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May 14, 2009

Ms. Elizabeth Ullrich
U.S. Nuclear Regulatory Commission
Region I, Nuclear Materials Section B
475 Allendale Road
King of Prussia, PA 19406-1415

03014680

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REGION I
2009 MAY 15 AM 10:51

Subject: Request to Amend NRC License Number 29-00117-06 to Address a Specific Radionuclidic Impurity

Dear Ms. Ullrich:

Merck & Co., Inc requests authorization to dispose decayed radioactive wastes that previously contained a contaminant, Cs-134, which has a half life greater than 120 days.

Background to this Request. Merck Research Laboratories purchases Rubidium-86 from Perkin Elmer. Rubidium-86 has a half-life of 18.7 days, however it can contain trace quantities of a radionuclidic impurity, Cesium-134 which has a half-life of 2.1 years. According to the manufacturer, only trace amounts (<0.25%*) of Cesium-134 are present in the waste. Operationally we have observed that the wastes "cannot be distinguished from background" after approximately 5 to 10 years. Our detection equipment, consisting of two Bicron landfill monitors, is very sensitive and may be superior to other licensees equipment that could miss the Cesium-134 entirely.

Since this waste stream contains an impurity with a half-life exceeding 120 days, we cannot dispose the material using decay-in-storage techniques based on Condition 24 of our NRC License. We therefore request a specific license condition that allows the disposal of this unique waste stream following the other requirements of Condition 24.

Thank you for your consideration of this matter. If you have any questions related to this request please contact our Radiation Safety Officer, Vincent Williams at 732-594-1434 or vincent_williams@merck.com.

Sincerely,


Gregory R. Reinhard, DVM

Cc: Mr. John J. Miller WP44-204
Mr. Vincent P. Williams RY80HP

File: NRC Correspondence

*- see attached Perkin Elmer Technical Data/Certificate of Analysis Sheet for more information.

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PerkinElmer Life and Analytical Sciences
549 Albany Street, Boston, MA 02118

Technical Data Certificate of Analysis

Caution: For Laboratory Use. A research chemical for research purposes only.

Rubidium-86 as ⁸⁶RbCl

NEZ072
08M27K6

Values given are all as of Stock Date. Calibration Date is 7 days from Ship Date.
(Use decay chart on back page to decay values to Calibration date)

Stock Date	13-Mar-2009
Solvent	Water
Concentration	164.54 mCi/mL 6087.95 MBq/mL
Specific Activity (as Rb)	14.80 mCi/mg 547.60 MBq/mg
Radionuclidic Purity	99.0 %
Contaminants	< 0.25% Cs-134

Store this product at room temperature.

Physical Data

Decay Mode	Beta Decay
Half Life	18.66 Days
Maximum beta energy	1.774 (91%) & 0.698 (9%) MeV
Maximum beta range in air	6.4 m (21 ft.)
Principal Photon Gamma	1.077 Mev (8.8%)

Occupational Limits (based on most restrictive intake category: 10 CFR 20 U.S.NRC Regulations)

Derived Air Concentration (DAC)	3×10^{-7} μ Ci/mL
Annual Limit on Intake (ALI)	5×10^2 μ Ci

Warning: This product contains a chemical known to the state of California to cause cancer.

This document contains general information designed to provide a basic understanding of radiation safety. While we believe the information to be accurate, regulatory requirements may change and information contained herein is not tailored to individual needs. A radiation protection specialist should be consulted for specific applications.

This is to acknowledge the receipt of your letter/application dated

5/14/2009, and to inform you that the initial processing which includes an administrative review has been performed.

☒ AMEND. 29-00117-06
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned Mail Control Number 143734.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader