and depress the plunger. Therefore, numerous prior opportunities existed to identify the problem, yet the problem was not identified prior to the February 27, 1996 incident. Thus, credit for identification is not warranted.

The NRC Enforcement Policy, Section VI.B.2.c, discusses the criteria to be considered when deciding if a licensee should be given credit for prompt and comprehensive corrective actions. These criteria include: (i) the timeliness of the corrective action, (ii) the adequacy of the licensee's root cause analysis for the violation, and (iii) the comprehensiveness of the corrective action. As stated in the inspection report, the NRC acknowledges the Licensee's prompt action in issuing a memorandum to all radiation safety supervisory personnel advising all radiography staff to complete a full and accurate survey of the radiographic exposure device, collimator, guide tube, and connector after each exposure and to secure the source assembly in accordance with

the Licensee's procedures. However, although the issuance of the memorandum was timely, it does not constitute a comprehensive corrective action.

Specifically, after the Licensee received the vendor's report indicating the radiographer's dose, the Licensee did not perform an exact time-motion study at the scene of the event to determine the locations of the whole body, film badge and radiographic exposure device exit port. Photographs of the scene that were obtained later did not include the position of the radiographer. In addition, the Licensee could not confirm that each radiographer had received the memorandum, nor had the Licensee instituted any monitoring/auditing program to evaluate the effectiveness of the memorandum. The Licensee's argument that there is no evidence that the radiographers did not receive the memorandum is not persuasive; a comprehensive corrective action would ensure that each radiographer had received, reviewed, and understood the memorandum, and would monitor the radiographers' understanding of and compliance with the memorandum. Such comprehensive corrective actions were not implemented by the Licensee.

Finally, the fact that no violations had been identified during seven NRC inspections prior to the February 27, 1996 event, although commendable, is not relevant as far as credit for corrective action is concerned. Further, in accordance with Section VI.B.2.c of the NRC Enforcement Policy, the adequacy of a licensee's corrective actions is judged at the time of the enforcement conference, not on the basis of whether subsequent violations following the event have been identified by the NRC. Given the above, the NRC concludes that while the Licensee took some timely actions, on balance, such actions did not address the root cause of the violations and were not comprehensive. Thus, credit for prompt and comprehensive corrective actions is not warranted.

3. Licensee's Argument

The Licensee asserts that the NRC Enforcement Policy should find, at worst, that the February 27, 1996 incident involved two non-willful Severity Level III violations which, with appropriate identification and corrective action credit, do not justify any civil penalty. The Licensee asserts that to aggregate the violations cited in Section I of the Notice and assign a Severity Level II "problem" to this collection is not consistent with the NRC's Enforcement Policy published in 60 FR 34381 (June 30, 1995). The Licensee believes that the NRC's Notice compounds that error by determining that the Severity Level II problem was willful, and on that basis justifying a 100% escalation of the \$8,000 Severity Level II base penalty.

NRC Evaluation

As described above, the NRC has determined that Violation I.A was willful, that Violations I.A, I.B, and I.C occurred as described in the inspection report, and that credit for identification and corrective action is not warranted. The NRC Enforcement Policy, Section IV.A, states, in part, that the purpose of aggregating violations is to focus the licensee's attention on the fundamental underlying causes for which enforcement action appears warranted and to reflect the fact that several violations with a common cause

may be more significant collectively than individually and may, therefore, warrant a more substantial enforcement action. As noted in the Notice, in consideration of the willfulness involved, the relationship of these violations to a single incident, and the fact that two safety barriers were breached, the violations are of very significant regulatory concern. Therefore, consistent with Section IV.A of the Enforcement Policy, the violations in Section I of the Notice were combined to reflect that, collectively, they are more significant than individually and, therefore, warrant a more substantial enforcement action.

As to the Licensee's argument concerning escalation of the \$8,000 base penalty, the NRC did not escalate the civil penalty on the basis of a willful violation. The base amount for a Severity Level II problem is \$8,000. Credit was not warranted for the identification and corrective action factors. Therefore, in accordance with the civil penalty assessment process described in Section VI.b.2, the civil penalty for the Severity Level II problem is twice the base amount (i.e., \$16,000).

NRC Conclusion

The NRC concludes that the Licensee did not provide an adequate basis for withdrawing Violations I.B and I.C, for mitigating the severity level of Violations I.A, I.B, and I.C in the aggregate, or for mitigating the civil penalty associated with Violations I.A, I.B, and I.C. Therefore, the proposed civil penalty in the amount of \$16,000 should be imposed by order.

APPENDIX B
EVALUATION OF VIOLATIONS
NOT ASSESSED A CIVIL PENALTY

Of the violations not assessed a civil penalty, the Licensee admitted violation II.B and denied Violation II.A.

Restatement of Violation II.A

II.A 10 CFR 20.2203(a)(2)(i) requires, in part, that a licensee submit a written report within 30 days after learning of a dose in excess of the occupational dose limits for adults as defined in 10 CFR 20.1201.

Contrary to the above, on April 11, 1996, the Licensee learned of an event that caused an adult radiographer to receive a total effective dose equivalent of more than 5 rems total effective dose equivalent and did not submit a written report within 30 days as required.

Summary of Licensee's Response to Violation II.A

The Licensee, in its response, denies Violation II.A and states that, because the radiographer was not exposed to a dose in excess of 5 rems, total effective dose equivalent, no reporting obligation arose under applicable regulations.

NRC Evaluation of Licensee's Response to Violation II.A

The specific issue raised by Violation II.A was whether the Licensee was required to submit a report to the NRC after learning of a dose in excess of the occupational dose limits for adults as defined in 10 CFR 20.1201. In this case, the Licensee's evaluation of the circumstances did not appear to be adequate in that the Licensee did not complete an exact time/motion study at the scene of the event to determine the locations of the whole body, film badge, and radiography exposure device. As a result, the Licensee did not conclude that an exposure in excess of the dose limits occurred.²

By letter dated June 23, 1997, the Licensee did submit the report required by 10 CFR 20.2203(a)(2)(i), but solely on the basis that the NRC's letter transmitting the Notice of Violation and Proposed Imposition of Civil Penalty specifically stated that the Licensee was required to make such a report. As noted above, the Licensee still contends that an exposure in excess of regulatory limits did not occur based on the Licensee's unapproved methodology it used to compute the TEDE.

Given that the Licensee did not learn that the radiographer's exposure was in excess of regulatory limits, and that, after being informed by the NRC of the radiographer's exposure, the Licensee submitted a report per the requirements of 10 CFR 20.2203(a)(2)(i), the NRC concludes that Violation II.A should be withdrawn.

² For details concerning the Licensee's evaluation, see Summary of the Licensee's Response to Violation I.C and the NRC's Evaluation of the Licensee's Response to Violation I.C.

NRC Conclusion

The NRC staff concludes that the Licensee provided an adequate basis for withdrawing Violation II.A. Therefore, Violation II.A should be withdrawn.

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Lloyd M. McBride
1934-1983

Edward H. Baker, Jr.
1935-1970

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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

July 7, 1997

BY FEDERAL EXPRESS

James Lieberman, Director
Office of Enforcement
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

Re: *Notice of Violation and Proposed Imposition of Civil Penalty*
(NRC Inspection Report No. 030-31373(DNMS)
and Investigation Report No. 3-96-014)
Reply and Answer of Respondent, Conam Inspection, Inc.
to Notice of Violation and Proposed Imposition of Civil Penalty (EA97-207)

Dear Mr. Lieberman:

I am enclosing in accordance with your June 9, 1997, letter and accompanying Notice of Violation in this matter, copies of Respondent Conam Inspection, Inc.'s Reply and Answer to the NOV.

Further communications to the Respondent in this matter should be directed to me.

Very truly yours,



Clifton A. Lake

CAL/pg
Enclosure

cc: Regional Administrator, U.S. Nuclear Regulatory Commission (Region III)
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UNITED STATES
NUCLEAR REGULATORY COMMISSION

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In the Matter of:

CONAM INSPECTION, INC.
Itasca, Illinois,

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Docket No. 030-AD-77
License No. 12-16559-01
EA 97-207

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

**REPLY TO A
NOTICE OF VIOLATION**

CONAM INSPECTION, INC. ("Conam"), Respondent to the above Notice of Violation and Proposed Imposition of Civil Penalty ("NOV") dated June 9, 1997, through its attorneys and pursuant to 10 C.F.R. §2.201 replies as follows.

1. Conam admits the facts alleged in Section I(A) of the NOV. Conam contends, for the reasons set out in Paragraph 7, *infra*, that such facts do not justify imposition of the proposed penalty.

2. Conam denies the violation alleged in Section I(B) of the NOV. In further response to this alleged violation, Conam states that on February 28, 1996, the day following the incident alleged, the radiographer, expressly stated to Conam's Radiation Safety Officer (RSO) that the radiographer had performed a full 360-degree circumferential survey of the radiographic exposure device.

3. Conam denies that the radiographer involved was exposed to radiation in excess of 5 rem, total effective dose equivalent, as alleged in Section I(C) of the NOV.

Using conventional dose assessment methods, consensus industry standards, and the NRC's own definitions, Conam contends that the maximum likely Total Effective Dose Equivalent (TEDE) incurred by the radiographer was 2.9 rem, based upon the radiographer's

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description of time and motion. This value is below the 5 rem TEDE limit in 10 C.F.R. §20.1201(a)(1)(i), thus no violation occurred.

Conam expressly disagrees with the interpretation of the dose assessment in the NRC's June 9, 1997, letter which accompanied the NOV. Conam's consultant, Integrated Environmental Management, Inc. (IEM), performed a dose assessment which did not, contrary to its characterization by the NRC, conclude that the TEDE to which the radiographer was exposed was 9.369 rem. Instead, IEM found that the *dose to the right thigh only* from the collimated beam was 9.369 rem.

The occupational dose limits reflected in 10 C.F.R. Part 20 are based on the 1976 Recommendations of the International Commission on Radiological Protection (ICRP).^{1,2} The fundamental principle underlying those dose limits is that there is a predictable relationship between irradiation of the whole body and biological effects. This principle is clearly stated in ICRP's 1976 Recommendations, implied in the 1987 Radiation Protection Guidance to Federal Agencies, reflected in 10 C.F.R. §20.1201(a) and 10 C.F.R. §20.1003 and interpreted in the NRC's Statement of Consideration pertinent to the 10 C.F.R. Part 20 final rule. Therefore, contrary to the conclusion in the NOV, the dose to the radiographer's right thigh is not an appropriate predictor of biological effects, and thus should not be compared to the primary dose limit in 10 C.F.R. §20.1201.

The ICRP's Recommendations support this interpretation. In ICRP Publication 26, the following statements appear:

"Almost every exposure of the body involves irradiation of more than one tissue, and therefore, for reasons referred to in Paragraph

¹ 56 Fed. Reg. 23360 (May 21, 1991).

² International Commission on Radiological Protection, ICRP Publication 26, "Recommendations of the ICRP," Pergamon Press, 1977.

36, the Commission believes that, for stochastic effects, it is appropriate to recommend a dose-equivalent limit based on the total risk of all tissue irradiated.³ This system incorporates the setting of a single dose-equivalent limit for uniform irradiation of the whole body and a system designed to insure that the total risk from irradiation of parts of the body does not exceed that from uniform irradiation of the whole body."

For radiation protection purposes, the ICRP and industry as a whole assume that the relationship between radiation dose and effect is linear, and that there is no threshold for effects. The ICRP statement quoted above was included in order to avoid the problem of non-homogeneous irradiation of the body where the doses to individual organs, portions of organs or cells differ by more than the range of doses over which the linear dose-response relationship is taken to be valid. Consequently, the ICRP's wording is explicit in its recommended annual dose equivalent limits of 5 rem for uniform irradiation of the whole body, 30 rem to the lens of the eye, and 50 rem to all other tissues.⁴

As reflected in Appendix D of the IEM dose assessment report, which is part of the record of this proceeding, the maximum likely dose equivalents calculated to the head/neck, thorax, abdomen, upper right arm, upper left arm, right thigh and left thigh of the Conam radiographer were 0.003, 0.003, 4.600, 0.003, 0.003, 9.369, and 0.003 rem, respectively. Since the abdomen contains the radiographer's gonads, 33% of his red bone marrow, 33% of his bone surfaces and other GI tissues, and since his right thigh contains an additional 4% of his red bone marrow, in no

³ Paragraph 36 states: "In its former Recommendations, the Commission stated that, when more than one organ of the body is exposed, that irradiation of one particular organ or tissue is likely to be of the greatest importance because of the dose it received, its sensitivity to radiation, or the importance to health of any damage that results. This tissue or organ was referred to as the critical one under the circumstances, and the dose limitation for the individual was determined by the dose equivalent limit for that tissue or organ. The concept of the critical organ used in this way does not permit the summation of detriment according to the relative radiosensitivities of the irradiated tissues. *The Commission now recommends a procedure which takes account of the total risk attributable to the exposure of all tissues irradiated.* (Emphasis supplied)."

⁴ International Commission on Radiological Protection, ICRP Publication 26, Recommendations of the ICRP p. 21, Paragraph 103.

case did a specific organ or tissue exceed the limit of 50 rem as a result of his exposure to a highly collimated beam of penetrating radiation. When the organ dose equivalents determined for the radiographer were weighted by the stochastic risk weighting factors given in Paragraph 105 of ICRP 26, the maximum likely whole body dose equivalent was determined to be 2.9 rem, which exceeds neither the ICRP-recommended limit, nor the standard in 10 C.F.R. §20.1201(a)(1)(i).

The NRC's regulations support the position that a non-uniform exposure does not result in equal risk as a uniform whole body exposure. On May 21, 1991, the NRC promulgated revised standards for protection against ionizing radiation. Among the reasons given for the revision were to "incorporate updated scientific information and to reflect changes in the basic philosophy of radiation protection" and to "put into practice recommendations from ICRP Publication 26 and subsequent ICRP publications."⁵ Included in the summary from the publication of the Final Rule was the statement by the NRC that the revision "conforms the Commission's regulations to the Presidential Radiation Protection Guidance to Federal Agencies for Occupational Exposure and to recommendations of national and international radiation protection organizations." Section 20.1201(a) does indeed reflect one of ICRP's recommended dose limits. Likewise, in 10 C.F.R. §20.1003, the TEDE is defined as "the sum of the deep dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures)," which is also consistent with ICRP definitions. Further, in 10 C.F.R. §20.1003 the regulation provides that the deep-dose equivalent "which applies to the *external whole-body exposure* is the dose equivalent to a tissue depth of 1 cm (1,000 mg/cm²)." (Emphasis supplied).

⁵ 56 Fed. Reg. 23360 (May 21, 1991).

IEM determined that the maximum likely dose to the radiographer's right thigh was 9.369 rem. Although this dose was attributed to irradiation from external sources, it clearly was not the result of a whole-body exposure. Therefore, the right thigh dose cannot be used to calculate the TEDE as it is defined in the NRC's regulations. Instead, the deep-dose equivalent for the whole-body used as input to the TEDE calculation, was determined through application of compartment factors, as described in Appendices A and D of the IEM report. The resulting dose was 2.9 rem, well-below the 10 C.F.R. §20.1201(a)(1)(i) limit of 5 rem.

In fact the NRC's own guidance on the interpretation of 10 C.F.R. §20.1201(c) permits the use of external dose weighting factors. By providing in 10 C.F.R. §20.1201(c), however, that the "assigned deep-dose equivalent and shallow-dose equivalent must be for the part of the body receiving the highest exposure," the regulation conflicts with the definition of deep-dose equivalent provided in §20.1003, is inconsistent with the ICRP's Recommendations and deviates from the fundamental principles underlying the dose limits in 10 C.F.R. Part 20.

In its May 21, 1991, publication of the Final Rule and in a subsequent June 30, 1992, Statement of Consideration, the NRC acknowledged the difficulty licensees might have in demonstrating compliance with dose limits in cases of non-homogeneous irradiation of the body, but stated that "none of the principal standard-setting organizations has included specific recommendations for the use of weighting factors for external dose." However, the NRC did concede that, "the application of weighting factors for external exposures will be evaluated on a case-by-case basis until more guidance and additional weighting factors are recommended." This conclusion was codified in 10 C.F.R. §20.1003, where the following footnote appears under the definition of "weighting factor":

"For the purpose of weighting the external whole-body dose (for adding it to the internal dose) a single weighting factor, $W_T = 1.0$ has been specified. The use of other weighting factors for external exposure will be approved on a case-by-case basis until such time as specific guidance is issued."

The NRC has not yet issued specific guidance in interpreting this issue. However, in December 1996, the American National Standards Institute, a principal standard-setting organization, issued American National Standard N13.41, "Criteria for Performing Multiple Dosimetry." Included in that standard is a recommended methodology for determining the effective dose equivalent under conditions of non-uniform irradiation of the whole body. It was this standard methodology that IEM used to assess the deep-dose equivalent for the Conam radiographer, which resulted in an estimated exposure of 2.9 rem.

In determining a maximum likely TEDE for the radiographer in this instance, and consistent with 10 C.F.R. §20.1003, Conam used a methodology promulgated by a principal standard-setting organization (the ANSI) that is based upon international consensus standards for assessing and limiting radiation dose. In light of the conflicting regulatory language in 10 C.F.R. Part 20 regarding non-uniform exposure of the whole body, and the fact that 10 C.F.R. §20.1003 allows weighting factors to be considered, Conam believes that the dose determined for the radiographer by IEM using the American National Standard N13.41 protocol, was appropriate and consistent with the rationale underlying the occupational exposure limitations. That methodology confirms that the radiographer did not receive a dose in excess of 5 rem, and as a result, no violation of the occupational exposure requirements occurred.

4. Conam denies the allegations of Section II(A) of the NOV, and states that because the radiographer was not exposed to a dose in excess of 5 rem, total effective dose equivalent, no reporting obligation arose under applicable regulations.

5. Conam admits the allegations of Section II(B) of the NOV, but states that the incident occurred because of inadvertance, and because it took place in an unrestricted area (less than 2 mr/hr.), there was no actual or potential radiological hazard to the employee.

6. Conam is presently in compliance with all of the regulations, and intends no further corrective action other than to continue to enforce its Radiation Safety Program, including the conduct of quarterly internal compliance audits.

7. In supplementation of Paragraphs 1-6, above, Conam states the following reasons why the corrective action taken by Conam was effective and timely, why the violations alleged in Section I of the NOV should not be considered willful, and the reasons why the proposed penalty should not be imposed, or in the alternative, should be completely mitigated.

Conam's view of the facts involved in the incident are substantially different from the facts alleged in the NOV. Based upon the information provided to Conam's RSO during his interview with the radiographer and reenactment of the incident on February 28, 1996, the record shows that the following occurred. The radiographer, William Chastain, a Conam radiographer for three years, prior to the incident, on one occasion failed to properly lock his camera after completing a exposure. He then failed to properly read his survey meter when he performed a radiation survey in a 360-degree motion around the camera. For reasons unknown, the radiographer did not rotate the selector ring from the "operate" to the "lock" position, nor did he depress the plunger mechanism of the camera. These facts were determined by Conam's RSO during his February 28

interview of the radiographer. On the basis of such information, the RSO took four actions. First, the RSO sent the radiographer's film badge for overnight processing to determine the actual dose received by the radiographer during the incident. Second, he prepared a memorandum which was distributed on February 29, 1996, to all Conam radiographic personnel to remind them of the mandatory procedure for operating radiographic cameras, including the mandatory requirement to conduct a radiation survey following each exposure, and the correct procedure for locking the camera after completing each exposure. Third, the radiographer was suspended without pay for one week as punishment for violating Conam's radiation safety procedures. And fourth, the radiographer was withdrawn from further radiographic operations for the remainder of 1996.

What occurred during the February 27, 1996 incident was a simple act of negligence by the radiographer. That negligence was not the result of deficiencies in Conam's Radiation Safety Program, nor did it follow other incidents of a similar nature. In fact, the record shows that Conam facilities were subjected to seven unannounced NRC compliance inspections within two years preceding February 27, 1996, and not a single violation of applicable regulations was noted by NRC inspectors. Conam had no history of escalated enforcement actions. Chastain was a relatively junior radiographer, not a member of management. His actions were negligent rather than intentional. There was no economic advantage to Conam which accrued from Chastain's negligence in operating his radiographic camera on this occasion. The incident was promptly and comprehensively addressed and corrected by Conam's RSO through his analysis of the film badge, his issuance of his February 29, 1996 memorandum reminding all Conam radiographic personnel of the proper procedure for operating radiographic cameras, his withdrawal of the radiographer

from further radiographic duties and the suspension of the radiographer without pay for one week.

Under these facts, there is no basis upon which the NRC can, consistent with the Enforcement Policy, 60 Fed. Reg. 34381 (June 30, 1995), conclude that a "willful" violation occurred, nor to aggregate the violations alleged in Section 1(A), (B) and (C) of the NOV and assign a Severity Level II "problem."

The NRC's conclusion at page 3 of its June 9, 1997 letter accompanying the NOV, misapplies its own Enforcement Policy. First, it incorrectly aggregates violations of NRC regulations which, at worst, should be considered to be "non-willful" Severity Level III violations to a Severity Level II "problem." It then compounds that error by determining that the Severity Level II problem was "willful" within the meaning of the Enforcement Policy, and on this basis justifies a 100% escalation of the \$8,000 Severity Level II base penalty.

The Commission also improperly denies identification and corrective action credit under the terms of the Enforcement Policy Section VI.B.2(b) and (c), by ignoring essential facts. Specifically, the NRC states that identification credit should not be given because the "violation was essentially revealed through an event that did not occur as a result of a Conam self-monitoring effort, and, as noted below, Conam did not demonstrate inadequate initiative identifying the problem requiring corrective action." While Conam agrees that the problem was identified through an event, this fact does not preclude identification credit where the problem arose from a single incident of negligence by a radiographer in violation of well-publicized Conam safety procedures, where Conam's quarterly radiation safety compliance audit program was

demonstrably adequate, and where there were no prior deficient occurrences to identify the problem.

Corrective action to address the problem was also prompt and comprehensive, and should result in credit. It is clear that the interview with the radiographer and reenactment of his motions during the incident, which Conam's RSO conducted on the morning following the incident, were the result of Conam's unilateral enforcement of its Radiation Safety Program. Based upon what the radiographer told him, Conam's RSO determined that an exposure incident had occurred because of the failure of the radiographer to properly lock a camera and properly read a radiation survey meter during the previous evening. As a result, the RSO immediately removed the radiographer from radiographic operations, sent his film badge for overnight processing, issued a memorandum to all Conam radiographers reminding them of Conam's radiation safety requirements concerning the operation of radiographic cameras, and the radiographer was suspended without pay for his negligent failure to comply with Conam's radiation safety requirements. Given these undisputed facts, the Commission is left with a boot-strap rationale for denying corrective action credit, stating that "Conam could not confirm that each radiographer had received the instructions set forth in the [February 29, 1996] memorandum, nor had Conam instituted any monitoring/auditing programs to evaluate the effectiveness of the memorandum." Precisely how such a "confirmation" might have been accomplished is not addressed in the NRC's letter, nor is there any rational basis for the NRC's assumption that Conam radiographers did not receive a memorandum set out by its RSO to all Conam radiographers in the ordinary course of business which was specifically intended to address radiographic safety procedures, and following which no repetition of the problem has occurred. Such dismissal of Conam's identification and

corrective action efforts also ignores the fact that the February 27, 1996 incident was the only one of its kind against a record of no violations whatsoever during seven prior NRC compliance inspections, and no subsequent violations since February 27, 1996. Under these facts, Conam is entitled to identification and corrective action credit under the Enforcement Policy.

As the basis for its conclusion that the violation arising from the incident of February 27, 1996 was "willful" within the meaning of the Enforcement Policy, the NRC relies on facts which lack any evidentiary basis, and which Conam has repeatedly denied are true. Specifically, those "facts" relate to the allegedly "typical" practice of Conam radiographers to rely upon the automatic locking mechanism of their cameras, rather than to lock the camera manually in the manner required under Conam's radiation safety procedures. Conam absolutely denies this allegation. Moreover, as set out in this Response in Paragraph 3 above, the NRC's conclusion that the radiographer received a dose of radiation in excess of 5 rem, total effective dose equivalent, is erroneous as a matter of physiological fact. On this mistaken basis, the NRC concludes that an exposure to the radiographer "in excess of NRC's requirements" took place. This is not correct and the record so demonstrates. Because the NRC's conclusion that a "willful" violation has occurred is influenced by its erroneous conclusion that a violation of the occupational exposure limit occurred, its characterization of the violation as "willful" is likewise flawed.

As noted earlier, the February 27, 1996 incident involved a single negligent failure by a radiographer to comply with Conam's Radiation Safety Program requirements and procedures involving the operation of radiographic cameras. In Conam's view, and in the words of the Enforcement Policy:

"The violation appears to be the isolated action of the employee without management involvement and the violation was not caused by lack of management oversight, as evidenced by either a history of isolated willful violations or a lack of adequate audits or supervision of employees." Enforcement Policy Section VII.B.1.(d)(iii).

The violation did not result in a dose in excess of occupational limits, did not confer an economic benefit on Conam, nor was it performed by an employee of Conam having management or supervisory authority. The adequacy of Conam's radiation safety program cannot be seriously questioned in light of the fact that no violation of any regulatory requirement had been discovered by the NRC despite seven unannounced compliance inspections at Conam facilities during the previous two years, and no such incident has occurred subsequently. Under these circumstances, the NRC's Enforcement Policy should find at worst, the February 27, 1996 incident involved two non-willful Severity Level III violations which, with appropriate identification and corrective action credit, do not justify any civil penalty. The better view is that two Severity Level IV violations occurred, which justify no civil penalty.

As respects the application of the Enforcement Policy the violations alleged in Section II of the NOV, Conam's position is as follows. Although the NRC does not propose a civil penalty for the violations alleged in Section II, Conam is compelled to note that, like the factual allegations supporting Section I violations, the basis for the allegations in Section II are flawed, at least in part. Section II(A) of the NOV is founded upon the incorrect conclusion that the radiographer received a dose of radiation in excess of 5 rem. For the reasons set out above in Paragraph 3, that is not correct. The radiographer's dose was either 2.9 rem as determined by IEM, or 4.6 rem, as evidenced by his film badge. In either case, the 5 rem limit for occupational exposure was not exceeded. As a result, no reporting obligation under the provisions of 10

C.F.R. §20.2203 and §20.2205 was imposed upon Conam. In short, there was neither an occupational exposure in violation of 10 C.F.R. §20.1201, nor a reporting violation arising from the February 27, 1996 incident.

Conam does not dispute the factual basis of the Section II(B) alleged violation, but does note that it involves failure to wear a film badge by an individual who was calibrating survey instruments, and that the area in which that employee was located was an unrestricted area (less than 2mr/hr). Moreover, the equipment involved was not a device for performing radiography, but a calibration device. There was as a result, no actual or potential radiological exposure hazard to the employee by reason of his failure to wear a film badge. Immediately following the incident, Conam's RSO issued a memorandum to all radiographic personnel reminding them that film badges must always be worn, even when calibrating survey instruments in an unrestricted area. The incident at worst justifies a finding that a non-willful Severity Level IV violation has occurred.

For the above reasons, Conam contends that the Notice of Violation and Proposed Imposition of Civil Penalties should be withdrawn and modified as follows. The NRC should conclude, as respects Section I of the NOV, that two non-willful Severity Level IV violations occurred during one radiographic camera operating sequence on February 27, 1996, which did not result in exposure to the radiographer in excess of 5 rem, total effective dose equivalent. The NRC should find that these violations do not justify the imposition of any civil penalty under the Enforcement Policy because identification and corrective action credit are appropriate. As respects the allegations of Section II of the NOV, the NRC should conclude that no reporting violation occurred because there was not an occupational exposure in excess of 5 rem, and that a

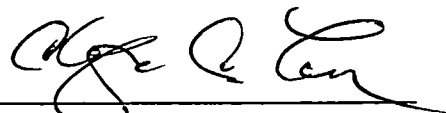
single non-willful Severity Level IV Violation occurred when a Conam employee failed to wear a film badge while calibrating survey instruments in an unrestricted area. This finding should not, as the NRC has already recognized, be the basis for any proposed penalty.

Dated: July 7, 1997

CONAM INSPECTION, INC.

Respondent

By:



One of Its Attorneys

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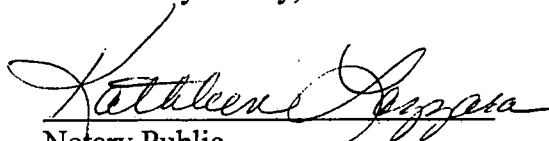
AFFIDAVIT OF ROBERT SLACK

Robert Slack, first being sworn, states that he is the Radiation Safety Officer for CONAM INSPECTION INC and he has read the foregoing Reply to Notice of Violation and knows the facts set out therein to be true and correct to the best of his knowledge, information and belief.

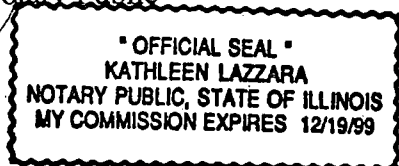


Robert Slack

Subscribed and Sworn to before me
this 3rd day of July, 1997.



Notary Public



UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of:

CONAM INSPECTION, INC.
Itasca, Illinois,

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)
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)

Docket No. 030-31373
License No. 12-16559-01
EA 97-207

**ANSWER TO A
NOTICE OF VIOLATION**

CONAM INSPECTION, INC. ("Conam"), Respondent to the above Notice of Violation and Proposed Imposition of Civil Penalty ("NOV") dated June 9, 1997, through its attorneys and pursuant to 10 C.F.R. §2.205 answers the NOV as follows.

1. Conam incorporates its Reply to a Notice of Violation filed simultaneously with this Answer, a copy of which is attached hereto as Exhibit 1.

2. Exhibit 1 demonstrates that corrective steps were taken immediately by Conam following the incident which occurred on February 27, 1996, and that such corrective steps have resulted in no subsequent incidents of this type. Conam does not intend to take further corrective steps in the future, other than to continue to enforce its Radiation Safety Program, including the conduct of quarterly internal compliance audits. Full compliance with the NRC regulations was achieved by the corrective action taken by Conam's Radiation Safety Officer immediately following the incident.

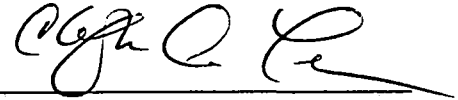
3. In accordance with the suggested protocol of the NOV, Conam refers the NRC to Exhibit 1 for Conam's specific contentions with respect to the admission or denial of each alleged violation (See, ¶¶1, 2, 3, 4 and 5), the existence of extenuating circumstances (¶4, p. 8; ¶5) and the reasons why the proposed penalty should not be imposed (¶7, pp. 7-14).

4. In accordance with 42 U.S.C. §2232 and the direction of the NRC in the NOV, Conam has attached hereto the affidavit of its Radiation Safety Officer, Robert Slack, in support of the facts stated in this Answer.

Dated: July 7, 1997

CONAM INSPECTION, INC.
Respondent

By: _____



One of Its Attorneys


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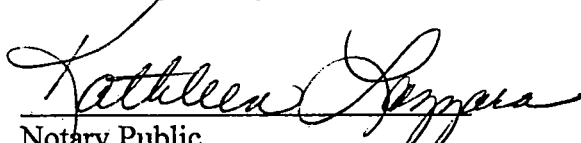
AFFIDAVIT OF ROBERT SLACK

Robert Slack, first being sworn, states that he is the Radiation Safety Officer for CONAM INSPECTION INC and he has read the foregoing Answer to Notice of Violation and knows the facts set out therein to be true and correct to the best of his knowledge, information and belief.



Robert Slack

Subscribed and Sworn to before me
this 3rd day of July, 1997.



Notary Public



UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of:

CONAM INSPECTION, INC.
Itasca, Illinois,

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)
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)

Docket No. 030-31373
License No. 12-16559-01
EA 97-207

**REPLY TO A
NOTICE OF VIOLATION**

CONAM INSPECTION, INC. ("Conam"), Respondent to the above Notice of Violation and Proposed Imposition of Civil Penalty ("NOV") dated June 9, 1997, through its attorneys and pursuant to 10 C.F.R. §2.201 replies as follows.

1. Conam admits the facts alleged in Section I(A) of the NOV. Conam contends, for the reasons set out in Paragraph 7, *infra*, that such facts do not justify imposition of the proposed penalty.

2. Conam denies the violation alleged in Section I(B) of the NOV. In further response to this alleged violation, Conam states that on February 28, 1996, the day following the incident alleged, the radiographer, expressly stated to Conam's Radiation Safety Officer (RSO) that the radiographer had performed a full 360-degree circumferencial survey of the radiographic exposure device.

3. Conam denies that the radiographer involved was exposed to radiation in excess of 5 rem, total effective dose equivalent, as alleged in Section I(C) of the NOV.

Using conventional dose assessment methods, consensus industry standards, and the NRC's own definitions, Conam contends that the maximum likely Total Effective Dose Equivalent (TEDE) incurred by the radiographer was 2.9 rem, based upon the radiographer's

EXHIBIT 1

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description of time and motion. This value is below the 5 rem TEDE limit in 10 C.F.R. §20.1201(a)(1)(i), thus no violation occurred.

Conam expressly disagrees with the interpretation of the dose assessment in the NRC's June 9, 1997, letter which accompanied the NOV. Conam's consultant, Integrated Environmental Management, Inc. (IEM), performed a dose assessment which did not, contrary to its characterization by the NRC, conclude that the TEDE to which the radiographer was exposed was 9.369 rem. Instead, IEM found that the *dose to the right thigh only* from the collimated beam was 9.369 rem.

The occupational dose limits reflected in 10 C.F.R. Part 20 are based on the 1976 Recommendations of the International Commission on Radiological Protection (ICRP).^{1,2} The fundamental principle underlying those dose limits is that there is a predictable relationship between irradiation of the whole body and biological effects. This principle is clearly stated in ICRP's 1976 Recommendations, implied in the 1987 Radiation Protection Guidance to Federal Agencies, reflected in 10 C.F.R. §20.1201(a) and 10 C.F.R. §20.1003 and interpreted in the NRC's Statement of Consideration pertinent to the 10 C.F.R. Part 20 final rule. Therefore, contrary to the conclusion in the NOV, the dose to the radiographer's right thigh is not an appropriate predictor of biological effects, and thus should not be compared to the primary dose limit in 10 C.F.R. §20.1201.

The ICRP's Recommendations support this interpretation. In ICRP Publication 26, the following statements appear:

"Almost every exposure of the body involves irradiation of more than one tissue, and therefore, for reasons referred to in Paragraph

¹ 56 Fed. Reg. 23360 (May 21, 1991).

² International Commission on Radiological Protection, ICRP Publication 26, "Recommendations of the ICRP," Pergamon Press, 1977.

36, the Commission believes that, for stochastic effects, it is appropriate to recommend a dose-equivalent limit based on the total risk of all tissue irradiated.³ This system incorporates the setting of a single dose-equivalent limit for uniform irradiation of the whole body and a system designed to insure that the total risk from irradiation of parts of the body does not exceed that from uniform irradiation of the whole body."

For radiation protection purposes, the ICRP and industry as a whole assume that the relationship between radiation dose and effect is linear, and that there is no threshold for effects. The ICRP statement quoted above was included in order to avoid the problem of non-homogeneous irradiation of the body where the doses to individual organs, portions of organs or cells differ by more than the range of doses over which the linear dose-response relationship is taken to be valid. Consequently, the ICRP's wording is explicit in its recommended annual dose equivalent limits of 5 rem for uniform irradiation of the whole body, 30 rem to the lens of the eye, and 50 rem to all other tissues.⁴

As reflected in Appendix D of the IEM dose assessment report, which is part of the record of this proceeding, the maximum likely dose equivalents calculated to the head/neck, thorax, abdomen, upper right arm, upper left arm, right thigh and left thigh of the Conam radiographer were 0.003, 0.003, 4.600, 0.003, 0.003, 9.369, and 0.003 rem, respectively. Since the abdomen contains the radiographer's gonads, 33% of his red bone marrow, 33% of his bone surfaces and other GI tissues, and since his right thigh contains an additional 4% of his red bone marrow, in no

³ Paragraph 36 states: "In its former Recommendations, the Commission stated that, when more than one organ of the body is exposed, that irradiation of one particular organ or tissue is likely to be of the greatest importance because of the dose it received, its sensitivity to radiation, or the importance to health of any damage that results. This tissue or organ was referred to as the critical one under the circumstances, and the dose limitation for the individual was determined by the dose equivalent limit for that tissue or organ. The concept of the critical organ used in this way does not permit the summation of detriment according to the relative radiosensitivities of the irradiated tissues. *The Commission now recommends a procedure which takes account of the total risk attributable to the exposure of all tissues irradiated.* (Emphasis supplied)."

⁴ International Commission on Radiological Protection, ICRP Publication 26, Recommendations of the ICRP p. 21, Paragraph 103.

case did a specific organ or tissue exceed the limit of 50 rem as a result of his exposure to a highly collimated beam of penetrating radiation. When the organ dose equivalents determined for the radiographer were weighted by the stochastic risk weighting factors given in Paragraph 105 of ICRP 26, the maximum likely whole body dose equivalent was determined to be 2.9 rem, which exceeds neither the ICRP-recommended limit, nor the standard in 10 C.F.R. §20.1201(a)(1)(i).

The NRC's regulations support the position that a non-uniform exposure does not result in equal risk as a uniform whole body exposure. On May 21, 1991, the NRC promulgated revised standards for protection against ionizing radiation. Among the reasons given for the revision were to "incorporate updated scientific information and to reflect changes in the basic philosophy of radiation protection" and to "put into practice recommendations from ICRP Publication 26 and subsequent ICRP publications."⁵ Included in the summary from the publication of the Final Rule was the statement by the NRC that the revision "conforms the Commission's regulations to the Presidential Radiation Protection Guidance to Federal Agencies for Occupational Exposure and to recommendations of national and international radiation protection organizations." Section 20.1201(a) does indeed reflect one of ICRP's recommended dose limits. Likewise, in 10 C.F.R. §20.1003, the TEDE is defined as "the sum of the deep dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures)," which is also consistent with ICRP definitions. Further, in 10 C.F.R. §20.1003 the regulation provides that the deep-dose equivalent "which applies to the *external whole-body exposure* is the dose equivalent to a tissue depth of 1 cm (1,000 mg/cm²)." (Emphasis supplied).

⁵ 56 Fed. Reg. 23360 (May 21, 1991).

IEM determined that the maximum likely dose to the radiographer's right thigh was 9.369 rem. Although this dose was attributed to irradiation from external sources, it clearly was not the result of a whole-body exposure. Therefore, the right thigh dose cannot be used to calculate the TEDE as it is defined in the NRC's regulations. Instead, the deep-dose equivalent for the whole-body used as input to the TEDE calculation, was determined through application of compartment factors, as described in Appendices A and D of the IEM report. The resulting dose was 2.9 rem, well-below the 10 C.F.R. §20.1201(a)(1)(i) limit of 5 rem.

In fact the NRC's own guidance on the interpretation of 10 C.F.R. §20.1201(c) permits the use of external dose weighting factors. By providing in 10 C.F.R. §20.1201(c), however, that the "assigned deep-dose equivalent and shallow-dose equivalent must be for the part of the body receiving the highest exposure," the regulation conflicts with the definition of deep-dose equivalent provided in §20.1003, is inconsistent with the ICRP's Recommendations and deviates from the fundamental principles underlying the dose limits in 10 C.F.R. Part 20.

In its May 21, 1991, publication of the Final Rule and in a subsequent June 30, 1992, Statement of Consideration, the NRC acknowledged the difficulty licensees might have in demonstrating compliance with dose limits in cases of non-homogeneous irradiation of the body, but stated that "none of the principal standard-setting organizations has included specific recommendations for the use of weighting factors for external dose." However, the NRC did concede that, "the application of weighting factors for external exposures will be evaluated on a case-by-case basis until more guidance and additional weighting factors are recommended." This conclusion was codified in 10 C.F.R. §20.1003, where the following footnote appears under the definition of "weighting factor":

"For the purpose of weighting the external whole-body dose (for adding it to the internal dose) a single weighting factor, $W_T = 1.0$ has been specified. The use of other weighting factors for external exposure will be approved on a case-by-case basis until such time as specific guidance is issued."

The NRC has not yet issued specific guidance in interpreting this issue. However, in December 1996, the American National Standards Institute, a principal standard-setting organization, issued American National Standard N13.41, "Criteria for Performing Multiple Dosimetry." Included in that standard is a recommended methodology for determining the effective dose equivalent under conditions of non-uniform irradiation of the whole body. It was this standard methodology that IEM used to assess the deep-dose equivalent for the Conam radiographer, which resulted in an estimated exposure of 2.9 rem.

In determining a maximum likely TEDE for the radiographer in this instance, and consistent with 10 C.F.R. §20.1003, Conam used a methodology promulgated by a principal standard-setting organization (the ANSI) that is based upon international consensus standards for assessing and limiting radiation dose. In light of the conflicting regulatory language in 10 C.F.R. Part 20 regarding non-uniform exposure of the whole body, and the fact that 10 C.F.R. §20.1003 allows weighting factors to be considered, Conam believes that the dose determined for the radiographer by IEM using the American National Standard N13.41 protocol, was appropriate and consistent with the rationale underlying the occupational exposure limitations. That methodology confirms that the radiographer did not receive a dose in excess of 5 rem, and as a result, no violation of the occupational exposure requirements occurred.

4. Conam denies the allegations of Section II(A) of the NOV, and states that because the radiographer was not exposed to a dose in excess of 5 rem, total effective dose equivalent, no reporting obligation arose under applicable regulations.

5. Conam admits the allegations of Section II(B) of the NOV, but states that the incident occurred because of inadvertance, and because it took place in an unrestricted area (less than 2 mr/hr.), there was no actual or potential radiological hazard to the employee.

6. Conam is presently in compliance with all of the regulations, and intends no further corrective action other than to continue to enforce its Radiation Safety Program, including the conduct of quarterly internal compliance audits.

7. In supplementation of Paragraphs 1-6, above, Conam states the following reasons why the corrective action taken by Conam was effective and timely, why the violations alleged in Section I of the NOV should not be considered willful, and the reasons why the proposed penalty should not be imposed, or in the alternative, should be completely mitigated.

Conam's view of the facts involved in the incident are substantially different from the facts alleged in the NOV. Based upon the information provided to Conam's RSO during his interview with the radiographer and reenactment of the incident on February 28, 1996, the record shows that the following occurred. The radiographer, William Chastain, a Conam radiographer for three years, prior to the incident, on one occasion failed to properly lock his camera after completing a exposure. He then failed to properly read his survey meter when he performed a radiation survey in a 360-degree motion around the camera. For reasons unknown, the radiographer did not rotate the selector ring from the "operate" to the "lock" position, nor did he depress the plunger mechanism of the camera. These facts were determined by Conam's RSO during his February 28

interview of the radiographer. On the basis of such information, the RSO took four actions. First, the RSO sent the radiographer's film badge for overnight processing to determine the actual dose received by the radiographer during the incident. Second, he prepared a memorandum which was distributed on February 29, 1996, to all Conam radiographic personnel to remind them of the mandatory procedure for operating radiographic cameras, including the mandatory requirement to conduct a radiation survey following each exposure, and the correct procedure for locking the camera after completing each exposure. Third, the radiographer was suspended without pay for one week as punishment for violating Conam's radiation safety procedures. And fourth, the radiographer was withdrawn from further radiographic operations for the remainder of 1996.

What occurred during the February 27, 1996 incident was a simple act of negligence by the radiographer. That negligence was not the result of deficiencies in Conam's Radiation Safety Program, nor did it follow other incidents of a similar nature. In fact, the record shows that Conam facilities were subjected to seven unannounced NRC compliance inspections within two years preceding February 27, 1996, and not a single violation of applicable regulations was noted by NRC inspectors. Conam had no history of escalated enforcement actions. Chastain was a relatively junior radiographer, not a member of management. His actions were negligent rather than intentional. There was no economic advantage to Conam which accrued from Chastain's negligence in operating his radiographic camera on this occasion. The incident was promptly and comprehensively addressed and corrected by Conam's RSO through his analysis of the film badge, his issuance of his February 29, 1996 memorandum reminding all Conam radiographic personnel of the proper procedure for operating radiographic cameras, his withdrawal of the radiographer

from further radiographic duties and the suspension of the radiographer without pay for one week.

Under these facts, there is no basis upon which the NRC can, consistent with the Enforcement Policy, 60 Fed. Reg. 34381 (June 30, 1995), conclude that a "willful" violation occurred, nor to aggregate the violations alleged in Section 1(A), (B) and (C) of the NOV and assign a Severity Level II "problem."

The NRC's conclusion at page 3 of its June 9, 1997 letter accompanying the NOV, misapplies its own Enforcement Policy. First, it incorrectly aggregates violations of NRC regulations which, at worst, should be considered to be "non-willful" Severity Level III violations to a Severity Level II "problem." It then compounds that error by determining that the Severity Level II problem was "willful" within the meaning of the Enforcement Policy, and on this basis justifies a 100% escalation of the \$8,000 Severity Level II base penalty.

The Commission also improperly denies identification and corrective action credit under the terms of the Enforcement Policy Section VI.B.2(b) and (c), by ignoring essential facts. Specifically, the NRC states that identification credit should not be given because the "violation was essentially revealed through an event that did not occur as a result of a Conam self-monitoring effort, and, as noted below, Conam did not demonstrate inadequate initiative identifying the problem requiring corrective action." While Conam agrees that the problem was identified through an event, this fact does not preclude identification credit where the problem arose from a single incident of negligence by a radiographer in violation of well-publicized Conam safety procedures, where Conam's quarterly radiation safety compliance audit program was

demonstrably adequate, and where there were no prior deficient occurrences to identify the problem.

Corrective action to address the problem was also prompt and comprehensive, and should result in credit. It is clear that the interview with the radiographer and reenactment of his motions during the incident, which Conam's RSO conducted on the morning following the incident, were the result of Conam's unilateral enforcement of its Radiation Safety Program. Based upon what the radiographer told him, Conam's RSO determined that an exposure incident had occurred because of the failure of the radiographer to properly lock a camera and properly read a radiation survey meter during the previous evening. As a result, the RSO immediately removed the radiographer from radiographic operations, sent his film badge for overnight processing, issued a memorandum to all Conam radiographers reminding them of Conam's radiation safety requirements concerning the operation of radiographic cameras, and the radiographer was suspended without pay for his negligent failure to comply with Conam's radiation safety requirements. Given these undisputed facts, the Commission is left with a boot-strap rationale for denying corrective action credit, stating that "Conam could not confirm that each radiographer had received the instructions set forth in the [February 29, 1996] memorandum, nor had Conam instituted any monitoring/auditing programs to evaluate the effectiveness of the memorandum." Precisely how such a "confirmation" might have been accomplished is not addressed in the NRC's letter, nor is there any rational basis for the NRC's assumption that Conam radiographers did not receive a memorandum set out by its RSO to all Conam radiographers in the ordinary course of business which was specifically intended to address radiographic safety procedures, and following which no repetition of the problem has occurred. Such dismissal of Conam's identification and

corrective action efforts also ignores the fact that the February 27, 1996 incident was the only one of its kind against a record of no violations whatsoever during seven prior NRC compliance inspections, and no subsequent violations since February 27, 1996. Under these facts, Conam is entitled to identification and corrective action credit under the Enforcement Policy.

As the basis for its conclusion that the violation arising from the incident of February 27, 1996 was "willful" within the meaning of the Enforcement Policy, the NRC relies on facts which lack any evidentiary basis, and which Conam has repeatedly denied are true. Specifically, those "facts" relate to the allegedly "typical" practice of Conam radiographers to rely upon the automatic locking mechanism of their cameras, rather than to lock the camera manually in the manner required under Conam's radiation safety procedures. Conam absolutely denies this allegation. Moreover, as set out in this Response in Paragraph 3 above, the NRC's conclusion that the radiographer received a dose of radiation in excess of 5 rem, total effective dose equivalent, is erroneous as a matter of physiological fact. On this mistaken basis, the NRC concludes that an exposure to the radiographer "in excess of NRC's requirements" took place. This is not correct and the record so demonstrates. Because the NRC's conclusion that a "willful" violation has occurred is influenced by its erroneous conclusion that a violation of the occupational exposure limit occurred, its characterization of the violation as "willful" is likewise flawed.

As noted earlier, the February 27, 1996 incident involved a single negligent failure by a radiographer to comply with Conam's Radiation Safety Program requirements and procedures involving the operation of radiographic cameras. In Conam's view, and in the words of the Enforcement Policy:

"The violation appears to be the isolated action of the employee without management involvement and the violation was not caused by lack of management oversight, as evidenced by either a history of isolated willful violations or a lack of adequate audits or supervision of employees." Enforcement Policy Section VII.B.1.(d)(iii).

The violation did not result in a dose in excess of occupational limits, did not confer an economic benefit on Conam, nor was it performed by an employee of Conam having management or supervisory authority. The adequacy of Conam's radiation safety program cannot be seriously questioned in light of the fact that no violation of any regulatory requirement had been discovered by the NRC despite seven unannounced compliance inspections at Conam facilities during the previous two years, and no such incident has occurred subsequently. Under these circumstances, the NRC's Enforcement Policy should find at worst, the February 27, 1996 incident involved two non-willful Severity Level III violations which, with appropriate identification and corrective action credit, do not justify any civil penalty. The better view is that two Severity Level IV violations occurred, which justify no civil penalty.

As respects the application of the Enforcement Policy the violations alleged in Section II of the NOV, Conam's position is as follows. Although the NRC does not propose a civil penalty for the violations alleged in Section II, Conam is compelled to note that, like the factual allegations supporting Section I violations, the basis for the allegations in Section II are flawed, at least in part. Section II(A) of the NOV is founded upon the incorrect conclusion that the radiographer received a dose of radiation in excess of 5 rem. For the reasons set out above in Paragraph 3, that is not correct. The radiographer's dose was either 2.9 rem as determined by IEM, or 4.6 rem, as evidenced by his film badge. In either case, the 5 rem limit for occupational exposure was not exceeded. As a result, no reporting obligation under the provisions of 10

C.F.R. §20.2203 and §20.2205 was imposed upon Conam. In short, there was neither an occupational exposure in violation of 10 C.F.R. §20.1201, nor a reporting violation arising from the February 27, 1996 incident.

Conam does not dispute the factual basis of the Section II(B) alleged violation, but does note that it involves failure to wear a film badge by an individual who was calibrating survey instruments, and that the area in which that employee was located was an unrestricted area (less than 2mr/hr). Moreover, the equipment involved was not a device for performing radiography, but a calibration device. There was as a result, no actual or potential radiological exposure hazard to the employee by reason of his failure to wear a film badge. Immediately following the incident, Conam's RSO issued a memorandum to all radiographic personnel reminding them that film badges must always be worn, even when calibrating survey instruments in an unrestricted area. The incident at worst justifies a finding that a non-willful Severity Level IV violation has occurred.

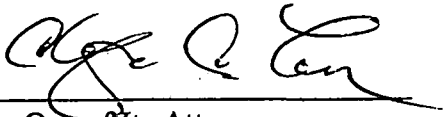
For the above reasons, Conam contends that the Notice of Violation and Proposed Imposition of Civil Penalties should be withdrawn and modified as follows. The NRC should conclude, as respects Section I of the NOV, that two non-willful Severity Level IV violations occurred during one radiographic camera operating sequence on February 27, 1996, which did not result in exposure to the radiographer in excess of 5 rem, total effective dose equivalent. The NRC should find that these violations do not justify the imposition of any civil penalty under the Enforcement Policy because identification and corrective action credit are appropriate. As respects the allegations of Section II of the NOV, the NRC should conclude that no reporting violation occurred because there was not an occupational exposure in excess of 5 rem, and that a

single non-willful Severity Level IV Violation occurred when a Conam employee failed to wear a film badge while calibrating survey instruments in an unrestricted area. This finding should not, as the NRC has already recognized, be the basis for any proposed penalty.

Dated: July 7, 1997

CONAM INSPECTION, INC.
Respondent

By: _____


One of Its Attorneys

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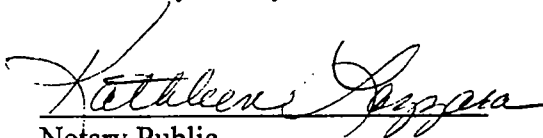
AFFIDAVIT OF ROBERT SLACK

Robert Slack, first being sworn, states that he is the Radiation Safety Officer for CONAM INSPECTION INC and he has read the foregoing Reply to Notice of Violation and knows the facts set out therein to be true and correct to the best of his knowledge, information and belief.

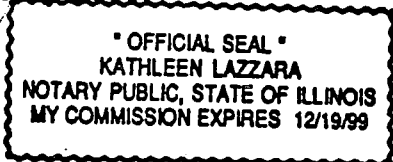


Robert Slack

Subscribed and Sworn to before me
this 3rd day of July, 1997.



Notary Public





UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

DOCKETED
USNRC

June 9, 1997

'97 DEC -5 P3:03

EA 97-207

OFFICE OF SECRETARY
RULEMAKING AND
ADJUDICATIONS STAFF

Mr. Michael B. Creech
President
Conam Inspection
1245 W. Norwood
Itasca, IL 60143

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY -
\$16,000 (NRC Inspection Report No. 030-31373 (DNMS) and
Investigation Report No. 3-96-014)

Dear Mr. Creech:

This refers to matters discussed with you and other Conam Inspection (Conam) representatives at a transcribed predecisional enforcement conference conducted on December 13, 1996. The conference was held to discuss several violations of Nuclear Regulatory Commission (NRC) requirements addressed in the NRC inspection report issued on November 18, 1996. As a result of the conference, a Demand For Information (DFI) was issued March 10, 1997, to obtain additional information and to clarify some unresolved issues.

Based on the information developed during the inspection, the investigation, the information that you provided during the conference, and the information that you provided in your April 9, 1997 response to the DFI, the NRC has determined that violations of NRC requirements occurred. These violations are cited in the enclosed Notice of Violation and Proposed Imposition of Civil Penalty (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. In particular, the violations involve: (1) a failure to secure the sealed source assembly in the shielded position (Violation I.A); (2) a failure to perform an adequate survey after each radiographic exposure (Violation I.B); (3) a failure to limit the annual occupational dose to an adult radiographer to 5 rems (Violation I.C); (4) a failure to submit a 30-day written report concerning a dose in excess of the occupational dose limits (Violation II.A); and (5) a failure to wear a film badge and a pocket dosimeter at all times when working with ionizing radiation (Violation II.B).

As described in the inspection report and discussed during the predecisional enforcement conference, the NRC determined that a Conam radiographer violated several license requirements while performing radiography on vacuum pump welds for a customer facility located in Indianapolis, Indiana. Specifically, on February 27, 1996, after completing a radiographic exposure, the radiographer cranked in the source. However, in violation of certain Conam Operating and Emergency Procedures, the radiographer failed to rotate the selector ring to

secure the sealed source assembly in the shielded position because he depended solely on the automatic locking mechanism to secure the source. Further, the same individual failed to conduct a proper survey of the camera following each exposure to assure that the source was in a shielded position. As a result of these failures, the radiographer received a whole body exposure in excess of NRC requirements.

Based on a dose assessment performed by the NRC, the NRC concludes that the radiographer's exposure is in the range of 6 to 20 rems, total effective dose equivalent. Based on a dose assessment performed by Integrated Environmental Management, Inc., a Conam consultant, the radiographer's exposure was calculated to be 9.369 rems, total effective dose equivalent. The NRC acknowledges that film badge exposures are normally used as the basis for assigning occupational doses to workers. However, given that the film badge was not placed in the region of the whole body receiving the highest exposure (i.e., the right thigh), the NRC concludes that, consistent with 10 CFR 20.1201(c), a specific dose assessment is warranted to reflect the correct dose received by the radiographer. In this regard, we note that: (1) NRC requirements in 10 CFR 20 do not permit Conam to compartmentalize the external dose to the radiographer, as was performed by your consultant; and (2) the radiographer's exposure of 9.369 rems based on your consultant's assessment is in the range of the NRC dose assessment.

Locking of the sealed source in the shielded position following a radiographic exposure and conducting an adequate survey of the radiographic exposure device are each intended to serve as safety barriers designed to protect workers and members of the public from inadvertent and potentially significant radiation exposures. In this case, the failure to comply with these requirements circumvented these separate barriers resulting in an exposure to the radiographer in excess of NRC requirements. Further, based on the Office of Investigations (OI) findings, the NRC concludes that the radiographer's failure to lock the radiographic exposure device is willful in that his actions demonstrated careless disregard for NRC requirements.

Violation I.A is of concern not only because of its willful nature, but also because the OI investigation determined that other radiographers typically rely on the automatic locking mechanism rather than locking the camera in the required manner. It is essential that the NRC be able to maintain the highest trust in individuals working with licensed material, given the nature and quantity of radioactive material used by your employees. Licensees should appropriately manage their programs to ensure that personnel fully understand the importance of complying with regulatory requirements. As an entity licensed to possess and use radioactive material, Conam is responsible for the acts of its employees.

Individually, each violation in Section I of the Notice is of significant regulatory concern. However, in consideration of the willfulness involved, the relationship of these violations to a single incident, and the fact that two safety barriers were breached, the violations are of very significant regulatory concern. Therefore, the violations are classified in the aggregate

in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600, as a Severity Level II problem.

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$8000 is considered for a Severity Level II problem. The NRC considered whether credit was warranted for *Identification* and *Corrective Action* in accordance with the civil penalty assessment process in Section VI.B.2 of the Enforcement Policy. No credit is warranted for *Identification* given the circumstances of the case. In particular, that the violations were essentially revealed through an event that did not occur as a result of a Conam self-monitoring effort, and, as noted below, Conam did not demonstrate an adequate initiative in identifying the problem requiring corrective action. At the predecisional enforcement conference, Conam indicated that a memorandum dated February 29, 1996, had been sent to all radiation safety supervisory personnel to advise all radiography staff to complete a full and accurate survey of the exposure device, collimator, guide tube, and connector after each exposure and to secure the source assembly in accordance with Conam's operating procedures. We acknowledge your prompt action in issuing the memorandum; however, at the time of the conference, your actions did not appear to be comprehensive. Specifically, Conam could not confirm that each radiographer had received the instructions set forth in the memorandum nor had Conam instituted any monitoring/auditing program to evaluate the effectiveness of the memorandum. Given the potential for radiation exposure when violations such as I.A and I.B occur, and given the practice of Conam radiographers in not locking cameras, your corrective actions were not comprehensive. Accordingly, credit for *Corrective Action* is not warranted.

Therefore, to emphasize the importance of compliance with NRC requirements, and the need for prompt identification and comprehensive correction of violations, I have been authorized, after consultation with the Director, Office of Enforcement, to issue the enclosed Notice in twice the base amount (i.e., \$16,000) for the Severity Level II problem in Section I of the Notice. In addition, issuance of this Notice constitutes escalated enforcement action that may subject you to increased inspection effort.

The violations in Section II of the Notice, which involve failure to meet the 30-day reporting requirement and use of licensed material without proper personnel monitoring devices, are each categorized as Severity Level IV violations in accordance with the Enforcement Policy. You are reminded that this notice does not relieve you of the reporting requirements contained in 10 CFR 20.2203 and 20.2205 and that you must still comply with the reporting requirements contained in 10 CFR 20.

Finally, we note that during the predecisional enforcement conference there appeared to be some confusion concerning what constitutes a survey. In order to maintain the NRC's confidence in Conam's ability to manage its program, it is imperative that the Conam radiation safety officer and radiography staff understand that an adequate survey includes, in addition to the physical act, correctly reading, evaluating the results provided, and acting on those results in accordance with good health physics practices.

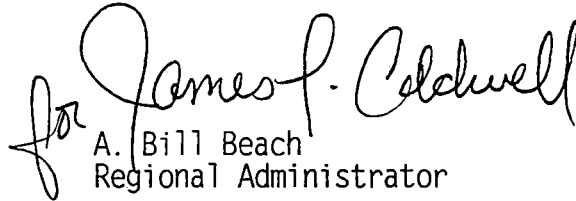
M. Creech

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You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

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

Sincerely,


for A. Bill Beach
Regional Administrator

Docket No. 030-31373
License No. 12-16559-01

Enclosure: Notice of Violation and Proposed
Imposition of Civil Penalty

NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTY

DOCKETED
USNRC

Conam Inspection
Itasca, Illinois

'97 DEC -5 P3:03
Docket No. 030-31373
License No. 12-16559-01
EA 97-207 OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

During an NRC inspection conducted March 28 through April 11, 1996, with continuing NRC review through November 12, 1996, and an investigation conducted by the Office of Investigations from April 8, 1996, through October 16, 1996, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the NRC proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalty are set forth below:

I. Violations Assessed a Civil Penalty

- A. 10 CFR 34.22(a) requires, in part, that during radiographic operations, the sealed source assembly be secured in the shielded position each time the source is returned to that position.

Condition 26 of License No. 12-16559-01 requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in an application dated March 29, 1993.

The licensee's application dated March 29, 1993, included the Operating and Emergency Procedure Manual (OEP) that is required to be followed by the licensee's radiography personnel. Item 10.3.3(c) of the OEP, entitled, "Technical Operations Model 533, 660, Capacity 100 Curies", describes the operating procedures for the Amersham Model 660B exposure device. Steps 12 through 15 of the procedure describe the requirements to secure the radiography source in the exposure device by: 1) retracting the source to engage the automatic locking mechanism, 2) rotating the selector ring from operate to lock, and 3) depressing the key lock.

Contrary to the above, on February 27, 1996, at Eli Lilly, Indianapolis, IN, a licensee radiographer did not secure the sealed source assembly in the shielded position after returning the source to the shielded position at the termination of a radiographic exposure. Specifically, the radiographer did not retract the source to engage the automatic locking mechanism, rotate the selector ring from operate to lock, and depress the key lock as required.

- B. 10 CFR 34.43(b) requires, in part, the licensee to ensure that a survey with a calibrated and operable radiation survey instrument is made after each radiographic exposure to determine that the sealed source has been returned to its shielded position. The

survey must include the entire circumference of the radiographic exposure device and any source guide tube.

Contrary to the above, on February 27, 1996, at Eli Lilly, Indianapolis, IN, a licensee radiographer did not perform an adequate survey after each radiographic exposure to determine that the sealed source had been returned to its shielded position, in that the survey did not include the entire circumference of the radiographic exposure device and the source guide tube.

- C. 10 CFR 20.1201(a)(1)(i) requires, with exceptions not applicable here, that the licensee control the occupational dose to individual adults to an annual dose limit of 5 rems total effective dose equivalent.

Contrary to the above, the licensee did not limit the annual occupational dose to an adult radiographer to 5 rems, total effective dose equivalent. Specifically, the individual received a radiation dose of a minimum of 6 rems, total effective dose equivalent, during an event on February 27, 1996.

These violations represent a Severity Level II problem (Supplement IV & VI).

Civil Penalty - \$16,000

II. Violations Not Accessed a Civil Penalty

- A. 10 CFR 20.2203(a)(2)(i) requires, in part, that the licensee shall submit a written report within 30 days after learning of a dose in excess of the occupational dose limits for adults as defined in 10 CFR 20.1201.

Contrary to the above, on April 11, 1996, the licensee learned of an event that caused an adult radiographer to receive a total effective dose equivalent of more than 5 rems total effective dose equivalent and did not submit a written report within 30 days as required.

This is a Severity Level IV violation (Supplement IV)

- B. Condition 26 of License No. 12-16559-01 requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in an application dated March 29, 1993.

Notice of Violation and Proposed
Imposition of Civil Penalty

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The licensee's application dated March 29, 1993, included the Operating and Emergency Procedure Manual (OEPN). Item 5.1 of the OEPN, entitled, "Personnel Monitoring Equipment", requires, in part, that radiographers and radiographers' assistants and trainees shall wear a film badge and a pocket dosimeter at all times when working with ionizing radiation.

Contrary to the above, on March 14, 1996, a trainee at the licensee's Gary, Indiana, location calibrated portable radiation survey instruments with a device containing cesium-137 and did not wear a film badge or pocket dosimeter.

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

Pursuant to the provisions of 10 CFR 2.201, Conam Inspection (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) the date when full compliance will be achieved. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalty by letter addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, with a check, draft, money order, or electronic transfer payable to the Treasurer of the United States in the amount of the civil penalty proposed above, or the cumulative amount of the civil penalties if more than one civil penalty is proposed, or may protest imposition of the civil penalty in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within the time specified, an order imposing the civil penalty will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may: (1) deny the violation(s) listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show error in this Notice, or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty.

Notice of Violation and Proposed
Imposition of Civil Penalty

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In requesting mitigation of the proposed penalty, the factors addressed in Section VI.B.2 of the Enforcement Policy should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty due which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The response noted above (Reply to Notice of Violation, letter with payment of civil penalty, and Answer to a Notice of Violation) should be addressed to: James Lieberman, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region III.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Dated at Lisle, Illinois
this 9th day of June 1997