



Community blood center of greater kansas city
(NONPROFIT)

September 10, 1982

D. G. Wiedeman, Chief
Materials Radiation Protection
N.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Wiedeman:

This letter is in response to the "Notice of Violation" received by us recently. In this notice, two items were addressed. Our response to these items is below.

Item #1: an evaluation has been performed to determine what activity levels can be disposed into the sanitary sewer systems. The evaluation was based on the average daily/monthly sewage exhausts from our facility and the values listed in appendix B, table 1, column 2, of 10CFR part 20. This evaluation is found on the attached pages. Full compliance was achieved on September 3, 1982.

Item #2: We have modified our I-125 solid waste disposal form to include a background radiation level (mR/Hr) and the solid waste radiation level (mR/Hr). No material is disposed of unless it reads background. Full compliance was achieved on August 25, 1982.

If you have any questions concerning this response, please do not hesitate to contact us.

Sincerely,

William L. Bayer, M.D.
Director

WLB/jc
enclosure

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NMS LIC30
24-18780-C1

PDR

SEP 16 1982

EVALUATION OF POSSIBLE DISPOSAL ACTIVITIES INTO SANITARY
SEWER SYSTEM AT THE COMMUNITY BLOOD CENTER, 4040 MAIN, K. C. MO.

- A. ANNUAL VOLUME OF SEWAGE: 2.34×10^5 ft.³/year or
 6.41×10^2 ft.³/day or
 1.95×10^4 ft.³/month

$$1. \quad 6.41 \times 10^2 \frac{\text{ft}^3}{\text{day}} \quad \times \quad 28.32 \frac{1}{\text{ft}^3} \quad \times \quad 1000 \frac{\text{ml}}{1} = 1.815 \times 10^7 \frac{\text{ml}}{\text{day}}$$

$$2. \quad 1.95 \times 10^4 \frac{\text{ft}^3}{\text{month}} \quad \times \quad 28.32 \frac{1}{\text{ft}^3} \quad \times \quad 1000 \frac{\text{ml}}{1} = 5.52 \times 10^8 \frac{\text{ml}}{\text{month}}$$

B. MAXIMUM DAILY RELEASE (uCi)

$$1. \quad \text{H-3: } 1.815 \times 10^7 \frac{\text{ml}}{\text{day}} \times 1 \times 10^{-1} \frac{\text{uCi}}{\text{ml}} = 1.815 \times 10^6 \frac{\text{uCi}}{\text{day}}$$

$$2. \quad \text{C-14: } 1.815 \times 10^7 \frac{\text{ml}}{\text{day}} \times 2 \times 10^{-2} \frac{\text{uCi}}{\text{ml}} = 3.6 \times 10^5 \frac{\text{uCi}}{\text{day}}$$

$$3. \quad \text{S-35: } 1.815 \times 10^7 \frac{\text{ml}}{\text{day}} \times 2 \times 10^{-3} \frac{\text{uCi}}{\text{ml}} = 3.6 \times 10^4 \frac{\text{uCi}}{\text{day}}$$

$$4. \quad \text{I-125: } 1.815 \times 10^7 \frac{\text{ml}}{\text{day}} \times 4 \times 10^{-5} \frac{\text{uCi}}{\text{ml}} = 7.26 \times 10^2 \frac{\text{uCi}}{\text{day}}$$

* Maximum combined isotope release cannot exceed 10^6 uCi/year.

C. MAXIMUM MONTHLY RELEASE (uCi)

$$1. \quad \text{H-3: } 5.52 \times 10^8 \frac{\text{ml}}{\text{month}} \times 1 \times 10^{-1} \frac{\text{uCi}}{\text{ml}} = 5.52 \times 10^7 \frac{\text{uCi}}{\text{month}}$$

$$2. \quad \text{C-14: } 5.52 \times 10^8 \frac{\text{ml}}{\text{month}} \times 2 \times 10^{-2} \frac{\text{uCi}}{\text{ml}} = 1.1 \times 10^7 \frac{\text{uCi}}{\text{month}}$$

$$3. \quad \text{S-35: } 5.52 \times 10^8 \frac{\text{ml}}{\text{month}} \times 2 \times 10^{-3} \frac{\text{uCi}}{\text{ml}} = 1.1 \times 10^6 \frac{\text{uCi}}{\text{month}}$$

$$4. \quad \text{I-125: } 5.52 \times 10^8 \frac{\text{ml}}{\text{month}} \times 4 \times 10^{-5} \frac{\text{uCi}}{\text{ml}} = 2.21 \times 10^4 \frac{\text{uCi}}{\text{month}}$$

* Maximum combined isotope release cannot exceed 10^6 uCi/year.

D. Appendix B, Table 1, Column 2

ISOTOPE	MPC (uCi/ml)
H-3	1×10^{-1}
C-14	2×10^{-2}
S-35	2×10^{-3}
I-125	4×10^{-5}

E. 10 x Appendix C

ISOTOPE	VALUE (uCi)
H-3	10 mCi
C-14	1 mCi
S-35	1 mCi
I-125	10 uCi

F. Average daily release of ^{125}I in sewage during 1981

$$\text{Total } ^{125}\text{I ordered during 1981} = 10.75 \text{ mCi}^{\ddagger}$$

$$\frac{10,750 \text{ uCi } ^{125}\text{I}}{260 \text{ working days}} = 41.3 \text{ uCi/working day}$$

$$\text{Daily volume of sewage} = 1.815 \times 10^7 \text{ ml}$$

$$41.3 \text{ uCi/working day} \div 1.815 \times 10^7 \text{ ml/day} = 2.3 \times 10^{-6} \text{ uCi/ml}$$

G. Average daily release of ^{35}S in sewage during 1981

$$\text{Total } ^{35}\text{S ordered during 1981} = 3 \text{ mCi}^{\ddagger}$$

$$\frac{3,000 \text{ uCi } ^{35}\text{S}}{260 \text{ working days}} = 11.5 \text{ uCi/working day}$$

$$11.5 \text{ uCi/working day} \div 1.815 \times 10^7 \text{ ml/day} = 6 \times 10^{-7} \text{ uCi/ml}$$

[‡] Greater than 95% of the ordered activity is disposed of via sewage.