  
Official

FEB 13 1991

The Applied Radiant Energy Corporation  
ATTN: James J. J. Myron, Ph.D.  
Vice-President of Safety and  
Regulatory Compliance  
P. O. Box 289  
Forest, VA 24551-0289

Gentlemen:

This is in reference to: (1) your January 21, 1988, application to renew License No. 45-11496-01, which includes, among other things, a request to continue using Waste Encapsulation and Storage Facility (WESF) sources that contain cesium-137; (2) the Nuclear Regulatory Commission's (NRC's) conclusion on the acceptability of continued, long-term use of WESF sources; and (3) the September 25, 1990, meeting between you and other representatives of Applied Radiant Energy Corporation (ARECO) and Glen Sjoblom, William Cline, and Patricia Vacca of the NRC staff.

Other significant developments since the September 25 meeting include: the Department of Energy's (DOE's) November 27, 1990, letter to you and other commercial users offering to pay for the return of WESF sources to DOE; the release of "Interim Report of the DOE Type B Investigation Group - Cesium-137: A Systems Evaluation, Encapsulation to Release at Radiation Sterilizers, Inc., Decatur, Georgia" (Interim Report); and the NRC staff's understanding that Westinghouse Hanford Corporation, a DOE contractor, expects to have personnel and equipment available by about March 1991 to begin removing WESF sources from the remaining commercial facilities (i.e., yours and Iotech's in Colorado).

During the September 25, 1990, meeting, NRC representatives explained NRC's concerns about long-term use of WESF sources in commercial irradiator facilities. NRC was concerned then, and based on developments after the meeting, remains concerned about numerous uncertainties related to the manufacture, quality assurance, and quality control of WESF sources; the continued delays in the Department of Energy's (DOE's) determination of cause of failure of a WESF source at the Radiation Sterilizers, Inc. (RSI) facility in Decatur, Georgia; and the apparent difficulties in extrapolating information about a single WESF source (e.g., cause of failure) to all WESF sources. Thus, NRC lacks confidence that all WESF sources will retain their integrity during long-term use in commercial facilities.

Accordingly, in the September 25 meeting, NRC representatives informed you of our conclusion that it is a prudent safety measure to have all WESF sources returned to DOE well before the end of the lease, in an expeditious but orderly manner. Developments since the September 25 meeting support our conclusion. We believe that this action is prudent, even though we recognize that your WESF sources are in a relatively benign environment, where the risk

Enclosure 1

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James J. J. Myron, Ph.D.

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of source failure is less than at RSI. The staff also indicated to you in the September 25 meeting that it would recommend that the Agreement State of Colorado take similar action with regard to Iotech, the other commercial irradiator that is located in Colorado and is still using WESF sources.

The return of the WESF sources need not occur immediately, in light of practical considerations (e.g., cask availability); preliminary results of DOE's cause of failure analyses that, to date, do not suggest immediate concerns about your sources or those at the other licensed commercial facility (i.e., Iotech in Colorado); the February 1990 results of visual examination and "clunk" testing of your sources; and your commitments and capabilities for early detection and isolation of a failed source. The NRC representatives suggested that all WESF sources be returned to DOE by December 31, 1991, a date which should allow completion of the RSI shipping campaign and orderly withdrawal of WESF sources from both your facility and Iotech.

Meanwhile, however, because of the aforementioned concerns, we believe that it is also prudent to enhance surveillance of the sources, to detect source degradation before leakage, and to reconfirm your commitments and capabilities for early detection and isolation of a failed source, should one occur.

In light of NRC's conclusion on this matter, we request the following information from you. Please submit:

1. A schedule for return of all WESF sources to DOE as soon as is practicable, but not later than December 31, 1991. If you propose a date later than December 31, 1991, explain your rationale, and justify your request.
2. A description of your program for ongoing, periodic testing of all WESF sources at your facility by an independent organization. As a minimum, your program description should specify:
  - ° the testing procedure (e.g., gauging tests, "clunk" tests, or gamma scans using portable equipment designed by Westinghouse Hanford Corporation [WHC] would be acceptable; other test procedures would be considered on a case-by-case basis) and who will conduct the testing. It would be desirable for the tests to be conducted by WHC, because its staff has the necessary skills and experience. If you or another organization plan to conduct the tests, it will also be necessary to submit the details of the proposed test procedures.
  - ° frequency of testing (e.g., at intervals not to exceed 12 months) and when the first test will be performed; if tests are to be conducted in conjunction with preparation for shipment by December 31, 1991, they do not need to be conducted separately;

- ° actions to be taken if tests results indicate changes have occurred in the sources (e.g., sources are swollen or leaking; sources do not "clunk").
3. A description of your program for ongoing radiation and contamination monitoring which should include, as a minimum:
- ° continuous monitoring of the irradiator pool demineralizer for cesium-137 buildup;
  - ° daily checks of the pool radioactivity monitoring system to ensure that: (a) it will alarm when radiation levels exceed twice ambient background levels and (b) the alarm sounds at the operations console or point from which irradiator operations are being controlled;
  - ° collection of irradiator pool water samples at least weekly for radioactivity and water quality analyses and return of results of analyses within 24 hours of collection;
  - ° daily removable radioactive contamination surveys (i.e., wipe tests) of sample containers and materials or equipment removed from the pool;
  - ° monitoring of hands, shoes, and work clothing of personnel before their leaving the work area;
  - ° specific contamination limits for material, equipment, and personnel which would be an indication that the WESF capsules were leaking;
  - ° emergency procedures which would require that, upon detection of contamination above established limits, ARECO would immediately: (a) discontinue irradiation operations; (b) secure any system through which radioactive effluents may be released from the facility; (c) establish contamination control points; (d) ensure that personnel leaving controlled areas are free of radioactive contamination; (e) discontinue release of products until they are monitored and determined to be free of contamination and until NRC authorizes their release; and (f) notify the NRC Operations Center (301-951-0550);
  - ° maintenance of procedures and equipment for recovery of a leaking capsule.

We would like to incorporate the above-requested information into your license. This could be accomplished most easily if your response to this letter is in the form of an addendum to your renewal application. No fee need accompany your response to this letter, because we would consider any licensing action we take to be either an interim step toward renewing your license or final action on your renewal request.

Mr. James J. J. Myron, Ph.D.

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FEB 13 1991

Please submit the information requested above within 45 days from the date of this letter to: Regional Administrator, U. S. Nuclear Regulatory Commission, Region II, 101 Marietta Street, Suite 2900, Atlanta, Georgia 30323.

Please note that, depending on your circumstances, other licensing actions may be needed before you can convert your irradiation operations to the use of cobalt-60. Please review your license carefully and submit requests for any other needed licensing actions as soon as possible, to ensure timely authorization for the transition to the use of cobalt-60 in your operations.

We appreciate the opportunity to meet with you, to tour your facility, and to discuss our concerns. If you have any questions about this letter or would like to arrange a meeting with the NRC staff, please contact William E. Cline on (404) 331-0346.

Sincerely,

*J. Milhoan*

*for*

Stewart D. Ebnetter  
Regional Administrator

bcc: MBridgers, EDO  
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RBernero, NMSS  
GARlotto, NMSS  
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\* SEE OTHER PAGE FOR PREVIOUS CONCURRENCES



FEB 13 1991

Mr. Robert Quillin, Director  
Radiation Control Division  
Department of Health  
4210 East 11th Avenue  
Denver, CO 80220

Dear Mr. Quillin:

I am writing to inform you that the Nuclear Regulation Commission (NRC) has concluded that long-term use of Waste Encapsulation and Storage Facility (WESF) sources that contain cesium-137 is unacceptable in commercial facilities licensed by NRC.

As indicated in the enclosed letter to Applied Radiant Energy Corporation (ARECO), we have reached this conclusion because of our lack of confidence in the long-term integrity of these sources. Our lack of confidence stems from our concerns about: (1) the uncertainties related to the manufacture, quality control, and quality assurance of the WESF sources; (2) the continued delays associated with completion of the Department of Energy's (DOE's) investigation into the cause of failure; and (3) the apparent difficulties in extrapolating information about a single source (e.g., cause of failure) to all WESF sources. Similar concerns are also expressed in the recently-released "Interim Report of the DOE Type B Investigation Group - Cesium-137: A Systems Evaluation, Encapsulation to Release at Radiation Sterilizers, Inc., Decatur, Georgia."

The NRC staff has requested that the WESF sources be returned to DOE by December 31, 1991. (We note that in Enclosure 2 DOE offered to pay for the return of WESF sources to DOE.) We recommend that Colorado inform the licensee, Iotech, that it is a prudent safety measure to have all WESF sources returned to DOE in an expeditious, but orderly, manner. As noted in Enclosure 1, the timing of the return will be subject to practical considerations (e.g., cask availability). NRC staff will be glad to work with Colorado to coordinate a plan for the timely return of the WESF sources from Iotech to DOE including, as appropriate, interim measures to enhance surveillance of the sources until they are removed from the facility, and to identify and isolate a leaking source, should one occur.

We would appreciate receiving (1) confirmation that Iotech has accepted DOE's offer and (2) a schedule for removal of WESF sources from Iotech.

Sincerely,

Original signed by Carlton Kammerer

Carlton Kammerer, Director  
State Programs  
Office of Governmental and Public Affairs

Enclosures:

1. NRC Ltr to ARECO
2. DOE Ltr 11/27/90

Enclosure 2

\*See previous concurrence.

FC	:SP:SA	:SP:SA:AD	:NMSS	:SP:AD	:	:	:
ME	:JLubenau:kk	:VMiller	:RBernero	:CKammerer	:	:	:
TE	:2/14/91	:2/14/91	:2/14/91				



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

FEB 14 1991

The Honorable William H. Young  
Assistant Secretary for Nuclear Energy  
Department of Energy  
Washington, DC 20585

Dear Mr. Young:

I am writing to inform the Department of Energy (DOE) that we have concluded that long-term use of Waste Encapsulation and Storage Facility (WESF) sources that contain cesium-137 is unacceptable in commercial facilities licensed by the Nuclear Regulatory Commission (NRC).

As indicated in the enclosed letter to Applied Radiant Energy Corporation (ARECO), the only NRC-licensed facility still using WESF sources, we have reached this conclusion because of our lack of confidence in the long-term integrity of these sources. Our lack of confidence stems from our concerns about: (1) the uncertainties related to the manufacture, quality control and quality assurance of the WESF sources; (2) the continued delays associated with completion of DOE's investigation into cause of failure; and (3) the apparent difficulties in extrapolating information about a single source (e.g., cause of failure) to all WESF sources. Similar concerns are also expressed in the recently-released "Interim Report of the DOE Type B Investigation Group - Cesium-137: A Systems Evaluation, Encapsulation to Release at Radiation Sterilizers, Inc., Decatur, Georgia."

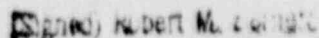
Note that, in Enclosure 1, we have requested that the WESF sources be returned to DOE by December 31, 1991. In Enclosure 2, we have notified the Agreement State of Colorado of this decision and recommended that the State follow a similar course of action with respect to its licensee, Iotech, the other commercial facility still using WESF sources.

We would appreciate the cooperation of DOE and its contractors in making arrangements with these commercial facilities for orderly return of WESF sources. We understand that, by letters dated November 27, 1990, addressed to three commercial irradiator firms, DOE offered to pay for the return of WESF sources to DOE. We also understand that Westinghouse Hanford Corporation, the DOE contractor responsible for testing and shipping WESF sources, expects to complete removal of WESF sources stored at the Radiation Sterilizers, Inc. facilities and have personnel and equipment available to perform similar work at ARECO and Iotech by about March 1991.

Enclosure 3

If DOE staff or contractors would like to discuss schedules, shipping priorities, or other issues related to return of WESF sources to DOE, please have them contact Patricia Vacca of my staff at (FTS) 492-0615.

Sincerely,

 Robert M. Bernero

Robert M. Bernero, Director  
Office of Nuclear Material Safety  
and Safeguards

Enclosures:

1. NRC ltr to ARECO dtd 2/13/91
2. NRC ltr to Colorado dtd 2/13/91

NOTE: A draft of this letter was an enclosure to SECY-90-382 and has been revised in accordance with the guidance in the Staff Requirements Memorandum dated January 24, 1991.

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# STATE OF COLORADO Co 7

## COLORADO DEPARTMENT OF HEALTH

4210 East 11th Avenue  
Denver, Colorado 80220-3716  
Phone (303) 320-8333

Teletax:  
(303) 322-9076 (Main Building/Denver)  
(303) 320-1529 (Plattman Place/Denver)  
(303) 248-7198 (Grand Junction Regional Office)



Roy Rome  
Governor

Thomas M. Vernon, M.D.  
Executive Director

February 22, 1991

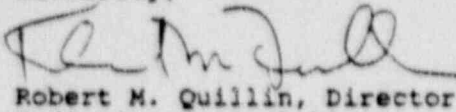
Mr. Carlton Kammerer  
U.S. Nuclear Regulatory Commission  
State Programs  
Office of Governmental  
and Public Affairs  
Washington, DC 20555

Dear Mr. Kammerer:

This letter is in response to your letter of February 13, 1991 regarding the WESF sources currently located at Colorado's licensee, IOTECH. In that letter you requested (1) confirmation that IOTECH has accepted DOE's offer and (2) a schedule for removal of WESF sources from IOTECH.

Enclosed is a copy of IOTECH's response to the above requests.

Sincerely,

  
Robert M. Quillin, Director  
Radiation Control Division

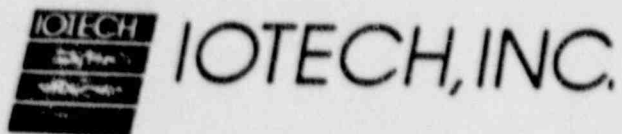
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Enclosure as stated

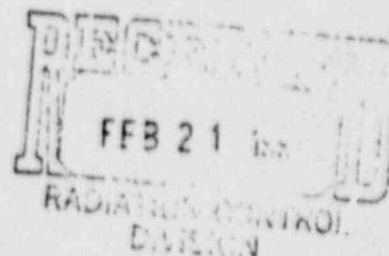
Enclosure 4

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J.M. QUILLIN





February 18, 1991



Mr. Robert M. Quillin, Director  
Radiation Control Division  
Colorado Department of Health  
4210 East 11th Avenue  
Denver, Colorado 80220

Dear Mr. Quillin:

This will respond to your letter of February 14, 1991 regarding the Nuclear Regulatory Commission's (NRC) recent decision on the continued use of the Department of Energy's (DOE) Cesium-137 containing WESF capsules. Your letter requested information regarding DOE's removal of these capsules from IOTECH's Northglenn irradiation facility.

As you know, during 1990 IOTECH made several requests of DOE officials that DOE should recall its WESF capsules leased to IOTECH. Therefore, we were pleased with DOE's letter of November 27, 1990, which requested permission to remove these capsules from IOTECH's facility at DOE's cost. The attached is copy of our response of November 30, 1990, which provides permission for DOE to remove its WESF capsules. We now look forward to the expeditious return of the WESF capsules to DOE's custody.

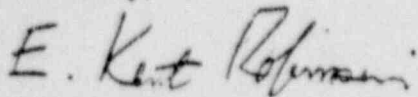
As you are aware, IOTECH staff will meet with DOE and Westinghouse staff on March 1, 1991, to be informed of the arrangements for the removal of the WESF capsules from IOTECH. We have tried diligently, since November 27, 1990, to obtain DOE's schedule for this removal, but, as yet, have received none. Unofficially, we are told that the removal may begin by May 1, 1991 and may require a total time period of more than 12 months (27 capsules/month). If this is indeed the schedule of DOE's contractor, then all capsules in our possession will not be removed before the December 31, 1991 date requested by NRC. Since the removal process is under DOE's (not IOTECH's) control, I believe that the State of Colorado and NRC must look to DOE regarding questions or concerns about the

Mr. Robert M. Quillin  
February 18, 1991  
Page 2

schedule and process of the WESF capsule removal. However, you may be assured of IOTECH's intent to fully cooperate with DOE's capsule removal contractor to expedite the process.

Please contact me if you require further information.

Sincerely,

A handwritten signature in cursive script that reads "E. Kent Robinson". The signature is written in dark ink and is positioned above the printed name.

E. Kent Robinson, President



November 30, 1990

Mr. Donald E. Erb, Director  
Office of Isotope Production & Distribution  
U.S. Department of Energy  
Washington, DC 20585

Dear Mr. Erb:

Thank you for your letter of November 27, 1990, which confirmed your earlier telephone communication notifying me of the Department of Energy's (DOE's) decision to "take back, at DOE cost, the Waste Encapsulation and Storage Facility cesium capsules remaining in commercial use under lease." Removal of your capsules will mean assurance of public safety and eliminating the risk of a possible costly cleanup as occurred at the Decatur facility. I am pleased with DOE's responsible action in the recall of these capsules.

There having been no other response, I conclude the DOE's decision to remove the cesium capsules from IOTECH's facility is an acceptance in part of my January 23, 1990, "conceptual proposal" to DOE Oak Ridge Operations seeking "the return of IOTECH's capsules to DOE custody and a fair and reasonable compensation for our loss." As you are aware, the absence of a timely Federal response to that proposal necessitated the filing of IOTECH's July 25, 1990, claim under the Federal Tort Claims Act in accordance with applicable procedural requirements. This claim addressed both DOE's removal of IOTECH's capsules as well as damages to IOTECH's business consequent to the 1988 failure of DOE's cesium capsules at the RSI irradiation facility in Decatur, Georgia. Therefore, now that DOE's decision to remove IOTECH's cesium capsules has been made, we look forward to meeting with DOE for an early resolution of the remaining issues of IOTECH's claim for damages.

I also assume DOE has or will notify the NRC of the decision to remove the capsules. DOE's decision will make moot the IOTECH application for re-licensing. This application has been held in abeyance by NRC and the State of Colorado since January 1, 1990, awaiting confirmation from DOE that the capsules are safe for continued use.

Mr. Donald E. Erb, Director

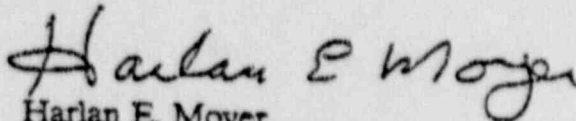
Page 2

November 30, 1990

As I am sure you are aware, we also urgently need to know the schedule DOE intends to follow in its removal of the DOE capsules at IOTECH. We must expeditiously inform IOTECH's customers of DOE's decision and the resulting date when the removal of the capsules by DOE (contractors) will necessitate the closure of IOTECH's operations. These customers will need as much notice as possible to secure irradiation services elsewhere so they may minimize business interruption. I look forward to your earliest response to this issue.

Sincerely,

CH2M HILL COMPANIES, LTD.



Harlan E. Moyer  
President and CEO

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