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DOCKET NUMBER
BYPRODUCTS 30-30691-CIVP

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

OFFICE OF THE
SECRETARY

DOCKETED
USNRC

February 27, 1991

'91 FEB 27 P3:21

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

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

FROM: Samuel J. Chilk, Secretary

SUBJECT: REQUEST FOR HEARING OF BARNETT INDUSTRIAL X-RAY

REFERENCE: EA 90-102

Attached is a request for a hearing submitted by Barnett Industrial X-Ray. The hearing request was filed in response to a December 31, 1990 "Order Imposing A Civil Monetary Penalty", published in the Federal Register at 56 Fed. Reg. 901 (January 9, 1991). (Copy of Order attached)

The hearing request is being referred to you for appropriate action in accordance with 10 C.F.R. 2.772(j).

Attachments: As stated

cc: Commission Legal Assistants
OGC
EDO
ASLAP
NMSS
Director, Office of Enforcement
Regional Administrator,
Region IV
Loyd Barnett, President
Barnett Industrial X-Ray

D502

Barnett Industrial X-Ray
P.O. Box 1991
Stillwater, OK 74076

January 28, 1991

Regional Administrator
U.S. Regulatory Commission
Region IV
611 Ryan Plaza Drive
Suite 1000
Arlington, TX 76011

REQUEST FOR AN ENFORCEMENT HEARING

In accordance with Section V of the "Order Imposing Civil Monetary Penalty", Barnett X-Ray, License 35-26953-01, herby requests an enforcement hearing pertaining to the matters of your letter dated December 31, 1990.

Sincerely,

Loyd Barnett

LOYD BARNETT
President

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

DEC 3 1 1990

Docket No. 30-30691
License No. 35-26953-01
EA 90-102

Barnett Industrial X-Ray
ATTN: Mr. Loyd Barnett
Post Office Box 1991
Stillwater, Oklahoma 74076

Gentlemen:

SUBJECT: ORDER IMPOSING CIVIL MONETARY PENALTY - $7,500

This refers to your letters dated October 2, 1990, in response to the Notice of Violation and Proposed Imposition of Civil Penalty (Notice) sent to you by our letter dated September 7, 1990. Our letter and Notice described two violations -- a failure to conduct a required radiation survey and radiation exposures to two individuals in excess of NRC limits -- which resulted in the assessment of a proposed $7,500 civil penalty. This civil penalty was proposed in order to emphasize the utmost importance NRC attaches to radiography survey requirements and the importance of maintaining personnel radiation exposures within regulatory limits.

In your letters, you disputed NRC's assertion that two individuals received radiation exposures in excess of NRC limits, claiming that one of the exposure estimates was based on inconclusive data which, in your view, was not credible. In addition, you requested remission or mitigation of the proposed civil penalty because you felt that Barnett Industrial X-Ray (BIX) had suffered enough financially as a result of this matter.

After consideration of your responses, we have concluded for the reasons given in the Appendix attached to the enclosed Order Imposing Civil Monetary Penalty that the proposed $7,500 civil penalty is appropriate given the circumstances and the seriousness of the radiation exposures incurred. Accordingly, we hereby serve the enclosed Order on BIX imposing a civil monetary penalty in the amount of $7,500.

NRC's Enforcement Policy, 10 CFR Part 2, Appendix C, provides ". . . it is not the NRC's intention that the economic impact of a civil penalty be such that it puts a licensee out of business (orders, rather than civil penalties, are used when the intent is to terminate licensed activities) or adversely affects a licensee's ability to safely conduct licensed activities." Therefore, in view of your statement concerning your financial loss, we are prepared to permit you to pay this civil penalty over time. If you make arrangements to pay in installments, interest will be assessed and there may be other administrative charges. The Order provides that, if you wish to pay in installments, you are to inform the Director, Office of Enforcement, within 30 days of the date of this letter.

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

9101040018

3 pp.

We will review the effectiveness of your corrective actions during subsequent inspections.

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,

Hugh L. Thompson, Jr.
Deputy Executive Director for
Nuclear Materials Safety, Safeguards,
and Operations Support

Enclosure: As Stated

cc:
Oklahoma Radiation Control Program Director

bcc w/encl

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RSTS Operator
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12/18/90	12/24/90	12/21/90	12/28/90	12/28/90	12/28/90

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Barnett Industrial X-Ray Stillwater, Oklahoma	)	Docket No. 30-30691 License No. 35-26953-01 EA 90-102

ORDER IMPOSING CIVIL MONETARY PENALTY

I

Barnett Industrial X-Ray (BIX) (Licensee) is the holder of License No. 35-26953-01 issued by the Nuclear Regulatory Commission (NRC or Commission) on December 28, 1988. The license authorizes the Licensee to possess iridium-192 in sealed sources in various radiography exposure devices for use in industrial radiography in accordance with the conditions specified therein. The license is scheduled to expire on December 31, 1993.

II

An inspection of the Licensee's activities was conducted from April 7, 1990 to May 7, 1990, following an April 6, 1990 report from the Licensee to the NRC in regard to a radiography incident. The results of this inspection 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 September 7, 1990. The Notice described 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 the violations. The Licensee responded to the Notice in two letters dated October 2, 1990. In its response, the Licensee disputed NRC's assertion that two individuals received radiation exposures in

excess of NRC limits, claiming that one of the exposure estimates was based on inconclusive data which, in its view, was not credible. In addition, the Licensee requested remission or mitigation of the proposed civil penalty because it felt that BIX had suffered financially as a result of this matter.

III

After consideration of the Licensee's response and the statements of fact, explanation, and argument for mitigation contained therein, the NRC staff has determined, as set forth in the Appendix to this Order, that the violations occurred as stated and that the penalty proposed for the violations designated in the Notice 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 $7,500 within 30 days of the date of this Order, by check, draft, or money order, payable to the Treasurer of the United States and mailed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555. In the alternative, the civil penalty may be paid in 36 monthly installments that would include accrued interest. If payment will

be made in monthly installments, the licensee shall contact the Director, Office of Enforcement in writing, within the thirty day period to arrange the terms and conditions of payment.

V

The Licensee may request a hearing within 30 days of the date of this Order. 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, ATTN: 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 IV, 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas 76011.

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, the provisions of this Order shall be effective without further proceedings. If payment of the entire civil penalty or a commitment in writing to pay the civil penalty in installments in accordance with Section IV above, 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 Violation I.B of the Notice referenced in Section II above, specifically, whether the radiographer received a whole body exposure in excess of three rems, and

(b) whether, on the basis of this violation and the violations admitted by the Licensee, this Order should be sustained.

FOR THE NUCLEAR REGULATORY COMMISSION

Hugh L. Thompson, Jr.
Deputy Executive Director for
Nuclear Materials Safety, Safeguards,
and Operations Support

Dated at Rockville, Maryland
this 31st day of December 1990

APPENDIX

EVALUATIONS AND CONCLUSIONS

Appendix to Order Imposing Civil Monetary Penalty

On September 7, 1990, a Notice of Violation and Proposed Imposition of Civil Penalty (Notice) was issued for the violations identified during the April 7 through May 7, 1990, NRC inspection. Barnett Industrial X-Ray (BIX) responded to the Notice of Violation and requested mitigation of the proposed civil penalty in letters dated October 2, 1990. NRC's evaluations and conclusions regarding the licensee's response follow:

Restatement of Violations

I. Violations Assessed a Civil Penalty

A. 10 CFR 34.43(b) requires 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 entire circumference of the radiographic exposure device must be surveyed. If the radiographic exposure device has a source guide tube, the survey must include the guide tube.

Contrary to the above, on April 6, 1990, a radiographer and a radiographer's assistant employed by the licensee made two radiographic exposures and did not survey the entire circumference of the radiographic exposure device and the source guide tube after each exposure to ensure that the sealed source had been returned to its shielded position.

B. 10 CFR 20.101(a) requires that the licensee limit the whole body radiation dose of an individual in a restricted area to 1.25 rems per calendar quarter, except as provided by 10 CFR 20.101(b). 10 CFR 20.101(b) allows a licensee to permit an individual in a restricted area to receive a whole body radiation dose of 3 rems per calendar quarter provided specified conditions are met.

Contrary to the above, a radiographer and radiographer's assistant employed by the licensee received whole body occupational radiation doses in excess of 3 rems during the second calendar quarter of 1990.

Collectively, these violations have been classified as a Severity Level I problem (Supplements IV and VI).

Cumulative Civil Penalty - $7,500 (assessed equally between the violations).

Summary of Licensee's Response to Notice of Violation

Of the two violations which resulted in the assessment of the proposed civil penalty, the Licensee admitted Violation I.A., and contested, in part, Violation I.B. In contesting I.B., the Licensee disputed NRC's assertion that two individuals had received whole body exposures in excess of the limits of 10 CFR 20.101. While admitting that the assistant radiographer received such an overexposure, the Licensee stated that the film badge for the radiographer involved in the April 6, 1990, incident indicated less than 3 rems, and that estimates of the radiographer's whole body exposure based on cytogenetic studies were inconclusive and subject to wide variances.

In regard to Violation I.B., the Licensee based its position in part on the results of the processing of the radiographer's film badge. The Licensee's film badge vendor reported an equivalent exposure of 2.7 rems. Additionally, the Licensee contended that while the cytogenetic test results provided by Oak Ridge Associated Universities (ORAU) indicated exposure in excess of 3 rems, those results were not credible because such exposure estimates involved what the Licensee believes to be a "low percentage rate for accuracy." The Licensee also noted that Oklahoma Medical Center, a second laboratory which also conducted cytogenetic studies, provided test results which were not conclusive with regard to whether an overexposure occurred.

NRC Evaluation of Licensee's Response to Notice of Violation

NRC's review of the incident which led to the exposure of the radiographer and his assistant included a detailed review of the actions of the two individuals involved in conducting radiographic operations on the evening of April 6, 1990. This included reenactment of their activities prior to and following their recognition that the radiographic source had not been returned to its shielded position within the exposure device, as well as review of the location of personnel radiation monitoring devices (film badges) relative to the unretracted iridium-192 source.

Although the radiographer was also involved in the recovery of the source once it became known that it had not retracted, NRC believes that the most significant exposures to the radiographer occurred during the positioning and retrieval of the film prior to the discovery of the unretracted source. NRC's review of this incident led NRC to conclude that the radiography source was not connected to its drive cable when the two involved radiography exposures were made. Thus, during activities between and following these exposures, the radiographer was exposed to the unshielded source. The radiographer indicated to NRC that his film badge had been attached to his front shirt pocket during the two radiographic exposures that were made prior to this discovery. Based on NRC's interviews with the radiographer, NRC concludes that the radiographer's back was to the source when he was positioning the radiographic film, creating a situation in which his body provided shielding for the badge. Thus, in NRC's view, the exposure indicated by the film badge is not the most accurate indication of the radiographer's actual radiation exposure.

The ORAU laboratory reported th[illegible]e radiographer had received [illegible] equivalent whole-body dose of 17 rads (e[illegible]nt to 17 rems exposure for gamma radiation) as determined by the number o[illegible]ntric chromosomes observed in 1,050 first-division metaphases from peri[illegible]eral blood lymphocyte cultures obtained from the radiographer shortly after the incident. The equivalent dose value is determined by comparison of the number of dicentric chromosomes observed in the subject's sample with those observed in "normal" cell cultures and cultures obtained from cells which have been exposed to radiation under controlled conditions. The dose range provided in the report, 8 - 27 rads with 95% confidence, represents standard statistical analysis conducted for test results as determined from the ORAU data-base and mathematical analysis.

The NRC staff does not dispute the 2.7 rems exposure reading provided by the licensee's film badge vendor, but maintains that this exposure reading represents the exposure to the film badge, which is not necessarily the same as that received by the radiographer. Further, the staff does not believe that the 95% confidence interval provided for ORAU's dose determination supports the Licensee's assertion regarding the inaccuracy of this test or method of analysis. NRC also notes that even the lower end of ORAU's estimate (8 rads) would indicate that the radiographer received an exposure in excess of 3 rems. While the NRC staff agrees that it is difficult to precisely determine the exposure received by the radiographer, the NRC staff concludes that his exposure did exceed 3 rems.

NRC concludes that the violation occurred as stated, that both the radiographer and assistant received doses in excess of 3 rems, and that the explanation provided by the licensee does not merit modification of the proposed civil penalty.

NRC also notes that, as a practical matter, even if it had accepted the Licensee's position that an overexposure to the radiographer had not occurred, it would not have altered NRC's position that the violation occurred nor its view that it was a Severity Level I violation. This is based on the fact that the assistant radiographer received an exposure to the tissue of the neck substantially in excess of the minimum criteria for a Severity Level I violation. Thus, the failure to survey in combination with the exposure to the assistant radiographer would have resulted in the classification of the two violations collectively at Severity Level I whether or not the radiographer had been involved in the incident. The only practical effect of accepting or rejecting the licensee's argument is the assignment of a whole-body exposure to the permanent exposure record for the radiographer. In NRC's view, the more conservative measure in this case would be to assign the radiographer a whole-body exposure equal to that estimated by ORAU, which in NRC's view is a more accurate estimate of the individual's actual whole-body exposure.

Summary of Licensee's Request for Mitigation

In protesting the proposed civil penalty, the Licensee stated that its license was suspended for three weeks following the April 6, 1990, incident (actually, the Licensee voluntarily suspended radiographic activities at NRC's request for two weeks while NRC reviewed the circumstances surrounding the incident). The

Licensee stated that this suspension created substantial loss of income, and that the publicity surrounding the incident caused and continues to cause a loss of clientele. In summary, the Licensee stated that he feels that he has "suffered enough financial loss" and requested remission or mitigation of the proposed civil penalty.

NRC's Evaluation of Licensee's Request for Mitigation

NRC is not in a position to dispute the Licensee's statement that he has suffered financially as a result of the April 6, 1990, incident. NRC accepts the Licensee's statement that the suspension of activities and the publicity surrounding the incident have had a financial impact on the company. Such financial consequences frequently result from significant enforcement actions. NRC also recognizes that the Licensee cooperated fully with NRC in agreeing to suspend its activities pending NRC's review of the incident (the Licensee's agreement was confirmed in a Confirmation of Action Letter dated April 9, 1990). NRC notes, however, that the actual voluntary suspension lasted from the date the incident was reported to NRC on April 6 until April 20, the date of a meeting between the Licensee and NRC in Arlington, Texas, and thus was in effect for two rather than three weeks.

NRC's Enforcement Policy states that it is not NRC's intention that monetary civil penalties put licensees out of business or detract from a licensee's ability to conduct licensed activities safely. Considering the size of the civil penalty in this case and the opportunity to pay in regular installments if necessary, NRC believes that these unintended effects need not occur. While NRC is sympathetic to the Licensee's argument that it has suffered financially, NRC is also cognizant of the fact that a serious radiation exposure occurred as the result of Licensee personnel failing to perform required radiation surveys. In that NRC's regulations are designed to prevent such exposures, and in that NRC's regulations were not followed in this case, NRC believes it has applied its Enforcement Policy appropriately. NRC believes that this civil penalty, when it was proposed, was already mitigated to the extent provided for by the Enforcement Policy (25 percent mitigation as a result of the Licensee's promptly reporting the incident to NRC). NRC does not believe the Licensee has introduced any information that NRC was not aware of and did not take into account in proposing the $7,500 civil penalty.

NRC Conclusion

In conclusion, NRC does not believe the Licensee has provided any information that warrants modification of the proposed civil penalty. NRC concludes that the violations that led to the proposed civil penalty occurred as stated in the original Notice, that the violations were appropriately classified at Severity Level I, and that the proposed civil penalty of $7,500 was appropriate given the seriousness of the resultant radiation exposures. Consequently, the proposed $7,500 civil penalty should be imposed by Order.

Amendment No.: 140

Provisional Operating License No. DPR-13: The amendment revised License Condition 3.M.

Date of initial notice in Federal Register: May 30, 1990 (55 FR 21980) The supplementary information provided by the licensee was submitted to facilitate NRC review of the requested action and was not outside the scope of the original notice. The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated December 19, 1990.

No significant hazards consideration comments received: No.

Local Public Document Room location: Main Library, University of California, P.O. Box 19557, Irvine, California 92713

Tennessee Valley Authority, Docket No. 50-260, Browns Ferry Nuclear Plant, Unit 2, Limestone County, Alabama

Date of application for amendment: June 8, 1990 (TS 285)

Brief description of amendment: The amendment changes the Technical Specifications to allow reactor operation in an expanded region of core power versus core flow.

Date of issuance: December 18, 1990

Effective date: December 18, 1990, and shall be implemented within 30 days

Amendment No.: 181

Facility Operating License No. DPR-52: Amendment revised the Technical Specifications.

Date of initial notice in Federal Register: September 5, 1990 (55 FR 36350) The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated December 18, 1990.

No significant hazards consideration comments received: No

Local Public Document Room location: Athens Public Library, South Street, Athens, Alabama 35611.

Tennessee Valley Authority, Docket No. 50-328, Sequoyah Nuclear Plant, Unit 2, Hamilton County, Tennessee

Date of application for amendment: August 27, 1990 (TS 90-17)

Brief description of amendment: This amendment revises the surveillance requirements (SR) on pressure/temperature limits in the Sequoyah Unit 2 Technical Specification (TSs). The changes delete (1) Table 4.4-5, "Reactor Vessel Material Surveillance Program Withdrawal Schedule," and (2) references to Table 4.4-5 in SR 4.4.9.1.2. Table 4.4-5 was redundant to the requirements given in Appendix H, "Reactor Vessel Material Surveillance Program Requirements," of 10 CFR Part 50. The same changes to the Sequoyah Unit 1 TSs were issued as Amendment 87 for Unit 1 in the staff's letter dated October 14, 1988.

Date of issuance: December 17, 1990

Effective date: December 17, 1990

Amendment No.: 138

Facility Operating Licenses No. DPR-79: Amendment revised the Unit 2 Technical Specifications.

Date of initial notice in Federal Register: September 19, 1990 (55 FR 38605)

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated December 17, 1990

No significant hazards consideration comments received: No

Local Public Document Room location: Chattanooga-Hamilton County Library, 1001 Broad Street, Chattanooga, Tennessee 37402.

Notice of Issuance of Amendment to Facility Operating License and Final Determination of No Significant Hazards Consideration

During the period since publication of the last biweekly notice, individual notices of issuance of amendments have been issued for the facilities as listed below. These notices were previously published as separate individual notices. They are repeated here because this biweekly notice lists all amendments that have been issued for which the Commission has made a final determination that an amendment involves no significant hazards consideration.

In this case, a prior Notice of Consideration of Issuance of Amendment and Proposed No Significant Hazards Consideration Determination and Opportunity for Hearing was issued, a hearing was requested, and the amendment was issued before any hearing because the Commission made a final determination that the amendment involves no significant hazards consideration.

Details are contained in the individual notice as cited.

Vermont Yankee Nuclear Power Corporation, Docket No. 50-271, Vermont Yankee Nuclear Power Station, Vernon, Vermont

Date of application for amendment: April 27, 1989 as supplemented on June 23, 1989

Brief description of amendment: The amendment changes the expiration date of Facility Operating License No. DPR-28 from December 11, 2007 to March 21, 2012.

Date of issuance: December 17, 1990

Effective date: December 17, 1990

Amendment No. 127

Facility Operating License No. DPR-28. Amendment revised the License.

Date of initial notice in Federal Register: July 26, 1989 (54 FR 31120).

Local Public Document Room location: Brooks Memorial Library, 224 Main Street, Brattleboro, Vermont 05301.

Dated at Rockville, Maryland, this 2nd day of January 1991.

For the Nuclear Regulatory Commission

Bruce A. Boger,

Director, Division of Reactor Projects—III, IV, and V Office of Nuclear Reactor Regulation

[FR Doc. 91-297 Filed 1-8-91; 8:45 am]

BILLING CODE 7590-01-D

[Docket No. 30-30691; License No. 35-26953-01; EA 90-102]

Barnett Industrial X-Ray; Order Imposing Civil Monetary Penalty

I

Barnett Industrial X-Ray (BIX) Stillwater, Oklahoma (Licensee) is the holder of License No. 35-26953-01 issued by the Nuclear Regulatory Commission (NRC or Commission) on December 28, 1988. The license authorizes the Licensee to possess iridium-192 in sealed sources in various radiography exposure devices for use in industrial radiography in accordance with the conditions specified therein. The license is scheduled to expire on December 31, 1993.

II

An inspection of the Licensee's activities was conducted from April 7, 1990 to May 7, 1990, following an April 6, 1990 report from the Licensee to the NRC in regard to a radiography incident. The results of this inspection 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 September 7, 1990. The Notice described 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 the violations. The Licensee responded to the Notice in two letters dated October 2, 1990. In its response, the Licensee disputed NRC's assertion that two individuals received radiation exposures in excess of NRC limits, claiming that one of the exposure estimates was based on inconclusive data which, in its view, was not credible. In addition, the Licensee requested remission or mitigation of the proposed civil penalty because it felt that BIX had suffered financially as a result of this matter.

III

After consideration of the Licensee's response and the statements of fact, explanation, and argument for mitigation contained therein, the NRC staff has determined, as set forth in the Appendix to this Order, that the violations occurred as stated and that the penalty proposed for the violations designated in the Notice 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 $7,500 within 30 days of the date of this Order, by check, draft, or money order, payable to the Treasurer of the United States and mailed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555. In the alternative, the civil penalty may be paid in 36 monthly installments that would include accrued interest. If payment will be made in monthly installments, the licensee shall contact the Director, Office of Enforcement in writing, within the thirty day period to arrange the terms and conditions of payment.

V

The Licensee may request a hearing within 30 days of the date of this Order. 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, ATTN: Document Control Desk, Washington, DC 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 IV, 611 Ryan Plaza Drive, suite 1000, Arlington, Texas 76011.

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, the provisions of this Order shall be effective without further proceedings. If payment of the entire civil penalty or a commitment in writing to pay the civil penalty in installments in accordance with Section IV above, 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 Violation I.B of the Notice referenced in Section II above, specifically, whether the radiographer received a whole body exposure in excess of three rems, and

(b) Whether, on the basis of this violation and the violations admitted by the licensee, this Order should be sustained.

For the Nuclear Regulatory Commission.

Hugh L. Thompson, Jr.,

Deputy Executive Director for Nuclear Materials Safety, Safeguards, and Operations Support.

Dated at Rockville, Maryland this 31st day of December 1990.

Appendix: Evaluations and Conclusions

On September 7, 1990, a Notice of Violation and Proposed Imposition of Civil Penalty (Notice) was issued for the violations identified during the April 7 through May 7, 1990, NRC inspection. Barnett Industrial X-Ray (BIX) responded to the Notice of Violation and requested mitigation of the proposed civil penalty in letters dated October 2, 1990. NRC's evaluations and conclusions regarding the licensee's response follow:

Restatement of Violations

I. Violations Assessed a Civil Penalty

A. 10 CFR 34.43(b) requires 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 entire circumference of the radiographic exposure device must be surveyed. If the radiographic exposure device has a source guide tube, the survey must include the guide tube.

Contrary to the above, on April 6, 1990, a radiographer and a radiographer's assistant employed by the licensee made two radiographic exposures and did not survey the entire circumference of the radiographic exposure device and the source guide tube after each exposure to ensure that the sealed source had been returned to its shielded position.

B. 10 CFR 20.101(a) requires that the licensee limit the whole body radiation dose of an individual in a restricted area to 1.25 rems per calendar quarter, except as provided by 10 CFR 20.101(b). 10 CFR 20.101(b) allows a licensee to permit an individual in a restricted area to receive a whole body radiation dose of 3 rems per calendar quarter provided specified conditions are met.

Contrary to the above, a radiographer and a radiographer's assistant employed by the licensee received whole body occupational radiation doses in excess of 3 rems during the second calendar quarter of 1990.

Collectively, these violations have been classified as a Severity Level I problem (Supplements IV and VI).

Cumulative Civil Penalty—$7,500 (assessed equally between the violations).

Summary of Licensee's Response to Notice of Violation

Of the two violations which resulted in the assessment of the proposed civil penalty, the Licensee admitted Violation I.A., and contested, in part, Violation I.B. In contesting I.B., the Licensee disputed NRC's assertion that two individuals had received whole body exposures in excess of the limits of 10 CFR 20.101. While admitting that the assistant radiographer received such an overexposure, the Licensee stated that the film badge for the radiographer involved in the April 6, 1990, incident indicated less than 3 rems, and that estimates of the radiographer's whole body exposure based on cytogenetic studies were inconclusive and subject to wide variances.

In regard to Violation I.B., the Licensee based its position in part on the results of the processing of the radiographer's film badge. The Licensee's film badge vendor reported an equivalent exposure of 2.7 rems. Additionally, the Licensee contended that while the cytogenetic test results provided by Oak Ridge Associated Universities (ORAU) indicated exposure in excess of 3 rems, those results were not credible because such exposure estimates involved what the Licensee believes to be a "low percentage rate for accuracy." The Licensee also noted that Oklahoma Medical Center, a second laboratory which also conducted cytogenetic studies, provided test results which were not conclusive with regard to whether an overexposure occurred.

NRC Evaluation of Licensee's Response to Notice of Violation

NRC's review of the incident which led to the exposure of the radiographer and his assistant included a detailed review of the actions of the two individuals involved in conducting radiographic oeprations on the evening of April 6, 1990. This included reenactment of their activities prior to and following their recognition that the radiographic source had not been returned to its shielded position within the exposure device, as well as review

of the location of personnel radiation monitoring devices (film badges) relative to the unretracted iridium-192 source.

Although the radiographer was also involved in the recovery of the source once it became known that it had not retracted, NRC believes that the most significant exposures to the radiographer occured during the positioning and retrieval of the film prior to the discovery of the unretracted source. NRC's review of this incident led NRC to conclude that the radiography source was not connected to its drive cable when the two involved radiography exposures were made. That during activities between and following these exposures, the radiographer was exposed to the unshielded source. The radiographer indicated to NRC that his film badge has been attached to his front shirt pocket during the two radiographic exposures that were made prior to this discovery. Based on NRC's interviews with the radiographer, NRC concludes that the radiographer's back was to the source when he was positioning the radiographic film, creating a situation in which his body provided shielding for the badge. Thus, in NRC's view, the exposure indicated by the film badge is not the most accurate indication of the radiographer's actual radiation exposure.

The ORAU laboratory reported that the radiographer had received an equivalent whole-body dose of 17 rads (equivalent to 17 rems exposure for gamma radiation) as determined by the number of dicentric chromosomes observed in 1,050 first-division metaphases from peripheral blood lymphocyte cultures obtained from the radiographer shortly after the incident. The equivalent dose value is determined by comparison of the number of dicentric chromosomes observed in the subject's sample with those observed in "normal" cell cultures and cultures obtained from cells which have been exposed to radiation under controlled conditions. The dose range provided in the report, 6-27 rads with 95% confidence, represents standard statistical analysis conducted for test results as determined from the ORAU data-base and mathematical analysis.

The NRC staff does not dispute the 2.7 rems exposure reading provided by the licensee's film badge vendor, but maintains that this exposure reading represents the exposure to the film badge, which is not necessarily the same as that received by the radiographer. Further, the staff does not believe that the 95% confidence interval provided for ORAU's dose determination supports the Licensee's assertion regarding the inaccuracy of this test or method of analysis. NRC also notes that even the lower end of ORAU's estimate (6 rads) would indicate that the radiographer received an exposure in excess of 3 rems. While the NRC staff agrees that it is difficult to precisely determine the exposure received by the radiographer, the NRC staff concludes that his exposure did exceed 3 rems.

NRC concludes that the violation occurred as stated, that both the radiographer and assistant received doses in excess of 3 rems, and that the explanation provided by the licensee did not merit modification of the proposed civil penalty.

NRC also notes that, as a practical matter, even if it had accepted the Licensee's position that an overexposure to the radiographer had not occurred, it would not have altered NRC's position that the violation occurred nor its view that it was a Severity Level I violation. This is based on the fact that the assistant radiographer received an exposure to the tissue of the neck substantially in excess of the minimum criteria for a Severity Level I violation. Thus, the failure to survey in combination with the exposure to the assistant radiographer would have resulted in the classification of the two violations collectively at Severity Level I whether or not the radiographer had been involved in the incident. The only practical effect of accepting or rejecting the licensee's argument is the assignment of a whole-body exposure to the permanent exposure record for the radiographer. In NRC's view, the more conservative measure in this case would be to assign the radiographer a whole-body exposure equal to that estimated by ORAU, which in NRC's view is a more accurate estimate of the individual's actual whole-body exposure.

Summary of Licensee's Request for Mitigation

In protesting the proposed civil penalty, the Licensee stated that its license was suspended for three weeks following the April 6, 1990, incident (actually the Licensee voluntarily suspended radiographic activities at NRC's request for two weeks while NRC reviewed the circumstances surrounding the incident). The Licensee stated that this suspension created a substantial loss of income, and that the publicity surrounding the incident caused and continues to cause a loss of clientele. In summary, the Licensee stated that he feels that he has "suffered enough financial loss" and requested remission or mitigation of the proposed civil penalty.

NRC's Evaluation of Licensee's Request for Mitigation

NRC is not in a position to dispute the Licensee's statement that he has suffered financially as a result of the April 6, 1990, incident. NRC accepts the Licensee's statement that the suspension of activities and the publicity surrounding the incident have had a financial impact on the company. Such financial consequences frequently result from significant enforcement actions. NRC also recognizes that the Licensee cooperated fully with NRC in agreeing to suspend its activities pending NRC's review of the incident (the Licensee's agreement was confirmed in a Confirmation of Action Letter dated April 9, 1990). NRC notes, however, that the actual voluntary suspension lasted from the date the incident was reported to NRC on April 6 until April 20, the date of a meeting between the Licensee and NRC in Arlington, Texas, and thus was in effect for two rather than three weeks.

NRC's Enforcement Policy states that it is not NRC's intention that monetary civil penalties put licensees out of business or detract from a licensee's ability to conduct licensed activities safely. Considering the size of the civil penalty in this case and the opportunity to pay in regular installments if necessary, NRC believes that these unintended effects need not occur. While NRC is sympathetic to the Licensee's argument that it has suffered financially, NRC is also cognizant of the fact that a serious radiation exposure occurred as the result of Licensee personnel failing to perform required radiation surveys. In that NRC's regulations are designed to prevent such exposures, and in that NRC's regulations were not followed in this case, NRC believes it has applied its Enforcement Policy appropriately. NRC believes that this civil penalty, when it was proposed, was already mitigated to the extent provided for by the Enforcement Policy (25 percent mitigation as a result of the Licensee's promptly reporting the incident to NRC). NRC does not believe the Licensee has introduced any information that NRC was not aware of and did not take into account in proposing the $7,500 civil penalty.

NRC Conclusion

In conclusion, NRC does not believe

the Licensee has provided any information that warrants modification of the proposed civil penalty. NRC concludes that the violations that led to the proposed civil penalty occurred as stated in the original Notice, that the violations were appropriately classified at Severity Level I, and that the proposed civil penalty of $7,500 was appropriate given the seriousness of the resultant radiation exposures. Consequently, the proposed $7,500 civil penalty should be imposed by Order.

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[Docket No. 030-03465; License No. 48-09843-18; EA 90-098]

University of Wisconsin—Madison; Order Imposing Civil Monetary Penalties

I

The University of Wisconsin—Madison, Madison, Wisconsin (Licensee) is the holder of Byproduct Materials License No. 48-09843-18 (license) initially issued by the Nuclear Regulatory Commission (NRC or Commission) on August 8, 1956. The license was most recently renewed on February 7, 1989 and is due to expire on March 31, 1994. The license authorizes the Licensee to use a variety of byproduct materials for medical and research applications at various locations within the University complex in accordance with the conditions specified therein.

II

An inspection of the Licensee's activities was conducted on March 26 through May 2, 1990. The results of this inspection 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 Penalties (Notice) was served upon the Licensee by letter dated July 25, 1990. The Notice stated the nature of the violations, the provisions of the NRC's requirements that the Licensee had violated, and the amount of the civil penalties proposed for the Violations. The Licensee responded to the Notice on September 24, 1990. In its response, the Licensee admitted Violation I.A of the Notice, but argued that escalation of the base civil penalty was unwarranted; denied Violation I.B of the Notice in its entirety; and admitted Violation II of the Notice.

III

After consideration of the Licensee's response and the statements of fact, explanation, and argument for mitigation contained therein, the NRC staff has determined, as set forth in the Appendix to this Order, that the violations occurred as stated and that the penalties proposed for the violations designated in the Notice 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 civil penalties in the amount of $7,500 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 the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555.

V

The Licensee may request a hearing within 30 days of the date of this Order. 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, ATTN: Document Control Desk, Washington, DC 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, 799 Roosevelt Road, Glen Ellyn, Illinois 60137.

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, 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 Violation I.B. of the Notice referenced in Section II above, and

(b) Whether, on the basis of such violation 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.

Hugh L. Thompson, Jr.,

Deputy Executive Director for Nuclear Materials, Safety, Safeguards, and Operations Support.

Dated at Rockville, Maryland this 28th day of December 1990.

Appendix: Evaluations and Conclusions

On July 25, 1990, a Notice of Violation and Proposed Imposition of Civil Penalties (Notice) was issued for violations identified during an NRC inspection on March 26 through May 2, 1990. The University of Wisconsin-Madison (Licensee) responded to the Notice on September 24, 1990. In its response, the Licensee admitted Violations I.A., II.A. and II.B. and denied Violation I.B. In addition, the Licensee requested reduction of the 50 percent escalation of the base civil Licensee's requests are as follows:

I. Restatement of Violation I.A

License Condition No. 23 requires, in part, that the Licensee conduct its program in accordance with statements, representations, and procedures contained in the application dated January 10, 1989.

The application dated January 10, 1989, Attachment VI, Procedures, Section 1, Operating Procedures, requires that operating procedures be established, in writing, and implemented.

An operating procedure reviewed and approved by the Radiation Safety Committee in April 1989, High Dose-Rate Remote Afterloader, Section A.2, requires that a trained operator be present during any use of the unit.

Contrary to the above, on two occasions during the period April 1989 through March 26, 1990, the High Dose-Rate Remote Afterloader was used to treat patients and a trained operator was not present.

Summary of Licensee's Response to Violation I.A.

The Licensee admits this violation occurred as stated. The proposed civil penalty was escalated 50 percent for NRC identification of the violation; however, the Licensee protests this escalation, and requests that, instead, the base civil penalty be mitigated 50 percent because it identified the violation after the civil incident occurred.

The first incident occurred when a physicist left a nurse alone at the HDR unit treatment console while a patient was undergoing treatment. The Licensee admits the nurse was an untrained operator. It contends this incident was identified by the University shortly after it occurred and before the NRC inspection. It states the physicist involved was informed this was unacceptable and was not to happen in the future.

The Licensee believes it should not be cited for the second incident involving an untrained operator because it could not have reasonably discovered this violation before it occurred. The second incident occurred when the physicist responsible for the treatment was called away and left an untrained dosimetrist alone at the HDR treatment control console. The Licensee contends the