



United States
Department of
Agriculture

Agricultural
Research
Service

Radiological
Safety
Staff

Beltsville, Maryland
20705

June 11, 1985

U.S. Nuclear Regulatory Commission
ATTN: Dr. John Glenn, Chief
Nuclear Materials Section B
Nuclear Materials and Safeguards Branch
Region 1
631 Park Avenue
King of Prussia, PA 19406

MS 16
PI

Gentlemen:

This letter is in response to a telephone request from Dr. John Glenn on May 21, 1984 for additional information on USDA's application to dispose of radioactive waste by incineration.

The additional information requested was:

- o How the facility Radiation Protection Officer (RPO) will identify the radioisotopes being incinerated
- o How the minimum time for a burn will be determined
- o How the RPO will insure the effluent limits are not exceeded
- o What records will be retained
- o How the RPO will insure that a user has not disposed of a gamma emitter with their waste that USDA has proposed to exempt as radioactive waste after incineration.

We propose to continue to have each investigator attach to their waste packages or place with the waste packages a document that lists the radioisotopes and the quantity of each radioisotope in the packages. Knowing what will be loaded into the incinerator and the air flow (AF) of the incinerator, a burn time will be calculated to insure that the burn will comply with the effluent limits stated in our letter dated May 1, 1985. Namely, the time of a burn will not be less than the time calculated using the following formula:

$$\frac{C_a}{MPC_a \times AF} + \frac{C_b}{MPC_b \times AF} + \frac{C_c}{MPC_c \times AF}$$

For example, if the waste consisted of 0.1 mCi of C-14, 1.0 mCi of H-3, and 0.1 uCi of I-125 and the air flow rate of the incinerator was 1.0×10^9 ml/hr the burn time would be not less than 7.25 hours.

1985 JUN 14 PM 2:38

RECEIVED-REGION 1

17481

"OFFICIAL RECORD COPY"

8507190315 850620
REG1 LIC30
19-00915-03 PDR

ML10

JUN 14 1985

Dr. John Glenn

2

$$\begin{aligned} \text{Time of Burn} &= \frac{100 \text{ (C-14)}}{1 \times 10^{-7} \times 10^9} + \frac{1,000 \text{ (H-3)}}{2 \times 10^{-7} \times 10^9} + \frac{0.1 \text{ (I-125)}}{8 \times 10^{-11} \times 10^9} \\ &= 7.25 \text{ hr} \end{aligned}$$

Normally the amount of material to be burned will be restricted so the time of a burn will not exceed 7 hours.

The RPO will maintain a log of incinerations that will show for each burn:

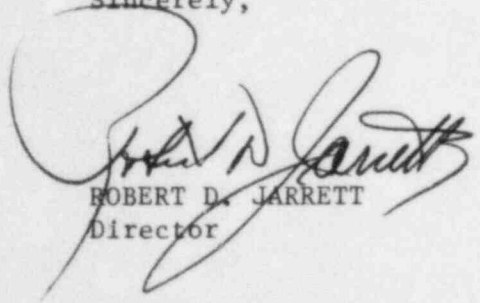
- o Date of the burn
- o The radioisotopes incinerated
- o The quantity of each radioisotope in the burn
- o Clock time at start of burn
- o Clock time at end of burn
- o Total time of the burn
- o Air flow rate of the incinerator
- o Percent of the effluent MPC for each radionuclide in the burn

A copy of this log will be sent to the RSS quarterly. These records will be retained by the RPO and the RSS for 5 years from the date of the burn or until the records are reviewed by an NRC inspector at which time the records will be destroyed.

To document that the ash from the C-14, H-3, I-125, and/or I-131 does not contain a gamma emitter, it will be checked with a G-M survey meter before disposal, as requested.

This we believe answers the questions raised, if additional information is needed it will be supplied upon request.

Sincerely,



ROBERT D. JARRETT
Director

DATE

5/22/85

TELEPHONE OR VERBAL CONVERSATION RECORD

TIME

☐ A.M.
☐ P.M.

☐ INCOMING CALL

☒ OUTGOING CALL

☐ VISIT

PERSON CALLING

John Glenn

OFFICE/ADDRESS

Region I

PHONE NUMBER

EXTENSION

PERSON CALLED

Bob Jarrett

OFFICE/ADDRESS

USDA

PHONE NUMBER

EXTENSION

8-344-3054

CONVERSATION

SUBJECT

Request for Incineration

SUMMARY

Askeel Mr. Jarrett to submit the following information regarding evaluations (surveys):

1. Prior to incineration

a. Person responsible

b. Identity, isotope & activity ^{OK}

c. Calculate concentration based on total activity and expected length of burn. ^{OK}

2. After incineration

a. Method of recording, ^{OK} adding, ^{OK} averaging ^{Each burn meets} over year

b. Evaluation of any liquid effluents ^{Not important}

c. Surveys of ash ^{OK}

Mr. Jarrett will respond with a letter addressing those questions.

REFERRED TO:

ACTION REQUESTED

☐ ADVISE ME OF ACTION TAKEN.

"OFFICIAL RECORD COPY"

INITIALS

DATE

ACTION TAKEN

ML10

INITIALS

DATE